

**Deterministic and Probabilistic
Seismic Hazard Analysis
for
Tailings Storage Facilities Tharisa Mine,
North West Province, South Africa
(APPENDICES)**

Rev: 20 May 2023 (1.00)

Submitted to

**Epoch Resources (Pty) Ltd
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Source: <https://www.engineeringnews.co.za/article/chrome-ore-supply-deficit-ahead-tharisa-2018-01-30>

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Business Registration Number: 2007/253810/23

Appendix A

Seismic Event Catalogue.
Seismic Events located within
a radius of 500 km from the investigated site of TSF TM

year	month	day	lat	long	magnitude (Mw)
1862	6	23	-29.1000	26.1000	3.70
1870	8	3	-28.3000	29.1000	5.00
1883	9	26	-29.8000	27.4000	3.00
1884	2	19	-28.7000	24.7000	3.00
1891	3	17	-26.5000	32.0000	4.00
1903	8	3	-29.4000	25.0000	4.30
1905	2	20	-26.0000	32.6000	4.30
1905	5	5	-24.9000	28.3000	3.70
1905	8	19	-29.1000	25.5000	3.00
1905	11	15	-27.5000	31.5000	3.70
1906	5	20	-24.9000	28.3000	3.70
1906	6	2	-24.9000	28.3000	3.00
1906	8	27	-26.6000	30.6000	3.70
1906	12	10	-26.9000	31.3000	4.30
1907	3	3	-24.0000	28.3000	4.30
1907	6	6	-24.9000	28.3000	3.70
1907	6	15	-24.9000	28.3000	3.00
1907	8	5	-26.3000	31.3000	3.00
1907	9	6	-22.2000	29.1000	3.70
1908	2	20	-23.8000	30.1000	3.70
1908	6	13	-27.7000	30.7000	3.00
1908	6	25	-24.8000	27.7000	3.70
1908	8	18	-29.0000	26.0000	4.00
1908	9	15	-24.8000	27.7000	3.00
1908	9	24	-24.0000	30.5000	4.00
1908	9	26	-29.0000	26.0000	5.00
1908	9	29	-26.1000	30.1000	3.00
1908	10	20	-26.8000	30.9000	3.00
1908	11	5	-26.1000	30.1000	3.00
1908	12	25	-26.0000	28.0000	3.70
1908	12	26	-26.1000	27.7000	3.70
1909	5	7	-24.8000	27.7000	3.00
1909	5	8	-24.8000	27.7000	3.00
1909	5	14	-24.8000	27.7000	3.00
1909	8	5	-22.2000	29.0000	5.00
1909	8	17	-24.0000	30.5000	3.70
1909	10	14	-24.8000	27.7000	3.70
1910	5	15	-26.0000	32.0000	3.70

1910	5	19	-24.9000	28.3000	3.00
1910	8	15	-26.5000	32.0000	3.00
1911	8	6	-27.0000	31.3000	3.00
1911	10	24	-24.8000	27.7000	3.70
1912	2	20	-29.5000	25.0000	6.20
1912	3	20	-24.9000	30.5000	4.30
1912	3	20	-24.9000	30.5000	4.30
1912	4	19	-29.7000	25.1000	3.70
1912	8	8	-24.8000	27.7000	3.00
1912	11	16	-29.7000	25.1000	4.00
1913	5	5	-25.7000	28.2000	4.00
1913	6	13	-24.0000	30.3000	3.70
1913	9	24	-24.8000	27.7000	3.00
1914	5	19	-29.2000	24.6000	3.70
1914	8	21	-23.6000	30.2000	3.00
1915	7	10	-27.9000	31.4000	4.00
1915	11	9	-26.3000	30.2000	3.70
1916	7	21	-27.7000	29.9000	3.70
1916	7	27	-25.7000	31.3000	4.00
1916	10	31	-26.2000	30.4000	4.30
1917	2	9	-26.5000	30.0000	3.70
1917	4	25	-28.0000	31.0000	3.70
1917	9	3	-29.7000	25.4000	3.00
1917	9	9	-28.0000	31.0000	3.70
1917	9	20	-28.0000	31.0000	3.00
1917	10	12	-24.9000	30.7000	3.70
1917	11	29	-25.3000	31.0000	3.70
1917	12	17	-24.0000	30.3000	3.70
1918	3	9	-23.7000	30.2000	3.70
1918	7	21	-24.8000	27.7000	3.00
1919	4	28	-26.0000	32.0000	3.70
1919	5	14	-28.0000	31.0000	3.00
1919	5	15	-28.0000	31.0000	3.70
1919	5	29	-24.8000	27.7000	3.00
1919	8	23	-25.9000	32.0000	3.00
1919	10	31	-27.0000	31.5000	6.30
1919	11	7	-28.0000	31.0000	3.70
1919	12	5	-24.8000	27.7000	3.00
1919	12	6	-23.9000	30.1000	3.00
1920	3	7	-28.0000	31.0000	3.00
1920	4	3	-28.0000	31.0000	3.70
1920	4	11	-25.9000	32.0000	3.70
1920	4	12	-28.0000	31.0000	3.00
1920	6	10	-25.9000	32.0000	3.70
1920	7	8	-26.6000	25.1000	3.70
1920	8	5	-24.8000	27.7000	3.00
1920	9	2	-25.3000	27.1000	3.70
1920	10	12	-27.5000	23.4000	3.70
1921	3	23	-29.8000	25.3000	3.00
1921	3	31	-27.0000	30.8000	3.00
1921	7	29	-24.8000	27.7000	3.00
1921	9	24	-23.7000	30.2000	3.70
1922	3	21	-28.0000	31.0000	3.70
1922	4	23	-24.8000	27.8000	3.00
1922	5	6	-24.8000	27.8000	3.70
1922	5	8	-28.0000	31.0000	3.00
1922	6	23	-26.8000	30.4000	5.00
1922	8	15	-26.8000	30.4000	5.00
1923	1	12	-29.4000	25.0000	3.00
1923	3	29	-28.0000	31.0000	4.00
1923	11	9	-26.6000	30.6000	3.70

1924	1	4	-25.5000	26.1000	3.00
1924	4	6	-24.8000	27.8000	3.00
1924	4	9	-23.9000	30.1000	4.00
1924	11	25	-24.9000	28.2000	3.70
1924	12	4	-27.5000	28.7000	3.70
1925	1	26	-24.0000	30.3000	3.00
1925	6	29	-25.9000	32.5000	4.30
1926	3	27	-27.8000	30.8000	3.70
1927	3	11	-26.3000	31.1000	3.70
1927	3	18	-27.0000	30.8000	3.00
1927	8	11	-26.6000	30.6000	3.00
1929	8	27	-26.3000	31.1000	3.00
1930	1	9	-27.3000	30.1000	4.00
1930	5	27	-23.6000	30.2000	3.70
1931	2	25	-24.9000	27.3000	3.70
1932	5	22	-26.3000	31.1000	3.00
1932	5	25	-29.3000	30.0000	3.00
1933	12	8	-23.9000	30.1000	3.70
1934	12	15	-25.3000	30.4000	3.00
1935	9	11	-27.2000	26.2000	3.00
1936	1	12	-27.0000	31.0000	5.00
1936	1	16	-29.8000	25.3000	5.00
1938	2	10	-27.8000	31.3000	4.30
1938	10	25	-28.2000	28.7000	3.70
1940	2	29	-28.6000	28.2000	4.30
1940	6	15	-23.1000	28.9000	3.70
1940	9	19	-28.6000	31.4000	3.00
1940	10	26	-29.5000	25.2000	3.00
1940	10	27	-29.5000	25.2000	3.00
1940	11	10	-24.0000	30.2000	5.00
1941	1	10	-27.4000	31.6000	3.70
1941	1	13	-27.4000	31.6000	3.70
1944	9	17	-27.6000	30.8000	4.30
1944	11	12	-29.0000	27.7000	4.30
1947	6	16	-27.2000	28.5000	3.70
1948	2	3	-29.1000	30.6000	4.30
1949	4	4	-25.6000	30.1000	3.70
1949	10	4	-24.0000	31.5000	4.00
1952	3	25	-30.0000	28.3000	3.50
1952	6	29	-27.0000	26.5000	3.20
1952	8	30	-30.0000	27.5000	3.40
1952	9	7	-29.0000	28.0000	3.80
1952	9	23	-30.0000	29.0000	3.20
1952	10	14	-29.8000	27.0000	4.40
1953	4	13	-26.0000	25.0000	3.40
1953	4	21	-24.5000	27.0000	3.30
1953	5	7	-26.0000	30.5000	3.30
1953	6	17	-30.0000	28.5000	3.90
1953	8	31	-30.0000	26.5000	3.00
1954	1	6	-30.0000	26.5000	4.20
1954	2	9	-29.5000	25.0000	3.20
1954	9	9	-26.7000	31.3000	4.20
1954	11	18	-28.2000	27.2000	4.30
1954	11	24	-26.0000	29.5000	2.70
1955	5	20	-29.3000	25.3000	5.10
1955	7	30	-26.0000	29.7000	4.70
1955	10	28	-29.5000	25.5000	4.00
1956	6	26	-30.0000	26.0000	3.50
1956	6	29	-28.3000	31.3000	3.00
1957	4	23	-30.3000	27.2000	4.70
1958	2	10	-29.3000	28.2000	3.80

1958	2	11	-29.3000	28.2000	3.80
1959	6	1	-21.3000	27.0000	4.50
1959	8	12	-26.0000	30.5000	4.00
1960	1	21	-26.8000	28.0000	4.50
1960	2	15	-26.3000	30.0000	4.00
1960	6	16	-26.0000	32.0000	3.70
1962	5	19	-24.0000	29.0000	3.50
1963	4	2	-26.0000	32.6000	3.00
1963	7	30	-26.0000	32.0000	3.70
1964	6	9	-29.0000	25.0000	5.00
1964	9	2	-24.0000	32.0000	3.20
1966	2	18	-29.5000	25.0000	4.00
1966	2	22	-29.0000	28.0000	3.80
1966	3	9	-25.3000	29.3000	3.50
1966	3	30	-27.0000	32.0000	2.60
1966	5	29	-25.8000	29.3000	3.50
1966	6	18	-29.3000	29.3000	5.00
1966	6	20	-28.3000	31.0000	4.00
1966	7	11	-25.0000	26.0000	3.00
1966	8	3	-26.4000	27.2000	3.70
1966	8	15	-22.7000	23.8000	4.10
1966	8	27	-26.4000	28.4000	3.20
1966	9	15	-24.0000	23.0000	4.30
1966	10	13	-23.3000	30.8000	3.20
1966	11	9	-26.1000	31.2000	3.10
1967	4	13	-29.7000	29.0000	4.20
1967	6	10	-26.2000	30.1000	2.60
1967	6	10	-23.6000	26.2000	4.40
1967	6	16	-30.2000	27.6000	3.60
1967	7	3	-26.2000	30.9000	2.90
1967	7	7	-23.9000	31.0000	2.70
1967	8	23	-29.7000	30.0000	3.80
1967	11	21	-23.9000	31.2000	2.90
1967	12	23	-23.9000	31.4000	2.80
1968	1	9	-29.8000	28.3000	3.30
1968	2	11	-25.8000	29.6000	2.70
1968	2	13	-29.4000	27.1000	3.10
1968	2	15	-23.0000	28.7000	2.60
1968	3	5	-24.0000	23.0000	2.90
1968	3	19	-29.9000	28.3000	3.20
1968	5	22	-22.5000	24.1000	3.00
1968	5	28	-22.5000	24.1000	2.80
1968	8	31	-29.6000	25.9000	4.40
1968	9	27	-29.0000	25.0000	3.40
1968	12	5	-29.0000	26.5000	3.30
1969	1	15	-23.9000	31.1000	2.70
1969	2	13	-25.3000	28.7000	3.10
1969	2	17	-28.0000	24.0000	3.10
1969	5	30	-24.0000	31.1000	2.50
1969	6	7	-23.6000	28.3000	3.20
1970	3	21	-28.3000	27.7000	3.30
1970	4	22	-27.9000	31.7000	3.70
1970	8	30	-26.9000	27.5000	3.70
1970	11	11	-21.5000	27.6000	2.60
1971	1	3	-26.2000	27.3000	3.40
1971	1	4	-28.1000	25.9000	3.40
1971	1	6	-26.4000	27.7000	3.40
1971	1	8	-26.1000	27.8000	3.50
1971	1	10	-26.8000	26.9000	3.00
1971	1	12	-27.0000	26.9000	3.00
1971	1	12	-25.9000	28.0000	4.00

1971	1	12	-26.3000	27.6000	2.80
1971	1	14	-26.4000	27.5000	2.90
1971	1	15	-26.1000	27.8000	2.60
1971	1	16	-25.9000	28.4000	3.10
1971	1	18	-26.3000	27.5000	3.50
1971	1	18	-26.5000	27.5000	3.00
1971	1	19	-27.0000	26.7000	3.80
1971	1	19	-26.1000	28.3000	3.40
1971	1	21	-26.2000	28.2000	3.40
1971	1	23	-26.9000	26.9000	2.90
1971	1	23	-26.3000	27.5000	3.20
1971	1	25	-26.7000	26.7000	4.00
1971	1	26	-26.4000	27.4000	3.10
1971	1	27	-26.4000	27.5000	3.30
1971	1	27	-26.3000	27.9000	3.50
1971	1	27	-27.5000	31.1000	4.34
1971	1	27	-26.0000	28.0000	4.20
1971	1	29	-25.9000	28.3000	3.10
1971	1	29	-26.4000	27.2000	3.00
1971	1	29	-26.2000	27.9000	3.60
1971	1	31	-26.5000	27.3000	3.30
1971	2	1	-26.4000	27.2000	3.80
1971	2	1	-26.0000	28.5000	3.10
1971	2	2	-26.3000	28.0000	3.00
1971	2	5	-26.7000	27.2000	3.10
1971	2	6	-26.6000	27.0000	2.90
1971	2	8	-26.4000	27.3000	3.60
1971	2	12	-26.1000	28.0000	3.20
1971	2	12	-27.1000	26.8000	3.20
1971	2	15	-26.4000	28.1000	3.50
1971	2	19	-25.9000	27.6000	4.00
1971	2	19	-26.3000	27.1000	3.20
1971	2	19	-26.4000	27.4000	3.20
1971	2	20	-26.4000	26.9000	4.00
1971	2	22	-26.6000	26.5000	3.20
1971	2	22	-26.4000	27.4000	3.20
1971	2	24	-26.4000	27.4000	2.90
1971	2	25	-26.4000	27.6000	3.40
1971	2	27	-26.1000	27.7000	3.50
1971	3	4	-26.4000	27.7000	3.20
1971	3	4	-26.6000	26.9000	3.00
1971	3	6	-25.8000	28.1000	3.10
1971	3	8	-26.5000	27.3000	3.50
1971	3	9	-26.3000	27.2000	3.70
1971	3	13	-26.3000	27.4000	3.20
1971	3	14	-26.2000	27.2000	4.20
1971	3	15	-21.6000	26.1000	4.26
1971	3	16	-26.6000	27.1000	3.20
1971	3	17	-27.8000	26.6000	3.70
1971	4	1	-26.4000	27.2000	3.00
1971	4	2	-26.3000	27.4000	3.30
1971	4	6	-27.7000	26.6000	4.10
1971	4	7	-26.4000	27.1000	3.60
1971	4	10	-26.5000	27.4000	3.40
1971	4	14	-26.6000	27.2000	3.20
1971	4	14	-26.5000	27.1000	3.00
1971	4	17	-26.5000	27.3000	3.20
1971	4	18	-26.4000	27.3000	3.50
1971	4	22	-26.4000	27.3000	3.20
1971	4	28	-26.5000	27.5000	3.00
1971	4	29	-26.4000	27.3000	3.80

1971	4	30	-26.4000	27.2000	3.10
1971	5	4	-26.9000	26.7000	3.60
1971	5	5	-26.3000	27.7000	3.50
1971	5	7	-26.3000	27.3000	3.20
1971	5	8	-26.6000	27.4000	3.00
1971	5	13	-26.3000	28.1000	3.90
1971	5	15	-26.1000	28.4000	3.50
1971	5	25	-26.2000	28.1000	3.70
1971	5	27	-26.3000	27.3000	3.20
1971	5	28	-26.4000	27.4000	3.20
1971	6	1	-25.3000	30.2000	4.26
1971	6	3	-26.4000	27.3000	3.00
1971	6	6	-26.9000	26.8000	3.50
1971	6	8	-28.1000	26.8000	3.60
1971	6	22	-26.5000	27.5000	3.20
1971	6	22	-26.5000	27.5000	3.80
1971	6	23	-26.8000	26.5000	3.20
1971	6	23	-26.3000	27.2000	3.80
1971	6	26	-26.4000	27.4000	3.10
1971	6	28	-26.1000	27.1000	3.40
1971	6	29	-26.4000	27.4000	3.90
1971	7	13	-26.2000	27.4000	3.30
1971	7	15	-26.3000	27.6000	3.10
1971	7	19	-26.4000	27.5000	3.70
1971	7	20	-27.8000	26.7000	3.70
1971	7	21	-26.2000	28.3000	3.50
1971	7	24	-26.2000	27.5000	3.40
1971	7	26	-26.3000	27.4000	3.70
1971	7	26	-26.4000	27.4000	3.50
1971	7	28	-26.2000	27.3000	3.50
1971	8	2	-27.7000	26.0000	4.80
1971	8	11	-26.3000	27.4000	3.60
1971	8	12	-26.0000	27.3000	3.50
1971	8	14	-25.1000	30.9000	3.92
1971	8	20	-26.3000	27.3000	3.80
1971	8	25	-25.2000	30.9000	3.83
1971	8	27	-26.4000	27.5000	3.10
1971	8	29	-26.4000	27.4000	3.50
1971	8	29	-25.0000	25.7000	3.75
1971	9	1	-26.7000	26.6000	3.80
1971	9	6	-26.7000	26.8000	3.40
1971	9	9	-26.3000	27.3000	3.90
1971	9	10	-26.7000	26.6000	3.70
1971	9	14	-27.1000	26.7000	3.30
1971	9	14	-26.5000	27.3000	3.20
1971	9	23	-25.8000	28.4000	3.10
1971	9	27	-26.1000	27.3000	3.90
1971	9	27	-26.6000	27.5000	3.30
1971	10	1	-26.3000	27.3000	3.80
1971	10	4	-26.5000	27.5000	3.30
1971	10	7	-26.5000	27.5000	3.50
1971	10	7	-26.5000	27.5000	3.20
1971	10	8	-26.1000	27.5000	4.00
1971	10	8	-26.0000	26.7000	3.50
1971	10	13	-26.3000	27.9000	3.50
1971	10	14	-26.4000	27.4000	3.40
1971	10	17	-26.3000	27.7000	3.50
1971	10	18	-26.9000	26.9000	3.70
1971	10	21	-26.2000	27.2000	3.60
1971	10	22	-26.1000	27.5000	4.00
1971	10	25	-26.0000	27.7000	3.60

1971	10	25	-26.2000	27.5000	3.30
1971	10	27	-26.4000	27.4000	3.40
1971	10	30	-26.2000	28.1000	3.80
1971	11	4	-26.4000	27.3000	3.50
1971	11	8	-26.2000	26.5000	3.90
1971	11	10	-26.2000	27.2000	4.30
1971	11	11	-25.9000	27.0000	3.50
1971	11	12	-26.8000	26.6000	3.80
1971	11	14	-26.3000	27.2000	3.40
1971	11	20	-26.7000	27.6000	3.40
1971	11	30	-26.9000	27.9000	3.90
1971	12	2	-26.2000	27.3000	3.90
1971	12	8	-28.0000	26.7000	3.90
1971	12	10	-25.8000	27.4000	3.40
1971	12	11	-26.5000	27.6000	3.30
1971	12	13	-26.4000	27.8000	3.40
1971	12	16	-26.1000	27.4000	4.20
1971	12	18	-26.7000	27.7000	3.20
1971	12	19	-26.5000	27.8000	3.10
1971	12	21	-26.5000	27.7000	3.40
1971	12	24	-27.0000	27.1000	3.60
1971	12	25	-26.9000	26.5000	3.50
1972	1	1	-26.4000	27.4000	3.40
1972	1	8	-26.5000	27.4000	3.50
1972	1	9	-26.4000	27.4000	3.30
1972	1	14	-24.5000	27.5000	4.80
1972	1	17	-26.1000	27.8000	4.00
1972	1	19	-26.4000	27.4000	3.20
1972	1	23	-26.3000	27.6000	3.80
1972	1	24	-26.4000	27.9000	3.60
1972	2	2	-26.1000	27.1000	3.40
1972	2	7	-27.0000	26.7000	3.80
1972	2	7	-26.4000	27.4000	3.90
1972	2	8	-26.5000	27.4000	4.10
1972	2	10	-26.5000	27.5000	3.50
1972	2	10	-26.4000	27.3000	3.70
1972	2	13	-29.3000	27.2000	3.60
1972	2	14	-26.2000	27.2000	3.70
1972	2	15	-26.2000	27.0000	3.00
1972	2	19	-26.4000	27.3000	3.40
1972	2	20	-26.2000	28.3000	3.90
1972	2	22	-26.2000	27.2000	3.50
1972	2	23	-28.1000	26.9000	3.80
1972	2	23	-28.0000	26.7000	3.80
1972	2	24	-26.4000	27.3000	3.40
1972	2	29	-26.0000	27.7000	4.00
1972	3	2	-26.5000	27.7000	3.60
1972	3	2	-26.5000	27.4000	3.90
1972	3	3	-26.2000	28.1000	3.10
1972	3	5	-26.2000	27.1000	3.30
1972	3	7	-26.4000	27.6000	3.30
1972	3	8	-26.2000	28.2000	3.40
1972	3	8	-26.2000	27.1000	3.10
1972	3	8	-26.5000	27.5000	3.40
1972	3	9	-26.2000	27.3000	3.90
1972	3	11	-26.3000	27.3000	3.70
1972	3	13	-26.2000	27.2000	2.90
1972	3	17	-27.0000	26.9000	4.20
1972	3	18	-26.1000	27.2000	2.80
1972	3	22	-26.5000	27.4000	3.50
1972	3	23	-26.1000	27.1000	4.00

1972	3	23	-26.2000	28.1000	3.60
1972	3	24	-26.1000	27.1000	3.30
1972	3	30	-26.2000	28.5000	3.80
1972	4	9	-26.4000	27.5000	3.10
1972	4	12	-26.4000	27.3000	3.00
1972	4	15	-26.4000	27.2000	3.40
1972	4	19	-26.4000	27.5000	3.80
1972	4	21	-26.4000	27.4000	3.50
1972	4	22	-28.1000	26.8000	3.70
1972	4	24	-26.1000	27.5000	3.60
1972	4	25	-26.3000	27.6000	4.10
1972	4	26	-26.6000	27.3000	3.00
1972	5	4	-26.3000	27.5000	4.20
1972	5	9	-27.0000	26.7000	3.50
1972	5	10	-27.1000	26.9000	3.70
1972	5	20	-26.5000	27.4000	3.20
1972	5	21	-26.4000	27.3000	3.00
1972	5	26	-26.1000	28.3000	3.60
1972	6	1	-26.5000	27.3000	3.30
1972	6	9	-26.5000	27.4000	3.40
1972	6	10	-26.5000	27.4000	4.10
1972	6	10	-26.3000	27.7000	3.90
1972	6	12	-26.5000	27.2000	3.40
1972	6	13	-26.4000	27.3000	3.70
1972	6	16	-26.5000	27.4000	3.60
1972	6	16	-26.5000	27.4000	3.40
1972	6	19	-26.5000	27.4000	3.30
1972	6	20	-27.0000	26.7000	3.40
1972	6	22	-26.4000	27.4000	3.70
1972	6	25	-26.3000	28.0000	3.30
1972	6	27	-26.5000	27.4000	4.10
1972	7	3	-26.5000	27.4000	3.80
1972	7	4	-28.0000	26.6000	4.50
1972	7	13	-26.5000	27.4000	3.30
1972	7	22	-28.1000	26.9000	4.00
1972	7	25	-26.6000	27.5000	3.20
1972	7	31	-26.5000	27.4000	3.90
1972	8	5	-27.0000	26.8000	3.50
1972	8	6	-26.5000	27.4000	3.30
1972	8	7	-26.3000	27.3000	3.70
1972	8	16	-27.0000	26.8000	3.70
1972	8	22	-26.5000	27.4000	3.50
1972	8	23	-27.0000	26.7000	3.60
1972	8	25	-26.5000	27.1000	3.20
1972	9	1	-26.4000	28.3000	4.00
1972	9	2	-26.4000	27.5000	3.60
1972	9	2	-26.3000	27.3000	3.60
1972	9	5	-26.2000	27.9000	3.40
1972	9	5	-26.0000	27.7000	3.50
1972	9	7	-26.9000	26.8000	3.80
1972	9	9	-27.0000	26.6000	2.70
1972	9	11	-27.8000	26.7000	3.80
1972	9	13	-26.4000	27.4000	4.10
1972	9	16	-26.7000	26.5000	2.80
1972	9	25	-27.1000	26.9000	3.80
1972	9	26	-26.4000	27.3000	3.60
1972	9	26	-27.0000	26.7000	3.50
1972	9	28	-26.4000	27.6000	3.10
1972	10	3	-26.5000	27.5000	3.40
1972	10	7	-26.1000	28.0000	3.20
1972	10	7	-26.1000	28.3000	3.80

1972	10	9	-26.5000	27.5000	3.60
1972	10	9	-26.5000	27.4000	4.30
1972	10	14	-26.3000	27.2000	3.10
1972	10	15	-26.4000	27.3000	3.70
1972	10	18	-26.2000	27.1000	3.40
1972	10	18	-26.4000	27.4000	3.30
1972	10	19	-26.5000	27.5000	3.70
1972	10	20	-26.3000	28.2000	3.10
1972	10	20	-26.5000	27.4000	3.40
1972	10	21	-26.2000	27.7000	3.70
1972	11	1	-27.0000	26.9000	4.70
1972	11	2	-26.5000	27.4000	4.80
1972	11	4	-26.0000	28.5000	3.00
1972	11	10	-27.0000	26.7000	3.10
1972	11	12	-27.1000	26.9000	3.30
1972	11	14	-27.1000	26.8000	3.60
1972	11	19	-26.6000	27.6000	3.10
1972	11	23	-26.5000	27.4000	3.10
1972	11	27	-26.4000	27.4000	3.90
1972	11	27	-26.4000	27.4000	3.20
1972	11	27	-26.4000	27.4000	3.30
1972	12	2	-26.4000	27.4000	3.30
1972	12	10	-26.6000	26.5000	3.80
1972	12	16	-28.7000	25.1000	3.40
1972	12	18	-26.7000	27.0000	4.00
1972	12	22	-26.5000	27.3000	3.50
1972	12	26	-26.4000	27.3000	3.30
1972	12	27	-27.0000	26.9000	3.90
1972	12	29	-28.2000	27.2000	4.20
1973	1	7	-26.5000	27.5000	3.30
1973	1	8	-26.8000	26.5000	3.20
1973	1	10	-26.5000	27.3000	4.00
1973	1	12	-26.1000	27.6000	3.20
1973	1	15	-25.9000	28.4000	2.50
1973	1	17	-26.2000	27.8000	3.70
1973	1	22	-26.4000	27.3000	3.60
1973	1	24	-26.0000	28.4000	3.90
1973	1	30	-26.4000	27.4000	3.20
1973	1	31	-26.9000	26.7000	3.30
1973	1	31	-26.5000	27.4000	3.50
1973	2	1	-26.4000	27.3000	3.50
1973	2	4	-26.5000	27.4000	3.40
1973	2	4	-26.1000	28.0000	3.30
1973	2	4	-26.4000	27.3000	3.30
1973	2	4	-26.3000	27.7000	2.90
1973	2	4	-26.2000	28.1000	3.50
1973	2	5	-26.4000	27.4000	3.00
1973	2	5	-26.5000	27.2000	3.20
1973	2	5	-23.7000	30.5000	4.40
1973	2	6	-26.1000	28.2000	4.30
1973	2	7	-26.3000	27.3000	3.00
1973	2	7	-26.4000	27.3000	3.60
1973	2	8	-26.4000	27.4000	2.90
1973	2	8	-26.9000	28.4000	3.20
1973	2	10	-26.0000	28.5000	3.50
1973	2	21	-25.9000	28.5000	3.30
1973	2	21	-26.1000	27.4000	3.00
1973	2	26	-26.1000	28.3000	3.70
1973	2	27	-25.7000	28.2000	3.20
1973	2	28	-26.1000	27.7000	3.40
1973	3	1	-26.4000	27.3000	2.90

1973	3	2	-26.4000	27.4000	3.50
1973	3	6	-26.5000	27.3000	3.20
1973	3	6	-26.4000	27.4000	3.30
1973	3	7	-26.3000	27.3000	2.90
1973	3	8	-26.8000	26.8000	3.50
1973	3	9	-28.0000	26.8000	4.30
1973	3	11	-26.2000	28.0000	3.50
1973	3	16	-26.8000	26.7000	3.20
1973	3	16	-26.6000	27.5000	3.90
1973	3	16	-26.3000	27.6000	3.20
1973	3	18	-26.3000	27.5000	4.20
1973	3	23	-26.4000	27.4000	3.50
1973	3	23	-26.1000	28.9000	3.70
1973	3	25	-26.0000	27.4000	2.90
1973	3	25	-26.1000	27.9000	3.80
1973	3	26	-26.0000	28.2000	4.00
1973	3	27	-26.2000	28.2000	4.00
1973	3	27	-26.9000	26.7000	3.20
1973	3	28	-26.5000	27.5000	3.60
1973	3	31	-26.4000	27.3000	3.00
1973	4	2	-26.3000	27.8000	3.40
1973	4	3	-26.3000	27.4000	3.40
1973	4	7	-26.4000	27.4000	2.80
1973	4	7	-25.1000	32.3000	2.90
1973	4	8	-26.4000	27.6000	3.00
1973	4	8	-26.3000	27.7000	3.20
1973	4	9	-25.6000	30.3000	3.80
1973	4	11	-26.0000	27.4000	3.00
1973	4	11	-26.1000	27.8000	3.10
1973	4	11	-28.1000	26.8000	3.50
1973	4	14	-26.3000	27.6000	3.00
1973	4	15	-28.0000	26.7000	3.10
1973	4	15	-26.9000	26.7000	3.30
1973	4	16	-26.9000	26.8000	4.00
1973	4	16	-26.4000	27.3000	3.20
1973	4	19	-26.2000	28.1000	3.90
1973	4	19	-26.4000	27.3000	3.30
1973	4	19	-26.5000	27.5000	3.20
1973	4	20	-26.2000	28.0000	3.30
1973	4	23	-26.5000	27.4000	3.80
1973	4	24	-26.2000	27.3000	3.00
1973	4	24	-26.1000	28.2000	2.90
1973	4	26	-26.3000	28.1000	4.00
1973	4	27	-26.4000	27.7000	3.90
1973	5	1	-26.4000	27.4000	3.20
1973	5	1	-26.4000	27.4000	3.10
1973	5	2	-26.3000	27.4000	3.00
1973	5	2	-26.5000	27.5000	3.20
1973	5	3	-26.4000	27.4000	2.90
1973	5	5	-26.3000	28.4000	3.70
1973	5	5	-26.3000	27.4000	3.50
1973	5	6	-26.4000	27.4000	3.70
1973	5	10	-26.0000	28.4000	2.90
1973	5	12	-26.2000	28.3000	2.60
1973	5	13	-27.9000	26.7000	3.40
1973	5	14	-26.4000	27.2000	2.80
1973	5	16	-26.1000	27.4000	2.70
1973	5	17	-26.4000	27.4000	2.90
1973	5	17	-28.0000	26.8000	2.80
1973	5	18	-25.9000	28.5000	2.50
1973	5	19	-26.4000	26.5000	3.20

1973	5	19	-26.3000	27.3000	3.00
1973	5	23	-26.9000	26.6000	3.00
1973	5	23	-28.0000	26.5000	3.10
1973	5	26	-28.0000	26.7000	2.70
1973	5	31	-26.4000	27.3000	3.40
1973	5	31	-26.9000	26.6000	3.10
1973	6	4	-26.4000	27.2000	3.30
1973	6	4	-27.9000	26.7000	3.30
1973	6	5	-26.0000	27.4000	2.60
1973	6	5	-26.9000	27.2000	2.90
1973	6	9	-27.2000	27.2000	3.10
1973	6	9	-26.2000	27.8000	2.90
1973	6	10	-26.2000	28.2000	3.90
1973	6	11	-26.4000	27.5000	3.30
1973	6	14	-26.3000	27.4000	2.90
1973	6	15	-26.2000	28.0000	3.50
1973	6	15	-26.4000	28.0000	2.60
1973	6	16	-26.3000	27.4000	3.00
1973	6	18	-25.9000	28.3000	3.30
1973	6	20	-26.5000	27.8000	3.20
1973	6	20	-26.3000	27.5000	3.20
1973	6	21	-26.9000	26.9000	3.10
1973	6	22	-26.9000	26.6000	3.30
1973	6	22	-27.7000	27.2000	3.30
1973	6	24	-27.9000	26.8000	3.10
1973	6	26	-26.2000	28.1000	3.50
1973	6	27	-26.4000	28.3000	3.30
1973	6	27	-26.5000	27.5000	3.40
1973	6	28	-26.5000	27.5000	3.20
1973	6	28	-26.4000	27.6000	3.90
1973	6	28	-26.1000	28.5000	2.90
1973	6	29	-26.4000	27.5000	3.30
1973	6	30	-26.9000	27.0000	2.90
1973	6	30	-26.3000	27.4000	3.00
1973	6	30	-27.9000	26.7000	2.90
1973	7	2	-27.9000	26.6000	3.30
1973	7	5	-26.4000	27.4000	3.90
1973	7	7	-26.3000	27.5000	3.00
1973	7	9	-26.4000	27.3000	3.60
1973	7	10	-26.1000	27.9000	3.60
1973	7	11	-24.7000	31.4000	3.20
1973	7	11	-26.3000	27.3000	3.10
1973	7	12	-26.4000	27.5000	3.90
1973	7	13	-26.4000	27.5000	3.20
1973	7	14	-26.4000	27.5000	3.50
1973	7	14	-26.4000	27.3000	3.60
1973	7	15	-26.4000	27.4000	2.90
1973	7	17	-26.3000	27.5000	4.20
1973	7	17	-26.5000	27.5000	3.70
1973	7	18	-26.4000	27.3000	2.90
1973	7	22	-26.8000	26.8000	2.80
1973	7	24	-26.2000	28.0000	3.60
1973	7	24	-26.3000	27.2000	2.80
1973	7	24	-28.0000	26.8000	3.20
1973	7	24	-26.2000	28.1000	2.50
1973	7	27	-26.5000	27.3000	3.10
1973	7	29	-26.4000	27.5000	3.40
1973	7	31	-26.4000	28.2000	3.50
1973	8	3	-26.5000	27.4000	3.40
1973	8	3	-26.5000	27.4000	2.80
1973	8	4	-26.2000	27.4000	2.80

1973	8	5	-26.5000	27.4000	3.90
1973	8	5	-26.3000	27.6000	3.60
1973	8	7	-26.5000	27.6000	3.00
1973	8	7	-26.9000	26.7000	4.00
1973	8	8	-26.3000	27.2000	3.00
1973	8	9	-26.5000	27.3000	3.30
1973	8	10	-26.3000	28.1000	3.50
1973	8	11	-26.0000	27.7000	3.20
1973	8	11	-25.9000	27.6000	3.20
1973	8	13	-26.4000	27.3000	3.30
1973	8	13	-26.2000	28.2000	3.30
1973	8	14	-26.8000	26.6000	3.60
1973	8	15	-26.4000	27.4000	2.90
1973	8	16	-26.2000	28.2000	2.90
1973	8	18	-26.4000	27.6000	3.30
1973	8	18	-26.5000	27.4000	3.40
1973	8	19	-27.9000	26.6000	2.90
1973	8	22	-26.3000	27.7000	2.60
1973	8	25	-26.1000	27.7000	3.90
1973	8	25	-26.3000	26.8000	3.10
1973	8	27	-25.6000	28.4000	3.10
1973	8	28	-26.3000	27.3000	3.00
1973	8	28	-26.2000	28.2000	2.90
1973	8	29	-26.9000	26.6000	3.50
1973	8	30	-26.5000	27.6000	3.60
1973	8	31	-28.5000	26.4000	3.20
1973	9	1	-26.3000	27.4000	2.90
1973	9	1	-26.2000	28.2000	2.70
1973	9	5	-26.5000	27.5000	3.20
1973	9	6	-27.8000	26.5000	4.40
1973	9	7	-26.3000	27.7000	3.20
1973	9	11	-26.4000	27.4000	3.50
1973	9	11	-28.0000	26.7000	3.10
1973	9	11	-26.1000	30.2000	2.90
1973	9	13	-26.0000	27.5000	3.30
1973	9	17	-26.4000	27.3000	3.40
1973	9	18	-26.5000	27.5000	3.90
1973	9	19	-27.1000	26.4000	2.90
1973	9	19	-26.4000	27.3000	3.30
1973	9	19	-28.0000	26.8000	2.90
1973	9	20	-26.4000	27.4000	3.30
1973	9	20	-26.3000	27.4000	2.80
1973	9	20	-28.1000	26.8000	4.00
1973	9	21	-26.1000	28.1000	2.70
1973	9	22	-26.2000	28.0000	3.50
1973	9	23	-26.4000	27.4000	3.00
1973	9	24	-26.1000	28.0000	3.20
1973	9	25	-26.1000	28.4000	2.90
1973	9	25	-26.9000	27.0000	2.90
1973	9	26	-26.5000	27.5000	3.60
1973	9	27	-26.5000	27.5000	3.70
1973	9	27	-26.4000	27.5000	2.80
1973	9	28	-26.5000	27.7000	2.50
1973	9	29	-26.9000	26.9000	3.20
1973	9	29	-28.2000	27.2000	3.20
1973	9	29	-26.2000	27.8000	3.10
1973	9	29	-26.2000	27.5000	3.70
1973	9	29	-26.4000	27.5000	3.20
1973	9	30	-26.9000	26.8000	3.60
1973	9	30	-26.2000	28.2000	3.20
1973	10	1	-26.4000	27.5000	3.80

1973	10	1	-26.4000	27.5000	3.90
1973	10	1	-28.2000	27.2000	2.90
1973	10	3	-26.5000	27.4000	3.20
1973	10	5	-26.9000	26.9000	3.20
1973	10	5	-26.2000	27.9000	2.80
1973	10	6	-26.4000	27.4000	3.60
1973	10	6	-26.9000	27.8000	2.90
1973	10	6	-26.4000	27.3000	2.60
1973	10	6	-28.0000	26.8000	3.00
1973	10	8	-26.8000	26.8000	2.60
1973	10	8	-26.2000	28.2000	2.50
1973	10	9	-26.2000	28.0000	3.80
1973	10	9	-26.5000	27.4000	3.10
1973	10	9	-26.4000	27.4000	2.60
1973	10	10	-26.7000	27.4000	2.90
1973	10	10	-26.5000	27.4000	3.30
1973	10	11	-26.4000	27.3000	3.40
1973	10	11	-26.3000	27.4000	2.80
1973	10	11	-24.7000	30.3000	3.70
1973	10	12	-26.2000	28.3000	3.60
1973	10	13	-26.4000	27.4000	3.20
1973	10	15	-26.6000	28.0000	2.50
1973	10	15	-26.9000	26.7000	2.60
1973	10	15	-26.4000	27.5000	2.60
1973	10	17	-26.4000	27.2000	3.40
1973	10	17	-26.4000	27.5000	3.80
1973	10	18	-26.4000	27.2000	3.10
1973	10	18	-26.4000	27.3000	2.80
1973	10	19	-26.2000	27.2000	2.50
1973	10	19	-26.4000	27.3000	2.70
1973	10	20	-26.2000	27.9000	2.90
1973	10	20	-26.4000	27.3000	2.80
1973	10	20	-28.0000	26.8000	2.50
1973	10	22	-26.3000	27.6000	3.20
1973	10	23	-26.3000	27.4000	3.40
1973	10	24	-26.2000	28.1000	3.70
1973	10	24	-26.4000	27.3000	2.50
1973	10	24	-28.0000	26.8000	2.60
1973	10	25	-27.3000	26.6000	3.20
1973	10	26	-26.0000	27.7000	2.70
1973	10	26	-26.2000	28.0000	3.30
1973	10	27	-26.3000	27.6000	3.00
1973	10	27	-26.2000	28.2000	2.60
1973	10	28	-26.2000	28.2000	2.50
1973	10	31	-26.9000	26.8000	2.80
1973	10	31	-26.8000	26.7000	3.30
1973	10	31	-25.2000	27.8000	2.90
1973	11	1	-26.2000	28.2000	2.80
1973	11	4	-26.3000	27.4000	3.10
1973	11	4	-26.4000	27.4000	2.80
1973	11	6	-26.3000	27.3000	3.20
1973	11	7	-27.9000	26.6000	3.40
1973	11	7	-26.4000	27.3000	2.80
1973	11	7	-26.3000	27.4000	3.20
1973	11	7	-26.9000	26.7000	4.10
1973	11	9	-26.9000	26.8000	2.60
1973	11	9	-26.4000	27.3000	2.90
1973	11	10	-26.1000	27.9000	2.80
1973	11	13	-26.9000	26.7000	4.20
1973	11	13	-26.9000	26.8000	3.80
1973	11	14	-26.2000	28.1000	3.60

1973	11	16	-26.4000	27.4000	3.00
1973	11	17	-25.9000	27.0000	2.90
1973	11	19	-26.4000	27.3000	3.30
1973	11	20	-26.5000	27.4000	3.40
1973	11	21	-26.3000	27.5000	4.00
1973	11	23	-26.4000	27.4000	3.00
1973	11	27	-26.3000	27.2000	3.30
1973	11	29	-28.0000	26.8000	3.30
1973	11	29	-26.5000	27.5000	3.40
1973	12	1	-26.8000	26.6000	2.60
1973	12	1	-26.3000	27.3000	2.60
1973	12	1	-26.4000	27.3000	2.70
1973	12	3	-26.2000	28.1000	3.70
1973	12	4	-26.8000	26.6000	2.60
1973	12	4	-26.1000	28.1000	3.00
1973	12	5	-27.2000	27.9000	3.40
1973	12	5	-26.4000	27.4000	3.00
1973	12	5	-26.3000	27.1000	3.30
1973	12	5	-26.4000	27.3000	3.40
1973	12	8	-26.5000	27.4000	4.00
1973	12	10	-26.2000	28.1000	2.60
1973	12	10	-26.4000	27.5000	3.20
1973	12	11	-28.0000	26.8000	2.70
1973	12	11	-26.4000	27.3000	2.80
1973	12	13	-26.2000	28.3000	3.30
1973	12	14	-26.9000	26.7000	3.10
1973	12	14	-26.4000	27.4000	2.90
1973	12	15	-26.4000	27.4000	3.40
1973	12	15	-26.3000	28.0000	2.60
1973	12	15	-28.0000	26.9000	2.50
1973	12	15	-27.5000	25.3000	2.60
1973	12	16	-26.8000	26.8000	2.60
1973	12	16	-26.4000	27.4000	2.80
1973	12	16	-26.8000	26.7000	2.50
1973	12	17	-26.8000	26.8000	2.90
1973	12	17	-26.4000	27.4000	2.50
1973	12	18	-26.2000	28.1000	3.10
1973	12	19	-26.8000	26.7000	2.90
1973	12	20	-26.4000	27.4000	2.60
1973	12	21	-26.3000	28.3000	2.50
1973	12	22	-26.2000	27.9000	2.80
1973	12	22	-26.3000	28.2000	2.70
1973	12	22	-26.2000	28.1000	2.80
1973	12	22	-26.2000	28.0000	2.70
1973	12	22	-26.4000	27.7000	2.80
1973	12	23	-28.2000	27.1000	2.80
1973	12	23	-26.2000	28.2000	2.70
1973	12	26	-26.9000	26.7000	2.50
1973	12	27	-26.2000	28.2000	2.50
1973	12	27	-26.2000	28.1000	2.80
1973	12	27	-26.9000	26.7000	2.90
1973	12	27	-27.9000	26.8000	2.90
1973	12	27	-26.1000	27.7000	3.20
1973	12	30	-26.9000	26.9000	3.40
1973	12	31	-26.4000	27.5000	2.50
1973	12	31	-26.2000	28.1000	2.50
1974	1	5	-26.4000	27.4000	3.10
1974	1	5	-26.4000	27.4000	3.10
1974	1	7	-27.0000	26.7000	3.50
1974	1	7	-26.4000	27.5000	3.30
1974	1	8	-26.3000	28.3000	2.90

1974	1	10	-26.5000	27.5000	3.90
1974	1	11	-26.4000	27.4000	2.90
1974	1	12	-26.4000	27.4000	2.90
1974	1	14	-26.3000	28.1000	3.90
1974	1	15	-26.2000	28.0000	3.00
1974	1	15	-26.1000	27.8000	3.30
1974	1	15	-26.4000	27.4000	3.30
1974	1	15	-26.2000	28.1000	2.50
1974	1	16	-26.4000	27.4000	3.30
1974	1	17	-26.3000	27.7000	3.60
1974	1	17	-26.3000	27.6000	3.20
1974	1	20	-26.4000	27.4000	2.70
1974	1	21	-26.1000	28.3000	4.90
1974	1	22	-26.2000	27.6000	3.00
1974	1	22	-26.3000	27.7000	2.80
1974	1	24	-26.4000	27.4000	4.40
1974	1	25	-26.5000	27.6000	3.10
1974	1	26	-26.4000	27.4000	3.30
1974	1	27	-26.4000	27.5000	3.50
1974	1	31	-26.2000	28.0000	3.70
1974	2	2	-26.1000	27.9000	2.80
1974	2	6	-26.3000	27.5000	3.40
1974	2	7	-26.4000	27.3000	3.20
1974	2	11	-26.2000	28.0000	2.90
1974	2	11	-26.2000	28.0000	3.30
1974	2	13	-26.2000	28.3000	3.10
1974	2	17	-26.9000	26.8000	3.40
1974	2	21	-28.0000	26.7000	3.10
1974	2	22	-26.2000	28.1000	2.80
1974	2	23	-26.5000	27.5000	2.50
1974	2	23	-26.9000	26.8000	2.80
1974	2	23	-26.4000	27.5000	3.40
1974	2	24	-26.4000	27.3000	2.70
1974	2	26	-26.2000	27.8000	2.80
1974	2	26	-26.3000	28.2000	3.50
1974	3	1	-26.4000	27.5000	3.50
1974	3	1	-26.2000	27.9000	3.70
1974	3	2	-26.2000	28.2000	3.50
1974	3	2	-26.2000	28.2000	2.80
1974	3	2	-26.2000	28.1000	2.50
1974	3	3	-26.5000	27.5000	3.60
1974	3	4	-26.5000	27.5000	2.50
1974	3	4	-26.4000	27.3000	3.20
1974	3	5	-26.1000	27.8000	3.00
1974	3	6	-26.3000	28.3000	3.20
1974	3	6	-26.4000	27.2000	3.80
1974	3	8	-26.4000	27.7000	2.60
1974	3	12	-28.1000	26.9000	2.60
1974	3	13	-28.1000	26.9000	2.60
1974	3	13	-26.2000	28.2000	3.20
1974	3	15	-26.4000	27.3000	4.20
1974	3	15	-26.4000	27.4000	2.70
1974	3	16	-26.8000	26.7000	3.00
1974	3	16	-27.7000	26.9000	3.60
1974	3	17	-26.9000	26.6000	4.10
1974	3	17	-26.4000	27.6000	3.30
1974	3	18	-26.4000	27.4000	3.20
1974	3	19	-26.4000	27.5000	3.20
1974	3	19	-26.4000	27.4000	3.00
1974	3	19	-26.3000	27.4000	2.80
1974	3	20	-26.4000	27.3000	2.90

1974	3	21	-26.4000	27.4000	4.50
1974	3	23	-28.1000	26.7000	2.60
1974	3	23	-26.6000	27.5000	3.00
1974	3	23	-26.3000	27.3000	2.70
1974	3	23	-26.2000	28.2000	2.60
1974	3	25	-26.4000	27.4000	3.30
1974	3	26	-26.4000	27.3000	3.10
1974	3	28	-26.3000	27.4000	3.40
1974	3	28	-26.4000	27.4000	3.80
1974	3	29	-26.3000	27.3000	3.30
1974	3	30	-27.9000	26.6000	3.30
1974	4	3	-26.8000	26.8000	3.20
1974	4	5	-26.4000	27.3000	3.00
1974	4	8	-26.2000	28.2000	2.60
1974	4	8	-26.4000	27.4000	3.20
1974	4	8	-26.2000	28.2000	3.00
1974	4	8	-26.4000	27.4000	3.10
1974	4	9	-26.4000	27.4000	2.70
1974	4	9	-26.9000	26.7000	2.50
1974	4	9	-26.2000	28.2000	3.30
1974	4	10	-26.4000	27.4000	2.60
1974	4	10	-26.8000	26.8000	2.50
1974	4	10	-26.4000	27.4000	2.70
1974	4	10	-26.2000	28.1000	2.50
1974	4	12	-26.4000	27.4000	2.80
1974	4	13	-26.9000	26.8000	3.40
1974	4	15	-26.4000	27.4000	2.50
1974	4	15	-26.2000	28.3000	2.80
1974	4	15	-26.5000	28.5000	2.80
1974	4	16	-26.2000	28.1000	2.80
1974	4	16	-26.3000	28.4000	2.60
1974	4	17	-26.9000	26.8000	3.30
1974	4	17	-26.4000	27.4000	2.70
1974	4	17	-26.4000	27.5000	3.40
1974	4	18	-26.4000	27.4000	3.20
1974	4	18	-26.4000	27.4000	2.50
1974	4	18	-26.4000	27.4000	2.90
1974	4	19	-26.2000	27.8000	2.50
1974	4	23	-26.3000	28.0000	3.60
1974	4	24	-26.2000	28.0000	3.10
1974	4	25	-26.4000	27.5000	2.60
1974	4	26	-26.5000	27.3000	3.10
1974	4	26	-26.4000	27.4000	3.00
1974	4	26	-26.5000	27.4000	3.60
1974	4	27	-26.2000	27.7000	3.40
1974	4	28	-26.4000	27.7000	2.90
1974	4	29	-26.5000	27.4000	3.30
1974	4	30	-26.5000	27.4000	2.60
1974	5	2	-26.5000	27.5000	2.60
1974	5	2	-26.4000	27.4000	3.30
1974	5	2	-26.3000	28.2000	2.80
1974	5	2	-26.5000	27.4000	3.40
1974	5	2	-26.9000	26.8000	3.10
1974	5	3	-26.5000	27.4000	3.30
1974	5	6	-26.4000	27.4000	3.00
1974	5	7	-26.4000	27.5000	4.10
1974	5	7	-26.3000	27.4000	2.80
1974	5	10	-26.1000	27.8000	2.50
1974	5	10	-26.3000	28.3000	2.60
1974	5	11	-26.4000	27.3000	2.60
1974	5	11	-26.3000	28.3000	2.80

1974	5	12	-26.4000	27.4000	2.90
1974	5	12	-26.4000	27.4000	2.50
1974	5	12	-26.3000	28.4000	2.50
1974	5	14	-26.4000	27.6000	4.50
1974	5	14	-26.4000	27.6000	3.20
1974	5	14	-26.4000	27.4000	2.80
1974	5	15	-26.3000	28.2000	3.50
1974	5	15	-26.4000	27.6000	2.50
1974	5	15	-26.3000	28.3000	2.80
1974	5	15	-26.4000	27.4000	2.50
1974	5	16	-26.3000	28.1000	2.90
1974	5	16	-26.1000	27.8000	3.40
1974	5	16	-26.5000	27.4000	3.20
1974	5	17	-26.4000	27.3000	3.00
1974	5	18	-26.9000	26.8000	2.70
1974	5	18	-26.4000	27.4000	2.70
1974	5	20	-26.3000	28.0000	2.50
1974	5	21	-28.1000	26.9000	2.60
1974	5	21	-26.4000	27.7000	2.60
1974	5	21	-26.4000	27.5000	2.50
1974	5	21	-26.4000	27.3000	3.60
1974	5	22	-26.5000	27.6000	3.30
1974	5	22	-28.0000	26.7000	2.70
1974	5	23	-26.4000	27.4000	2.70
1974	5	25	-26.5000	27.3000	2.80
1974	5	26	-26.3000	27.7000	2.80
1974	5	28	-26.2000	28.1000	2.60
1974	6	2	-26.5000	27.4000	3.20
1974	6	5	-26.5000	27.5000	3.40
1974	6	5	-26.5000	27.4000	3.30
1974	6	6	-26.2000	28.2000	3.00
1974	6	8	-26.3000	28.2000	3.00
1974	6	10	-26.5000	27.4000	3.40
1974	6	12	-26.3000	27.5000	2.90
1974	6	14	-26.4000	27.5000	3.00
1974	6	14	-26.8000	26.7000	3.00
1974	6	14	-27.0000	26.9000	3.80
1974	6	15	-26.3000	28.3000	3.50
1974	6	15	-26.3000	27.5000	3.00
1974	6	17	-27.0000	26.7000	3.00
1974	6	18	-26.4000	27.5000	3.00
1974	6	20	-26.5000	27.5000	2.70
1974	6	20	-26.4000	27.5000	2.70
1974	6	21	-26.5000	27.7000	3.30
1974	6	22	-26.3000	28.3000	2.80
1974	6	23	-26.7000	27.0000	3.50
1974	6	23	-26.2000	28.2000	2.80
1974	6	24	-26.5000	27.6000	3.10
1974	6	24	-26.5000	27.4000	4.60
1974	6	25	-26.4000	27.5000	2.60
1974	6	25	-26.4000	27.2000	4.40
1974	6	25	-26.5000	27.5000	2.50
1974	6	25	-26.5000	27.5000	2.90
1974	6	26	-26.5000	27.5000	2.60
1974	6	27	-26.5000	27.3000	3.50
1974	6	28	-26.3000	28.5000	3.10
1974	7	1	-26.5000	27.6000	2.70
1974	7	1	-26.5000	27.6000	2.70
1974	7	1	-26.5000	27.5000	3.10
1974	7	1	-26.5000	27.6000	2.80
1974	7	2	-26.3000	28.4000	2.80

1974	7	2	-26.3000	27.6000	3.20
1974	7	2	-26.4000	27.8000	3.40
1974	7	3	-26.5000	27.5000	3.40
1974	7	3	-26.5000	27.7000	2.60
1974	7	4	-26.5000	27.5000	3.90
1974	7	4	-26.4000	28.4000	3.20
1974	7	6	-26.6000	27.4000	2.70
1974	7	7	-27.0000	26.8000	3.40
1974	7	8	-26.5000	27.5000	4.20
1974	7	11	-26.3000	28.3000	3.40
1974	7	12	-26.9000	26.8000	3.50
1974	7	12	-26.3000	28.3000	3.10
1974	7	12	-26.3000	27.4000	3.50
1974	7	14	-26.5000	27.8000	3.30
1974	7	15	-26.4000	28.4000	3.70
1974	7	18	-28.0000	26.8000	2.80
1974	7	20	-26.2000	28.0000	2.90
1974	7	20	-26.6000	27.5000	2.50
1974	7	21	-26.4000	27.4000	3.60
1974	7	22	-26.4000	28.5000	2.80
1974	7	23	-27.0000	27.0000	4.70
1974	7	25	-26.5000	27.5000	2.80
1974	7	25	-26.2000	28.1000	2.80
1974	7	25	-26.4000	27.6000	3.50
1974	7	26	-26.4000	27.3000	2.80
1974	7	27	-26.3000	28.3000	2.70
1974	7	27	-26.4000	27.4000	2.50
1974	7	28	-27.0000	26.6000	2.70
1974	7	29	-26.2000	28.0000	2.50
1974	7	31	-26.2000	28.2000	2.60
1974	7	31	-26.4000	27.3000	2.70
1974	8	1	-26.2000	28.2000	3.30
1974	8	1	-26.8000	26.8000	3.10
1974	8	2	-26.3000	28.2000	2.60
1974	8	3	-26.4000	27.5000	2.80
1974	8	4	-26.3000	28.2000	2.50
1974	8	6	-26.3000	28.1000	2.70
1974	8	6	-28.0000	26.9000	2.60
1974	8	7	-26.9000	26.7000	2.90
1974	8	7	-26.4000	27.5000	3.00
1974	8	7	-26.4000	27.5000	2.50
1974	8	8	-26.5000	27.6000	2.60
1974	8	8	-26.3000	28.1000	3.40
1974	8	9	-26.5000	27.4000	2.50
1974	8	11	-26.4000	28.5000	2.50
1974	8	13	-27.0000	26.8000	3.40
1974	8	14	-26.4000	27.7000	2.50
1974	8	15	-26.4000	27.6000	3.00
1974	8	16	-26.4000	27.4000	3.20
1974	8	18	-27.9000	26.6000	2.90
1974	8	19	-26.2000	28.1000	3.30
1974	8	19	-26.4000	27.4000	2.90
1974	8	19	-26.5000	27.3000	2.50
1974	8	20	-26.5000	27.4000	2.90
1974	8	21	-26.5000	27.4000	2.50
1974	8	21	-26.4000	27.5000	2.70
1974	8	22	-26.2000	27.8000	3.60
1974	8	23	-26.2000	28.1000	2.60
1974	8	23	-26.3000	28.4000	2.60
1974	8	23	-26.4000	27.4000	2.70
1974	8	24	-26.5000	27.5000	3.20

1974	8	24	-26.5000	27.4000	3.20
1974	8	26	-26.5000	27.4000	3.10
1974	8	26	-26.2000	27.9000	2.70
1974	8	26	-26.4000	27.4000	2.70
1974	8	26	-26.4000	27.4000	3.20
1974	8	26	-26.4000	27.5000	3.50
1974	8	27	-26.3000	28.0000	3.40
1974	8	27	-26.4000	27.4000	2.50
1974	8	27	-26.4000	27.4000	2.50
1974	8	28	-24.0000	27.6000	3.40
1974	8	28	-26.4000	27.4000	2.50
1974	8	29	-26.4000	27.4000	3.30
1974	8	30	-26.3000	28.3000	2.60
1974	8	30	-26.5000	27.3000	2.50
1974	9	1	-27.9000	26.7000	3.60
1974	9	1	-26.9000	26.8000	2.90
1974	9	2	-26.4000	27.4000	3.40
1974	9	2	-28.0000	26.7000	3.70
1974	9	9	-26.1000	27.7000	3.20
1974	9	11	-25.8000	31.8000	3.40
1974	9	11	-26.2000	28.4000	2.50
1974	9	12	-26.0000	27.8000	2.50
1974	9	12	-27.1000	26.7000	3.00
1974	9	13	-26.5000	27.5000	2.90
1974	9	14	-26.4000	27.5000	2.50
1974	9	14	-26.2000	27.8000	3.40
1974	9	14	-26.4000	27.5000	2.60
1974	9	14	-26.4000	27.5000	2.70
1974	9	14	-26.2000	28.1000	2.80
1974	9	15	-26.5000	27.5000	2.60
1974	9	18	-26.5000	27.4000	3.00
1974	9	18	-28.1000	26.8000	3.30
1974	9	21	-26.5000	27.5000	2.80
1974	9	21	-26.3000	28.2000	3.30
1974	9	24	-26.5000	27.5000	2.80
1974	9	24	-26.3000	28.1000	2.90
1974	9	25	-26.4000	27.2000	2.70
1974	9	25	-26.4000	27.5000	2.60
1974	9	26	-26.2000	28.2000	3.80
1974	9	29	-26.6000	27.4000	3.30
1974	10	1	-28.2000	26.9000	3.30
1974	10	2	-26.5000	27.6000	3.00
1974	10	2	-26.5000	27.5000	3.70
1974	10	2	-26.1000	28.3000	3.30
1974	10	3	-26.5000	27.5000	3.10
1974	10	5	-26.2000	28.2000	3.20
1974	10	6	-26.5000	28.3000	2.60
1974	10	11	-26.3000	28.2000	3.00
1974	10	13	-27.9000	26.6000	3.40
1974	10	13	-28.0000	26.7000	3.70
1974	10	16	-26.4000	28.5000	2.90
1974	10	17	-26.4000	27.4000	2.70
1974	10	17	-26.4000	27.2000	3.30
1974	10	17	-26.2000	28.2000	2.80
1974	10	21	-26.4000	27.3000	2.70
1974	10	28	-28.0000	26.7000	3.70
1974	10	29	-26.2000	28.2000	2.80
1974	10	30	-26.5000	27.4000	2.70
1974	10	30	-26.3000	28.2000	2.60
1974	11	1	-26.4000	27.5000	2.70
1974	11	2	-26.4000	27.4000	2.70

1974	11	2	-26.3000	28.3000	3.20
1974	11	2	-26.9000	26.8000	2.60
1974	11	5	-27.9000	26.7000	3.00
1974	11	7	-26.8000	26.8000	3.20
1974	11	7	-26.9000	26.8000	2.60
1974	11	13	-26.4000	27.4000	3.30
1974	11	17	-26.4000	27.3000	2.50
1974	11	19	-26.5000	27.5000	3.10
1974	11	19	-28.0000	26.8000	2.60
1974	11	22	-26.4000	27.4000	3.20
1974	11	23	-26.5000	27.6000	3.30
1974	11	27	-26.5000	27.5000	2.50
1974	11	29	-26.3000	28.1000	3.50
1974	11	30	-26.5000	27.5000	3.30
1974	12	1	-26.8000	26.6000	2.70
1974	12	4	-26.3000	27.6000	2.80
1974	12	5	-26.3000	28.0000	3.50
1974	12	8	-26.5000	27.4000	3.00
1974	12	8	-26.4000	27.7000	3.20
1974	12	9	-27.0000	26.8000	3.20
1974	12	9	-26.9000	26.7000	3.30
1974	12	13	-26.2000	27.9000	3.20
1974	12	28	-26.5000	27.5000	3.20
1975	1	3	-26.5000	27.4000	3.50
1975	1	5	-26.5000	27.5000	4.10
1975	1	5	-26.3000	27.0000	2.90
1975	1	7	-26.6000	24.2000	2.60
1975	1	11	-26.4000	27.4000	2.90
1975	1	24	-26.5000	27.6000	3.10
1975	1	25	-26.4000	28.4000	3.40
1975	1	25	-27.1000	26.9000	3.10
1975	1	26	-26.4000	27.5000	3.10
1975	2	3	-26.4000	27.4000	3.30
1975	2	3	-26.2000	27.6000	2.80
1975	2	6	-26.8000	26.7000	2.80
1975	2	8	-26.3000	27.4000	3.00
1975	2	8	-27.0000	26.8000	3.80
1975	2	9	-26.3000	28.1000	2.70
1975	2	11	-26.5000	27.5000	4.00
1975	2	13	-26.4000	27.4000	3.10
1975	2	13	-26.5000	27.7000	3.00
1975	2	15	-26.5000	27.5000	3.20
1975	2	15	-26.4000	27.5000	3.10
1975	2	19	-26.4000	27.3000	2.90
1975	2	20	-26.3000	27.3000	3.00
1975	2	20	-26.4000	27.3000	2.70
1975	2	21	-26.3000	27.6000	3.10
1975	2	21	-26.3000	27.3000	3.30
1975	2	23	-26.2000	27.7000	3.60
1975	2	24	-26.4000	27.4000	2.50
1975	2	24	-26.3000	27.4000	3.00
1975	2	24	-26.8000	26.7000	2.80
1975	2	25	-26.4000	27.4000	3.40
1975	2	26	-26.4000	27.3000	2.60
1975	2	26	-26.4000	27.2000	3.20
1975	2	26	-26.9000	26.7000	3.40
1975	3	3	-28.1000	26.8000	2.70
1975	3	6	-26.5000	27.5000	3.60
1975	3	7	-28.0000	26.8000	2.70
1975	3	8	-26.9000	26.8000	2.90
1975	3	11	-26.9000	26.6000	2.70

1975	3	12	-28.0000	26.7000	3.00
1975	3	13	-26.3000	27.3000	3.30
1975	3	13	-26.5000	27.5000	3.30
1975	3	16	-26.4000	27.5000	3.90
1975	3	19	-26.3000	28.2000	3.70
1975	3	21	-28.1000	26.9000	2.90
1975	3	21	-26.4000	27.4000	3.40
1975	3	24	-26.3000	27.1000	3.20
1975	3	26	-26.5000	27.4000	3.40
1975	4	3	-26.4000	27.3000	2.90
1975	4	3	-26.4000	27.3000	3.30
1975	4	4	-26.4000	27.2000	3.60
1975	4	4	-26.5000	27.4000	3.50
1975	4	4	-26.3000	27.4000	3.40
1975	4	4	-26.5000	27.2000	3.30
1975	4	5	-26.3000	27.3000	2.90
1975	4	6	-26.9000	26.8000	3.40
1975	4	8	-26.4000	27.5000	2.90
1975	4	12	-26.3000	27.3000	2.90
1975	4	12	-26.8000	26.8000	3.50
1975	4	13	-26.4000	27.2000	3.20
1975	4	16	-26.4000	27.2000	2.50
1975	4	16	-26.4000	27.4000	2.80
1975	4	16	-26.1000	27.9000	2.90
1975	4	17	-26.4000	27.3000	3.40
1975	4	17	-26.4000	27.3000	3.20
1975	4	18	-26.4000	27.3000	2.90
1975	4	18	-26.5000	27.5000	3.40
1975	4	22	-26.9000	26.9000	3.60
1975	4	23	-26.9000	26.8000	2.90
1975	4	24	-26.4000	27.3000	2.90
1975	4	24	-26.4000	27.4000	2.90
1975	4	24	-26.4000	27.3000	2.70
1975	4	25	-26.4000	27.4000	2.70
1975	4	26	-26.4000	27.3000	2.50
1975	4	27	-26.4000	27.2000	2.80
1975	4	29	-26.4000	27.2000	3.20
1975	4	30	-26.4000	27.4000	3.40
1975	5	1	-26.1000	27.7000	2.50
1975	5	2	-26.2000	28.2000	3.00
1975	5	4	-26.1000	28.0000	2.60
1975	5	7	-24.4000	27.7000	2.80
1975	5	8	-26.3000	28.4000	3.00
1975	5	9	-26.4000	27.4000	3.70
1975	5	11	-26.4000	27.4000	3.70
1975	5	11	-26.5000	27.3000	2.50
1975	5	14	-28.8000	25.8000	3.70
1975	5	14	-26.3000	27.3000	3.50
1975	5	14	-26.3000	27.5000	2.90
1975	5	16	-28.1000	26.9000	2.80
1975	5	16	-26.4000	27.3000	3.40
1975	5	19	-26.2000	28.1000	2.50
1975	5	20	-27.9000	26.5000	2.80
1975	5	20	-26.1000	28.2000	3.00
1975	5	21	-26.4000	27.4000	3.00
1975	5	21	-26.2000	28.1000	3.00
1975	5	21	-26.1000	27.7000	3.00
1975	5	22	-26.3000	27.2000	3.00
1975	5	23	-26.7000	26.9000	3.00
1975	5	23	-28.1000	26.8000	3.20
1975	5	24	-26.4000	27.4000	2.60

1975	5	25	-26.4000	27.4000	3.70
1975	5	27	-27.8000	26.5000	3.60
1975	5	30	-28.1000	26.9000	2.50
1975	5	30	-26.4000	27.3000	3.00
1975	5	31	-26.8000	26.8000	3.50
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1975	6	1	-26.4000	27.3000	2.50
1975	6	1	-26.3000	27.3000	2.80
1975	6	2	-28.1000	26.8000	3.60
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1975	6	5	-26.3000	27.3000	3.10
1975	6	7	-26.4000	27.4000	3.30
1975	6	8	-29.5000	25.3000	4.50
1975	6	9	-26.9000	26.7000	2.80
1975	6	10	-29.5000	25.1000	3.30
1975	6	10	-26.4000	27.4000	3.10
1975	6	11	-26.4000	27.3000	3.20
1975	6	15	-28.0000	27.0000	2.80
1975	6	16	-28.0000	26.6000	2.70
1975	6	17	-26.2000	27.6000	3.10
1975	6	18	-26.2000	28.1000	2.90
1975	6	19	-26.4000	27.5000	3.30
1975	6	25	-26.4000	27.4000	3.70
1975	6	25	-26.4000	27.4000	3.00
1975	6	26	-28.0000	26.8000	3.50
1975	6	27	-25.7000	27.6000	3.20
1975	7	1	-26.4000	27.5000	3.80
1975	7	3	-26.2000	28.2000	3.70
1975	7	3	-26.2000	28.1000	3.80
1975	7	3	-26.8000	26.7000	3.10
1975	7	3	-28.0000	26.8000	3.40
1975	7	4	-26.5000	27.6000	3.10
1975	7	4	-26.4000	27.5000	3.20
1975	7	6	-26.4000	27.5000	3.30
1975	7	10	-26.4000	27.4000	3.40
1975	7	15	-26.9000	26.8000	3.70
1975	7	15	-26.4000	27.4000	3.40
1975	7	16	-26.2000	28.1000	3.30
1975	7	16	-26.9000	26.8000	2.70
1975	7	17	-26.3000	27.3000	3.20
1975	7	18	-26.4000	27.4000	3.20
1975	7	21	-27.9000	26.7000	3.20
1975	7	21	-26.8000	28.1000	3.50
1975	7	22	-26.6000	28.5000	3.30
1975	7	28	-26.3000	27.3000	3.10
1975	7	30	-26.2000	28.1000	3.50
1975	7	31	-26.3000	27.3000	3.70
1975	7	31	-26.3000	27.1000	3.00
1975	8	3	-26.4000	27.3000	3.00
1975	8	4	-26.3000	27.8000	3.40
1975	8	10	-30.3000	27.7000	4.10
1975	8	11	-26.4000	27.5000	3.20
1975	8	13	-26.4000	27.4000	3.40
1975	8	14	-26.4000	27.6000	3.90
1975	8	19	-26.9000	26.7000	3.50
1975	8	23	-26.4000	27.4000	3.20
1975	8	23	-26.3000	27.3000	2.90
1975	8	23	-26.4000	27.4000	3.40
1975	8	25	-28.0000	26.7000	3.90
1975	8	26	-26.4000	27.4000	3.50
1975	8	27	-26.9000	26.7000	2.90

1975	8	27	-26.4000	27.4000	3.00
1975	8	28	-26.2000	27.5000	2.90
1975	8	28	-26.4000	27.3000	2.90
1975	8	29	-27.9000	26.6000	3.00
1975	8	29	-26.2000	28.1000	3.50
1975	8	31	-26.4000	27.3000	2.80
1975	8	31	-26.2000	28.1000	3.60
1975	8	31	-26.4000	27.3000	3.10
1975	8	31	-26.4000	27.3000	3.00
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1975	9	2	-26.4000	27.4000	3.40
1975	9	2	-26.4000	27.3000	3.30
1975	9	3	-26.4000	27.4000	2.90
1975	9	4	-26.5000	27.5000	3.70
1975	9	4	-26.4000	27.4000	3.70
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1975	9	5	-26.4000	27.4000	3.50
1975	9	10	-26.9000	26.9000	3.60
1975	9	11	-26.2000	28.3000	2.90
1975	9	12	-26.5000	27.5000	2.60
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1975	9	15	-28.1000	26.9000	2.70
1975	9	15	-28.0000	26.7000	3.50
1975	9	15	-26.4000	27.4000	2.60
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1975	9	21	-26.2000	28.0000	2.60
1975	9	23	-26.5000	27.6000	2.70
1975	9	25	-26.4000	27.5000	3.20
1975	9	25	-26.5000	27.6000	4.00
1975	9	25	-26.5000	27.7000	2.90
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1975	9	26	-26.4000	27.5000	2.70
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1975	10	2	-26.4000	27.2000	3.50
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1975	10	10	-26.5000	27.5000	3.80
1975	10	11	-26.4000	27.4000	3.50
1975	10	16	-26.3000	27.3000	2.90
1975	10	20	-26.4000	27.4000	3.10
1975	10	20	-26.2000	28.6000	3.10
1975	10	23	-26.3000	28.1000	3.40
1975	10	24	-26.4000	27.4000	3.30
1975	10	25	-26.4000	28.1000	2.50
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1975	10	31	-26.4000	27.3000	2.70
1975	11	3	-26.5000	27.5000	3.00
1975	11	3	-26.4000	28.4000	3.20
1975	11	4	-26.5000	27.5000	3.20
1975	11	5	-26.2000	28.5000	2.80
1975	11	5	-26.5000	27.7000	2.80
1975	11	5	-28.2000	26.8000	2.70
1975	11	8	-26.5000	26.5000	3.50

1975	11	9	-26.5000	27.7000	3.00
1975	11	10	-26.5000	27.4000	3.30
1975	11	10	-26.4000	27.3000	2.80
1975	11	11	-26.5000	27.4000	3.20
1975	11	14	-28.0000	26.7000	3.00
1975	11	14	-26.9000	26.8000	2.70
1975	11	15	-26.5000	27.5000	3.40
1975	11	18	-26.4000	27.5000	3.40
1975	11	20	-26.3000	28.2000	3.30
1975	11	22	-26.5000	27.4000	3.30
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1975	12	14	-26.5000	27.4000	3.70
1975	12	15	-26.5000	27.4000	3.30
1975	12	17	-26.2000	28.5000	2.90
1975	12	17	-26.5000	27.4000	3.50
1975	12	18	-26.4000	27.3000	3.00
1975	12	20	-26.4000	27.4000	2.70
1975	12	20	-26.4000	27.4000	2.70
1975	12	21	-26.2000	28.2000	2.70
1975	12	22	-26.2000	27.8000	3.50
1975	12	24	-26.5000	27.5000	3.30
1975	12	24	-26.5000	27.6000	3.20
1975	12	25	-26.3000	27.5000	3.10
1975	12	28	-26.5000	27.3000	2.90
1975	12	29	-26.9000	26.8000	3.40
1975	12	30	-26.2000	28.1000	3.40
1975	12	31	-27.0000	26.8000	3.00
1976	1	1	-26.4000	27.3000	3.10
1976	1	3	-26.2000	28.1000	3.40
1976	1	7	-26.5000	27.5000	3.00
1976	1	11	-26.1000	27.6000	3.50
1976	1	15	-26.2000	27.9000	3.10
1976	1	20	-26.2000	27.7000	3.40
1976	1	21	-26.6000	27.5000	3.30
1976	1	24	-26.8000	26.6000	3.60
1976	1	26	-27.0000	26.9000	3.50
1976	1	26	-28.2000	26.8000	3.50
1976	1	27	-26.2000	28.1000	3.50
1976	2	3	-26.5000	27.4000	3.20
1976	2	5	-27.9000	26.6000	3.30
1976	2	5	-26.4000	27.4000	2.80
1976	2	8	-26.4000	27.3000	3.30
1976	2	9	-26.3000	27.3000	3.10
1976	2	11	-26.4000	27.4000	3.70
1976	2	18	-26.3000	27.2000	2.80
1976	2	21	-26.4000	26.3000	2.90
1976	2	21	-26.2000	27.1000	2.90
1976	2	21	-26.5000	27.5000	3.30
1976	2	26	-26.2000	27.8000	3.80
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1976	3	1	-26.3000	27.9000	3.50
1976	3	2	-26.3000	28.2000	3.40
1976	3	6	-26.9000	26.9000	3.10
1976	3	6	-26.4000	27.5000	2.80
1976	3	7	-26.0000	28.4000	3.40
1976	3	7	-26.5000	27.7000	3.20
1976	3	8	-26.5000	27.4000	3.20
1976	3	9	-26.4000	27.4000	3.00
1976	3	9	-26.4000	27.3000	2.70

1976	3	10	-26.4000	27.4000	3.60
1976	3	11	-26.3000	27.4000	3.10
1976	3	13	-27.0000	26.8000	3.50
1976	3	16	-26.5000	27.5000	3.50
1976	3	18	-24.6000	27.2000	4.00
1976	3	18	-28.0000	26.8000	3.40
1976	3	19	-26.5000	27.4000	3.20
1976	3	22	-26.5000	27.4000	3.30
1976	3	27	-28.0000	26.6000	2.90
1976	3	27	-26.4000	27.7000	3.40
1976	3	29	-26.4000	27.7000	3.10
1976	3	30	-26.3000	27.7000	2.90
1976	3	30	-26.5000	27.4000	2.90
1976	4	2	-26.4000	27.4000	3.80
1976	4	3	-26.4000	27.4000	3.80
1976	4	7	-26.5000	27.4000	3.10
1976	4	9	-26.5000	27.4000	3.10
1976	4	10	-26.2000	28.0000	4.10
1976	4	11	-26.9000	26.6000	3.00
1976	4	13	-26.5000	27.6000	4.20
1976	4	14	-26.5000	27.4000	3.10
1976	4	14	-26.5000	27.5000	2.90
1976	4	14	-27.9000	26.5000	3.10
1976	4	15	-26.4000	27.6000	2.70
1976	4	16	-26.4000	27.4000	3.40
1976	4	17	-26.4000	27.4000	3.20
1976	4	17	-26.4000	27.4000	3.80
1976	4	21	-26.4000	27.4000	2.90
1976	4	22	-26.5000	27.4000	2.70
1976	4	22	-26.9000	26.8000	2.60
1976	4	24	-26.4000	27.4000	2.70
1976	4	24	-26.5000	27.5000	2.80
1976	4	25	-26.2000	27.5000	3.00
1976	4	26	-26.3000	28.2000	3.50
1976	4	26	-26.4000	27.6000	2.50
1976	4	26	-26.9000	26.8000	3.00
1976	4	28	-26.2000	28.3000	3.40
1976	4	28	-26.4000	27.4000	3.10
1976	4	29	-26.5000	27.2000	3.20
1976	4	29	-26.2000	28.0000	2.70
1976	4	30	-26.4000	27.4000	4.00
1976	4	30	-26.4000	27.4000	2.80
1976	4	30	-26.4000	27.5000	2.60
1976	4	30	-26.1000	27.8000	2.90
1976	5	1	-26.4000	27.6000	2.70
1976	5	1	-26.4000	27.6000	3.30
1976	5	1	-26.4000	27.4000	2.50
1976	5	6	-26.4000	27.4000	3.50
1976	5	7	-26.4000	27.4000	3.00
1976	5	7	-26.2000	27.7000	3.40
1976	5	9	-28.1000	26.9000	2.50
1976	5	10	-26.5000	27.5000	3.40
1976	5	10	-26.5000	27.3000	3.00
1976	5	10	-27.0000	26.8000	2.60
1976	5	12	-28.0000	26.7000	2.80
1976	5	12	-27.9000	26.6000	2.60
1976	5	13	-26.9000	26.7000	2.90
1976	5	13	-26.3000	27.7000	2.90
1976	5	13	-26.4000	27.4000	2.50
1976	5	14	-28.0000	26.7000	2.60
1976	5	15	-26.3000	27.4000	3.50

1976	5	16	-26.3000	27.4000	2.80
1976	5	16	-28.1000	26.8000	2.80
1976	5	18	-26.3000	27.8000	2.60
1976	5	18	-26.5000	27.6000	2.70
1976	5	18	-26.4000	27.5000	3.50
1976	5	19	-26.4000	27.5000	2.90
1976	5	19	-26.4000	27.3000	3.50
1976	5	21	-27.9000	26.6000	3.40
1976	5	21	-28.0000	26.8000	2.80
1976	5	21	-26.4000	27.4000	3.10
1976	5	24	-26.3000	27.7000	2.60
1976	5	26	-26.3000	28.3000	2.60
1976	5	26	-26.3000	27.3000	2.60
1976	6	4	-26.4000	27.3000	2.90
1976	6	4	-26.4000	27.4000	2.60
1976	6	4	-26.6000	27.4000	3.00
1976	6	6	-26.8000	26.7000	3.00
1976	6	6	-26.3000	28.5000	3.70
1976	6	8	-26.4000	27.4000	2.70
1976	6	8	-26.5000	27.2000	2.80
1976	6	8	-28.0000	26.6000	2.60
1976	6	12	-26.4000	27.5000	3.20
1976	6	13	-28.1000	26.8000	2.90
1976	6	15	-26.9000	26.8000	2.90
1976	6	15	-26.4000	27.4000	2.70
1976	6	18	-26.2000	27.5000	2.70
1976	6	19	-26.4000	27.5000	2.90
1976	6	22	-28.1000	26.9000	3.10
1976	6	23	-26.4000	27.6000	3.40
1976	6	23	-26.9000	26.9000	2.90
1976	6	24	-26.9000	26.7000	2.50
1976	6	24	-26.2000	28.3000	3.10
1976	6	25	-28.1000	26.9000	3.30
1976	6	25	-26.2000	28.3000	2.90
1976	6	26	-26.9000	26.8000	2.60
1976	6	27	-26.4000	27.4000	3.60
1976	6	27	-26.3000	28.1000	2.90
1976	6	30	-26.9000	26.8000	3.40
1976	7	1	-29.6000	25.0000	3.30
1976	7	1	-29.5000	25.0000	3.40
1976	7	1	-29.6000	25.1000	3.10
1976	7	1	-29.5000	25.1000	3.70
1976	7	1	-28.0000	26.8000	3.50
1976	7	2	-26.9000	26.9000	3.30
1976	7	2	-26.3000	28.2000	3.30
1976	7	2	-29.5000	25.1000	3.30
1976	7	2	-26.5000	27.8000	2.80
1976	7	3	-26.5000	27.5000	3.60
1976	7	3	-29.6000	25.2000	3.20
1976	7	5	-29.6000	25.1000	3.60
1976	7	5	-27.8000	26.4000	2.90
1976	7	6	-26.4000	27.5000	3.40
1976	7	6	-29.5000	25.1000	3.90
1976	7	9	-26.4000	27.4000	2.50
1976	7	9	-26.3000	27.3000	2.60
1976	7	13	-26.4000	27.5000	3.40
1976	7	14	-26.4000	27.4000	2.70
1976	7	15	-29.5000	25.1000	4.30
1976	7	15	-26.2000	28.2000	2.90
1976	7	15	-26.2000	28.2000	2.70
1976	7	15	-26.4000	27.4000	3.30

1976	7	15	-26.4000	27.4000	3.10
1976	7	15	-26.3000	27.7000	2.70
1976	7	16	-26.3000	27.3000	3.00
1976	7	16	-26.1000	28.1000	3.40
1976	7	16	-26.9000	26.5000	2.60
1976	7	19	-26.3000	27.7000	2.80
1976	7	22	-26.3000	27.9000	3.40
1976	7	27	-26.5000	27.4000	3.30
1976	7	28	-26.4000	27.4000	2.70
1976	7	29	-26.3000	27.3000	3.30
1976	7	31	-26.4000	27.5000	3.60
1976	7	31	-26.9000	26.9000	3.70
1976	7	31	-26.9000	27.0000	3.60
1976	8	2	-26.8000	26.6000	2.50
1976	8	2	-26.4000	27.3000	3.60
1976	8	2	-26.2000	28.2000	2.80
1976	8	3	-26.4000	27.4000	3.70
1976	8	3	-26.9000	26.7000	3.50
1976	8	3	-29.3000	25.1000	2.80
1976	8	4	-26.9000	26.7000	3.30
1976	8	4	-29.5000	24.9000	2.50
1976	8	4	-29.5000	25.1000	2.90
1976	8	4	-26.4000	27.4000	3.30
1976	8	4	-26.4000	27.4000	2.80
1976	8	5	-26.4000	27.4000	2.60
1976	8	8	-26.4000	27.4000	2.80
1976	8	9	-26.2000	28.2000	2.90
1976	8	9	-26.3000	27.4000	2.50
1976	8	10	-26.5000	27.3000	2.70
1976	8	12	-26.5000	27.4000	2.60
1976	8	12	-26.9000	26.8000	3.40
1976	8	12	-26.4000	27.4000	2.50
1976	8	13	-26.4000	27.3000	3.20
1976	8	16	-26.2000	28.2000	2.60
1976	8	19	-29.5000	25.0000	2.60
1976	8	19	-26.5000	27.5000	3.40
1976	8	19	-26.4000	27.7000	3.50
1976	8	19	-29.5000	25.1000	4.40
1976	8	21	-26.3000	27.5000	2.50
1976	8	21	-26.2000	28.4000	3.00
1976	8	22	-26.9000	26.9000	3.10
1976	8	23	-26.2000	27.4000	3.10
1976	8	26	-26.1000	28.1000	2.50
1976	8	27	-26.3000	27.4000	3.30
1976	8	27	-26.1000	28.1000	3.20
1976	8	27	-26.4000	27.3000	3.40
1976	8	28	-26.4000	27.5000	2.80
1976	8	29	-28.0000	26.8000	3.30
1976	8	30	-26.3000	27.6000	3.30
1976	8	31	-26.2000	28.0000	3.40
1976	9	4	-29.5000	25.0000	3.50
1976	9	4	-26.2000	28.3000	3.20
1976	9	4	-29.5000	25.1000	2.60
1976	9	6	-28.0000	26.7000	2.80
1976	9	7	-26.4000	27.5000	2.60
1976	9	7	-27.0000	26.7000	2.70
1976	9	8	-26.4000	27.4000	2.50
1976	9	8	-26.4000	27.4000	2.50
1976	9	8	-26.4000	27.4000	2.80
1976	9	10	-26.4000	27.4000	3.40
1976	9	11	-28.1000	26.8000	3.40

1976	9	13	-26.4000	27.3000	3.30
1976	9	15	-27.9000	26.5000	2.70
1976	9	16	-26.8000	26.7000	3.00
1976	9	18	-26.3000	28.1000	3.00
1976	9	18	-26.3000	27.6000	2.50
1976	9	18	-28.1000	26.7000	2.70
1976	9	22	-26.4000	27.4000	3.20
1976	9	22	-26.4000	27.4000	3.60
1976	9	23	-26.1000	28.1000	2.60
1976	9	24	-26.8000	26.8000	3.30
1976	9	24	-26.9000	26.9000	3.70
1976	9	24	-26.5000	27.4000	2.80
1976	9	24	-28.0000	26.9000	2.60
1976	9	25	-26.4000	27.3000	2.60
1976	9	25	-26.4000	27.4000	2.50
1976	9	26	-26.3000	27.3000	2.80
1976	9	28	-26.2000	28.1000	3.00
1976	9	30	-26.3000	27.7000	2.50
1976	9	30	-26.3000	27.5000	2.60
1976	10	2	-26.3000	27.2000	2.70
1976	10	3	-26.5000	27.5000	3.40
1976	10	6	-26.4000	27.2000	3.40
1976	10	7	-26.3000	27.5000	3.70
1976	10	7	-26.3000	27.4000	2.80
1976	10	8	-26.3000	27.2000	3.40
1976	10	8	-26.4000	27.4000	3.40
1976	10	8	-26.4000	27.5000	2.50
1976	10	10	-27.8000	26.5000	3.30
1976	10	11	-26.4000	27.5000	3.00
1976	10	12	-26.4000	27.3000	3.30
1976	10	13	-26.4000	27.4000	3.40
1976	10	14	-26.4000	27.8000	3.50
1976	10	14	-26.1000	27.7000	3.50
1976	10	16	-26.4000	27.4000	3.20
1976	10	17	-29.5000	24.9000	3.20
1976	10	18	-26.4000	27.4000	3.40
1976	10	18	-26.9000	26.8000	3.10
1976	10	23	-26.8000	26.7000	2.80
1976	10	23	-27.9000	26.7000	2.70
1976	10	24	-26.5000	27.7000	3.30
1976	10	25	-26.4000	27.5000	3.70
1976	10	28	-28.0000	26.4000	3.00
1976	10	29	-26.4000	27.5000	4.20
1976	10	31	-28.1000	26.9000	2.80
1976	10	31	-26.9000	26.8000	2.60
1976	11	1	-29.6000	24.8000	2.60
1976	11	1	-26.1000	27.8000	3.50
1976	11	1	-26.8000	26.8000	2.90
1976	11	2	-26.4000	27.6000	2.80
1976	11	2	-26.3000	27.9000	2.50
1976	11	3	-26.4000	27.7000	3.60
1976	11	3	-26.3000	27.4000	2.80
1976	11	3	-26.4000	27.3000	2.50
1976	11	5	-26.4000	27.4000	2.60
1976	11	10	-26.1000	27.6000	3.50
1976	11	12	-26.3000	27.2000	3.90
1976	11	12	-26.3000	27.4000	3.40
1976	11	19	-26.2000	28.1000	2.90
1976	11	20	-26.4000	27.4000	3.40
1976	11	22	-26.4000	27.4000	2.60
1976	11	22	-26.4000	27.3000	3.00

1976	11	24	-26.4000	27.3000	3.10
1976	11	26	-29.5000	25.1000	3.70
1976	11	27	-26.4000	27.5000	3.00
1976	11	29	-26.4000	27.4000	3.00
1976	11	29	-26.4000	27.3000	3.70
1976	11	30	-28.0000	26.7000	3.30
1976	11	30	-26.3000	27.4000	2.70
1976	12	2	-26.9000	26.8000	2.70
1976	12	3	-26.2000	28.2000	2.50
1976	12	4	-26.5000	27.3000	3.30
1976	12	6	-26.4000	27.3000	2.70
1976	12	7	-26.3000	27.7000	2.50
1976	12	7	-26.4000	27.4000	2.50
1976	12	7	-26.4000	27.4000	2.60
1976	12	8	-26.2000	28.1000	3.00
1976	12	8	-28.0000	26.8000	5.10
1976	12	8	-28.0000	26.7000	3.50
1976	12	8	-27.9000	26.7000	3.20
1976	12	8	-26.9000	26.8000	3.40
1976	12	8	-28.1000	26.9000	3.10
1976	12	15	-26.4000	27.4000	2.80
1976	12	17	-26.5000	27.5000	3.40
1976	12	18	-27.0000	26.8000	3.50
1976	12	19	-26.6000	27.6000	3.90
1976	12	22	-26.4000	27.4000	3.30
1976	12	25	-26.9000	26.8000	2.60
1976	12	26	-26.4000	27.3000	3.20
1976	12	29	-26.4000	27.4000	3.30
1976	12	29	-26.4000	27.4000	3.10
1977	1	4	-26.4000	27.4000	2.80
1977	1	7	-26.3000	27.2000	2.90
1977	1	8	-28.0000	26.8000	3.00
1977	1	8	-26.4000	27.4000	2.60
1977	1	8	-27.0000	26.9000	3.90
1977	1	13	-26.4000	27.4000	2.80
1977	1	17	-26.9000	26.8000	3.80
1977	1	18	-26.9000	26.8000	2.80
1977	1	20	-26.9000	26.9000	2.60
1977	1	20	-26.2000	27.7000	2.50
1977	1	22	-26.4000	27.9000	2.60
1977	1	27	-26.8000	26.8000	2.80
1977	1	28	-26.4000	28.4000	3.50
1977	1	28	-28.0000	26.7000	2.80
1977	1	29	-26.2000	28.2000	3.30
1977	1	30	-26.4000	27.3000	3.20
1977	2	1	-26.4000	27.5000	3.30
1977	2	5	-26.4000	27.4000	2.70
1977	2	5	-26.5000	27.4000	2.70
1977	2	7	-26.4000	27.5000	2.60
1977	2	9	-26.4000	27.3000	2.80
1977	2	9	-26.4000	27.4000	2.90
1977	2	11	-26.4000	27.4000	2.90
1977	2	11	-26.4000	27.5000	3.30
1977	2	12	-26.9000	26.8000	2.60
1977	2	14	-26.2000	28.2000	2.80
1977	2	17	-27.9000	26.7000	3.00
1977	2	17	-27.0000	26.8000	3.00
1977	2	18	-27.9000	26.6000	2.60
1977	2	20	-26.4000	27.7000	2.70
1977	2	21	-26.4000	27.4000	2.60
1977	2	25	-26.4000	27.3000	2.60

1977	2	25	-26.9000	26.8000	2.70
1977	2	28	-26.4000	27.3000	2.60
1977	3	2	-26.2000	27.8000	3.00
1977	3	4	-26.4000	27.4000	2.90
1977	3	5	-26.0000	27.4000	3.10
1977	3	6	-26.4000	27.4000	3.10
1977	3	6	-26.4000	27.4000	3.20
1977	3	6	-26.9000	26.8000	3.80
1977	3	7	-26.2000	28.4000	2.70
1977	3	7	-26.4000	27.4000	3.10
1977	3	10	-26.5000	27.5000	2.60
1977	3	14	-28.0000	26.9000	3.60
1977	3	14	-28.0000	26.8000	2.80
1977	3	14	-26.4000	27.4000	3.60
1977	3	15	-26.4000	27.4000	3.10
1977	3	18	-28.0000	26.6000	2.60
1977	3	20	-29.5000	25.0000	2.70
1977	3	22	-27.0000	26.7000	2.70
1977	3	23	-26.4000	27.4000	2.90
1977	3	26	-26.4000	27.3000	2.60
1977	3	27	-26.4000	27.5000	2.70
1977	3	27	-26.4000	27.4000	2.80
1977	3	29	-26.4000	27.4000	2.60
1977	3	30	-26.8000	27.0000	2.60
1977	3	30	-27.9000	26.6000	3.00
1977	3	30	-26.4000	27.4000	2.70
1977	3	30	-26.4000	27.4000	2.80
1977	3	31	-27.0000	26.5000	2.50
1977	3	31	-26.8000	26.8000	2.80
1977	4	1	-26.2000	28.3000	3.10
1977	4	1	-26.3000	28.3000	3.40
1977	4	2	-26.9000	26.8000	2.60
1977	4	2	-26.4000	27.4000	2.70
1977	4	3	-26.4000	27.5000	3.00
1977	4	3	-27.0000	26.9000	3.30
1977	4	5	-26.4000	27.3000	2.60
1977	4	7	-26.9000	26.7000	3.30
1977	4	7	-27.0000	26.7000	5.20
1977	4	7	-26.4000	27.3000	3.30
1977	4	7	-26.5000	27.4000	2.60
1977	4	11	-26.4000	27.4000	2.60
1977	4	11	-26.4000	27.4000	2.60
1977	4	12	-26.4000	27.6000	2.90
1977	4	12	-26.9000	26.7000	2.70
1977	4	13	-26.5000	27.4000	2.60
1977	4	13	-26.2000	27.8000	3.10
1977	4	15	-27.0000	26.7000	2.90
1977	4	16	-26.3000	28.3000	2.90
1977	4	16	-26.4000	27.5000	3.20
1977	4	16	-26.9000	26.7000	2.50
1977	4	18	-26.5000	27.4000	2.50
1977	4	19	-26.5000	27.5000	2.70
1977	4	19	-26.9000	26.8000	3.10
1977	4	19	-26.9000	26.8000	2.50
1977	4	22	-26.4000	27.4000	3.30
1977	4	23	-26.4000	27.4000	2.60
1977	4	23	-26.4000	27.4000	3.00
1977	4	23	-26.3000	28.3000	2.90
1977	4	24	-26.4000	27.3000	2.80
1977	4	25	-26.3000	27.7000	2.60
1977	4	25	-26.5000	27.3000	3.20

1977	4	26	-26.4000	27.6000	2.50
1977	4	26	-26.9000	26.6000	3.50
1977	4	27	-26.5000	27.5000	3.60
1977	4	28	-28.3000	27.0000	2.70
1977	4	28	-26.5000	27.5000	2.70
1977	4	29	-26.4000	27.4000	2.50
1977	4	29	-28.0000	26.7000	3.30
1977	4	30	-26.5000	27.5000	2.50
1977	4	30	-26.5000	27.4000	2.70
1977	4	30	-28.1000	26.9000	3.20
1977	5	2	-26.1000	27.8000	2.90
1977	5	2	-26.4000	27.4000	2.60
1977	5	3	-26.4000	27.5000	3.00
1977	5	4	-26.4000	27.3000	2.70
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1977	5	11	-26.3000	27.4000	3.00
1977	5	12	-26.4000	27.4000	3.60
1977	5	12	-28.0000	26.7000	3.20
1977	5	13	-26.4000	27.1000	3.20
1977	5	13	-26.4000	27.4000	3.00
1977	5	13	-26.3000	27.5000	2.50
1977	5	16	-26.4000	27.4000	2.80
1977	5	20	-26.3000	27.3000	3.10
1977	5	20	-26.3000	27.3000	3.30
1977	5	21	-26.5000	27.4000	2.90
1977	5	26	-26.4000	27.2000	3.00
1977	5	28	-26.5000	27.5000	2.70
1977	5	29	-26.9000	26.9000	2.60
1977	5	30	-26.3000	28.3000	2.90
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1977	6	7	-26.9000	26.8000	3.00
1977	6	9	-26.4000	27.5000	2.60
1977	6	9	-26.2000	28.0000	2.80
1977	6	10	-26.9000	26.6000	3.00
1977	6	10	-28.1000	26.9000	2.70
1977	6	11	-26.5000	27.4000	2.90
1977	6	13	-26.3000	28.2000	3.30
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1977	6	14	-26.4000	27.2000	2.60
1977	6	15	-26.4000	28.4000	3.10
1977	6	15	-28.0000	26.9000	3.60
1977	6	15	-26.3000	27.5000	2.50
1977	6	17	-26.1000	27.7000	2.50
1977	6	17	-26.5000	27.4000	2.50
1977	6	17	-26.5000	27.3000	2.60
1977	6	18	-26.5000	27.4000	2.70
1977	6	20	-26.4000	27.4000	3.70
1977	6	21	-29.5000	25.4000	2.80
1977	6	21	-27.0000	26.9000	3.10
1977	6	21	-29.4000	24.9000	2.60
1977	6	23	-26.4000	27.4000	3.60
1977	6	23	-26.4000	27.4000	2.60
1977	6	23	-26.4000	27.5000	2.80
1977	6	24	-26.4000	27.5000	2.70
1977	6	24	-26.4000	27.4000	2.80
1977	6	25	-26.3000	27.7000	2.50
1977	6	25	-26.2000	27.9000	2.70
1977	6	28	-29.5000	25.2000	2.70

1977	6	29	-26.5000	27.4000	2.70
1977	6	29	-26.4000	27.4000	3.10
1977	6	30	-26.2000	27.8000	2.60
1977	7	1	-26.4400	27.3900	3.04
1977	7	1	-26.3600	27.8900	2.54
1977	7	1	-26.4300	27.3300	3.13
1977	7	2	-26.1600	27.7900	2.87
1977	7	2	-26.4400	27.8200	2.64
1977	7	2	-28.0600	26.8400	2.78
1977	7	4	-26.1600	27.7900	3.22
1977	7	4	-26.4200	27.3800	3.39
1977	7	5	-26.4300	27.8500	2.95
1977	7	5	-26.4400	27.4800	3.20
1977	7	6	-26.4000	27.6200	2.53
1977	7	6	-27.0000	26.8000	2.90
1977	7	7	-26.9000	26.7900	2.60
1977	7	8	-26.9000	26.8000	2.60
1977	7	8	-26.2000	28.2600	3.01
1977	7	9	-26.4400	27.3100	2.66
1977	7	9	-26.4400	27.4800	2.50
1977	7	10	-29.4900	25.1100	3.36
1977	7	11	-26.4200	27.3200	3.07
1977	7	11	-26.9000	26.8400	3.58
1977	7	12	-27.0000	26.6700	2.83
1977	7	15	-26.4000	27.3600	2.68
1977	7	17	-26.4500	27.4000	2.72
1977	7	17	-26.2500	28.2500	3.02
1977	7	17	-26.4400	27.3800	2.58
1977	7	17	-28.0800	27.2100	2.52
1977	7	18	-26.3900	27.7200	3.16
1977	7	18	-26.4200	27.4200	3.08
1977	7	20	-26.4100	27.4400	2.72
1977	7	20	-26.2900	28.2800	3.65
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1977	7	20	-26.4200	27.3900	2.78
1977	7	20	-26.2500	28.2500	2.74
1977	7	21	-27.3200	26.4100	2.88
1977	7	23	-26.4300	27.4300	3.03
1977	7	24	-26.4600	27.5000	3.73
1977	7	25	-27.9000	26.5000	2.70
1977	7	25	-26.4200	27.8000	2.61
1977	7	26	-26.4200	27.4300	2.67
1977	7	26	-26.3400	27.2600	3.50
1977	7	30	-26.3000	27.6000	3.10
1977	7	30	-28.1000	26.9000	3.10
1977	7	30	-26.8600	26.7800	2.76
1977	7	31	-26.9100	26.7000	2.54
1977	8	2	-26.4200	27.4200	4.28
1977	8	2	-26.3000	28.0000	3.10
1977	8	2	-26.4600	27.3900	2.60
1977	8	2	-26.3900	27.4000	3.36
1977	8	2	-26.4200	27.3800	2.66
1977	8	4	-28.0700	26.7800	3.13
1977	8	5	-26.4800	27.4400	3.03
1977	8	6	-26.3800	27.3500	2.91
1977	8	7	-26.8900	26.7400	2.82
1977	8	7	-29.5500	25.0700	2.61
1977	8	8	-26.9500	26.8500	2.99
1977	8	8	-28.1000	26.8000	2.50
1977	8	11	-26.4400	27.3200	2.59
1977	8	11	-26.4400	27.2900	2.85

1977	8	12	-26.4000	27.4700	2.50
1977	8	12	-26.4100	27.4200	2.50
1977	8	12	-26.3900	27.7300	3.18
1977	8	12	-26.3400	27.6400	2.65
1977	8	14	-26.4200	27.8100	2.98
1977	8	14	-26.4100	27.4400	3.01
1977	8	16	-26.7600	26.9600	2.98
1977	8	16	-28.1000	26.7800	2.80
1977	8	17	-28.2200	26.9200	3.01
1977	8	18	-26.3800	27.1500	2.67
1977	8	19	-26.4200	27.4100	3.24
1977	8	19	-26.4000	27.4000	2.80
1977	8	20	-26.8400	26.8800	2.66
1977	8	20	-26.7600	27.0100	2.63
1977	8	22	-28.0500	26.8200	3.08
1977	8	22	-26.3300	27.1300	3.26
1977	8	24	-26.4100	27.4100	3.29
1977	8	26	-26.2100	28.1800	3.03
1977	8	26	-28.0400	26.7800	2.77
1977	8	27	-26.2000	28.1600	2.50
1977	8	27	-26.2400	28.3400	2.69
1977	8	29	-26.3400	27.3700	3.15
1977	8	30	-26.4100	27.4500	3.59
1977	8	30	-26.4300	27.4100	2.61
1977	8	31	-26.4300	27.4000	2.74
1977	8	31	-26.3300	27.6200	2.51
1977	8	31	-28.4600	26.6300	3.21
1977	9	1	-26.4100	27.3100	2.95
1977	9	2	-26.8900	26.7800	3.54
1977	9	2	-28.1200	26.9200	2.78
1977	9	2	-26.4100	27.3700	3.81
1977	9	4	-26.4200	27.3800	3.75
1977	9	5	-26.3800	27.4600	2.76
1977	9	5	-26.4000	27.4700	2.97
1977	9	7	-26.3000	27.6000	2.80
1977	9	7	-26.4000	27.4100	2.91
1977	9	10	-26.3000	28.3500	3.20
1977	9	13	-26.2200	28.3100	2.69
1977	9	13	-28.0700	26.9000	2.51
1977	9	15	-26.3500	27.1000	3.13
1977	9	15	-26.4100	27.4400	3.16
1977	9	15	-26.4400	27.3100	2.80
1977	9	16	-26.4200	27.3600	2.73
1977	9	17	-26.3000	27.5500	2.90
1977	9	17	-26.4400	27.3700	4.08
1977	9	20	-26.8400	26.7600	2.61
1977	9	20	-26.8400	26.7900	3.03
1977	9	20	-26.4400	27.5600	4.00
1977	9	25	-27.2800	25.6200	3.02
1977	9	25	-25.5100	26.9800	3.31
1977	9	26	-26.1700	27.1600	3.27
1977	9	26	-26.8600	26.7100	3.43
1977	9	27	-26.9200	26.7100	3.29
1977	9	28	-26.2800	27.5400	2.61
1977	9	30	-27.9300	26.5800	2.78
1977	9	30	-28.0300	26.7800	2.95
1977	10	1	-26.2000	28.0700	3.44
1977	10	1	-26.3300	27.2200	2.52
1977	10	2	-26.4000	27.4700	3.00
1977	10	2	-26.2200	27.9200	2.50
1977	10	3	-26.4300	27.4100	3.02

1977	10	3	-26.4100	27.3500	3.36
1977	10	4	-26.4300	27.3400	2.95
1977	10	5	-26.4200	27.4400	2.73
1977	10	6	-28.1000	26.9400	2.66
1977	10	6	-26.9900	26.9300	3.93
1977	10	7	-26.4300	27.3700	2.71
1977	10	7	-26.4300	27.3500	2.83
1977	10	8	-27.2200	26.4400	2.54
1977	10	10	-26.4100	27.3800	2.83
1977	10	11	-28.0100	26.8100	2.97
1977	10	12	-26.4900	27.3100	2.50
1977	10	12	-26.9900	26.7800	2.53
1977	10	13	-26.4000	27.4000	3.20
1977	10	13	-26.4500	27.3500	3.41
1977	10	13	-26.8700	26.7800	3.00
1977	10	15	-26.4100	27.4400	2.74
1977	10	15	-28.0200	26.8700	2.71
1977	10	15	-26.4200	27.3400	3.35
1977	10	15	-28.0800	26.9100	3.10
1977	10	15	-26.4600	27.4300	2.50
1977	10	16	-27.9700	26.8600	2.66
1977	10	17	-26.5000	27.4300	2.81
1977	10	19	-26.5200	27.2300	2.65
1977	10	19	-26.4200	27.4200	2.85
1977	10	20	-26.4400	27.3700	2.68
1977	10	21	-26.9800	26.8100	2.65
1977	10	21	-26.2000	27.8000	2.80
1977	10	21	-26.2700	28.3100	2.71
1977	10	23	-26.3000	28.3000	3.00
1977	10	24	-26.5000	27.9000	3.60
1977	10	25	-26.3800	27.2900	2.79
1977	10	26	-26.4300	27.4300	2.55
1977	10	27	-26.2000	27.8400	2.71
1977	10	27	-26.2600	28.2300	2.90
1977	10	27	-26.2700	27.7100	2.51
1977	10	28	-24.8200	27.2700	3.67
1977	10	31	-26.4300	27.6000	3.08
1977	10	31	-26.4300	27.3500	3.11
1977	10	31	-26.4500	27.5000	3.48
1977	10	31	-26.9100	26.8200	2.76
1977	10	31	-26.8700	26.8000	3.07
1977	11	3	-26.2800	28.3000	2.87
1977	11	3	-26.4100	27.4600	2.58
1977	11	4	-26.4400	27.4300	2.94
1977	11	6	-26.4300	27.4300	2.70
1977	11	7	-26.9000	26.7700	2.55
1977	11	11	-26.4100	27.4100	2.99
1977	11	14	-26.3700	27.6900	2.54
1977	11	14	-26.4000	27.4600	2.74
1977	11	16	-26.4100	27.4200	3.27
1977	11	18	-26.2600	28.1800	3.21
1977	11	19	-26.4000	27.3900	3.11
1977	11	19	-26.4200	27.4600	2.79
1977	11	19	-26.4500	27.4000	3.48
1977	11	20	-26.4400	27.4700	3.10
1977	11	20	-26.4200	27.3800	2.75
1977	11	21	-28.0500	26.8800	2.62
1977	11	21	-26.4000	27.3600	2.59
1977	11	21	-28.1600	26.9600	2.77
1977	11	21	-28.0700	26.8900	2.77
1977	11	22	-26.9500	26.8700	2.78

1977	11	22	-28.1800	28.8400	3.07
1977	11	23	-26.4900	27.4700	2.98
1977	11	24	-26.4600	27.4200	2.85
1977	11	25	-26.3400	28.3300	3.47
1977	11	27	-26.2500	28.2500	3.37
1977	11	28	-28.1300	26.7700	2.87
1977	12	1	-26.8900	26.7600	3.34
1977	12	2	-26.4700	27.3800	2.98
1977	12	3	-26.4100	27.4000	3.14
1977	12	3	-26.9500	26.7300	2.85
1977	12	4	-26.4100	27.5800	3.53
1977	12	6	-26.9500	26.7400	3.90
1977	12	6	-26.4400	27.4500	2.97
1977	12	7	-26.4100	27.4000	3.96
1977	12	8	-26.4000	27.3200	2.54
1977	12	9	-26.9100	26.8300	2.83
1977	12	12	-26.4600	27.3200	2.55
1977	12	12	-28.0500	26.7200	2.75
1977	12	20	-26.9000	26.5900	3.11
1977	12	20	-28.0300	26.8100	3.17
1977	12	20	-27.9300	26.6500	3.24
1977	12	24	-26.5300	27.2800	2.78
1977	12	27	-26.3800	27.3800	2.94
1977	12	28	-26.2100	28.0700	3.22
1978	1	3	-26.1500	27.8500	3.11
1978	1	6	-26.3700	27.4000	2.70
1978	1	7	-26.5300	27.4800	2.80
1978	1	7	-26.3900	27.3900	2.64
1978	1	11	-26.4000	27.4000	3.38
1978	1	11	-26.2600	27.7800	2.77
1978	1	13	-27.9000	23.1000	3.00
1978	1	14	-26.2500	28.2600	2.80
1978	1	16	-26.4300	27.3900	2.70
1978	1	16	-26.4300	27.4500	2.97
1978	1	18	-26.2600	28.2400	3.22
1978	1	19	-26.4400	27.5300	2.73
1978	1	19	-26.4200	27.4300	3.03
1978	1	19	-26.4100	27.3600	2.85
1978	1	19	-26.9600	26.8600	3.92
1978	1	25	-26.4600	27.4100	2.68
1978	1	25	-26.4000	27.4400	3.33
1978	1	26	-26.5000	27.4300	2.73
1978	2	1	-26.4100	27.3900	2.51
1978	2	1	-28.0100	26.8800	3.16
1978	2	1	-27.9400	26.8200	2.53
1978	2	1	-26.4200	27.4300	2.53
1978	2	2	-26.4700	27.4500	2.91
1978	2	3	-26.3000	28.2500	3.31
1978	2	4	-26.9300	26.7300	3.17
1978	2	4	-26.9700	26.6300	2.79
1978	2	5	-26.4000	27.7500	2.61
1978	2	6	-26.9300	26.8400	2.85
1978	2	6	-26.4500	27.4100	2.88
1978	2	8	-26.9000	26.8600	3.04
1978	2	10	-26.4400	27.4500	2.69
1978	2	11	-28.0500	26.7900	3.11
1978	2	13	-27.8900	26.7600	3.16
1978	2	15	-26.4400	27.3600	2.59
1978	2	16	-28.1400	26.7500	2.83
1978	2	16	-28.2700	26.9600	2.78
1978	2	16	-26.4100	27.6200	2.75

1978	2	18	-26.3900	27.4000	2.50
1978	2	18	-26.3300	27.1500	3.14
1978	2	18	-26.9000	26.8000	2.70
1978	2	18	-26.4300	27.4000	2.65
1978	2	18	-26.4400	27.4100	3.06
1978	2	18	-26.4400	27.3700	3.24
1978	2	19	-27.0100	26.8200	3.01
1978	2	21	-26.4000	27.5900	3.19
1978	2	21	-26.4000	27.4300	3.73
1978	2	21	-28.1000	26.8700	3.19
1978	2	21	-26.4000	27.4000	2.66
1978	2	22	-28.0200	26.6500	2.81
1978	2	23	-26.4000	27.4100	2.77
1978	2	23	-26.4200	27.3500	2.50
1978	2	23	-28.0800	26.9000	3.37
1978	2	23	-28.0700	26.8700	2.87
1978	2	24	-26.4500	27.3400	3.52
1978	2	24	-26.4400	27.3500	3.63
1978	2	24	-26.9400	26.7400	2.89
1978	2	24	-26.8500	26.8100	2.83
1978	2	26	-26.2600	28.3800	2.73
1978	2	27	-26.9400	26.7800	2.56
1978	2	27	-26.2900	27.7300	2.58
1978	2	27	-27.0000	26.7400	2.58
1978	2	27	-26.3000	28.2900	2.57
1978	2	27	-26.4600	27.3400	3.50
1978	2	28	-29.5700	25.1600	3.22
1978	2	28	-29.5000	25.4000	3.00
1978	3	3	-26.5700	27.5700	3.02
1978	3	6	-26.4200	27.3700	3.65
1978	3	6	-26.4400	27.4000	2.52
1978	3	7	-26.4200	27.4100	2.95
1978	3	8	-26.3300	27.3100	3.27
1978	3	9	-26.4300	27.3800	3.98
1978	3	10	-26.4100	27.4500	3.49
1978	3	10	-26.4100	27.4200	3.11
1978	3	11	-26.2800	28.3600	2.65
1978	3	11	-28.0700	26.8800	2.85
1978	3	11	-26.4200	27.4500	2.61
1978	3	15	-27.9900	26.7100	3.06
1978	3	16	-26.3600	27.4000	2.88
1978	3	18	-26.8100	26.6700	3.55
1978	3	21	-26.5500	27.5800	4.12
1978	3	23	-26.3700	27.3800	2.68
1978	3	23	-26.3600	27.3700	2.67
1978	3	23	-26.2700	28.2200	2.56
1978	3	29	-28.0400	26.8700	2.94
1978	3	29	-26.4200	27.3800	2.53
1978	3	30	-26.2500	28.1900	3.46
1978	3	31	-26.2600	28.2600	2.79
1978	3	31	-27.0400	26.7900	3.02
1978	3	31	-28.1100	26.9300	3.30
1978	4	1	-26.9000	26.6000	2.60
1978	4	6	-26.3300	27.5800	2.96
1978	4	6	-26.2800	28.3100	3.19
1978	4	6	-26.4300	27.4000	3.05
1978	4	6	-26.4500	27.3100	2.57
1978	4	7	-26.9300	26.7000	3.01
1978	4	7	-26.4200	27.4500	3.12
1978	4	7	-27.9900	26.8300	3.08
1978	4	7	-26.4200	27.3800	2.69

1978	4	9	-26.4300	27.4200	3.10
1978	4	9	-26.4000	27.6300	2.51
1978	4	12	-26.3000	28.4200	2.54
1978	4	12	-28.1000	26.9100	3.02
1978	4	13	-26.4200	27.4700	2.83
1978	4	14	-26.2500	28.4400	2.91
1978	4	14	-26.4400	27.4400	2.61
1978	4	17	-26.3500	28.2900	2.60
1978	4	17	-26.3400	28.4100	3.09
1978	4	17	-26.5500	27.4700	4.01
1978	4	18	-26.4400	27.4700	3.73
1978	4	18	-28.1000	26.8000	2.60
1978	4	19	-26.4800	27.4600	2.98
1978	4	21	-26.3000	28.3900	4.25
1978	4	22	-26.3100	27.6400	3.11
1978	4	23	-26.4300	27.4300	2.67
1978	4	23	-26.6900	27.0500	2.51
1978	4	25	-26.3500	27.2500	3.28
1978	4	26	-27.0400	26.9100	3.80
1978	4	27	-26.3000	27.2800	3.20
1978	4	29	-26.8400	26.7100	2.51
1978	5	1	-26.4300	27.3300	2.64
1978	5	1	-28.1000	26.8200	3.54
1978	5	2	-26.2100	28.3900	4.26
1978	5	2	-26.4300	27.4000	2.83
1978	5	4	-26.3500	27.8300	2.62
1978	5	4	-26.3000	27.2000	3.50
1978	5	5	-26.3300	28.4600	3.60
1978	5	5	-26.4300	27.5000	2.54
1978	5	5	-26.8100	26.6000	2.59
1978	5	7	-26.4600	27.5000	3.78
1978	5	7	-26.4900	27.4800	3.00
1978	5	7	-26.4900	27.4700	2.94
1978	5	8	-26.9600	26.9000	3.02
1978	5	14	-26.4300	27.4200	3.04
1978	5	15	-26.9200	26.8400	2.63
1978	5	16	-26.4500	27.4200	3.20
1978	5	16	-26.9700	26.8100	2.57
1978	5	18	-26.4600	27.4400	2.94
1978	5	18	-28.0400	26.7000	2.94
1978	5	19	-26.3400	27.2300	2.81
1978	5	20	-26.4200	27.4100	2.90
1978	5	22	-26.3900	27.3600	3.84
1978	5	22	-26.4900	28.0400	3.10
1978	5	22	-26.4500	27.3900	3.44
1978	5	22	-26.2500	28.3000	2.86
1978	5	23	-26.4600	27.3800	3.00
1978	5	23	-26.4100	27.3500	2.91
1978	5	23	-28.0400	26.8600	3.46
1978	5	25	-27.9200	26.7400	2.95
1978	5	25	-27.0300	26.8500	2.55
1978	5	27	-27.1300	26.9700	3.58
1978	5	31	-26.9600	26.7900	2.68
1978	6	2	-29.5400	25.1700	3.63
1978	6	4	-27.0500	26.5300	2.81
1978	6	4	-26.3300	27.6600	3.42
1978	6	7	-27.0100	26.8900	3.13
1978	6	13	-26.7000	26.5000	3.00
1978	6	13	-26.3000	28.0700	3.50
1978	6	14	-27.9600	26.7100	2.72
1978	6	15	-26.9100	26.7300	3.17

1978	6	15	-27.9000	26.6000	2.50
1978	6	18	-27.9700	26.9600	2.95
1978	6	19	-26.4200	27.5500	2.79
1978	6	20	-27.9900	26.8200	2.67
1978	6	22	-26.3700	27.3900	3.16
1978	6	24	-26.3800	27.2800	3.00
1978	6	24	-26.3900	27.3200	2.89
1978	6	24	-26.3600	27.3700	3.04
1978	6	24	-26.8500	26.6200	2.84
1978	6	24	-26.9000	26.7200	3.33
1978	6	25	-26.4100	27.4400	2.79
1978	6	28	-26.7300	27.2700	2.66
1978	7	3	-26.3500	27.2700	3.37
1978	7	3	-26.4900	27.6000	3.16
1978	7	3	-26.4900	27.6900	2.60
1978	7	7	-26.3500	27.3400	3.25
1978	7	8	-26.3700	27.3200	2.65
1978	7	8	-27.0600	26.8900	2.83
1978	7	10	-27.9700	26.6500	2.68
1978	7	10	-27.9300	26.6400	2.97
1978	7	12	-26.3900	27.3900	3.46
1978	7	17	-24.3000	31.3000	3.80
1978	7	17	-26.4000	27.3000	3.70
1978	7	18	-26.3600	27.4500	2.68
1978	7	19	-26.4600	27.4900	3.02
1978	7	20	-26.2300	28.2400	3.08
1978	7	21	-26.9300	26.7200	3.48
1978	7	21	-28.0500	26.9800	3.65
1978	7	24	-27.9200	26.6300	3.37
1978	7	26	-26.3400	27.3400	3.94
1978	7	27	-26.3800	27.3500	3.60
1978	7	30	-27.9700	26.8300	2.72
1978	8	1	-26.4100	27.4400	2.68
1978	8	2	-26.4400	27.5800	2.64
1978	8	2	-27.8800	26.7500	2.51
1978	8	9	-28.1300	26.8500	3.01
1978	8	11	-26.3800	27.3200	3.06
1978	8	14	-26.3100	27.5900	3.16
1978	8	15	-26.9800	26.7900	2.87
1978	8	15	-26.4500	27.5300	2.52
1978	8	16	-26.4400	27.4600	3.99
1978	8	19	-26.4200	27.3600	3.89
1978	8	22	-26.8800	26.6800	3.43
1978	8	22	-26.3900	27.4000	2.75
1978	8	26	-26.4200	27.4100	3.10
1978	8	29	-27.0300	26.7700	3.26
1978	9	7	-28.0900	26.9000	2.71
1978	9	9	-26.4600	27.6100	3.62
1978	9	12	-26.4800	27.4800	2.90
1978	9	15	-28.0900	26.8900	3.12
1978	9	17	-26.8900	26.7300	3.07
1978	9	25	-24.9800	26.3100	4.10
1978	9	26	-26.3000	27.3100	3.40
1978	9	27	-26.4300	27.3500	3.59
1978	9	27	-26.3500	27.3900	3.69
1978	10	1	-26.2300	27.2600	3.17
1978	10	4	-26.3300	27.3100	3.75
1978	10	8	-27.9700	26.7700	3.34
1978	10	12	-27.0000	26.8500	3.50
1978	10	13	-27.9400	26.6700	2.80
1978	10	13	-26.4200	27.3500	3.12

1978	10	13	-26.4300	27.4000	3.40
1978	10	13	-26.4200	27.4100	2.84
1978	10	15	-26.4000	27.4400	3.20
1978	10	16	-26.4000	27.3200	3.18
1978	10	17	-28.0700	26.8200	2.80
1978	10	19	-25.7000	27.5000	3.30
1978	10	21	-26.8700	26.8100	3.27
1978	10	21	-26.4100	27.4200	3.44
1978	10	23	-28.0600	26.8000	2.75
1978	10	25	-26.8100	26.7100	2.96
1978	10	30	-26.3600	27.3600	3.08
1978	11	1	-28.0000	26.8600	3.17
1978	11	2	-26.8400	26.7700	3.64
1978	11	2	-26.8100	26.7600	2.92
1978	11	4	-26.4200	27.3700	3.06
1978	11	7	-26.4300	27.4600	3.26
1978	11	11	-26.3900	27.4200	3.04
1978	11	14	-28.0300	26.8200	2.87
1978	11	14	-26.3600	27.3700	3.42
1978	11	15	-27.8500	26.6200	3.19
1978	11	15	-28.0200	26.9100	3.26
1978	11	19	-26.4900	27.8300	3.29
1978	11	21	-28.0500	26.8500	2.76
1978	11	22	-26.2700	27.3700	3.32
1978	11	23	-26.4700	27.5200	3.76
1978	11	23	-26.9000	26.7800	2.95
1978	11	24	-26.4400	27.4000	3.01
1978	11	27	-26.2900	27.4600	3.48
1978	11	30	-26.3700	27.3400	2.95
1978	12	2	-27.9800	26.7700	2.81
1978	12	4	-27.8900	26.6200	2.61
1978	12	6	-26.3600	27.3300	3.27
1978	12	7	-26.3500	27.3400	3.29
1978	12	9	-26.9500	26.9900	3.75
1978	12	22	-26.5000	27.6200	3.98
1978	12	27	-26.3900	27.2500	2.96
1978	12	30	-26.3700	27.4000	3.23
1978	12	31	-26.9500	26.8900	3.46
1979	1	8	-26.3000	28.4000	3.52
1979	1	9	-27.9500	26.6300	2.88
1979	1	10	-28.2100	26.6200	3.56
1979	1	13	-26.5400	27.5200	3.87
1979	1	19	-26.6400	27.6500	3.92
1979	1	22	-27.9300	26.7100	2.96
1979	1	24	-26.9900	26.8000	3.73
1979	1	25	-27.0000	26.8600	4.02
1979	1	25	-27.0100	26.8500	3.73
1979	1	26	-27.9500	26.7400	2.70
1979	1	26	-26.4400	27.4600	3.11
1979	1	28	-28.1000	26.8200	3.80
1979	2	3	-26.3100	27.2500	2.93
1979	2	3	-26.4700	27.4500	2.98
1979	2	7	-27.9500	26.7200	3.47
1979	2	7	-27.9500	26.6800	3.40
1979	2	7	-28.1200	26.7700	2.59
1979	2	13	-26.5200	27.6000	3.63
1979	2	23	-28.0500	26.8400	3.48
1979	2	25	-27.9600	26.6700	2.82
1979	2	27	-26.2800	27.1500	3.28
1979	3	1	-28.0200	26.8100	2.91
1979	3	1	-26.2100	28.1800	2.67

1979	3	2	-26.7600	26.6100	3.43
1979	3	2	-26.2000	28.1700	2.51
1979	3	3	-26.3700	27.3600	3.76
1979	3	6	-26.2800	27.6200	3.16
1979	3	6	-26.5100	27.6200	3.77
1979	3	7	-26.2900	27.2500	3.25
1979	3	9	-26.2900	27.2800	2.58
1979	3	12	-29.5500	24.8900	3.14
1979	3	12	-26.2900	27.2700	2.76
1979	3	14	-26.2600	27.2300	3.16
1979	3	15	-26.2200	28.1500	2.80
1979	3	15	-27.9600	26.7100	3.36
1979	3	20	-26.0800	28.1100	2.58
1979	3	21	-26.3600	27.3100	2.98
1979	3	21	-26.3400	27.3800	3.29
1979	3	22	-26.2600	27.2200	2.98
1979	3	22	-26.3000	27.1600	2.71
1979	3	22	-26.4000	27.3000	3.70
1979	3	23	-26.5300	27.4600	2.98
1979	3	25	-26.6700	27.5900	2.85
1979	3	25	-26.3500	27.2400	3.23
1979	3	26	-26.3500	27.3600	3.33
1979	3	26	-26.2800	27.1800	3.12
1979	3	27	-26.3400	27.3700	2.85
1979	3	28	-26.4700	27.6400	2.65
1979	3	31	-26.8000	26.6600	3.27
1979	3	31	-26.7500	26.7000	2.61
1979	4	2	-26.3500	27.3600	3.17
1979	4	2	-26.2300	27.1700	3.20
1979	4	4	-28.0600	26.9200	2.58
1979	4	5	-26.8300	26.6400	3.11
1979	4	6	-26.8800	26.6800	3.55
1979	4	7	-27.9800	26.6300	2.73
1979	4	7	-26.7600	26.5500	3.33
1979	4	7	-26.2700	27.3300	2.64
1979	4	8	-26.2300	28.2600	2.95
1979	4	10	-27.9200	26.6500	2.85
1979	4	11	-27.9500	26.6600	2.67
1979	4	13	-26.7800	26.6900	3.17
1979	4	17	-26.3200	27.3000	3.46
1979	4	25	-26.4800	27.6700	3.55
1979	5	1	-26.4500	27.4700	2.88
1979	5	5	-26.2000	27.2400	3.04
1979	5	7	-26.7500	26.6400	2.67
1979	5	10	-26.3100	27.3300	3.00
1979	5	11	-26.7800	26.6100	2.89
1979	5	11	-27.9500	26.6800	3.25
1979	5	11	-28.0200	26.8000	2.79
1979	5	13	-26.9000	26.7100	2.74
1979	5	18	-26.4500	27.5200	4.09
1979	5	22	-27.9800	26.7300	3.61
1979	5	22	-27.9000	26.5800	3.11
1979	5	23	-27.0500	26.9800	3.86
1979	5	25	-26.2900	27.1800	2.91
1979	5	27	-26.4600	27.4600	4.00
1979	5	28	-26.9000	26.7500	2.85
1979	5	29	-26.2900	27.2600	3.46
1979	6	2	-27.9100	26.7000	2.87
1979	6	2	-27.9600	26.6400	2.55
1979	6	3	-26.3100	27.3700	3.15
1979	6	4	-28.0400	26.7300	2.96

1979	6	8	-26.2200	27.1600	2.98
1979	6	13	-26.2800	27.2900	3.99
1979	6	16	-29.5300	25.1400	3.27
1979	6	16	-26.2700	27.2600	3.78
1979	6	18	-26.9100	26.7200	2.97
1979	6	18	-27.0000	26.8800	3.32
1979	6	20	-26.4000	27.5000	4.10
1979	6	20	-27.9800	26.6800	3.07
1979	6	26	-26.3400	27.5600	4.11
1979	7	11	-26.8500	26.6400	3.09
1979	7	18	-27.8200	26.5000	3.49
1979	7	20	-26.9100	26.7200	2.86
1979	7	23	-22.1000	28.9000	3.67
1979	7	25	-26.4400	27.4600	4.06
1979	7	27	-26.4100	27.4000	3.96
1979	8	1	-26.2300	27.1700	2.86
1979	8	3	-26.4000	27.3600	3.57
1979	8	3	-26.3400	27.3400	3.15
1979	8	12	-27.9000	26.6800	3.49
1979	8	15	-26.2600	27.2900	3.48
1979	8	18	-27.0400	27.0900	3.31
1979	8	24	-27.9300	26.5900	2.99
1979	9	5	-26.3200	28.4400	3.81
1979	9	6	-27.8900	26.6400	3.35
1979	9	14	-27.8300	26.6600	2.96
1979	9	14	-27.9300	26.5800	3.37
1979	9	14	-28.1100	26.9000	2.98
1979	9	14	-28.0000	26.7500	2.80
1979	9	14	-27.9600	26.7700	2.55
1979	9	19	-26.8300	26.6500	2.90
1979	9	20	-27.9300	26.6300	3.29
1979	9	20	-26.1800	27.1900	3.15
1979	9	21	-26.1300	27.1400	3.12
1979	9	23	-26.9100	26.6300	3.07
1979	9	26	-26.4200	27.4200	3.86
1979	9	26	-26.0800	27.8200	3.15
1979	9	28	-26.2200	27.2000	3.19
1979	10	2	-26.9900	26.9200	3.91
1979	10	4	-26.2300	27.3200	3.02
1979	10	4	-26.0400	27.1200	2.76
1979	10	4	-26.7000	26.4600	3.55
1979	10	7	-26.5200	27.7700	3.11
1979	10	11	-26.3900	27.5000	2.96
1979	10	11	-26.2500	27.3000	3.11
1979	10	13	-28.0500	26.8500	2.69
1979	10	13	-26.5600	27.6800	3.76
1979	10	20	-26.2500	28.2700	2.88
1979	10	29	-28.0400	26.8100	2.77
1979	10	29	-26.1900	27.2300	3.68
1979	10	30	-28.0400	26.6900	2.54
1979	10	30	-26.5000	27.5700	3.80
1979	10	31	-26.1900	27.2000	3.12
1979	11	7	-26.8900	26.7400	3.43
1979	11	9	-26.4000	27.4400	3.88
1979	11	10	-26.4100	27.3100	2.68
1979	11	14	-28.2800	26.8200	3.05
1979	11	16	-26.3700	27.3800	2.89
1979	11	16	-27.0300	26.8600	3.26
1979	11	19	-26.4000	27.4200	3.38
1979	11	19	-28.0600	26.8200	4.11
1979	11	28	-24.2000	28.3000	4.17

1979	11	28	-28.0300	26.8100	2.97
1979	11	28	-26.2600	27.3200	3.28
1979	11	29	-26.1400	27.5500	2.96
1979	11	30	-26.3700	27.2900	3.37
1979	11	30	-26.2400	27.4600	2.92
1979	12	1	-26.2800	27.1200	2.90
1979	12	8	-26.3400	27.6000	3.36
1979	12	12	-27.7200	26.8400	2.79
1979	12	13	-26.7800	26.5300	3.16
1979	12	13	-27.8900	26.7200	2.58
1979	12	14	-26.2100	27.2200	2.55
1979	12	15	-26.2400	28.2700	3.05
1979	12	15	-26.4600	28.0900	3.14
1979	12	15	-27.9300	26.8400	2.74
1979	12	18	-27.9500	26.7000	2.80
1980	1	7	-26.3900	27.3200	2.89
1980	1	8	-26.9200	26.7400	2.65
1980	1	8	-27.9900	26.7800	2.95
1980	1	9	-26.4300	27.4000	3.26
1980	1	10	-26.4200	27.4400	2.96
1980	1	10	-26.2600	28.2400	2.91
1980	1	10	-26.4000	27.3600	2.50
1980	1	10	-26.4800	27.5500	3.87
1980	1	11	-26.2700	28.1700	2.78
1980	1	12	-26.3800	27.3700	2.91
1980	1	12	-26.4100	27.4300	3.25
1980	1	13	-27.9200	26.6400	3.37
1980	1	14	-26.3900	27.5900	2.97
1980	1	15	-26.3700	27.3800	3.61
1980	1	15	-26.3900	27.3800	2.78
1980	1	16	-26.4100	27.4100	2.94
1980	1	18	-26.4300	27.3800	2.92
1980	1	18	-26.9400	26.7200	3.01
1980	1	21	-26.4400	27.4200	3.72
1980	1	22	-26.4500	27.3400	2.52
1980	1	23	-26.3900	27.4500	2.68
1980	1	24	-26.2100	28.2400	2.67
1980	1	24	-26.3200	27.6500	3.13
1980	1	24	-26.4100	27.4400	2.90
1980	1	28	-26.4500	27.4400	4.03
1980	1	29	-26.1800	28.5100	2.60
1980	1	29	-26.4100	27.3900	3.18
1980	1	30	-26.3500	27.6400	3.11
1980	1	31	-26.8000	26.5900	2.98
1980	2	1	-26.3400	27.4700	2.58
1980	2	1	-26.2200	28.1700	2.57
1980	2	1	-26.2300	28.2500	2.97
1980	2	2	-27.9900	26.7700	3.12
1980	2	4	-26.4600	27.3900	3.15
1980	2	4	-26.4000	27.5800	2.51
1980	2	5	-28.0000	26.9000	3.80
1980	2	5	-26.2300	28.2000	3.26
1980	2	6	-27.0100	26.8000	3.53
1980	2	8	-26.2600	28.2500	2.56
1980	2	10	-26.4000	27.4700	3.23
1980	2	13	-26.8700	26.7000	2.66
1980	2	14	-26.4200	27.4100	2.82
1980	2	15	-27.9900	26.7700	3.24
1980	2	19	-26.3600	27.4800	2.86
1980	2	20	-26.3800	27.6100	2.95
1980	2	21	-26.4600	27.3700	2.51

1980	2	21	-26.3400	27.6700	2.85
1980	2	23	-26.4000	27.4000	3.07
1980	2	25	-26.1700	27.8600	2.73
1980	2	25	-26.3600	27.4000	2.95
1980	2	25	-26.4400	27.3900	3.20
1980	2	25	-26.4100	27.3700	2.62
1980	2	26	-28.1300	27.1100	2.75
1980	2	27	-26.9200	26.8000	2.80
1980	2	27	-26.9600	26.7500	3.15
1980	2	28	-26.3400	27.4200	2.74
1980	2	28	-26.9000	26.7300	2.81
1980	2	28	-27.0000	27.0100	3.24
1980	3	2	-26.3000	27.6000	2.80
1980	3	3	-26.2800	28.1800	2.89
1980	3	4	-26.4000	27.4100	3.08
1980	3	4	-26.9300	26.7500	2.65
1980	3	4	-26.4200	27.3600	3.31
1980	3	6	-26.9000	26.8000	3.60
1980	3	10	-26.3700	27.4200	3.24
1980	3	13	-26.9200	26.7600	2.93
1980	3	14	-26.4000	27.3800	3.02
1980	3	20	-26.4200	27.3900	3.35
1980	3	21	-27.9600	26.7200	2.54
1980	3	22	-26.1700	27.7800	3.79
1980	3	23	-26.3000	27.5700	2.81
1980	3	26	-26.4000	27.4200	3.08
1980	3	27	-26.4600	27.3800	2.84
1980	3	28	-26.9700	26.4300	2.76
1980	3	29	-26.3700	27.3900	3.00
1980	4	1	-26.3900	27.4500	3.23
1980	4	2	-26.3800	27.3800	3.07
1980	4	2	-26.4300	27.3000	2.64
1980	4	3	-26.1800	27.7700	3.93
1980	4	4	-26.1600	27.7500	3.01
1980	4	4	-26.4500	27.4600	3.23
1980	4	4	-26.9200	26.8300	2.93
1980	4	8	-26.4000	27.6800	3.49
1980	4	8	-26.9000	26.7600	2.84
1980	4	9	-26.4100	27.4400	2.97
1980	4	9	-26.1700	27.4700	2.99
1980	4	9	-27.9700	26.5200	2.69
1980	4	10	-26.1300	28.0500	3.13
1980	4	11	-26.9300	26.7900	3.03
1980	4	11	-26.4200	27.4600	3.77
1980	4	14	-26.3800	27.4400	3.21
1980	4	15	-26.3800	27.7300	2.70
1980	4	16	-26.4000	27.4200	3.21
1980	4	16	-26.4200	27.4300	3.03
1980	4	16	-26.5100	27.4700	2.98
1980	4	16	-28.0100	26.6300	2.66
1980	4	18	-26.3000	27.3000	2.90
1980	4	18	-26.4000	27.4000	3.60
1980	4	18	-26.4100	27.4300	3.25
1980	4	19	-26.4000	27.4500	2.74
1980	4	19	-26.2000	27.9000	3.22
1980	4	19	-26.0800	27.5200	2.69
1980	4	20	-26.2100	28.1400	3.25
1980	4	21	-26.4000	27.4600	3.18
1980	4	24	-26.7800	26.9800	2.56
1980	4	24	-26.3700	27.4300	2.99
1980	4	24	-26.4000	27.4600	3.06

1980	4	24	-26.9200	26.6800	2.65
1980	4	25	-26.4000	27.5900	2.82
1980	4	26	-26.3100	27.6000	2.76
1980	4	26	-26.9800	26.7400	2.86
1980	4	26	-26.9600	26.7800	2.83
1980	4	26	-26.8800	26.7900	3.15
1980	4	27	-26.3800	27.6300	2.92
1980	4	28	-26.3800	27.4900	2.82
1980	4	28	-27.9900	26.8800	3.37
1980	4	29	-26.3900	27.3700	2.65
1980	4	29	-27.9300	26.6500	2.86
1980	4	30	-26.9300	26.9500	3.37
1980	5	1	-26.2400	28.2300	2.98
1980	5	1	-26.2000	28.2200	2.75
1980	5	2	-26.1700	28.2500	2.68
1980	5	2	-26.2800	28.2300	2.77
1980	5	3	-26.3600	27.5000	2.59
1980	5	3	-26.9000	26.7300	2.83
1980	5	5	-26.9400	26.8600	2.90
1980	5	6	-26.3400	27.6800	3.05
1980	5	6	-26.9000	26.7300	3.81
1980	5	7	-26.3900	27.4300	2.55
1980	5	8	-26.4200	27.4200	2.58
1980	5	9	-26.3800	27.5000	2.96
1980	5	9	-26.2500	28.2300	3.03
1980	5	12	-26.5100	27.5500	3.21
1980	5	13	-26.9000	26.8600	3.16
1980	5	13	-26.9100	26.7900	3.20
1980	5	14	-26.4200	27.4800	2.77
1980	5	14	-27.8900	26.6600	2.83
1980	5	17	-26.1600	27.8000	3.10
1980	5	19	-26.9500	26.8700	3.30
1980	5	20	-26.2800	27.4100	3.67
1980	5	22	-26.4100	27.3700	3.09
1980	5	27	-27.8900	26.6400	3.14
1980	5	27	-26.2000	28.2800	3.02
1980	5	27	-26.3900	27.4300	3.43
1980	5	30	-26.9200	26.7300	2.54
1980	6	2	-26.3900	27.6200	2.89
1980	6	2	-26.4000	27.6200	2.73
1980	6	2	-26.3300	27.6700	2.78
1980	6	3	-26.4500	27.4700	3.14
1980	6	4	-26.3100	27.4300	2.57
1980	6	6	-26.4200	27.3800	3.41
1980	6	6	-26.2800	28.2300	2.75
1980	6	6	-26.3600	27.5200	2.94
1980	6	7	-26.3600	27.4500	3.85
1980	6	7	-26.3800	27.4700	3.62
1980	6	10	-26.4300	27.3500	3.30
1980	6	10	-26.8800	26.7500	2.64
1980	6	11	-28.0100	26.8000	3.71
1980	6	12	-26.9300	26.9200	3.99
1980	6	13	-26.8400	26.8300	3.27
1980	6	13	-26.9700	26.9000	3.88
1980	6	14	-26.4500	27.4800	3.42
1980	6	20	-26.9100	26.7800	2.97
1980	6	21	-26.1800	28.2100	3.02
1980	6	21	-26.4900	27.4300	3.19
1980	6	24	-26.3800	27.4600	3.19
1980	6	26	-26.4000	27.4600	3.07
1980	6	27	-26.3900	27.6400	2.71

1980	6	27	-26.3800	27.4700	3.32
1980	6	28	-26.8500	26.9300	2.65
1980	6	28	-26.2300	28.2800	2.82
1980	6	28	-28.0700	26.8800	3.18
1980	6	29	-26.4200	27.4000	3.44
1980	6	29	-26.8900	26.7100	2.93
1980	6	29	-28.0900	26.9200	2.58
1980	6	30	-28.0200	26.7800	2.91
1980	6	30	-28.1300	26.7500	2.88
1980	7	1	-26.8900	26.8700	2.71
1980	7	3	-26.1800	27.8900	3.08
1980	7	3	-26.4100	27.3600	3.21
1980	7	4	-26.3600	27.4200	2.71
1980	7	4	-28.0700	26.8100	2.76
1980	7	4	-26.3800	27.7400	2.51
1980	7	4	-26.8500	26.6600	2.65
1980	7	4	-26.3200	27.4300	2.69
1980	7	4	-26.3900	27.4200	2.83
1980	7	5	-26.4300	27.4500	3.07
1980	7	5	-26.4300	27.4100	2.73
1980	7	6	-26.3900	27.6500	2.64
1980	7	6	-26.2600	28.4500	2.78
1980	7	7	-26.4000	27.4000	2.60
1980	7	8	-28.0800	26.8900	2.91
1980	7	9	-28.0300	26.9100	3.30
1980	7	9	-26.9000	26.7700	3.46
1980	7	9	-27.9700	26.7400	2.71
1980	7	10	-26.8600	26.9400	2.54
1980	7	10	-26.9700	26.8200	3.78
1980	7	11	-26.4000	27.5900	2.60
1980	7	12	-26.2300	28.1600	4.01
1980	7	14	-26.3700	27.4500	3.28
1980	7	14	-26.4100	27.3700	2.70
1980	7	15	-26.3700	27.4400	2.89
1980	7	17	-26.4100	27.4400	3.35
1980	7	17	-26.8900	26.7900	2.87
1980	7	17	-26.2500	28.2200	2.62
1980	7	17	-26.4200	27.4600	2.67
1980	7	18	-26.2500	28.2100	2.90
1980	7	18	-26.2500	28.4600	2.76
1980	7	18	-26.8900	26.8600	3.29
1980	7	19	-28.0800	26.8500	2.96
1980	7	21	-28.0400	26.8800	2.96
1980	7	21	-26.2400	28.2200	2.76
1980	7	22	-26.4100	27.4100	3.00
1980	7	22	-27.9900	26.8100	2.81
1980	7	23	-26.4000	27.4400	2.71
1980	7	23	-26.4000	27.4100	3.51
1980	7	23	-26.4500	27.3500	2.60
1980	7	24	-26.1600	28.2200	3.06
1980	7	24	-26.2200	28.1700	2.64
1980	7	24	-27.9000	26.7100	2.80
1980	7	25	-26.7800	27.0000	2.67
1980	7	26	-26.9000	26.8300	3.36
1980	7	26	-26.3100	27.4100	3.21
1980	7	29	-27.9500	26.7500	3.17
1980	8	1	-26.4200	27.4400	2.96
1980	8	1	-26.9800	26.7400	2.61
1980	8	1	-26.4200	27.3800	2.59
1980	8	2	-26.4300	27.3500	2.69
1980	8	2	-26.9700	26.7700	3.03

1980	8	3	-26.3300	27.6300	2.87
1980	8	3	-26.9400	26.7500	2.53
1980	8	4	-26.4500	27.3400	3.13
1980	8	5	-26.4400	27.6400	2.51
1980	8	7	-26.4200	27.0000	3.40
1980	8	7	-26.4300	27.3400	2.81
1980	8	7	-26.4000	27.4000	2.90
1980	8	8	-26.3400	27.5000	2.78
1980	8	9	-28.0600	26.8400	2.74
1980	8	10	-26.4300	27.4400	2.96
1980	8	11	-26.4400	27.3900	2.71
1980	8	11	-28.0700	26.8700	2.71
1980	8	11	-28.0600	26.8700	3.27
1980	8	11	-26.4300	27.4400	2.54
1980	8	12	-26.4200	27.4700	3.16
1980	8	13	-26.4500	27.2900	2.63
1980	8	13	-26.8100	26.9100	2.63
1980	8	13	-26.4300	27.4000	2.73
1980	8	14	-26.4600	27.3900	2.52
1980	8	14	-26.3700	27.7600	2.70
1980	8	15	-26.4100	27.3800	2.84
1980	8	16	-26.8900	26.8000	2.79
1980	8	16	-26.3900	27.6100	2.65
1980	8	16	-26.2500	27.7400	2.70
1980	8	17	-26.1600	28.1200	3.17
1980	8	17	-28.0700	26.6400	2.87
1980	8	18	-26.2100	28.2100	2.75
1980	8	18	-26.2400	28.2000	3.16
1980	8	19	-26.4500	27.3800	2.91
1980	8	19	-26.4400	27.4200	2.57
1980	8	20	-26.4100	27.3900	3.33
1980	8	20	-26.2100	27.4900	3.13
1980	8	20	-26.4300	27.4300	2.70
1980	8	20	-26.2800	27.7600	2.69
1980	8	22	-26.4000	27.3900	3.19
1980	8	23	-26.4300	27.6100	2.91
1980	8	24	-26.4300	27.4100	2.60
1980	8	24	-28.1900	26.7100	3.15
1980	8	25	-26.3900	27.4600	2.79
1980	8	26	-26.4100	27.4800	3.78
1980	8	26	-26.2400	28.2200	2.83
1980	8	27	-26.4100	27.3600	2.87
1980	8	27	-26.4300	27.4600	3.44
1980	8	28	-26.4000	27.4800	2.76
1980	8	28	-26.9300	26.8300	4.02
1980	8	28	-26.4100	27.4600	3.24
1980	8	29	-26.2300	28.2000	3.35
1980	8	30	-26.2300	28.1600	4.85
1980	8	30	-26.2400	28.2200	2.84
1980	8	31	-26.3300	27.4400	2.59
1980	9	1	-28.0900	26.8800	3.07
1980	9	1	-28.0100	26.7800	2.59
1980	9	2	-28.0200	26.8700	3.13
1980	9	2	-26.4700	27.5400	3.19
1980	9	3	-28.0600	26.7400	2.65
1980	9	3	-26.2000	28.2000	2.80
1980	9	3	-26.3200	27.6600	2.68
1980	9	3	-26.4100	27.3200	2.67
1980	9	4	-26.4200	27.3700	2.90
1980	9	5	-26.2500	28.2200	2.85
1980	9	6	-26.3500	27.4300	2.71

1980	9	8	-26.8600	26.7500	2.51
1980	9	9	-26.2700	27.5000	3.11
1980	9	9	-26.4000	27.6100	2.56
1980	9	10	-26.9900	26.8200	2.73
1980	9	10	-26.2000	27.8700	2.65
1980	9	11	-26.8900	26.8700	2.75
1980	9	11	-28.0100	26.6900	2.73
1980	9	11	-26.4500	27.4000	3.01
1980	9	12	-26.4200	27.6200	2.92
1980	9	12	-26.3200	27.4300	2.52
1980	9	14	-26.8700	26.9200	3.55
1980	9	14	-26.8700	26.9100	3.35
1980	9	17	-26.3800	27.4500	2.68
1980	9	19	-26.4100	27.3000	2.97
1980	9	19	-28.0100	26.8400	3.01
1980	9	20	-26.3500	27.4900	2.88
1980	9	22	-28.0500	26.9100	2.97
1980	9	22	-26.3500	27.5300	2.60
1980	9	24	-26.2400	28.2100	3.01
1980	9	25	-26.8500	26.7100	2.97
1980	9	25	-26.5000	27.3500	2.76
1980	9	25	-26.4000	27.3600	2.52
1980	9	26	-28.0300	26.9100	2.73
1980	9	26	-26.4500	27.3200	2.58
1980	9	26	-26.4200	27.4200	2.69
1980	9	27	-26.4200	27.4000	2.66
1980	9	27	-26.4000	27.3700	2.89
1980	9	29	-26.2600	28.4200	3.07
1980	9	29	-26.3200	27.3900	2.96
1980	9	30	-26.3800	27.3900	2.79
1980	10	1	-26.4000	27.3900	2.95
1980	10	1	-26.2600	28.2600	2.84
1980	10	1	-26.9000	27.8000	3.16
1980	10	3	-26.1900	27.8400	2.69
1980	10	3	-26.4100	27.4400	2.65
1980	10	4	-27.9300	26.8500	2.82
1980	10	4	-26.3800	27.3000	2.88
1980	10	7	-26.3500	27.4000	2.80
1980	10	7	-26.3100	27.7100	2.99
1980	10	8	-26.2900	27.6800	2.88
1980	10	10	-26.2200	28.1700	2.92
1980	10	10	-26.4000	27.4200	3.15
1980	10	11	-26.1700	27.8500	2.50
1980	10	11	-26.4000	27.3900	2.58
1980	10	12	-26.3600	27.4200	3.12
1980	10	13	-27.9600	26.8500	3.05
1980	10	14	-28.1300	26.7600	2.83
1980	10	16	-26.2200	28.2400	2.91
1980	10	16	-26.3700	27.3600	3.44
1980	10	16	-28.0500	26.6000	2.65
1980	10	18	-26.4000	27.3400	3.08
1980	10	20	-26.3700	27.6000	3.01
1980	10	21	-26.4100	27.6100	2.64
1980	10	21	-26.4200	27.3300	3.12
1980	10	22	-28.0200	26.8600	2.53
1980	10	23	-26.0200	29.1900	3.29
1980	10	23	-26.9000	26.7700	3.28
1980	10	24	-26.3700	27.3400	2.99
1980	10	25	-26.2400	28.2500	3.04
1980	10	25	-26.3700	27.3900	3.15
1980	10	25	-26.4100	27.3100	3.37

1980	10	25	-26.4000	27.4400	3.07
1980	10	25	-26.3700	27.4300	3.22
1980	10	26	-26.3800	27.4100	2.82
1980	10	27	-28.0500	26.8400	3.06
1980	10	27	-26.8300	26.6600	2.66
1980	10	28	-26.3900	27.3600	2.83
1980	10	28	-26.8400	26.7400	2.64
1980	10	29	-26.8000	26.7000	2.50
1980	10	29	-26.2500	28.2100	2.94
1980	10	30	-28.0700	26.7700	2.68
1980	10	30	-27.9800	26.8200	3.37
1980	10	30	-26.8700	26.7200	2.71
1980	10	31	-28.0300	26.8200	2.83
1980	10	31	-26.4200	27.4800	3.84
1980	10	31	-28.0900	26.8700	3.09
1980	11	2	-26.4400	27.4100	3.56
1980	11	4	-26.2800	27.3100	2.73
1980	11	4	-26.4300	27.4300	3.18
1980	11	4	-26.3100	27.2700	2.95
1980	11	4	-26.8400	26.7500	3.00
1980	11	5	-27.9600	26.6600	3.11
1980	11	7	-26.9700	26.9000	3.42
1980	11	8	-27.9900	26.6900	3.06
1980	11	8	-26.8600	26.7500	3.25
1980	11	8	-26.4000	27.6200	3.77
1980	11	9	-28.1100	26.8900	2.73
1980	11	10	-26.3200	27.2600	2.69
1980	11	10	-26.2900	27.2900	2.63
1980	11	11	-26.4000	27.5000	3.65
1980	11	11	-26.2000	27.7100	2.94
1980	11	12	-26.2000	28.1800	2.69
1980	11	13	-28.1200	26.8000	2.51
1980	11	13	-26.3600	27.4300	2.76
1980	11	13	-26.3600	27.3900	2.93
1980	11	14	-26.8600	26.9300	3.28
1980	11	14	-26.8400	26.6900	3.18
1980	11	15	-26.3200	27.4500	2.97
1980	11	18	-26.1900	28.1700	3.30
1980	11	19	-26.4300	27.4200	3.04
1980	11	19	-27.9200	26.5900	2.70
1980	11	20	-26.7600	26.6400	3.76
1980	11	20	-28.0500	26.7900	2.75
1980	11	20	-26.3400	27.5100	2.63
1980	11	21	-26.4000	27.4200	2.91
1980	11	21	-26.3400	27.3200	2.78
1980	11	24	-28.0900	26.7300	2.89
1980	11	24	-26.3700	27.3500	2.80
1980	11	24	-26.2400	28.1600	3.63
1980	11	27	-28.0000	26.3800	2.55
1980	11	28	-26.9500	26.7100	2.57
1980	11	28	-26.3700	27.3800	2.70
1980	11	29	-26.4000	27.4100	3.26
1980	12	1	-26.4200	27.3800	2.89
1980	12	2	-26.4300	27.4300	2.56
1980	12	3	-26.4200	27.3200	3.00
1980	12	3	-26.3700	27.4500	3.40
1980	12	4	-26.4900	27.3400	2.61
1980	12	5	-26.4000	27.4000	2.73
1980	12	5	-28.0800	26.8600	2.66
1980	12	6	-26.2600	28.2000	3.20
1980	12	8	-26.3300	27.6200	2.79

1980	12	11	-26.9500	26.8800	3.53
1980	12	12	-26.4400	27.4500	2.68
1980	12	19	-26.1800	27.4900	2.50
1980	12	20	-26.2200	28.2500	2.65
1980	12	23	-26.4200	27.4700	3.11
1980	12	23	-28.0400	26.8400	3.07
1980	12	31	-27.9200	26.8700	3.19
1981	1	2	-23.2000	26.0000	4.60
1981	1	8	-27.9800	26.6400	2.52
1981	1	9	-26.8400	26.7500	2.92
1981	1	9	-26.4300	27.4300	2.82
1981	1	9	-26.3800	27.4200	2.68
1981	1	9	-26.3900	27.5000	2.61
1981	1	10	-28.0900	26.9800	3.49
1981	1	11	-27.8400	26.9400	2.79
1981	1	11	-26.2600	28.2400	3.57
1981	1	12	-26.2700	28.2300	2.95
1981	1	13	-26.2900	27.4200	2.62
1981	1	14	-26.2000	28.1700	3.52
1981	1	15	-26.9100	26.6500	2.61
1981	1	16	-27.9600	26.7500	2.80
1981	1	17	-28.0600	26.8200	2.75
1981	1	17	-26.3300	27.3100	3.73
1981	1	18	-26.1900	27.5600	2.91
1981	1	18	-26.1300	27.8500	3.36
1981	1	19	-28.1200	26.9800	2.55
1981	1	20	-26.3300	27.3000	2.52
1981	1	21	-26.1100	28.0100	3.01
1981	1	21	-26.3200	27.4800	2.94
1981	1	23	-26.2700	27.3700	3.10
1981	1	24	-26.3200	27.2800	3.26
1981	1	24	-26.8800	26.8100	3.04
1981	1	24	-26.3600	27.5800	2.55
1981	1	25	-27.8700	26.5600	3.63
1981	1	28	-26.3500	27.5600	4.10
1981	1	29	-26.9600	26.6800	2.51
1981	1	29	-26.2500	28.2500	2.90
1981	1	29	-26.4000	27.4200	2.65
1981	1	30	-26.4200	27.3500	3.10
1981	1	30	-26.8700	26.7900	3.00
1981	1	31	-26.1500	27.7900	2.61
1981	1	31	-26.4500	27.4900	3.37
1981	1	31	-26.3500	27.6300	3.01
1981	2	2	-26.4200	27.3900	2.57
1981	2	2	-26.4500	27.6000	2.95
1981	2	2	-26.9100	26.7400	3.09
1981	2	3	-26.4000	27.3700	2.85
1981	2	4	-26.4100	27.4300	3.13
1981	2	5	-26.9100	26.7600	2.96
1981	2	7	-26.2300	28.1900	2.70
1981	2	8	-26.2500	28.2200	2.79
1981	2	8	-26.9000	26.6600	3.60
1981	2	9	-26.4000	27.4000	2.87
1981	2	10	-26.3900	27.6100	2.99
1981	2	11	-26.4200	27.5700	2.85
1981	2	11	-26.4100	27.3900	2.52
1981	2	11	-26.4000	27.4400	3.39
1981	2	12	-26.9400	26.6600	2.92
1981	2	13	-26.4000	27.5000	2.89
1981	2	13	-26.2400	28.2400	2.64
1981	2	13	-26.4000	27.4100	3.79

1981	2	14	-26.3700	27.4200	2.98
1981	2	16	-26.4500	27.4000	2.53
1981	2	17	-28.1100	26.7900	2.56
1981	2	17	-26.4000	27.4400	3.04
1981	2	18	-26.2600	28.2200	3.13
1981	2	18	-26.2300	28.1900	2.74
1981	2	18	-26.9000	26.8100	3.82
1981	2	18	-26.9000	26.8200	2.70
1981	2	19	-26.4100	27.7500	2.73
1981	2	19	-26.4300	27.4400	2.76
1981	2	20	-28.0900	26.9500	2.72
1981	2	20	-26.2600	28.2200	3.49
1981	2	20	-26.1000	28.1000	2.80
1981	2	21	-26.3400	27.6400	3.02
1981	2	21	-26.4500	27.4400	2.53
1981	2	22	-25.5000	32.1000	3.83
1981	2	25	-26.3600	27.4600	2.83
1981	3	3	-26.9100	26.7100	3.23
1981	3	5	-26.1000	27.7900	2.64
1981	3	5	-26.4500	27.3200	2.97
1981	3	6	-26.3600	27.5600	3.24
1981	3	7	-26.9500	26.7500	2.71
1981	3	8	-26.4000	27.6000	2.75
1981	3	9	-26.4200	27.2800	2.75
1981	3	9	-26.2000	28.3600	2.82
1981	3	10	-26.4900	27.2600	2.82
1981	3	11	-26.4200	27.4000	2.80
1981	3	11	-26.3800	27.3700	2.72
1981	3	11	-26.3900	27.3700	2.74
1981	3	12	-26.4200	27.3300	3.30
1981	3	13	-26.9100	26.7500	2.74
1981	3	14	-26.9700	26.8500	3.41
1981	3	14	-26.9200	26.7100	2.59
1981	3	14	-26.4400	27.4000	2.66
1981	3	15	-26.2600	28.2200	2.98
1981	3	17	-26.4200	27.7300	3.35
1981	3	18	-26.4900	27.2200	3.03
1981	3	18	-26.3600	27.6100	2.72
1981	3	18	-28.0000	26.7200	2.60
1981	3	19	-26.3100	27.6400	2.54
1981	3	19	-26.8400	26.7600	2.54
1981	3	20	-26.3600	27.4300	4.00
1981	3	25	-26.7700	26.5500	2.89
1981	3	25	-26.3000	28.2200	3.14
1981	3	26	-28.0500	26.7700	2.70
1981	3	27	-26.9000	26.7700	2.50
1981	3	28	-26.9100	26.7600	2.69
1981	3	30	-26.3700	27.3500	2.82
1981	4	3	-26.2600	28.2900	2.76
1981	4	4	-26.2300	28.1800	2.63
1981	4	4	-26.9500	26.8200	3.14
1981	4	5	-26.1200	27.7800	2.82
1981	4	6	-28.0200	26.8100	3.46
1981	4	6	-26.9100	26.7500	2.66
1981	4	6	-26.4000	27.6000	2.90
1981	4	7	-27.9200	26.3100	2.87
1981	4	8	-28.1400	26.8900	3.35
1981	4	8	-27.9500	26.8300	3.14
1981	4	9	-26.3300	27.4100	2.53
1981	4	9	-27.9000	26.6600	2.76
1981	4	10	-26.3100	27.5000	2.62

1981	4	11	-26.1900	28.1600	2.81
1981	4	12	-27.9900	26.6500	2.93
1981	4	12	-26.2700	28.2100	2.96
1981	4	15	-26.3800	27.3700	3.12
1981	4	15	-26.4000	27.4100	2.60
1981	4	15	-26.9100	26.8600	3.25
1981	4	16	-26.1300	27.4900	3.46
1981	4	16	-26.4500	27.5300	2.63
1981	4	17	-26.4000	27.3700	3.75
1981	4	17	-28.0300	26.8600	4.19
1981	4	17	-27.9600	26.6600	3.58
1981	4	18	-26.2400	28.1800	3.09
1981	4	20	-26.1100	27.7300	2.69
1981	4	20	-26.3400	27.4200	3.57
1981	4	20	-28.0200	26.7900	2.80
1981	4	22	-26.7300	27.0700	3.08
1981	4	22	-26.1300	27.4400	2.58
1981	4	23	-26.4500	27.3700	2.59
1981	4	23	-26.2400	28.1400	3.13
1981	4	23	-28.0500	26.7600	2.96
1981	4	23	-26.8700	26.6400	2.87
1981	4	24	-26.2000	27.4100	2.76
1981	4	25	-26.3500	27.3700	3.45
1981	4	25	-26.6600	27.8000	2.81
1981	4	25	-26.3700	27.3200	2.81
1981	4	27	-28.0400	26.8600	3.45
1981	4	27	-28.0300	26.8900	2.96
1981	4	28	-26.3900	27.3700	3.42
1981	4	28	-27.9600	26.7500	3.22
1981	4	28	-26.2900	27.3300	2.57
1981	4	28	-26.2200	28.3600	2.68
1981	4	28	-26.2200	28.2000	3.94
1981	4	29	-28.0500	26.8400	2.52
1981	4	30	-26.7500	26.7100	2.60
1981	4	30	-26.2700	27.3700	2.60
1981	5	1	-26.2300	28.2200	2.70
1981	5	2	-26.3200	27.3600	3.36
1981	5	5	-26.4300	27.3300	2.93
1981	5	5	-27.9500	26.8300	2.77
1981	5	6	-26.3100	27.4100	2.92
1981	5	6	-26.2600	28.1800	2.56
1981	5	6	-26.1900	28.1500	2.69
1981	5	7	-26.8400	26.7000	3.28
1981	5	7	-26.3300	27.3100	3.07
1981	5	7	-26.2400	28.1800	2.66
1981	5	7	-27.8900	26.6800	2.69
1981	5	8	-26.2200	28.1800	3.18
1981	5	9	-26.8600	26.6800	3.48
1981	5	9	-26.3800	27.3100	3.31
1981	5	10	-26.2100	27.7100	2.97
1981	5	12	-26.3400	27.5300	3.21
1981	5	12	-27.9100	26.7000	3.37
1981	5	12	-26.2600	28.1400	2.68
1981	5	12	-26.7800	26.6900	3.05
1981	5	14	-26.3700	27.3700	2.97
1981	5	14	-26.8600	26.7500	2.89
1981	5	15	-26.8100	26.7200	2.76
1981	5	15	-26.3300	27.5800	2.60
1981	5	16	-26.2100	28.2100	2.50
1981	5	16	-26.3800	27.5500	3.41
1981	5	18	-26.2100	28.2000	2.70

1981	5	18	-26.1700	28.1900	2.88
1981	5	18	-26.3000	27.4300	2.53
1981	5	19	-26.3800	27.3500	2.69
1981	5	19	-26.8600	26.6300	3.09
1981	5	19	-27.9800	26.7300	2.68
1981	5	21	-27.9400	26.6200	3.14
1981	5	21	-26.9100	26.7900	3.09
1981	5	21	-26.3400	27.4400	3.99
1981	5	21	-26.3900	27.3200	4.10
1981	5	23	-26.2400	28.1600	2.87
1981	5	23	-26.3800	27.3400	3.16
1981	5	25	-26.1400	27.7400	3.06
1981	5	25	-26.3500	27.2800	2.55
1981	5	26	-26.1900	28.4300	2.69
1981	5	27	-26.8500	26.8000	3.23
1981	5	27	-26.2100	28.1700	3.95
1981	5	27	-26.4000	27.3400	2.54
1981	5	27	-26.3100	27.3100	3.14
1981	5	27	-27.8700	26.7200	3.12
1981	5	28	-27.9000	26.6900	2.66
1981	5	28	-26.3200	27.3800	2.73
1981	5	28	-27.8900	26.8000	3.73
1981	5	30	-26.6900	26.5900	2.67
1981	5	30	-26.2700	27.3700	2.51
1981	5	30	-27.8900	26.7300	3.15
1981	5	30	-26.7700	26.6800	3.04
1981	6	1	-26.9300	32.0400	3.81
1981	6	3	-26.2700	27.4500	3.61
1981	6	4	-26.8300	26.7700	3.15
1981	6	5	-26.8100	26.6400	3.04
1981	6	7	-27.9300	26.7500	2.54
1981	6	7	-26.3400	27.3200	2.92
1981	6	8	-27.9300	26.8100	3.36
1981	6	8	-26.8400	26.7500	2.80
1981	6	9	-26.3700	27.3800	2.96
1981	6	12	-26.2200	28.1400	2.89
1981	6	13	-27.9400	26.6900	3.31
1981	6	14	-27.9600	26.7000	2.71
1981	6	14	-26.1800	28.1500	3.01
1981	6	15	-27.9300	26.7600	2.78
1981	6	15	-26.3500	27.3000	3.36
1981	6	15	-26.3400	27.3100	3.50
1981	6	16	-27.8800	26.6800	3.54
1981	6	17	-26.3300	27.3700	3.06
1981	6	18	-26.4900	27.2400	2.51
1981	6	18	-26.2900	27.4500	3.14
1981	6	19	-26.0900	27.7400	3.28
1981	6	20	-26.3200	27.3700	3.14
1981	6	20	-26.2600	28.2100	3.00
1981	6	22	-26.3900	27.3500	2.90
1981	6	23	-26.3800	27.4900	3.19
1981	6	23	-28.0600	26.8200	3.22
1981	6	23	-27.9400	26.6400	3.04
1981	6	23	-26.2200	28.2200	2.56
1981	6	30	-26.3100	27.5900	2.54
1981	6	30	-26.3400	27.4100	3.12
1981	7	1	-26.4500	27.2700	2.90
1981	7	1	-26.3500	27.2900	3.20
1981	7	2	-28.0500	26.9300	2.72
1981	7	4	-26.3800	27.3600	3.32
1981	7	4	-26.4100	27.3900	2.53

1981	7	5	-26.7700	26.8400	3.05
1981	7	5	-26.3100	27.5000	2.84
1981	7	7	-26.3900	27.4200	4.02
1981	7	8	-28.0900	26.9000	3.34
1981	7	9	-28.0300	26.8600	3.20
1981	7	9	-26.3900	27.4200	2.54
1981	7	10	-26.9400	26.7600	2.87
1981	7	10	-28.0800	26.8700	2.83
1981	7	10	-28.0200	26.7700	2.86
1981	7	10	-27.9400	26.6700	3.73
1981	7	11	-28.0500	26.8200	2.83
1981	7	11	-26.3900	27.4200	3.04
1981	7	12	-26.2900	27.7100	2.91
1981	7	13	-26.3400	27.3600	3.36
1981	7	13	-27.9800	26.6900	2.64
1981	7	13	-26.8600	26.7100	3.18
1981	7	14	-26.4300	27.4100	2.58
1981	7	14	-27.9800	26.7700	2.80
1981	7	15	-26.3400	27.3300	2.51
1981	7	15	-27.8800	26.6300	2.72
1981	7	15	-26.9300	26.7800	2.69
1981	7	15	-27.9200	26.7300	3.52
1981	7	15	-28.1700	27.1800	2.59
1981	7	17	-26.2200	28.2000	2.96
1981	7	17	-26.2100	28.1900	3.01
1981	7	17	-26.1900	28.1500	2.86
1981	7	17	-26.4100	27.3600	2.68
1981	7	17	-26.2800	28.2400	3.12
1981	7	18	-26.2600	28.2100	3.42
1981	7	19	-26.2400	28.2000	2.84
1981	7	19	-26.8000	26.8800	2.62
1981	7	19	-26.4100	27.4500	2.74
1981	7	21	-26.3000	27.5900	2.73
1981	7	21	-26.3500	27.4800	2.75
1981	7	21	-26.4400	27.3700	2.53
1981	7	21	-26.4300	27.3100	2.61
1981	7	22	-26.4200	27.3800	2.65
1981	7	23	-26.3300	27.4800	2.69
1981	7	24	-26.3600	27.3900	2.58
1981	7	29	-26.2400	28.2000	2.87
1981	7	29	-28.0100	26.8400	3.20
1981	8	5	-26.3200	27.6300	3.23
1981	8	6	-26.3700	27.3900	2.84
1981	8	6	-27.4800	25.1900	3.13
1981	8	6	-23.4000	26.1000	3.75
1981	8	7	-26.9300	26.8400	3.12
1981	8	8	-27.8400	26.6400	3.39
1981	8	8	-26.1400	27.7700	3.14
1981	8	9	-26.8400	26.8200	3.29
1981	8	9	-26.3600	27.5100	2.89
1981	8	10	-26.3500	27.5000	2.54
1981	8	11	-26.2100	28.1900	2.73
1981	8	12	-26.5700	27.3900	2.80
1981	8	13	-26.2100	28.1900	3.45
1981	8	13	-28.2000	27.0700	3.52
1981	8	14	-26.8200	26.8400	3.92
1981	8	15	-26.2200	28.2100	3.13
1981	8	17	-28.0400	26.8000	2.52
1981	8	18	-26.3900	27.3300	2.79
1981	8	20	-26.3700	27.3800	3.38
1981	8	20	-26.3500	27.4400	3.17

1981	8	20	-26.4000	27.3800	2.58
1981	8	21	-26.4200	27.3700	2.84
1981	8	22	-26.3300	27.6200	2.63
1981	8	22	-27.9800	26.8000	2.81
1981	8	23	-26.5600	27.7200	2.88
1981	8	26	-27.9400	26.6200	2.73
1981	8	28	-26.4100	27.3300	2.82
1981	8	28	-26.4400	27.3200	3.34
1981	8	29	-26.9600	26.7500	2.64
1981	8	29	-26.3600	27.3800	2.72
1981	8	29	-26.1800	28.1900	2.75
1981	8	31	-26.4100	27.3000	2.84
1981	9	1	-26.8900	26.7700	2.70
1981	9	2	-26.4200	27.4200	2.75
1981	9	3	-26.3800	27.4400	3.14
1981	9	3	-26.4400	27.5100	2.76
1981	9	4	-26.3200	27.4800	2.96
1981	9	4	-26.2600	28.2400	2.56
1981	9	4	-26.3600	27.5800	2.84
1981	9	5	-26.9500	26.8100	3.37
1981	9	5	-26.3600	27.6800	3.44
1981	9	6	-26.1900	27.8200	2.81
1981	9	6	-26.3800	27.5900	2.52
1981	9	7	-26.3700	27.3800	3.01
1981	9	10	-26.4900	27.4000	2.91
1981	9	10	-26.3800	27.3600	2.85
1981	9	11	-26.2100	28.2600	2.93
1981	9	12	-26.3900	27.3900	2.51
1981	9	14	-28.0500	26.9000	3.07
1981	9	15	-26.3400	27.4500	2.92
1981	9	16	-27.8000	26.5000	2.50
1981	9	16	-27.9700	26.7200	3.15
1981	9	17	-26.2200	28.2300	2.80
1981	9	19	-26.8000	26.7000	3.20
1981	9	20	-26.2600	27.6500	2.75
1981	9	22	-26.1200	27.7900	3.11
1981	9	23	-26.8200	26.7900	2.80
1981	9	23	-28.0700	26.7900	3.16
1981	9	25	-27.9500	26.7800	3.25
1981	9	25	-26.3800	27.4100	2.63
1981	9	28	-26.3700	27.3300	3.29
1981	9	28	-26.3800	27.3800	3.24
1981	9	29	-26.3900	27.3800	2.80
1981	9	29	-26.3800	27.6100	2.51
1981	9	29	-26.4100	27.3900	3.16
1981	9	30	-26.4100	27.3500	2.74
1981	9	30	-26.3500	27.5500	3.10
1981	9	30	-26.4400	27.5000	3.26
1981	9	30	-26.4200	27.4600	3.31
1981	10	2	-26.2000	28.2200	2.59
1981	10	2	-26.3900	27.3400	2.56
1981	10	3	-26.2900	27.6900	2.67
1981	10	5	-28.2000	26.0400	2.82
1981	10	6	-26.4000	27.4200	2.80
1981	10	6	-27.9800	26.7300	2.93
1981	10	6	-26.3600	27.4100	2.96
1981	10	8	-26.9000	26.7000	2.70
1981	10	8	-26.1400	27.7800	3.08
1981	10	9	-26.2900	27.6400	2.88
1981	10	10	-27.9500	26.7000	2.82
1981	10	11	-26.4000	27.4700	2.56

1981	10	12	-28.0800	26.8700	2.64
1981	10	12	-26.5100	27.3700	2.70
1981	10	12	-26.3100	27.4300	2.89
1981	10	15	-26.3700	27.6000	2.64
1981	10	15	-26.9000	26.8500	2.83
1981	10	19	-28.1000	26.8900	2.59
1981	10	20	-26.3800	27.4300	2.80
1981	10	20	-26.2300	28.2600	3.08
1981	10	21	-26.3900	27.6200	3.03
1981	10	22	-26.9200	26.8800	3.08
1981	10	23	-26.4000	27.3800	3.52
1981	10	23	-26.4200	27.4200	2.86
1981	10	23	-26.4400	27.3800	2.71
1981	10	24	-26.4000	27.3600	2.75
1981	10	24	-26.4000	27.3100	2.59
1981	10	25	-26.4100	27.3700	2.55
1981	10	27	-26.4100	27.3700	2.92
1981	10	27	-27.9900	26.8300	2.77
1981	10	29	-28.0600	26.8500	2.55
1981	11	2	-26.1900	28.1700	2.50
1981	11	3	-26.1000	27.5500	2.88
1981	11	3	-26.3500	27.3100	2.88
1981	11	5	-26.4200	27.3500	2.85
1981	11	5	-29.9500	27.3700	4.04
1981	11	6	-27.8700	26.6100	3.01
1981	11	6	-26.2100	28.1600	3.61
1981	11	7	-26.4000	27.3900	2.75
1981	11	9	-26.4100	27.3100	2.85
1981	11	10	-28.2600	26.4500	2.71
1981	11	13	-26.4200	27.3700	2.99
1981	11	13	-26.3600	27.4700	3.23
1981	11	14	-26.9300	26.6900	3.22
1981	11	16	-26.2100	28.3800	3.09
1981	11	16	-26.3000	27.5000	2.70
1981	11	17	-26.4000	27.3200	2.71
1981	11	18	-26.4100	27.3800	3.06
1981	11	18	-28.0800	26.9700	2.52
1981	11	19	-26.4300	27.3800	2.83
1981	11	19	-27.9100	26.7900	3.55
1981	11	19	-26.4200	27.3900	2.87
1981	11	20	-26.2800	28.2300	2.88
1981	11	20	-26.2500	28.2300	2.51
1981	11	20	-26.4200	27.5700	2.60
1981	11	20	-26.3800	27.1700	2.57
1981	11	20	-26.2300	28.2400	2.56
1981	11	20	-26.3600	27.5900	3.01
1981	11	21	-28.0100	26.8300	3.34
1981	11	21	-26.4000	27.3600	2.58
1981	11	22	-26.4300	27.6200	3.58
1981	11	22	-26.3600	27.5700	3.27
1981	11	22	-26.4100	27.3800	2.62
1981	11	25	-26.9300	26.7300	2.51
1981	11	26	-25.1700	30.4600	3.18
1981	11	26	-26.4500	27.2500	2.59
1981	11	28	-26.9100	26.7100	3.18
1981	11	30	-26.1300	28.2700	2.57
1981	11	30	-26.8600	26.8300	3.33
1981	11	30	-26.4200	27.3200	2.57
1981	12	1	-26.3500	27.4700	3.31
1981	12	1	-26.4400	27.4000	3.43
1981	12	2	-26.1800	27.6200	2.90

1981	12	3	-26.2500	28.1400	2.66
1981	12	3	-23.7900	29.7700	3.04
1981	12	4	-26.4700	27.2300	3.08
1981	12	5	-26.3900	27.3700	2.50
1981	12	6	-26.3800	27.3400	3.33
1981	12	6	-26.3900	27.5300	2.87
1981	12	7	-26.3700	27.3700	2.66
1981	12	7	-26.4100	27.3600	2.59
1981	12	8	-27.9500	26.6500	2.69
1981	12	8	-26.4300	27.2900	2.71
1981	12	9	-29.2900	24.8800	2.56
1981	12	9	-26.1200	28.1900	3.67
1981	12	9	-26.2400	28.1900	2.93
1981	12	11	-26.4400	27.2700	2.70
1981	12	13	-26.4300	27.2400	2.86
1981	12	14	-27.9400	26.6600	3.04
1981	12	14	-26.2300	27.3800	3.99
1981	12	15	-26.3500	27.5500	2.96
1981	12	16	-26.3000	27.3600	3.10
1981	12	17	-26.3900	27.3300	2.76
1981	12	18	-26.2800	27.4700	3.21
1981	12	18	-27.9800	26.6900	2.80
1981	12	19	-26.3000	27.3400	2.75
1981	12	21	-26.3100	27.3700	3.52
1981	12	22	-26.3800	27.3600	2.86
1981	12	22	-26.3400	27.5100	2.63
1981	12	22	-26.3400	27.2200	2.55
1981	12	22	-26.4100	27.3100	2.93
1981	12	23	-26.3200	27.3300	2.60
1981	12	23	-26.3600	27.3200	2.81
1981	12	24	-26.3700	27.3300	2.99
1981	12	24	-26.8500	26.8200	3.25
1981	12	24	-26.8700	26.7300	3.16
1981	12	25	-26.8800	26.6600	3.20
1981	12	25	-26.3200	27.2400	2.67
1981	12	27	-29.5400	24.9500	2.53
1981	12	28	-26.8400	26.6900	3.07
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1982	1	2	-26.8100	26.7600	2.76
1982	1	3	-26.3800	27.2700	2.81
1982	1	5	-26.3500	27.3400	2.86
1982	1	5	-26.8300	26.7400	3.08
1982	1	5	-26.4000	27.2000	2.60
1982	1	5	-26.8700	26.7400	2.94
1982	1	6	-26.8000	26.6400	3.03
1982	1	7	-26.3600	27.3500	3.26
1982	1	7	-26.3600	27.3600	2.90
1982	1	9	-26.3800	27.5300	2.90
1982	1	9	-26.2100	28.9800	2.62
1982	1	10	-26.3000	28.1900	3.34
1982	1	11	-26.3600	27.3300	2.79
1982	1	11	-26.2200	27.6700	2.50
1982	1	11	-26.8400	26.5900	3.49
1982	1	11	-26.3200	27.3600	3.04
1982	1	12	-26.8100	26.5900	2.78
1982	1	13	-26.3500	27.4900	2.51
1982	1	14	-26.2200	27.2900	2.97
1982	1	14	-26.3200	27.3100	2.97
1982	1	14	-26.2100	28.1900	2.59
1982	1	15	-26.2200	28.1400	2.81
1982	1	15	-26.2800	27.3500	2.81

1982	1	16	-26.4400	27.2900	3.45
1982	1	18	-26.8800	26.7800	2.98
1982	1	19	-26.2900	27.5500	2.73
1982	1	20	-26.3100	27.3400	3.20
1982	1	21	-26.3400	27.3500	2.88
1982	1	22	-26.2800	27.5400	2.80
1982	1	22	-26.8600	26.6700	2.65
1982	1	22	-26.2300	28.1900	2.70
1982	1	22	-26.3400	27.5000	2.56
1982	1	23	-26.3000	27.5300	3.19
1982	1	25	-27.9400	26.7100	2.91
1982	1	26	-26.4000	27.2500	2.73
1982	1	29	-26.7900	26.6900	3.26
1982	1	29	-26.2900	27.3500	2.59
1982	1	29	-26.7400	26.6800	3.18
1982	1	30	-26.1600	28.0600	2.77
1982	1	30	-26.3800	27.3300	3.66
1982	2	2	-26.4100	27.2100	2.72
1982	2	3	-26.0700	27.4000	2.97
1982	2	3	-26.3400	27.3300	3.03
1982	2	4	-26.3000	27.2000	2.70
1982	2	4	-26.2700	27.5500	2.98
1982	2	5	-26.3200	27.2800	3.35
1982	2	6	-26.3400	27.3200	3.07
1982	2	7	-28.1800	26.6300	2.92
1982	2	10	-26.2300	28.1200	2.95
1982	2	10	-26.7300	26.6500	3.06
1982	2	10	-26.9900	26.8300	3.43
1982	2	11	-27.9300	26.7100	2.86
1982	2	12	-26.2700	28.2100	3.21
1982	2	13	-26.3000	28.2100	2.76
1982	2	14	-26.2700	27.5600	2.79
1982	2	14	-26.3000	27.3100	3.07
1982	2	15	-26.3900	27.3100	2.71
1982	2	15	-26.4300	27.4800	2.81
1982	2	16	-26.8500	26.7300	3.47
1982	2	16	-26.3400	27.2500	3.09
1982	2	17	-26.2500	28.2000	2.63
1982	2	17	-26.1800	28.1600	3.61
1982	2	18	-26.3600	27.4900	2.70
1982	2	18	-26.3600	27.3700	2.50
1982	2	18	-26.8000	26.6400	2.67
1982	2	18	-26.2000	28.1600	2.52
1982	2	19	-26.4200	27.5100	3.37
1982	2	19	-26.1800	28.1300	3.15
1982	2	20	-26.1500	28.1300	2.71
1982	2	21	-26.3600	27.2300	2.60
1982	2	22	-26.4600	27.3100	3.53
1982	2	22	-26.2400	27.2600	2.69
1982	2	22	-26.3200	27.4000	2.99
1982	2	23	-26.2400	28.1700	2.52
1982	2	23	-26.2000	28.1300	2.97
1982	2	24	-26.3600	27.4200	3.33
1982	2	25	-26.3500	27.3400	2.81
1982	2	26	-26.3500	27.3400	2.79
1982	3	2	-27.7800	26.6300	3.24
1982	3	2	-26.6000	26.7200	3.19
1982	3	2	-26.1400	28.1400	2.76
1982	3	3	-26.4300	27.2800	2.68
1982	3	3	-26.3600	27.3400	2.84
1982	3	3	-26.2100	28.1200	2.62

1982	3	5	-26.3600	27.3300	2.88
1982	3	6	-26.3000	27.4200	2.85
1982	3	7	-26.3600	27.3400	2.63
1982	3	7	-26.3800	27.2900	2.64
1982	3	7	-26.2300	28.1700	3.41
1982	3	8	-26.2700	28.0900	2.69
1982	3	10	-26.8700	26.6800	2.93
1982	3	11	-26.2200	27.3000	2.85
1982	3	11	-26.3400	27.3300	3.16
1982	3	12	-26.3100	28.1100	3.06
1982	3	12	-26.3500	27.3400	2.80
1982	3	13	-26.9100	26.4000	2.79
1982	3	13	-26.9400	26.3200	2.94
1982	3	14	-26.3600	27.4900	2.75
1982	3	14	-26.4100	27.1800	2.75
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1982	3	16	-26.3900	27.2200	2.87
1982	3	17	-26.2700	27.3400	2.59
1982	3	17	-26.3000	27.3700	2.52
1982	3	17	-26.3800	27.2700	2.76
1982	3	17	-26.3200	27.3100	2.70
1982	3	23	-26.3100	27.3700	2.52
1982	3	24	-26.3100	27.3400	2.59
1982	3	24	-26.3600	27.3700	2.92
1982	3	25	-26.3200	27.2500	2.92
1982	3	25	-26.8300	26.6200	2.70
1982	3	25	-26.2200	27.3900	3.60
1982	3	26	-27.3400	29.0200	4.31
1982	3	26	-26.3500	27.3400	2.62
1982	3	27	-27.9100	26.6000	2.88
1982	3	28	-26.2300	28.1700	4.06
1982	3	30	-26.3800	27.2000	3.28
1982	3	30	-26.0700	28.2700	2.82
1982	3	31	-26.8400	26.7800	3.12
1982	3	31	-26.2900	28.1100	2.91
1982	3	31	-26.2500	28.1900	2.54
1982	4	1	-26.3700	27.2400	2.64
1982	4	1	-26.3700	27.5900	2.73
1982	4	2	-27.9500	26.6700	2.83
1982	4	2	-26.8600	26.7500	3.19
1982	4	2	-26.2900	28.1000	2.55
1982	4	2	-26.2600	28.1100	2.97
1982	4	5	-26.4000	27.1000	3.00
1982	4	5	-25.7100	27.1300	2.73
1982	4	6	-26.4100	27.2900	2.82
1982	4	6	-26.3300	27.4800	2.51
1982	4	6	-26.2000	27.5600	2.87
1982	4	6	-26.3300	27.4500	3.47
1982	4	6	-26.2900	27.3600	2.93
1982	4	7	-26.3300	27.3300	3.09
1982	4	7	-26.3200	27.3300	2.94
1982	4	9	-26.3400	27.2400	3.08
1982	4	9	-26.8000	26.6600	3.86
1982	4	9	-26.3300	27.3000	2.59
1982	4	9	-28.0000	26.9500	2.56
1982	4	10	-26.3100	27.4100	2.69
1982	4	10	-26.4400	27.2800	3.04
1982	4	12	-26.3700	27.2700	3.25
1982	4	12	-26.1900	27.6300	2.65
1982	4	13	-27.9200	26.7000	2.55
1982	4	13	-27.9400	26.7300	4.64

1982	4	13	-26.3500	27.5200	2.90
1982	4	13	-27.9600	26.7900	2.83
1982	4	15	-26.1000	28.0000	2.54
1982	4	15	-26.3500	27.2600	2.79
1982	4	16	-27.8000	26.5700	2.80
1982	4	16	-26.3400	27.3200	2.65
1982	4	18	-27.9300	26.7100	3.39
1982	4	21	-26.3000	27.2500	2.59
1982	4	22	-26.3300	27.3200	2.58
1982	4	22	-26.2200	27.6100	2.68
1982	4	22	-26.3600	27.2800	2.63
1982	4	23	-26.2900	27.5100	2.66
1982	4	23	-26.1600	28.1000	2.99
1982	4	23	-27.8500	26.5500	3.10
1982	4	23	-26.3200	27.5200	2.62
1982	4	23	-26.3300	27.3000	2.96
1982	4	24	-27.9200	26.7900	2.57
1982	4	24	-26.3300	27.3300	2.72
1982	4	25	-26.2300	28.1700	3.05
1982	4	26	-26.8400	26.7800	3.41
1982	4	27	-26.9900	26.8200	3.77
1982	4	27	-26.3400	27.5100	2.83
1982	4	27	-26.3300	27.3600	4.04
1982	4	28	-26.3600	27.2800	2.85
1982	4	30	-26.2900	27.5100	3.53
1982	4	30	-27.8400	26.5200	2.87
1982	4	30	-26.3400	27.2700	2.65
1982	5	2	-26.8000	26.5500	2.94
1982	5	2	-26.3500	27.2800	3.13
1982	5	2	-26.3500	27.4700	3.24
1982	5	2	-26.2900	27.2900	3.01
1982	5	2	-26.3900	27.1200	2.54
1982	5	3	-26.1900	28.1100	2.51
1982	5	3	-26.3800	27.2500	2.87
1982	5	3	-26.3900	27.2100	3.06
1982	5	4	-26.2300	28.1400	2.93
1982	5	5	-28.1200	26.9300	3.27
1982	5	5	-26.2500	27.5100	2.66
1982	5	6	-26.8000	26.6600	2.71
1982	5	6	-26.3500	27.2800	2.72
1982	5	7	-26.2600	28.2000	2.63
1982	5	7	-26.3000	27.5800	2.83
1982	5	7	-26.3000	27.5700	2.97
1982	5	8	-26.3800	27.1300	2.64
1982	5	8	-29.8000	27.2100	2.82
1982	5	9	-29.8400	27.2100	2.50
1982	5	9	-29.6000	27.0600	3.38
1982	5	9	-26.3100	27.6000	2.56
1982	5	10	-26.8400	26.6600	2.95
1982	5	10	-26.3400	27.2400	3.00
1982	5	11	-26.3400	27.3000	2.86
1982	5	11	-26.2100	28.1600	2.57
1982	5	12	-26.2400	28.2300	2.64
1982	5	14	-26.3100	27.2900	2.69
1982	5	15	-27.9300	26.7600	2.81
1982	5	16	-26.9100	26.8200	2.85
1982	5	17	-26.1700	28.4200	2.91
1982	5	17	-26.3500	27.0900	2.62
1982	5	18	-26.4300	27.6400	2.61
1982	5	18	-26.2900	27.5900	2.52
1982	5	19	-26.3600	27.2700	2.54

1982	5	20	-26.8000	26.6300	2.62
1982	5	21	-26.8300	26.7700	2.68
1982	5	22	-26.3100	27.3100	3.03
1982	5	22	-26.4800	27.4100	2.74
1982	5	22	-27.9900	26.7400	2.74
1982	5	24	-26.2700	27.5200	3.17
1982	5	25	-26.2400	27.6000	2.57
1982	5	26	-26.1500	27.7100	2.86
1982	5	27	-26.2500	28.1400	2.67
1982	5	27	-26.2500	28.0900	2.77
1982	5	27	-26.3200	27.3200	2.74
1982	5	27	-26.8200	26.6900	2.55
1982	5	28	-27.9100	26.7700	2.67
1982	5	28	-26.9000	26.8200	3.16
1982	5	28	-26.8100	26.7400	2.70
1982	5	28	-26.3100	27.3200	2.96
1982	5	28	-26.3800	27.2700	3.17
1982	5	28	-26.9300	26.8300	3.57
1982	5	28	-26.1700	28.2200	3.91
1982	5	29	-26.4100	27.5000	2.88
1982	5	29	-26.3900	27.4400	3.09
1982	5	30	-27.0800	26.9000	2.72
1982	5	30	-27.9600	26.7600	2.51
1982	5	30	-27.0500	26.8300	2.74
1982	5	31	-27.9300	26.7100	2.79
1982	6	1	-26.4900	27.4200	2.87
1982	6	1	-28.0000	26.7100	3.07
1982	6	2	-26.8000	26.8200	2.86
1982	6	2	-26.2100	28.1700	2.76
1982	6	3	-28.7000	23.9300	2.50
1982	6	3	-26.4800	27.2800	2.79
1982	6	4	-26.4700	27.4000	2.70
1982	6	4	-26.4800	27.4200	2.78
1982	6	5	-26.3600	27.3200	2.65
1982	6	5	-27.9800	26.7300	2.57
1982	6	6	-26.8400	26.7100	2.84
1982	6	7	-27.8500	26.7200	3.86
1982	6	7	-27.8900	26.7200	3.24
1982	6	7	-27.8400	26.7000	3.09
1982	6	7	-26.4000	27.4300	3.05
1982	6	8	-26.3800	27.3500	2.83
1982	6	9	-26.4300	27.4800	2.84
1982	6	10	-27.8700	26.7100	2.66
1982	6	10	-26.5000	27.4000	3.14
1982	6	12	-26.2800	28.2000	3.02
1982	6	12	-26.4700	27.4600	3.41
1982	6	13	-26.4600	27.4200	2.63
1982	6	15	-24.6000	27.4000	2.73
1982	6	15	-26.4200	27.3700	2.60
1982	6	15	-28.0700	26.7300	3.11
1982	6	16	-26.4200	27.2300	2.62
1982	6	16	-23.5600	26.1400	3.81
1982	6	16	-26.2200	28.1700	4.01
1982	6	16	-26.1400	27.7100	2.63
1982	6	17	-26.1400	27.7100	3.52
1982	6	17	-26.2300	28.2200	3.01
1982	6	18	-28.0200	26.8600	2.73
1982	6	18	-26.9400	26.8000	3.70
1982	6	18	-27.9900	26.8400	2.66
1982	6	18	-26.3900	27.3200	2.81
1982	6	19	-26.2300	28.1800	2.64

1982	6	20	-26.4300	27.3900	2.84
1982	6	20	-26.9700	26.8200	3.12
1982	6	22	-26.4400	27.5600	2.57
1982	6	22	-26.2100	28.2700	3.04
1982	6	23	-26.8300	26.7800	3.17
1982	6	23	-26.2300	28.1600	3.11
1982	6	24	-27.9600	26.7300	2.92
1982	6	24	-26.4000	27.3900	3.85
1982	6	25	-26.4400	27.3400	2.96
1982	6	25	-26.4300	27.5500	2.57
1982	6	25	-26.4500	27.2000	2.51
1982	6	25	-26.8600	26.7000	2.70
1982	6	25	-27.8900	26.7400	3.30
1982	6	26	-26.3800	27.4300	3.89
1982	6	26	-26.3200	27.6600	2.82
1982	6	27	-26.8300	26.7400	3.58
1982	6	27	-26.4000	27.3900	3.43
1982	6	28	-26.9900	26.9300	3.39
1982	6	29	-26.3700	27.3400	2.87
1982	6	30	-28.0200	26.8100	2.72
1982	7	1	-26.3900	27.2300	2.61
1982	7	3	-26.3400	27.3600	2.78
1982	7	3	-27.8900	26.6100	3.19
1982	7	4	-26.4000	27.3500	3.02
1982	7	4	-26.2200	28.2300	2.59
1982	7	5	-26.3600	27.3200	2.65
1982	7	6	-26.3200	27.4100	2.56
1982	7	7	-26.3500	27.5500	2.69
1982	7	7	-26.3200	27.5600	2.53
1982	7	8	-26.3500	27.6200	2.52
1982	7	9	-26.7800	26.7700	2.87
1982	7	9	-26.1900	28.2100	2.51
1982	7	9	-26.3000	27.7000	2.66
1982	7	11	-26.2200	28.2100	3.02
1982	7	14	-26.9500	26.7700	2.93
1982	7	17	-26.2100	28.1600	3.40
1982	7	17	-28.0000	26.7000	2.98
1982	7	17	-26.3500	27.3600	2.60
1982	7	17	-26.4000	27.3000	2.70
1982	7	20	-26.2000	28.2100	2.75
1982	7	21	-26.2500	28.2000	2.53
1982	7	21	-26.3900	27.3600	2.57
1982	7	21	-26.4300	27.3200	2.64
1982	7	22	-26.4000	27.3000	2.60
1982	7	22	-26.4200	27.3100	2.62
1982	7	22	-26.3300	27.4300	2.57
1982	7	22	-26.3800	27.3600	2.56
1982	7	22	-26.2300	28.2200	2.59
1982	7	22	-26.3500	27.4000	2.66
1982	7	23	-28.0300	26.7600	2.86
1982	7	23	-26.3100	27.6400	2.51
1982	7	23	-26.4200	27.2800	2.60
1982	7	23	-26.3600	27.6300	3.07
1982	7	24	-26.3900	27.3900	2.87
1982	7	24	-27.9300	26.6900	2.64
1982	7	24	-26.3800	27.5600	2.75
1982	7	25	-26.3900	27.5300	2.53
1982	7	26	-26.3500	27.4000	3.58
1982	7	26	-26.3700	27.3500	2.84
1982	7	26	-26.2000	28.1500	3.20
1982	7	27	-28.0400	26.7700	2.76

1982	7	28	-26.3800	27.3600	2.84
1982	7	28	-26.3900	27.3800	2.58
1982	7	30	-26.3600	27.3700	3.82
1982	7	30	-27.9300	26.7300	3.30
1982	7	31	-26.3800	27.3700	2.79
1982	7	31	-27.9700	26.7500	3.00
1982	8	1	-26.3900	27.3500	3.19
1982	8	1	-26.4200	27.3100	2.94
1982	8	2	-26.4200	27.2700	2.78
1982	8	2	-26.3000	27.5000	2.90
1982	8	2	-27.9800	26.7800	2.92
1982	8	3	-26.2500	28.1300	2.52
1982	8	3	-26.4300	27.4000	2.55
1982	8	4	-27.9000	26.7100	3.13
1982	8	4	-28.0000	26.7900	3.00
1982	8	5	-26.4400	27.3500	2.52
1982	8	6	-27.9200	26.7100	2.80
1982	8	6	-26.4000	27.3600	3.04
1982	8	6	-27.9800	26.7900	2.76
1982	8	7	-26.9000	26.7600	2.72
1982	8	7	-26.8600	26.7500	2.72
1982	8	7	-26.9000	26.7400	2.93
1982	8	8	-26.3800	27.3800	2.56
1982	8	9	-26.1800	28.1600	2.95
1982	8	9	-27.9900	26.8200	3.07
1982	8	10	-26.3700	27.4300	2.80
1982	8	11	-26.3600	27.3100	3.04
1982	8	11	-26.4200	27.3400	2.81
1982	8	11	-26.8700	26.6900	2.57
1982	8	11	-26.3700	27.4400	2.50
1982	8	12	-26.3000	27.3600	2.64
1982	8	12	-26.8100	26.7000	2.77
1982	8	13	-26.2000	28.2400	2.59
1982	8	13	-26.1800	28.1800	2.84
1982	8	13	-26.3300	27.4400	3.19
1982	8	13	-26.3500	27.4300	2.58
1982	8	13	-26.8500	26.7300	2.57
1982	8	13	-26.3500	27.5100	2.53
1982	8	13	-26.3500	27.3200	3.12
1982	8	15	-26.3700	27.3100	2.58
1982	8	15	-26.3600	27.3500	2.72
1982	8	15	-26.1500	27.8200	2.59
1982	8	15	-27.9000	26.6600	3.35
1982	8	17	-26.2500	27.4100	2.63
1982	8	18	-26.3000	27.3800	3.26
1982	8	19	-28.0000	26.8400	3.48
1982	8	19	-26.2400	28.1600	2.68
1982	8	19	-27.8200	26.6800	2.98
1982	8	19	-26.2000	28.2000	3.04
1982	8	20	-26.3400	27.3400	2.62
1982	8	21	-26.3800	27.4800	2.83
1982	8	22	-27.9000	26.7600	2.67
1982	8	23	-26.3300	27.3900	2.84
1982	8	23	-26.3300	27.3800	3.88
1982	8	25	-26.2700	27.3900	2.65
1982	8	25	-26.2800	27.4000	2.71
1982	8	25	-26.3500	27.4300	3.13
1982	8	25	-26.2800	27.5100	2.98
1982	8	25	-26.3200	27.3400	2.75
1982	8	26	-26.2600	28.1800	2.94
1982	8	26	-26.3300	27.4200	3.37

1982	8	27	-26.3800	27.2300	2.69
1982	9	1	-27.9800	26.7900	3.71
1982	9	2	-26.4700	27.4700	2.88
1982	9	6	-26.2100	28.1700	2.50
1982	9	6	-28.0500	26.6100	2.92
1982	9	6	-26.3000	28.2900	2.64
1982	9	6	-26.3900	27.3800	2.98
1982	9	8	-26.2300	28.1800	3.22
1982	9	10	-26.9600	26.7200	2.86
1982	9	10	-26.4500	27.4100	2.55
1982	9	14	-26.3700	27.6000	2.52
1982	9	14	-26.3600	27.6500	2.92
1982	9	17	-26.9100	26.7400	3.12
1982	9	17	-28.0300	26.8500	2.69
1982	9	17	-26.8200	26.7300	3.28
1982	9	18	-28.0400	26.8000	2.63
1982	9	18	-26.3700	27.5800	3.27
1982	9	19	-26.3200	27.6200	2.72
1982	9	20	-26.4600	27.3000	2.95
1982	9	20	-26.3300	27.5400	2.76
1982	9	21	-26.3400	27.4500	2.52
1982	9	21	-26.1600	28.2300	2.63
1982	9	22	-26.3900	27.4100	2.70
1982	9	23	-26.8600	26.7500	2.70
1982	9	23	-26.2500	27.6100	2.71
1982	9	24	-26.9000	26.7200	2.80
1982	9	25	-26.2100	28.2100	2.50
1982	9	26	-28.0400	26.8500	2.92
1982	9	26	-26.3800	27.3300	3.00
1982	9	28	-26.3400	27.4400	2.53
1982	9	29	-26.8500	26.7200	2.97
1982	9	29	-26.3500	27.3500	2.55
1982	10	1	-26.9100	26.7800	3.55
1982	10	2	-26.2100	28.2000	2.85
1982	10	2	-26.3500	27.2500	2.96
1982	10	4	-26.3400	27.3700	2.94
1982	10	5	-26.3700	27.4000	2.52
1982	10	6	-26.2500	28.1400	2.59
1982	10	6	-26.2800	28.1300	2.77
1982	10	6	-26.3400	27.3100	3.62
1982	10	7	-28.1100	26.8600	2.83
1982	10	8	-26.2100	28.1700	2.90
1982	10	10	-26.8600	26.6400	2.99
1982	10	11	-27.9100	26.6400	3.03
1982	10	11	-26.3600	27.2100	2.61
1982	10	12	-26.3600	27.3800	2.94
1982	10	13	-26.3300	27.3300	3.04
1982	10	13	-27.9600	26.6600	2.57
1982	10	13	-26.2900	27.4000	2.62
1982	10	13	-26.4000	27.4600	3.69
1982	10	14	-28.0600	26.9200	2.50
1982	10	14	-26.3500	27.6200	2.60
1982	10	15	-26.3600	27.3700	3.10
1982	10	16	-26.4700	27.4300	2.67
1982	10	16	-26.2900	27.7100	2.73
1982	10	16	-26.4600	27.3700	2.62
1982	10	19	-27.9600	26.7100	2.76
1982	10	19	-26.4500	27.5300	2.87
1982	10	19	-27.9500	26.7300	3.36
1982	10	21	-26.8900	26.6800	2.85
1982	10	21	-26.2100	28.1800	2.74

1982	10	22	-26.4200	27.4600	2.88
1982	10	22	-26.2500	28.2400	2.56
1982	10	25	-27.0200	26.8300	2.60
1982	10	30	-26.9900	26.8300	2.73
1982	10	31	-26.4400	27.3700	3.55
1982	10	31	-28.0100	26.7300	2.60
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1982	11	1	-26.9300	26.8100	3.45
1982	11	1	-26.2900	28.1600	2.67
1982	11	1	-26.9400	26.7400	2.87
1982	11	2	-26.9400	26.8400	2.77
1982	11	3	-26.4000	27.4000	4.77
1982	11	5	-26.5300	27.3200	2.56
1982	11	5	-26.9500	26.7800	2.61
1982	11	6	-26.8200	26.8000	2.50
1982	11	7	-26.4600	27.2800	3.07
1982	11	8	-26.4300	27.5900	2.76
1982	11	8	-28.0600	26.9500	2.92
1982	11	8	-26.3900	27.4000	3.30
1982	11	8	-28.0000	26.7700	2.94
1982	11	9	-26.2200	28.3000	3.04
1982	11	9	-26.3500	27.6400	2.60
1982	11	9	-26.4000	27.6000	2.94
1982	11	10	-26.4500	27.4500	2.57
1982	11	11	-26.9100	26.8700	2.56
1982	11	11	-28.0600	26.8200	2.73
1982	11	12	-26.9400	26.8000	4.66
1982	11	14	-26.9100	26.8100	2.82
1982	11	16	-28.0700	26.7100	2.83
1982	11	17	-26.9000	26.7900	2.66
1982	11	17	-26.4900	27.4000	3.14
1982	11	17	-27.9400	26.8100	2.80
1982	11	18	-29.4100	27.5600	3.60
1982	11	18	-26.4200	27.3900	2.84
1982	11	18	-26.4200	27.4500	3.08
1982	11	19	-26.3700	27.4100	3.44
1982	11	19	-26.9000	26.8100	2.96
1982	11	19	-26.2900	27.6500	3.17
1982	11	21	-26.3400	27.6200	2.81
1982	11	22	-26.2800	28.2200	2.98
1982	11	22	-26.3500	27.3700	3.64
1982	11	23	-26.2300	28.1500	2.83
1982	11	24	-26.3600	27.4200	2.95
1982	11	24	-26.3500	27.3800	3.13
1982	11	25	-26.4100	27.3400	2.77
1982	11	25	-26.3300	27.4700	2.71
1982	11	25	-28.0300	26.8900	2.63
1982	11	26	-26.1800	28.1300	3.52
1982	11	26	-26.1300	27.8300	2.64
1982	11	26	-26.2200	28.1400	2.63
1982	11	28	-26.3600	27.7400	2.92
1982	11	29	-26.9200	26.7800	3.28
1982	11	29	-28.0400	26.9200	2.54
1982	12	1	-26.3600	27.4000	3.06
1982	12	1	-26.4100	27.4300	3.12
1982	12	1	-26.3600	27.2900	2.53
1982	12	1	-26.8800	26.7100	2.81
1982	12	2	-26.3700	27.3600	3.63
1982	12	3	-26.2200	28.1600	3.07
1982	12	3	-27.9800	30.1800	2.87
1982	12	4	-26.8200	26.7900	2.67

1982	12	5	-26.3700	27.3700	2.72
1982	12	6	-26.3400	27.3000	2.51
1982	12	6	-26.8700	26.7600	3.20
1982	12	6	-26.1700	28.2100	3.04
1982	12	7	-28.1200	26.9200	2.89
1982	12	7	-27.7200	26.7200	2.68
1982	12	8	-26.3700	27.3300	3.24
1982	12	8	-26.3900	27.2600	2.53
1982	12	8	-26.3900	27.2800	2.75
1982	12	10	-26.2500	28.1800	3.07
1982	12	11	-26.9000	26.7600	3.06
1982	12	11	-26.8300	26.7200	3.80
1982	12	11	-26.8100	26.7100	3.06
1982	12	11	-26.8900	26.7800	2.83
1982	12	12	-27.9400	26.8500	3.32
1982	12	14	-26.3400	27.4000	2.89
1982	12	15	-26.3300	27.3200	3.28
1982	12	15	-26.3900	27.6100	2.53
1982	12	15	-26.2400	27.5900	2.62
1982	12	16	-26.9100	26.7400	3.04
1982	12	16	-26.8800	26.7700	2.82
1982	12	17	-26.8800	26.7700	2.68
1982	12	20	-26.8700	26.7700	2.85
1982	12	21	-26.8800	26.7900	3.80
1982	12	21	-26.8600	26.7700	3.23
1982	12	21	-27.9400	26.7500	2.51
1982	12	22	-26.3300	27.4000	2.75
1982	12	22	-26.1800	28.2000	2.64
1982	12	23	-26.3400	27.3500	3.16
1982	12	23	-27.9800	26.8600	4.01
1982	12	23	-26.3600	27.4100	2.50
1982	12	24	-26.9000	26.7900	2.87
1982	12	24	-26.4000	27.4200	2.53
1982	12	25	-26.3600	27.4300	2.51
1982	12	28	-26.4400	27.4600	2.90
1982	12	28	-26.2900	27.5700	2.95
1982	12	28	-26.8100	26.8000	3.39
1982	12	28	-26.4300	27.4100	2.92
1982	12	28	-26.3600	27.5500	2.64
1982	12	29	-26.8400	26.7900	2.89
1982	12	30	-26.4300	27.3700	2.87
1983	1	1	-26.2500	28.1700	3.04
1983	1	3	-26.3900	27.2800	2.91
1983	1	3	-26.4800	27.4500	3.26
1983	1	3	-27.8700	26.7700	2.80
1983	1	3	-26.7900	26.7900	3.86
1983	1	4	-26.3000	27.6000	2.80
1983	1	4	-26.4600	27.5800	2.80
1983	1	4	-26.3600	27.6700	2.84
1983	1	4	-26.2800	27.4700	3.10
1983	1	5	-26.4500	27.5100	2.70
1983	1	5	-26.8100	26.7300	3.15
1983	1	5	-26.4200	27.4600	2.81
1983	1	6	-26.3400	27.4400	3.30
1983	1	6	-27.8400	26.8300	2.93
1983	1	6	-26.3300	27.7100	3.17
1983	1	6	-26.2900	27.7300	2.81
1983	1	7	-26.1800	27.7000	2.81
1983	1	7	-26.2200	28.1800	2.63
1983	1	10	-26.3000	27.4600	2.61
1983	1	12	-26.2500	28.2100	3.38

1983	1	12	-26.2100	28.2500	2.74
1983	1	13	-26.2800	27.6100	2.53
1983	1	13	-26.2200	28.2300	3.42
1983	1	13	-26.9300	26.8200	2.90
1983	1	14	-26.1800	27.8500	2.95
1983	1	14	-26.8500	26.8500	3.23
1983	1	14	-26.4200	27.4200	3.06
1983	1	15	-26.8400	26.7800	2.58
1983	1	17	-26.3200	27.4000	2.57
1983	1	17	-26.3800	27.3700	2.83
1983	1	17	-26.3300	27.4400	3.33
1983	1	18	-26.3400	27.4500	2.70
1983	1	19	-26.3800	27.2700	2.79
1983	1	20	-26.2600	28.0200	3.14
1983	1	20	-26.4400	27.5000	2.63
1983	1	21	-26.3700	27.3400	2.76
1983	1	21	-26.2300	28.1700	2.75
1983	1	23	-28.0900	26.9000	3.18
1983	1	23	-26.8200	26.8300	2.79
1983	1	25	-26.4000	27.5500	2.91
1983	1	26	-26.3300	27.3500	2.58
1983	1	26	-26.3500	27.3800	2.98
1983	1	27	-28.1300	26.9000	3.02
1983	1	28	-28.1000	26.8800	2.58
1983	1	28	-27.9200	26.5900	2.98
1983	1	30	-26.3500	27.4100	2.60
1983	1	31	-26.4400	27.4900	2.87
1983	2	2	-26.9900	26.7900	2.93
1983	2	2	-26.1800	27.7900	2.53
1983	2	2	-26.4900	27.4200	2.81
1983	2	2	-26.4200	27.4600	2.72
1983	2	4	-26.3200	27.6900	2.76
1983	2	4	-26.4900	27.4800	2.78
1983	2	4	-26.4200	27.3900	2.57
1983	2	4	-26.2200	28.0900	2.80
1983	2	6	-26.9600	26.8500	2.97
1983	2	7	-26.5000	27.4900	2.55
1983	2	8	-26.9000	26.8300	3.71
1983	2	9	-26.2300	28.1600	2.84
1983	2	10	-26.8500	26.7200	2.62
1983	2	10	-26.4800	27.4700	3.13
1983	2	11	-26.3900	27.3600	2.97
1983	2	11	-27.9400	26.7900	3.53
1983	2	12	-26.3400	27.3600	2.90
1983	2	15	-26.2600	28.1600	2.93
1983	2	16	-26.3900	27.2500	2.90
1983	2	17	-26.2000	28.2100	2.97
1983	2	18	-27.9900	26.8800	2.65
1983	2	18	-26.9700	26.8400	3.34
1983	2	20	-27.9100	26.7800	2.64
1983	2	21	-26.3900	27.3600	2.61
1983	2	21	-27.9700	31.3900	3.01
1983	2	22	-26.3400	27.6200	3.05
1983	2	22	-26.4000	27.7200	2.79
1983	2	22	-29.1600	27.7900	4.38
1983	2	23	-26.4400	27.3700	3.11
1983	2	26	-26.3900	27.5700	3.14
1983	2	26	-26.3400	27.6100	2.83
1983	2	28	-26.8800	26.6500	2.74
1983	3	2	-26.2300	27.7100	2.71
1983	3	3	-26.3800	27.5000	2.56

1983	3	3	-27.9400	26.7000	2.81
1983	3	3	-26.4400	27.4000	2.62
1983	3	3	-26.1700	28.1800	2.67
1983	3	4	-26.4000	27.4200	2.57
1983	3	4	-26.8300	26.7100	2.56
1983	3	4	-26.4300	27.4300	2.61
1983	3	4	-26.2300	28.1500	2.84
1983	3	5	-26.4000	27.4300	2.50
1983	3	8	-26.4100	27.4000	2.80
1983	3	8	-28.0500	26.8600	2.66
1983	3	8	-27.9300	26.7400	2.99
1983	3	9	-27.9600	26.6700	2.70
1983	3	9	-26.4000	27.6300	2.87
1983	3	11	-26.3900	27.4100	3.06
1983	3	11	-26.2500	28.1700	3.76
1983	3	11	-28.0100	26.7000	3.02
1983	3	12	-26.3200	27.6800	2.75
1983	3	12	-26.3900	27.5500	2.69
1983	3	13	-26.3100	27.6200	2.80
1983	3	13	-26.2300	28.1800	2.87
1983	3	14	-28.0100	26.8200	3.44
1983	3	15	-26.2200	27.7100	3.13
1983	3	16	-26.8800	26.7000	2.51
1983	3	16	-26.4400	27.4000	2.68
1983	3	16	-26.4300	27.4700	2.57
1983	3	16	-26.9400	26.7400	2.67
1983	3	18	-26.1000	28.1000	2.80
1983	3	18	-26.1900	28.1700	2.88
1983	3	18	-26.3500	27.4200	2.57
1983	3	19	-26.3900	27.4700	2.86
1983	3	19	-26.9800	26.7800	3.40
1983	3	21	-26.9100	26.8300	2.56
1983	3	21	-26.4100	27.5400	2.50
1983	3	23	-26.2500	28.2300	2.75
1983	3	23	-26.3600	27.3500	2.87
1983	3	25	-26.3600	27.6300	2.75
1983	3	26	-26.4000	27.3500	2.71
1983	3	27	-26.4100	27.4000	2.95
1983	3	27	-26.3800	27.4100	3.05
1983	3	27	-26.2300	28.2100	2.67
1983	3	28	-26.3900	27.4500	2.50
1983	3	28	-26.8800	26.7000	2.58
1983	3	31	-26.2100	28.2300	2.81
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1983	4	2	-26.3000	27.5000	2.50
1983	4	2	-26.3800	27.3300	2.96
1983	4	2	-26.4100	27.4100	2.57
1983	4	2	-28.0500	26.7500	2.97
1983	4	2	-26.3600	27.5700	2.52
1983	4	2	-26.3600	27.5900	3.05
1983	4	2	-26.3700	27.3500	2.99
1983	4	4	-26.8800	26.7400	3.39
1983	4	5	-26.2000	28.1500	2.69
1983	4	6	-27.9200	26.7200	2.68
1983	4	6	-26.2700	27.6800	2.91
1983	4	6	-26.3700	27.3100	3.31
1983	4	7	-26.3400	27.3700	2.84
1983	4	7	-26.1500	28.1600	2.88
1983	4	8	-26.3700	27.3300	3.17
1983	4	8	-26.9300	26.7200	3.01
1983	4	8	-26.9200	26.7000	3.04

1983	4	9	-26.4400	27.2900	2.80
1983	4	10	-26.4400	27.4000	2.84
1983	4	11	-26.3800	27.6300	3.29
1983	4	11	-26.2200	27.9500	3.11
1983	4	12	-26.2800	27.5100	2.50
1983	4	12	-26.5100	27.3600	3.20
1983	4	12	-26.4200	27.4300	2.82
1983	4	13	-26.9800	26.7800	3.70
1983	4	14	-26.4100	27.4500	2.84
1983	4	14	-26.9700	26.7600	2.72
1983	4	14	-26.3400	27.6000	2.54
1983	4	14	-26.9100	26.8200	3.19
1983	4	14	-28.0100	26.8700	3.92
1983	4	14	-26.8900	26.7500	3.80
1983	4	15	-26.3600	27.5900	3.13
1983	4	15	-26.2400	28.2300	2.96
1983	4	15	-26.4200	27.3000	2.85
1983	4	16	-26.4100	27.5800	2.73
1983	4	16	-26.8700	26.7600	2.81
1983	4	16	-26.9200	26.7700	2.72
1983	4	17	-26.3900	27.5600	2.73
1983	4	17	-26.8700	26.7100	2.97
1983	4	21	-26.3300	27.6700	2.61
1983	4	21	-27.9900	26.8600	2.85
1983	4	22	-26.4400	27.3500	2.50
1983	4	22	-26.3900	27.4400	2.60
1983	4	22	-26.4500	27.4000	2.74
1983	4	23	-26.3900	27.3600	2.74
1983	4	24	-26.9200	26.8100	3.15
1983	4	25	-26.9100	26.7900	3.07
1983	4	25	-26.2400	28.2000	3.55
1983	4	25	-26.3900	27.3800	2.58
1983	4	25	-26.4700	27.4200	2.62
1983	4	25	-26.4100	27.3500	2.87
1983	4	25	-26.2900	27.6300	3.48
1983	4	25	-26.3400	27.6500	2.53
1983	4	26	-26.9100	26.8000	2.79
1983	4	26	-26.2000	28.2300	2.69
1983	4	27	-26.3500	27.3900	3.07
1983	4	27	-26.9100	26.7500	3.54
1983	4	28	-26.4000	27.3800	2.71
1983	4	29	-26.2300	28.1800	2.91
1983	4	30	-26.4200	27.4100	2.93
1983	5	1	-26.3000	27.6000	2.70
1983	5	1	-26.9400	26.7300	2.72
1983	5	4	-26.3500	27.4500	2.53
1983	5	4	-26.3500	27.4100	2.71
1983	5	5	-26.2100	28.1400	2.60
1983	5	5	-28.0500	26.9000	2.54
1983	5	5	-26.8900	26.7400	3.06
1983	5	5	-26.9000	26.7500	2.91
1983	5	6	-26.3900	27.4300	2.56
1983	5	6	-26.4500	27.3300	2.50
1983	5	9	-26.3400	27.4700	2.64
1983	5	9	-26.3200	27.6400	3.31
1983	5	10	-28.0100	26.8500	3.05
1983	5	11	-26.3700	27.4000	2.75
1983	5	15	-26.3600	27.4200	2.95
1983	5	16	-26.3500	27.4000	3.64
1983	5	17	-26.3800	27.3600	2.69
1983	5	17	-26.9000	26.7100	3.74

1983	5	18	-26.8900	26.7800	3.47
1983	5	18	-26.2000	28.1000	3.00
1983	5	19	-28.0100	26.8300	2.69
1983	5	19	-26.8600	26.7700	3.01
1983	5	21	-26.3500	27.4400	2.88
1983	5	21	-26.4400	27.4500	3.06
1983	5	21	-28.0200	26.8800	2.96
1983	5	22	-26.4600	27.3300	2.81
1983	5	24	-26.9000	26.7300	2.65
1983	5	24	-27.9900	26.8100	3.24
1983	5	24	-26.2000	28.1100	3.36
1983	5	25	-26.3900	27.6100	3.24
1983	5	25	-26.4000	27.4000	2.63
1983	5	26	-26.1900	28.1500	2.97
1983	5	26	-26.3700	27.3900	3.25
1983	5	26	-26.3800	27.3300	2.61
1983	5	28	-26.8400	26.7700	3.11
1983	5	28	-26.4400	27.5400	3.14
1983	5	30	-26.3500	27.5300	3.44
1983	5	30	-26.4200	27.4600	2.97
1983	5	31	-26.2300	28.1500	3.27
1983	5	31	-26.4200	27.3300	3.18
1983	6	1	-26.2000	28.1000	3.38
1983	6	2	-26.2400	28.1800	3.83
1983	6	3	-26.4400	27.3700	2.98
1983	6	4	-26.9100	26.7700	2.89
1983	6	5	-26.9400	26.7700	3.05
1983	6	6	-26.9100	26.8500	4.29
1983	6	6	-28.0000	26.7000	2.60
1983	6	6	-26.8800	26.7500	5.37
1983	6	6	-26.9100	26.8300	4.30
1983	6	7	-26.4500	27.4600	2.74
1983	6	7	-26.3500	27.6900	2.89
1983	6	7	-26.8900	26.7800	2.54
1983	6	8	-26.3800	27.3900	2.56
1983	6	9	-26.2400	28.1800	3.04
1983	6	9	-26.4000	27.4700	3.33
1983	6	10	-27.9400	26.7400	3.50
1983	6	10	-26.4300	27.4300	2.53
1983	6	10	-26.3700	27.4900	2.66
1983	6	11	-26.3300	27.5900	2.83
1983	6	11	-26.3500	27.4200	2.79
1983	6	11	-26.9000	26.7600	3.30
1983	6	13	-26.3900	27.3400	3.02
1983	6	13	-26.4900	27.3600	2.98
1983	6	13	-26.3700	27.4500	2.54
1983	6	14	-26.3400	27.5000	3.09
1983	6	15	-26.3600	27.4300	2.91
1983	6	15	-28.0100	26.7100	3.04
1983	6	16	-26.3500	27.4300	2.99
1983	6	16	-28.0100	26.8200	2.74
1983	6	16	-26.8700	26.7700	2.92
1983	6	17	-26.9200	26.8100	3.43
1983	6	17	-26.3800	27.3500	2.57
1983	6	18	-26.2300	27.6900	3.12
1983	6	20	-26.9100	26.7500	3.26
1983	6	20	-28.0400	26.8300	2.64
1983	6	21	-26.9800	26.8400	3.10
1983	6	21	-26.2300	28.1900	3.14
1983	6	21	-26.4300	27.3800	2.53
1983	6	23	-26.4000	27.3700	2.73

1983	6	23	-26.3500	27.4000	3.01
1983	6	27	-26.3900	27.4200	2.83
1983	6	27	-26.9500	26.7400	3.18
1983	6	27	-26.4000	27.4900	2.54
1983	6	27	-26.2200	28.1700	3.44
1983	6	28	-26.7900	26.8000	2.65
1983	6	28	-26.4000	27.4000	2.70
1983	6	28	-26.3000	27.7100	2.67
1983	6	29	-26.8900	26.7500	3.28
1983	6	30	-26.3900	27.4200	2.88
1983	6	30	-26.8000	26.8100	3.02
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1983	7	1	-26.4400	27.3900	2.67
1983	7	1	-28.1100	26.8000	3.28
1983	7	1	-26.2000	28.2300	2.88
1983	7	1	-28.0900	26.7600	3.02
1983	7	1	-26.3200	27.5400	2.63
1983	7	2	-28.1000	26.8600	2.80
1983	7	2	-26.3800	27.2800	2.76
1983	7	4	-26.2100	28.2300	2.67
1983	7	5	-26.3400	27.7500	3.15
1983	7	5	-26.4100	27.4600	2.61
1983	7	5	-26.4400	27.4400	2.50
1983	7	6	-28.1300	26.8500	2.92
1983	7	7	-26.9200	26.7500	3.22
1983	7	7	-26.3900	27.4000	3.11
1983	7	7	-26.8800	26.6800	3.42
1983	7	7	-26.4100	27.4100	2.82
1983	7	8	-26.9300	26.8000	2.66
1983	7	8	-26.3700	27.4700	2.55
1983	7	8	-28.1400	26.8300	2.79
1983	7	9	-26.9000	26.7800	3.00
1983	7	10	-26.2800	27.6500	2.61
1983	7	13	-26.4000	27.3800	2.97
1983	7	15	-26.3500	27.5700	2.72
1983	7	15	-26.3600	27.5900	2.91
1983	7	15	-26.3500	27.5800	2.63
1983	7	15	-26.3800	27.4300	4.03
1983	7	17	-26.1400	27.8500	2.87
1983	7	17	-26.3500	27.3600	2.88
1983	7	18	-27.9900	26.7400	2.52
1983	7	18	-26.3500	27.3800	2.74
1983	7	18	-28.0100	26.6700	2.65
1983	7	18	-28.0200	26.7100	2.75
1983	7	19	-26.9300	26.7500	2.70
1983	7	19	-28.0600	26.7900	2.90
1983	7	20	-27.9800	26.8300	3.68
1983	7	20	-28.0300	26.7300	2.81
1983	7	20	-26.4600	27.3600	2.71
1983	7	20	-26.5200	27.3700	2.90
1983	7	20	-26.3800	27.3500	3.22
1983	7	21	-28.0200	26.7300	2.53
1983	7	21	-26.8100	26.7500	2.57
1983	7	21	-26.1800	28.2100	3.01
1983	7	22	-26.4000	27.6700	2.86
1983	7	22	-26.3600	27.4500	3.29
1983	7	22	-26.3800	27.4000	2.84
1983	7	23	-26.3500	27.4100	2.55
1983	7	23	-26.8700	26.8000	2.53
1983	7	24	-26.3200	27.5100	3.19
1983	7	25	-26.3600	27.5900	2.64

1983	7	25	-26.2900	27.6800	3.21
1983	7	27	-26.3400	27.4000	2.59
1983	7	27	-26.3700	27.3800	3.08
1983	7	28	-26.3700	27.3600	2.68
1983	7	29	-26.3800	27.3900	2.72
1983	8	1	-26.3000	27.3000	2.80
1983	8	1	-26.2200	28.2200	2.89
1983	8	3	-26.3800	27.2800	3.07
1983	8	3	-26.8900	26.7100	2.99
1983	8	4	-26.4000	27.4100	2.94
1983	8	4	-26.3700	27.4400	3.67
1983	8	4	-28.0200	26.7000	2.71
1983	8	6	-26.8900	26.7200	3.38
1983	8	6	-26.3800	27.4400	3.51
1983	8	6	-26.4100	27.3500	3.14
1983	8	7	-26.3700	27.3700	2.88
1983	8	8	-26.3300	27.4600	2.82
1983	8	9	-26.2100	28.2000	2.89
1983	8	10	-26.3500	27.3900	3.05
1983	8	10	-26.4500	27.4200	2.99
1983	8	11	-26.4400	27.2900	3.12
1983	8	11	-26.4100	27.3900	2.78
1983	8	11	-28.0500	26.8700	2.70
1983	8	11	-26.3700	27.6200	3.17
1983	8	12	-26.9400	26.7700	2.82
1983	8	12	-26.1900	28.1000	2.53
1983	8	13	-26.4200	27.4300	3.27
1983	8	13	-26.4600	27.4100	2.90
1983	8	15	-26.4300	27.4200	2.92
1983	8	15	-26.8700	26.6800	3.36
1983	8	15	-26.4500	27.3800	3.21
1983	8	16	-28.0200	26.9000	2.60
1983	8	16	-26.4600	27.4100	2.53
1983	8	16	-26.2200	28.1700	3.19
1983	8	16	-28.0600	27.2100	3.00
1983	8	17	-28.0400	26.8200	2.82
1983	8	17	-26.4300	27.4400	2.86
1983	8	17	-26.4300	27.4900	2.71
1983	8	18	-26.3600	27.4100	3.07
1983	8	19	-26.5000	27.4400	2.51
1983	8	21	-28.1000	26.9700	3.51
1983	8	21	-26.3500	27.3300	2.53
1983	8	22	-26.3600	27.2400	3.38
1983	8	23	-26.9200	26.7700	2.87
1983	8	24	-26.2800	27.3400	2.50
1983	8	24	-26.8600	26.7900	2.90
1983	8	24	-26.3200	27.3200	2.55
1983	8	26	-26.3500	27.4100	2.93
1983	8	26	-26.2200	28.1600	2.76
1983	8	26	-26.8200	26.5800	2.59
1983	8	26	-26.4400	27.2500	2.70
1983	8	26	-28.0400	26.6800	2.53
1983	8	26	-26.8400	26.7300	2.59
1983	8	26	-26.3500	27.3300	2.76
1983	8	26	-28.1400	26.8700	2.73
1983	8	27	-26.2800	27.4400	2.52
1983	8	27	-26.2400	27.6300	2.67
1983	8	29	-28.0100	26.7000	2.86
1983	8	29	-27.9600	26.8600	2.71
1983	8	30	-26.3900	27.6100	2.76
1983	8	30	-26.3900	27.4500	2.63

1983	9	1	-26.2600	27.5700	2.57
1983	9	2	-28.0800	26.9200	2.67
1983	9	3	-26.2700	27.6000	3.12
1983	9	3	-26.3700	27.3400	2.89
1983	9	5	-29.4700	25.0300	4.64
1983	9	5	-27.9700	26.6500	2.59
1983	9	7	-26.9400	26.7000	3.10
1983	9	8	-26.2000	28.1000	2.90
1983	9	9	-29.5400	24.9000	3.04
1983	9	9	-26.3700	27.3600	3.32
1983	9	10	-26.4600	27.4500	2.50
1983	9	11	-26.8400	26.8000	4.01
1983	9	11	-26.2300	28.1500	3.37
1983	9	12	-26.1500	28.3000	2.61
1983	9	12	-26.3700	27.4900	3.50
1983	9	13	-26.2500	28.2200	2.88
1983	9	13	-26.4200	27.6000	3.33
1983	9	13	-26.3900	27.5900	2.88
1983	9	14	-26.4000	27.4300	3.39
1983	9	14	-26.5300	27.3800	2.80
1983	9	16	-26.5500	27.4400	2.96
1983	9	16	-26.4100	27.4400	2.57
1983	9	17	-26.4300	27.4900	3.50
1983	9	17	-26.3500	27.4100	2.96
1983	9	18	-26.9100	26.7400	3.31
1983	9	19	-27.9500	26.8400	3.38
1983	9	20	-26.4700	27.3700	2.71
1983	9	20	-26.5300	27.3700	2.71
1983	9	20	-26.3800	27.2700	2.64
1983	9	20	-26.4400	27.4300	2.59
1983	9	20	-26.4200	27.4400	3.12
1983	9	22	-26.3800	27.5500	3.25
1983	9	22	-26.4200	27.4900	2.54
1983	9	23	-26.4000	27.4600	2.60
1983	9	23	-26.9100	26.7500	2.73
1983	9	24	-28.0200	26.8400	2.72
1983	9	26	-26.9900	26.7700	2.85
1983	9	26	-26.4100	27.4000	2.61
1983	9	26	-26.8700	26.8000	3.04
1983	9	27	-26.3800	27.5900	2.51
1983	9	27	-26.4200	27.5100	2.65
1983	9	27	-26.4200	27.4800	2.60
1983	9	28	-26.3200	27.4500	3.17
1983	9	29	-26.1000	28.1000	2.90
1983	9	29	-28.0200	26.8800	2.86
1983	9	29	-26.1900	28.1500	2.90
1983	9	29	-26.9100	26.7600	2.70
1983	9	30	-26.8800	26.7700	2.55
1983	9	30	-26.1900	28.2100	2.63
1983	10	1	-26.1900	27.7000	2.63
1983	10	1	-26.1500	28.2900	2.80
1983	10	2	-26.2600	27.5900	2.61
1983	10	3	-26.2000	28.1700	2.51
1983	10	3	-26.3000	27.3600	2.60
1983	10	4	-26.3900	27.3200	2.59
1983	10	4	-27.9800	26.8200	2.60
1983	10	4	-26.8800	26.7300	2.55
1983	10	4	-26.3600	27.3400	2.64
1983	10	5	-26.8500	26.7400	3.09
1983	10	5	-26.8700	26.7100	3.21
1983	10	5	-26.3300	27.7300	2.51

1983	10	5	-26.3500	27.3100	3.28
1983	10	5	-26.4400	27.5600	2.50
1983	10	6	-26.2500	28.1800	2.89
1983	10	6	-26.2000	28.1000	2.71
1983	10	6	-26.2200	28.1700	2.63
1983	10	7	-26.2200	28.2200	2.80
1983	10	7	-27.9700	26.6900	2.62
1983	10	7	-26.3000	27.5000	2.90
1983	10	7	-26.2300	27.6100	2.69
1983	10	8	-26.2000	28.1800	2.71
1983	10	8	-26.2500	28.1800	3.11
1983	10	8	-26.1900	27.7900	2.73
1983	10	8	-26.3800	27.4700	2.60
1983	10	9	-26.4200	27.4800	2.78
1983	10	9	-28.0300	26.8900	3.73
1983	10	10	-26.4400	27.3400	2.63
1983	10	11	-26.2400	28.0800	2.90
1983	10	11	-26.8000	26.8100	3.16
1983	10	12	-26.3500	27.4700	3.09
1983	10	12	-26.3200	27.5300	2.98
1983	10	12	-26.3800	27.6900	2.80
1983	10	15	-26.4400	27.3100	2.68
1983	10	18	-26.3800	27.3200	2.74
1983	10	19	-26.3000	27.4800	2.71
1983	10	19	-26.4800	27.3900	3.05
1983	10	21	-26.4000	27.3900	2.61
1983	10	23	-26.4000	27.4000	2.50
1983	10	23	-26.3600	27.4400	3.27
1983	10	24	-26.2200	28.2600	2.55
1983	10	24	-26.1600	28.1900	2.78
1983	10	25	-28.0800	26.8900	2.72
1983	10	25	-26.9000	26.7500	3.11
1983	10	26	-26.9400	26.7200	3.24
1983	10	27	-26.8800	26.7200	3.02
1983	10	27	-26.3000	27.3600	3.11
1983	10	27	-26.3700	27.4300	3.05
1983	10	28	-26.9500	26.7600	2.90
1983	10	28	-27.9300	26.6800	2.57
1983	10	28	-28.0800	26.7900	2.66
1983	10	29	-26.4000	27.6000	2.87
1983	10	29	-26.3000	27.4900	2.64
1983	10	30	-26.3800	27.4000	2.61
1983	10	31	-26.9400	26.8000	2.55
1983	11	1	-26.1800	28.1800	2.82
1983	11	1	-26.2600	28.2600	3.82
1983	11	1	-26.3400	27.3600	3.28
1983	11	2	-28.5000	26.2000	3.50
1983	11	2	-30.0600	25.7900	3.25
1983	11	3	-26.9200	26.6700	2.96
1983	11	6	-26.3300	27.5700	3.01
1983	11	6	-26.8700	26.6300	2.99
1983	11	8	-26.8800	26.7000	3.20
1983	11	8	-26.4200	27.5400	3.33
1983	11	9	-26.9000	26.6400	3.14
1983	11	10	-26.2200	28.2000	2.59
1983	11	10	-26.4600	27.2700	2.58
1983	11	11	-27.0000	26.7200	3.22
1983	11	13	-26.3800	27.4100	3.16
1983	11	14	-26.9400	26.7400	3.19
1983	11	15	-26.3400	27.6700	2.77
1983	11	17	-26.8700	26.7500	2.76

1983	11	18	-26.4100	27.2800	3.84
1983	11	18	-26.3600	27.4100	2.81
1983	11	19	-26.2200	28.1800	3.31
1983	11	19	-26.4100	27.3100	2.91
1983	11	19	-26.3800	27.5900	2.55
1983	11	21	-26.1700	28.2100	2.83
1983	11	21	-26.3800	27.4600	2.60
1983	11	21	-26.3300	27.4500	2.65
1983	11	24	-26.4300	27.3700	2.72
1983	11	25	-26.4000	27.6200	2.75
1983	11	25	-26.4600	27.4900	2.61
1983	11	26	-26.9500	26.7700	3.18
1983	11	28	-26.4300	27.4400	2.55
1983	11	28	-26.3700	27.2700	2.85
1983	11	28	-26.3900	27.2400	3.44
1983	11	30	-26.3400	27.6100	2.71
1983	12	2	-26.9600	26.7700	2.87
1983	12	4	-26.4500	27.3400	2.61
1983	12	5	-27.0000	26.7900	2.96
1983	12	6	-26.2800	28.1800	2.56
1983	12	6	-26.4700	27.2300	2.71
1983	12	6	-26.8800	26.7900	2.99
1983	12	6	-26.4100	27.4300	2.78
1983	12	7	-26.1600	27.8200	2.53
1983	12	7	-26.4000	27.4400	2.60
1983	12	7	-26.9700	26.7400	4.06
1983	12	8	-26.4000	27.3300	2.58
1983	12	9	-26.8800	26.8300	2.80
1983	12	9	-26.9400	26.8800	2.50
1983	12	9	-26.3900	27.3400	2.60
1983	12	9	-26.8600	26.7900	2.68
1983	12	10	-28.0300	26.7400	2.94
1983	12	10	-26.9300	26.7700	3.51
1983	12	10	-26.9400	26.7500	3.12
1983	12	10	-26.9500	26.7700	3.06
1983	12	10	-26.2100	28.1700	2.74
1983	12	12	-26.9100	26.7300	3.10
1983	12	12	-26.2600	27.6100	2.54
1983	12	12	-26.3800	27.3300	2.75
1983	12	13	-26.3600	27.5700	2.53
1983	12	13	-26.8800	26.7900	3.30
1983	12	14	-26.1800	28.1600	2.64
1983	12	15	-28.0500	26.7100	2.74
1983	12	16	-26.3800	27.6600	2.71
1983	12	17	-26.9000	26.8200	3.48
1983	12	18	-26.4500	27.4900	3.83
1983	12	19	-26.4400	27.5000	2.71
1983	12	20	-26.4700	27.4300	2.58
1983	12	21	-26.9000	26.7000	3.30
1983	12	21	-26.9100	26.8100	3.26
1983	12	22	-26.4800	27.4700	2.56
1983	12	22	-26.1800	28.2000	2.60
1983	12	22	-26.4100	27.4100	3.09
1983	12	22	-26.4700	27.4100	2.74
1983	12	22	-26.9500	26.7300	2.54
1983	12	23	-26.4400	27.5400	3.04
1983	12	25	-26.4300	27.4300	4.28
1983	12	25	-26.3700	27.5200	2.97
1983	12	27	-26.4000	27.4800	4.38
1983	12	27	-26.1600	28.2200	2.90
1983	12	29	-26.4200	27.4400	2.89

1983	12	30	-26.8100	26.8500	4.04
1983	12	30	-29.8200	27.2700	3.89
1984	1	1	-26.8000	26.7000	3.10
1984	1	2	-26.6600	26.8600	2.84
1984	1	4	-26.8000	26.8300	3.12
1984	1	4	-26.1600	27.8300	2.65
1984	1	4	-28.0300	26.8500	3.30
1984	1	6	-26.5200	27.4300	3.00
1984	1	7	-26.3800	27.4500	3.24
1984	1	8	-26.8800	26.8400	2.56
1984	1	9	-26.3600	27.3800	3.01
1984	1	11	-26.8900	26.8500	2.77
1984	1	12	-26.9200	26.8000	2.74
1984	1	12	-26.4000	27.3800	2.66
1984	1	13	-26.3200	27.2200	2.64
1984	1	13	-26.9100	26.8000	2.50
1984	1	13	-26.4000	27.3000	3.17
1984	1	13	-26.4300	27.3900	2.69
1984	1	13	-26.4100	27.3200	2.52
1984	1	14	-26.4000	27.5700	2.84
1984	1	14	-26.2700	28.2200	2.73
1984	1	15	-26.3900	27.3800	2.65
1984	1	16	-26.4500	27.2600	2.89
1984	1	16	-27.9300	26.6900	2.65
1984	1	17	-26.4600	27.3900	3.16
1984	1	18	-26.4200	27.3900	3.27
1984	1	18	-26.4200	27.3200	3.22
1984	1	18	-26.4300	27.4600	2.56
1984	1	19	-26.4600	27.4100	2.79
1984	1	20	-26.9700	26.8100	3.45
1984	1	20	-26.4400	27.3700	2.65
1984	1	22	-27.9100	26.7100	3.11
1984	1	23	-26.9000	26.8300	3.64
1984	1	23	-26.1400	27.9800	2.76
1984	1	23	-26.4300	27.4200	2.72
1984	1	24	-26.9600	26.7900	2.97
1984	1	24	-26.9100	26.7300	3.40
1984	1	25	-26.9200	26.7400	2.95
1984	1	25	-26.9100	26.7100	3.45
1984	1	26	-26.4500	27.4400	3.28
1984	1	27	-26.4600	27.2800	2.61
1984	1	28	-26.9400	26.8500	5.01
1984	1	28	-26.4300	27.3900	3.38
1984	1	28	-26.9400	26.8000	4.91
1984	1	28	-26.3800	27.7100	2.65
1984	1	29	-26.3200	27.4700	2.99
1984	1	30	-28.0000	26.8500	3.29
1984	1	31	-26.3100	27.5800	3.22
1984	1	31	-26.8700	26.7100	2.63
1984	1	31	-26.3800	27.3600	2.84
1984	1	31	-26.3900	27.3000	2.66
1984	2	2	-26.3900	27.4800	2.82
1984	2	2	-26.4300	27.5500	2.69
1984	2	3	-26.9300	26.8300	3.36
1984	2	4	-26.2100	28.0900	3.48
1984	2	4	-26.2300	28.1800	2.83
1984	2	4	-26.4500	27.3500	2.69
1984	2	5	-26.1600	28.2000	2.73
1984	2	5	-26.4800	27.3900	2.76
1984	2	6	-26.2200	28.1100	3.51
1984	2	7	-26.4200	27.4600	2.77

1984	2	9	-28.0200	26.8300	2.67
1984	2	9	-26.8300	26.7400	3.06
1984	2	9	-26.8300	26.8200	2.58
1984	2	11	-26.3600	27.3600	3.13
1984	2	11	-26.4800	27.4000	2.51
1984	2	11	-26.3300	27.6500	3.20
1984	2	13	-26.4700	27.4400	2.64
1984	2	14	-26.8700	26.7600	2.93
1984	2	14	-26.4300	27.3300	2.59
1984	2	14	-26.4500	27.3800	2.68
1984	2	15	-26.2500	28.5300	2.52
1984	2	16	-26.8500	26.7900	2.89
1984	2	18	-26.3500	27.6000	3.15
1984	2	18	-26.3500	27.3800	3.01
1984	2	19	-26.3600	27.4700	3.12
1984	2	19	-26.4300	27.3700	2.87
1984	2	20	-26.3500	27.6900	2.86
1984	2	20	-26.4000	27.5900	2.67
1984	2	20	-28.0100	26.7900	2.74
1984	2	22	-26.2600	27.6200	2.83
1984	2	22	-28.0100	26.8400	2.90
1984	2	22	-26.9200	26.7800	2.86
1984	2	22	-26.8900	26.7400	3.29
1984	2	22	-26.3700	27.2900	2.96
1984	2	23	-26.9400	26.8100	3.29
1984	2	23	-26.9500	26.8000	2.85
1984	2	23	-26.9200	26.6900	2.82
1984	2	24	-26.3800	27.3300	2.58
1984	2	24	-26.8200	26.8100	3.44
1984	2	25	-26.4000	27.4200	3.31
1984	2	25	-26.3600	27.4000	3.09
1984	2	26	-26.2400	28.1800	3.11
1984	2	27	-26.4200	27.4200	2.76
1984	2	28	-26.2300	28.1900	2.89
1984	2	28	-26.4600	27.4200	2.53
1984	2	29	-26.2800	27.6300	2.87
1984	3	1	-26.4200	27.5200	2.86
1984	3	1	-26.8900	26.8600	2.50
1984	3	2	-26.4300	27.4200	2.69
1984	3	2	-26.4400	27.3100	2.96
1984	3	2	-26.4000	27.6200	2.82
1984	3	3	-26.3900	27.5800	2.63
1984	3	4	-26.4000	27.3600	2.56
1984	3	4	-26.4100	27.4000	2.81
1984	3	5	-26.3800	27.4900	2.63
1984	3	5	-28.0100	26.8300	2.97
1984	3	5	-26.8800	26.8200	3.91
1984	3	6	-26.4200	27.4000	2.88
1984	3	7	-26.2400	28.1700	2.69
1984	3	7	-26.2500	28.1900	3.22
1984	3	8	-26.9500	26.7200	2.81
1984	3	9	-26.3000	27.2000	2.60
1984	3	9	-26.3900	27.3000	2.67
1984	3	10	-26.4000	27.3300	2.88
1984	3	11	-26.3800	27.4100	2.57
1984	3	12	-26.9300	26.7300	2.90
1984	3	13	-26.3700	27.6100	2.88
1984	3	14	-26.3900	27.3600	3.23
1984	3	15	-26.4900	27.3300	2.64
1984	3	15	-26.9700	26.8100	3.03
1984	3	16	-28.0500	26.7700	2.83

1984	3	16	-26.4400	27.4500	3.72
1984	3	17	-26.3500	27.6200	2.86
1984	3	17	-26.3900	27.4100	2.97
1984	3	19	-26.4400	27.3000	2.58
1984	3	19	-26.2000	28.2500	2.76
1984	3	20	-26.4200	27.5100	2.91
1984	3	21	-26.2100	28.2100	2.78
1984	3	21	-26.1900	27.8500	2.98
1984	3	22	-26.3800	27.6700	2.70
1984	3	22	-26.2000	28.2200	2.93
1984	3	22	-26.4200	27.3700	2.71
1984	3	23	-26.9900	26.7800	2.70
1984	3	23	-26.4400	27.4400	2.80
1984	3	23	-26.9400	26.7900	2.80
1984	3	23	-26.4600	27.3300	2.56
1984	3	23	-26.4400	27.5100	2.52
1984	3	24	-26.3900	27.3600	2.59
1984	3	24	-26.4600	27.4200	2.91
1984	3	24	-28.1500	26.8700	2.54
1984	3	26	-26.4500	27.4200	2.57
1984	3	27	-28.0900	26.8700	2.77
1984	3	27	-26.4300	27.5000	2.74
1984	3	27	-26.9100	26.6900	3.03
1984	3	28	-26.3800	27.4500	2.79
1984	3	28	-26.9000	26.8200	2.63
1984	3	28	-26.4200	27.3800	2.99
1984	3	29	-26.4400	27.4300	2.53
1984	3	29	-26.4200	27.5300	2.64
1984	3	29	-26.3400	27.6700	2.85
1984	3	29	-26.4200	27.3700	3.27
1984	3	30	-26.4600	27.3700	3.40
1984	3	30	-26.4200	27.6000	2.55
1984	3	30	-26.9100	26.8600	2.97
1984	3	30	-26.3300	27.7100	2.53
1984	3	30	-26.4100	27.3600	2.56
1984	4	3	-26.4200	27.4800	2.54
1984	4	3	-26.4500	27.4700	2.62
1984	4	4	-28.0600	26.8300	3.42
1984	4	4	-26.9500	26.7900	2.86
1984	4	4	-26.4400	27.3900	2.61
1984	4	5	-26.4600	27.2700	3.47
1984	4	6	-26.3000	27.5200	2.63
1984	4	7	-28.0200	26.8600	3.53
1984	4	8	-26.2600	28.2400	3.20
1984	4	10	-28.0100	26.8500	3.39
1984	4	10	-26.3200	27.6200	2.83
1984	4	11	-28.0400	26.7900	3.02
1984	4	11	-26.4200	27.3400	2.69
1984	4	12	-27.9500	26.6700	2.66
1984	4	12	-26.2500	28.1400	3.05
1984	4	12	-27.0100	26.8100	2.70
1984	4	12	-26.4700	27.3700	2.82
1984	4	13	-26.4600	27.3400	3.19
1984	4	13	-26.5100	27.4100	2.71
1984	4	13	-26.4300	27.4300	2.93
1984	4	13	-26.4200	27.5800	3.21
1984	4	16	-26.8700	26.8100	2.81
1984	4	16	-26.4400	27.4000	3.76
1984	4	17	-26.9100	26.7300	3.12
1984	4	18	-28.0400	26.9300	4.53
1984	4	18	-26.9800	26.7700	2.51

1984	4	19	-26.3800	27.5900	2.55
1984	4	20	-26.4000	27.5700	2.70
1984	4	23	-26.1700	27.8100	2.51
1984	4	23	-26.3900	27.4700	2.80
1984	4	24	-26.9400	26.8100	3.22
1984	4	24	-26.3900	27.4500	2.93
1984	4	25	-26.4800	27.3000	2.78
1984	4	26	-26.2100	28.1800	2.80
1984	4	26	-26.4000	27.6000	2.99
1984	4	28	-26.4200	27.5900	2.73
1984	4	30	-26.2100	28.3100	3.08
1984	5	1	-26.2500	28.2200	2.99
1984	5	1	-26.8700	26.8000	3.06
1984	5	1	-26.4000	27.2600	2.52
1984	5	2	-26.9600	26.7800	3.33
1984	5	2	-26.2900	27.6200	2.64
1984	5	3	-26.4100	27.3100	2.60
1984	5	4	-26.3800	27.3200	2.68
1984	5	4	-26.9600	26.8200	3.96
1984	5	4	-27.9800	26.8200	2.79
1984	5	7	-26.4100	27.4300	2.93
1984	5	7	-26.3700	27.7000	2.56
1984	5	8	-27.9900	26.7200	2.89
1984	5	11	-26.4600	27.3300	2.58
1984	5	11	-26.1700	28.1800	3.01
1984	5	11	-27.9900	26.7600	3.60
1984	5	11	-28.0300	26.7800	3.55
1984	5	12	-26.4200	27.4300	2.99
1984	5	12	-26.4300	27.4300	2.90
1984	5	13	-26.4000	27.3200	2.84
1984	5	14	-26.4000	27.4600	2.88
1984	5	14	-26.4800	27.3500	3.13
1984	5	16	-26.9300	26.7400	2.97
1984	5	17	-26.3800	27.4000	2.60
1984	5	18	-26.9400	26.7700	2.71
1984	5	18	-26.4400	27.3700	2.78
1984	5	18	-26.9000	26.7300	3.01
1984	5	18	-26.4500	27.3700	2.71
1984	5	19	-26.2400	28.1800	3.82
1984	5	19	-26.2400	28.1700	2.75
1984	5	21	-26.8100	26.7600	2.52
1984	5	23	-26.3900	27.2800	3.25
1984	5	24	-26.4100	27.4900	2.83
1984	5	24	-26.3900	27.5500	2.86
1984	5	24	-26.9200	26.8000	2.77
1984	5	24	-26.3800	27.4100	2.83
1984	5	26	-26.3300	27.4200	2.50
1984	5	27	-26.3900	27.3700	2.79
1984	5	27	-26.2700	28.1500	3.37
1984	5	28	-26.3900	27.4000	3.14
1984	5	29	-26.2100	28.2500	2.70
1984	5	29	-26.2200	28.2400	2.86
1984	5	29	-26.9600	26.7700	2.70
1984	5	30	-26.2700	28.2300	2.59
1984	5	30	-27.9600	26.7800	3.35
1984	5	31	-26.4300	27.2900	2.95
1984	5	31	-28.1200	26.8900	2.70
1984	5	31	-26.4100	27.5600	2.55
1984	6	2	-26.4000	27.6100	2.89
1984	6	4	-26.2500	28.2400	2.85
1984	6	8	-26.2200	28.2000	3.01

1984	6	8	-26.4500	27.4400	2.54
1984	6	8	-26.4000	27.4500	2.87
1984	6	9	-26.4600	27.4000	2.60
1984	6	9	-26.9300	26.7800	3.03
1984	6	9	-27.9900	26.7200	2.62
1984	6	9	-26.9000	26.7900	2.53
1984	6	9	-26.3900	27.4600	2.53
1984	6	9	-26.4000	27.5800	2.88
1984	6	11	-26.2300	28.1600	3.76
1984	6	11	-26.2200	28.1800	2.84
1984	6	12	-26.8900	26.6600	2.94
1984	6	13	-26.4700	27.4300	3.10
1984	6	13	-26.2300	28.1600	2.97
1984	6	15	-26.4600	27.2700	2.75
1984	6	15	-26.3700	27.5600	2.56
1984	6	16	-26.4400	27.4400	3.03
1984	6	20	-28.0900	26.8700	3.99
1984	6	20	-26.9400	26.7500	2.85
1984	6	20	-26.9400	26.8000	3.11
1984	6	20	-26.8700	26.7600	3.06
1984	6	20	-26.4100	27.3900	3.15
1984	6	21	-26.3400	27.6500	2.60
1984	6	22	-27.9300	26.6900	3.33
1984	6	22	-26.3300	27.5000	2.96
1984	6	22	-26.3400	27.4700	3.31
1984	6	22	-26.4500	27.5000	3.83
1984	6	23	-26.4100	27.5200	2.79
1984	6	24	-26.3800	27.5600	2.81
1984	6	25	-26.3900	27.3500	2.77
1984	6	25	-26.9400	26.8200	3.39
1984	6	25	-26.9200	26.8300	2.76
1984	6	25	-26.4100	27.3600	2.79
1984	6	26	-26.3900	27.3400	3.00
1984	6	26	-26.4700	27.3200	2.66
1984	6	27	-27.9800	26.7600	2.88
1984	6	27	-26.2000	28.2100	2.50
1984	6	28	-26.3700	27.4500	3.10
1984	6	29	-26.4000	27.3400	2.59
1984	6	29	-26.4500	27.3800	2.54
1984	6	29	-26.2200	28.2300	2.72
1984	6	29	-26.4000	27.2900	2.73
1984	6	30	-26.3100	27.6100	3.02
1984	6	30	-26.3600	27.3800	2.73
1984	6	30	-26.4600	27.4000	2.54
1984	7	1	-26.4300	27.3900	2.72
1984	7	1	-26.1500	28.2300	2.68
1984	7	3	-26.1400	27.8400	2.65
1984	7	3	-26.2000	28.2700	2.79
1984	7	4	-26.3100	27.5800	2.53
1984	7	4	-26.9800	26.7800	3.37
1984	7	5	-26.9100	26.7900	2.57
1984	7	5	-26.3700	27.6300	2.70
1984	7	5	-26.8900	26.8200	3.96
1984	7	6	-26.8200	26.8200	2.51
1984	7	7	-26.3500	27.5200	2.63
1984	7	9	-26.1900	28.1900	2.86
1984	7	9	-26.3600	27.5400	2.60
1984	7	11	-28.0500	26.8900	3.31
1984	7	11	-26.4000	27.4100	2.64
1984	7	12	-26.3700	27.5800	2.52
1984	7	12	-26.4200	27.3200	2.86

1984	7	12	-26.3900	27.3700	3.40
1984	7	12	-26.2200	28.2200	3.03
1984	7	13	-26.9000	26.7200	3.15
1984	7	13	-26.3400	27.6000	2.71
1984	7	13	-26.4100	27.3200	2.63
1984	7	14	-26.9000	26.8100	2.93
1984	7	17	-26.1900	28.2400	2.77
1984	7	17	-26.4300	27.4200	2.84
1984	7	17	-26.4100	27.3700	2.60
1984	7	18	-26.7800	26.8600	2.69
1984	7	19	-26.4300	27.4600	2.56
1984	7	19	-26.1800	28.1900	3.09
1984	7	20	-23.7000	25.9000	4.17
1984	7	20	-26.2000	28.1700	3.02
1984	7	20	-26.3900	27.4700	3.01
1984	7	24	-26.8700	26.6200	3.08
1984	7	25	-26.3800	27.3200	2.82
1984	7	27	-26.3000	27.3800	3.05
1984	7	28	-26.8900	26.6700	3.02
1984	7	28	-26.3600	27.3400	3.36
1984	7	28	-26.4200	27.3800	2.64
1984	7	28	-22.6000	26.7000	3.67
1984	7	29	-26.3900	27.4800	2.73
1984	7	29	-26.4000	27.3800	3.23
1984	7	29	-26.8700	26.6100	2.95
1984	7	29	-27.9500	26.7400	3.33
1984	7	30	-26.4000	27.3300	2.99
1984	7	31	-26.3900	27.3500	2.59
1984	7	31	-26.3600	27.2900	2.57
1984	8	1	-26.1700	28.1700	2.62
1984	8	1	-26.3300	27.5000	2.65
1984	8	5	-26.3900	27.4800	3.73
1984	8	5	-26.8100	26.8000	2.57
1984	8	5	-26.8800	26.8300	3.10
1984	8	6	-26.3600	27.3700	2.59
1984	8	7	-26.3400	27.4400	2.72
1984	8	8	-26.3700	27.3300	2.84
1984	8	9	-26.8800	26.7600	3.00
1984	8	9	-26.3600	27.2700	3.20
1984	8	10	-26.3500	27.3100	2.86
1984	8	10	-26.2200	28.2100	2.88
1984	8	11	-26.4000	27.3400	2.84
1984	8	11	-26.8300	26.8100	3.89
1984	8	11	-26.8900	26.7400	2.89
1984	8	11	-26.9000	26.7500	4.14
1984	8	11	-26.8000	26.7300	3.58
1984	8	11	-26.3600	27.4800	3.37
1984	8	12	-26.9200	26.7400	2.87
1984	8	14	-27.9800	26.7400	2.76
1984	8	15	-26.8800	26.7500	3.50
1984	8	15	-26.9000	26.7300	2.70
1984	8	16	-26.4800	27.3200	2.74
1984	8	16	-26.3800	27.3600	2.87
1984	8	17	-28.0100	26.8200	3.35
1984	8	18	-26.4100	27.4600	3.77
1984	8	18	-26.3700	27.4700	2.51
1984	8	19	-26.3400	27.4100	2.90
1984	8	20	-26.3500	27.4000	3.23
1984	8	21	-26.4000	27.3800	2.81
1984	8	22	-26.3900	27.3300	3.02
1984	8	22	-26.4100	27.4900	3.26

1984	8	23	-26.3900	27.3600	3.25
1984	8	23	-26.4400	27.3300	3.30
1984	8	24	-26.3500	27.5900	3.02
1984	8	25	-26.3000	27.6100	2.69
1984	8	25	-26.4100	27.3700	3.49
1984	8	25	-26.2000	28.1500	2.63
1984	8	27	-26.1700	28.1700	3.24
1984	8	28	-26.3500	27.4000	3.08
1984	8	29	-26.3400	27.4100	3.95
1984	8	31	-26.8800	26.6800	2.77
1984	8	31	-26.3000	27.5800	2.72
1984	8	31	-26.3400	27.4700	3.11
1984	9	3	-26.7900	26.7800	2.94
1984	9	4	-26.1100	28.2200	2.66
1984	9	4	-26.3500	27.2900	2.65
1984	9	4	-26.4000	27.5000	2.50
1984	9	5	-26.1400	27.7800	2.88
1984	9	6	-26.8500	26.6700	2.50
1984	9	7	-26.1800	28.2000	2.68
1984	9	7	-26.3500	27.3600	2.97
1984	9	7	-26.8300	26.7100	2.76
1984	9	8	-26.3500	27.4900	2.53
1984	9	9	-26.8100	26.8500	2.51
1984	9	10	-26.4000	27.4000	2.60
1984	9	10	-26.4100	27.5700	2.78
1984	9	11	-26.2800	27.6200	3.00
1984	9	11	-26.4600	27.3500	3.39
1984	9	12	-26.3600	27.4100	2.56
1984	9	12	-26.3400	27.3600	2.87
1984	9	12	-26.8100	26.7600	2.87
1984	9	13	-26.8800	26.7300	2.83
1984	9	13	-26.3300	27.5700	2.88
1984	9	14	-26.9700	26.7200	3.12
1984	9	14	-26.8100	26.7000	2.55
1984	9	14	-26.9700	26.7300	2.52
1984	9	14	-26.4700	27.2700	2.66
1984	9	14	-26.2800	28.2400	3.47
1984	9	15	-26.2300	28.1100	2.57
1984	9	15	-26.9500	26.7100	3.77
1984	9	16	-26.3400	27.4800	2.92
1984	9	17	-26.1900	28.0800	2.77
1984	9	18	-26.9300	26.7900	2.66
1984	9	18	-26.9800	26.7800	3.02
1984	9	18	-26.4100	27.4000	2.57
1984	9	18	-26.8200	26.7300	2.68
1984	9	19	-26.4300	27.3500	2.74
1984	9	20	-26.3800	27.5100	2.89
1984	9	20	-26.4500	27.4600	2.52
1984	9	21	-26.4000	27.3000	3.02
1984	9	22	-26.8800	26.7100	3.17
1984	9	24	-26.3500	27.2400	2.55
1984	9	24	-26.4600	27.3400	2.97
1984	9	25	-27.9800	26.6700	3.22
1984	9	25	-27.9600	26.7000	3.31
1984	9	25	-26.1600	28.1600	2.55
1984	9	25	-28.0700	26.8400	2.64
1984	9	25	-27.8100	26.6300	2.61
1984	9	25	-26.3700	27.3600	3.24
1984	9	26	-26.4200	27.4600	3.03
1984	9	26	-26.4400	27.5500	2.51
1984	9	27	-26.3900	27.4500	3.22

1984	9	27	-28.0300	26.8400	2.91
1984	9	27	-28.0700	26.8300	2.52
1984	9	28	-26.4600	27.4200	2.65
1984	9	28	-26.1900	28.2200	2.67
1984	9	29	-26.4100	27.4800	2.62
1984	10	1	-26.9000	26.8000	2.61
1984	10	2	-26.2000	28.1700	2.62
1984	10	2	-26.2300	28.1800	3.35
1984	10	3	-26.4300	27.4400	2.51
1984	10	4	-26.4300	27.4600	2.65
1984	10	4	-26.9000	26.7400	3.48
1984	10	8	-26.4000	27.2500	2.50
1984	10	9	-26.4000	27.3700	2.70
1984	10	9	-26.4400	27.3000	3.78
1984	10	10	-26.4100	27.3600	2.92
1984	10	10	-26.3600	27.5400	2.58
1984	10	12	-26.9200	26.6600	2.93
1984	10	13	-26.3700	27.3400	3.03
1984	10	15	-26.8800	26.7000	3.35
1984	10	16	-26.4100	27.3600	2.79
1984	10	18	-26.9100	26.7300	3.68
1984	10	19	-26.2200	28.1600	2.57
1984	10	20	-26.4300	27.3900	3.23
1984	10	21	-26.2100	28.1900	2.96
1984	10	22	-26.3500	27.4700	2.61
1984	10	22	-26.4400	27.4300	2.53
1984	10	22	-26.9000	26.7200	2.94
1984	10	24	-26.1800	27.8000	2.54
1984	10	25	-26.4000	27.4200	2.82
1984	10	25	-26.3700	27.4000	2.74
1984	10	25	-28.0100	26.7500	2.90
1984	10	25	-26.3900	27.3700	2.98
1984	10	27	-26.4800	27.3600	2.87
1984	10	27	-26.8500	26.7800	2.70
1984	10	28	-26.4100	27.3700	3.44
1984	10	29	-26.4300	27.3900	2.83
1984	10	30	-26.4500	27.4900	2.57
1984	10	30	-26.9000	26.8000	3.26
1984	10	30	-26.4400	27.4000	2.67
1984	10	30	-27.9100	26.7000	2.54
1984	10	31	-28.0700	26.8300	3.49
1984	10	31	-26.4000	27.3500	2.63
1984	10	31	-26.2600	28.2100	3.05
1984	10	31	-26.4600	27.4400	2.76
1984	11	1	-26.4200	27.3900	2.63
1984	11	1	-26.4400	27.4000	2.84
1984	11	2	-26.4600	27.3900	3.16
1984	11	3	-28.0300	26.8100	3.10
1984	11	5	-26.3900	27.3500	2.74
1984	11	5	-28.0000	26.6600	2.50
1984	11	6	-26.2600	27.7100	2.58
1984	11	6	-26.3800	27.4100	2.57
1984	11	6	-26.4400	27.3900	2.71
1984	11	6	-26.9500	26.7400	2.67
1984	11	1	-28.0300	26.7900	3.73
1984	11	7	-26.8600	26.7900	2.67
1984	11	8	-26.4000	27.5600	2.69
1984	11	10	-26.2300	28.1700	3.19
1984	11	11	-26.1800	27.8500	2.80
1984	11	11	-28.0100	26.7800	2.54
1984	11	12	-26.4200	27.4100	2.76

1984	11	12	-26.4600	27.4100	2.78
1984	11	13	-26.5000	27.4000	3.04
1984	11	14	-26.4000	27.5100	2.54
1984	11	15	-26.3900	27.3600	2.54
1984	11	15	-26.4500	27.3000	2.85
1984	11	16	-26.4400	27.4000	2.73
1984	11	16	-26.4700	27.4200	2.54
1984	11	17	-26.4000	27.3600	3.15
1984	11	18	-26.4000	27.5800	3.40
1984	11	19	-26.3900	27.3800	3.75
1984	11	19	-26.8900	26.7700	3.11
1984	11	19	-26.4200	27.4700	2.67
1984	11	20	-26.3700	27.3900	3.83
1984	11	20	-26.4200	27.3600	3.04
1984	11	20	-26.9200	26.8100	2.82
1984	11	21	-26.2100	28.2600	2.80
1984	11	21	-26.2300	28.1900	3.98
1984	11	22	-26.4500	27.4000	3.39
1984	11	22	-26.4100	27.3900	2.51
1984	11	22	-26.2300	28.2400	3.25
1984	11	22	-26.5000	27.4500	3.07
1984	11	22	-26.9100	26.8300	2.95
1984	11	23	-26.4300	27.3600	2.85
1984	11	23	-26.4200	27.3600	2.80
1984	11	24	-26.8900	26.7800	3.16
1984	11	24	-26.4600	27.2600	2.61
1984	11	24	-26.9000	26.8100	2.61
1984	11	24	-26.4200	27.3100	2.61
1984	11	25	-26.4600	27.4000	2.54
1984	11	26	-26.3500	27.4200	2.62
1984	11	27	-28.0000	26.8700	3.52
1984	11	28	-26.3900	27.7100	2.55
1984	11	29	-26.3900	27.2900	3.13
1984	11	30	-26.9000	26.7000	3.29
1984	12	2	-26.4500	27.3400	2.54
1984	12	2	-26.9700	26.7200	2.62
1984	12	2	-26.4200	27.3800	3.11
1984	12	4	-26.4200	27.5800	2.74
1984	12	4	-26.4400	27.4200	3.04
1984	12	7	-26.4400	27.3400	3.14
1984	12	7	-26.4100	27.4100	3.44
1984	12	8	-26.4200	27.5000	2.55
1984	12	8	-26.1700	28.1800	4.43
1984	12	9	-28.0100	26.8200	2.76
1984	12	10	-26.4200	27.3300	2.62
1984	12	13	-26.4100	27.3500	3.08
1984	12	13	-28.0100	26.8200	2.77
1984	12	13	-26.3300	27.4600	2.60
1984	12	15	-26.9100	26.8100	3.72
1984	12	18	-26.8900	26.8300	3.21
1984	12	18	-26.3900	27.3400	2.78
1984	12	19	-26.9200	26.7600	2.77
1984	12	20	-26.4400	27.4300	2.55
1984	12	21	-28.0800	26.8500	2.68
1984	12	23	-26.3900	27.6500	2.54
1984	12	26	-26.8200	26.7800	3.29
1984	12	27	-26.2300	28.1900	3.04
1984	12	28	-26.8700	26.7100	2.95
1984	12	28	-26.4300	27.3900	3.11
1984	12	31	-26.4300	27.4600	2.52
1985	1	1	-26.3800	27.3900	2.76

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1985	1	2	-26.4200	27.6100	2.63
1985	1	3	-26.8900	26.7500	2.80
1985	1	4	-26.8700	26.7800	2.71
1985	1	4	-26.3600	27.4000	2.56
1985	1	4	-26.9100	26.7500	3.16
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1985	1	8	-26.2100	28.1500	2.89
1985	1	8	-26.4000	27.4500	2.93
1985	1	8	-26.4000	27.3700	3.50
1985	1	9	-26.3800	27.5900	2.58
1985	1	10	-26.4200	27.3300	2.78
1985	1	11	-26.9400	26.7800	2.87
1985	1	11	-26.3800	27.4400	2.71
1985	1	12	-26.1800	28.1700	2.77
1985	1	13	-26.4300	27.5800	2.78
1985	1	14	-26.3900	27.3200	3.20
1985	1	14	-26.9400	26.7500	3.58
1985	1	14	-28.0400	26.8500	2.57
1985	1	15	-26.4400	27.4900	2.57
1985	1	16	-26.8900	26.6800	3.54
1985	1	17	-26.9100	26.7600	3.19
1985	1	18	-26.8400	26.6800	3.18
1985	1	19	-26.8700	26.6800	3.08
1985	1	19	-28.0100	26.8200	2.65
1985	1	20	-26.8900	26.6600	2.93
1985	1	20	-26.2400	28.2100	3.05
1985	1	21	-26.3700	27.4600	3.20
1985	1	22	-26.2500	28.1800	3.16
1985	1	22	-26.3800	27.3200	2.60
1985	1	24	-26.9100	26.7300	2.76
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1985	1	26	-26.3500	27.5800	2.80
1985	1	26	-26.2300	28.2300	2.65
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1985	1	27	-26.4100	27.3800	3.13
1985	1	27	-27.9600	26.7100	2.82
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1985	1	30	-28.0100	26.8000	2.83
1985	1	30	-26.3500	27.5700	2.68
1985	1	31	-26.4100	27.4400	3.16
1985	2	1	-26.3700	27.4500	2.89
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1985	2	6	-26.4100	27.3400	2.85
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1985	2	28	-28.0300	26.7100	2.62
1985	2	28	-26.9000	26.7700	2.54
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1985	3	7	-26.8900	26.7600	2.59
1985	3	7	-26.2100	28.1900	2.88
1985	3	8	-26.9000	26.7100	3.37
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1985	3	13	-26.2100	28.1800	2.67
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1985	3	15	-27.9500	26.6900	2.86
1985	3	15	-26.3900	27.3700	2.74
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1985	3	16	-26.3700	27.4400	3.04
1985	3	18	-28.0400	26.8700	2.77
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1985	3	20	-26.4000	27.4100	2.91
1985	3	20	-26.4300	27.2900	2.69
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1985	3	22	-26.9300	26.8100	3.39
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1985	3	23	-26.2000	28.2100	2.65
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1985	3	25	-26.8800	26.7500	3.52
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1985	3	29	-26.4100	27.3500	3.18
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1985	3	31	-26.3800	27.3600	3.48
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1985	4	8	-26.3800	27.3400	2.72
1985	4	8	-26.2700	27.6700	2.58
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1985	4	9	-26.9200	26.7700	2.98
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1985	4	13	-26.3200	27.3400	2.70
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1985	4	18	-26.4300	27.3700	2.57
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1985	4	24	-26.3600	27.3100	2.86
1985	4	26	-26.3800	27.3200	2.53
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1985	5	13	-26.3800	27.2700	2.80
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1985	5	16	-26.3200	27.5100	3.27
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1985	5	17	-28.0000	26.7000	4.00
1985	5	18	-26.8800	26.7700	2.87
1985	5	20	-26.3400	27.4600	2.89
1985	5	22	-26.3600	27.5500	2.58
1985	5	22	-26.8600	26.6900	2.80
1985	5	24	-26.2700	28.2100	3.11
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1985	6	17	-26.4300	27.4400	2.99
1985	6	17	-26.4000	27.3300	3.25
1985	6	18	-26.3700	27.4500	3.05
1985	6	21	-26.2100	28.1800	3.46
1985	6	21	-26.2300	28.1500	3.51
1985	6	22	-28.0000	26.7900	2.52
1985	6	22	-26.8800	26.7800	3.40
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1985	6	28	-26.4200	27.3100	3.36
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1985	7	12	-26.2000	28.2100	2.79

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1985	7	21	-26.3600	27.4700	2.53
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1985	7	22	-26.3200	27.5500	2.72
1985	7	22	-26.4000	27.3000	3.10
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1985	7	23	-26.1900	28.1600	2.98
1985	7	24	-26.8900	26.8400	2.62
1985	7	24	-26.3900	27.3500	3.07
1985	7	25	-26.4100	27.3500	2.82
1985	7	25	-26.8600	26.7600	2.73
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1985	7	29	-26.4200	27.4200	2.83
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1985	7	30	-26.3600	27.3500	3.17
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1985	8	2	-28.1100	26.8700	2.85
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1985	8	8	-26.2000	28.0500	2.69
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1985	8	8	-26.9100	26.7000	3.17
1985	8	8	-26.1900	28.1500	3.08
1985	8	9	-26.8800	26.7700	3.07
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1985	8	9	-26.2700	27.5200	3.48
1985	8	10	-26.3700	27.5800	3.19
1985	8	10	-28.0300	26.8000	2.68
1985	8	10	-26.1100	27.7600	2.59
1985	8	10	-26.3700	27.4700	3.70
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1985	8	11	-26.8600	26.8400	3.76
1985	8	11	-26.3800	27.4000	4.01
1985	8	12	-26.1700	28.1100	3.71
1985	8	13	-26.2100	28.1400	3.39
1985	8	13	-26.8600	26.7800	3.05
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1985	11	9	-26.9300	26.8200	3.26
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1986	1	31	-26.3600	27.3500	3.08
1986	1	31	-23.5300	26.5900	3.97
1986	2	1	-26.1700	27.7300	2.56
1986	2	1	-26.4300	27.3200	2.72
1986	2	3	-26.3800	27.4700	2.73
1986	2	4	-26.4700	27.3900	3.09
1986	2	4	-28.0100	26.7600	2.68
1986	2	6	-26.4000	27.3000	2.90
1986	2	7	-26.8000	26.6800	2.78
1986	2	8	-28.0300	26.9100	3.16
1986	2	8	-26.4000	27.3400	3.18
1986	2	9	-26.2700	28.2000	2.92
1986	2	10	-26.4200	27.3800	3.27
1986	2	10	-27.9700	26.7900	4.65
1986	2	10	-28.0200	26.6800	3.54
1986	2	10	-28.0200	26.6900	3.34
1986	2	11	-27.9600	26.7500	3.45
1986	2	11	-26.4700	27.3700	2.95
1986	2	12	-26.3700	27.5800	2.78
1986	2	12	-26.3400	27.5500	2.63
1986	2	12	-26.3800	27.2500	2.61
1986	2	13	-26.3900	27.5000	2.74
1986	2	13	-26.4500	27.4100	3.12
1986	2	15	-26.3500	27.4700	3.00
1986	2	15	-26.3900	27.4200	2.58
1986	2	17	-26.8400	26.7400	2.95
1986	2	17	-26.4200	27.3700	2.67
1986	2	17	-26.3700	27.4600	2.65
1986	2	18	-26.3400	27.3700	4.05
1986	2	18	-26.4100	27.3000	2.91
1986	2	18	-26.3700	27.3800	3.22

1986	2	19	-26.8600	26.7400	2.75
1986	2	19	-26.3700	27.4100	2.71
1986	2	19	-26.3900	27.3800	3.32
1986	2	20	-26.3700	27.3600	3.65
1986	2	21	-26.3300	27.5000	2.74
1986	2	22	-26.8000	26.8000	2.90
1986	2	22	-26.3500	27.3700	2.69
1986	2	22	-28.0200	26.8300	2.61
1986	2	23	-26.9500	26.7400	3.96
1986	2	24	-26.8500	26.7100	3.40
1986	2	25	-26.3600	27.5100	2.90
1986	2	25	-26.4600	27.3500	2.74
1986	2	25	-26.9000	26.8100	2.93
1986	2	27	-26.3900	27.2800	2.71
1986	2	27	-28.0400	26.7700	2.52
1986	2	28	-26.9100	26.7800	2.67
1986	2	28	-28.0500	26.8000	2.83
1986	2	28	-26.3700	27.5300	2.81
1986	3	4	-26.3400	27.6500	2.75
1986	3	4	-26.3600	27.3700	2.72
1986	3	4	-26.4200	27.3800	2.85
1986	3	5	-28.0500	26.7700	2.62
1986	3	5	-26.3600	27.6600	2.76
1986	3	5	-26.3300	27.4700	3.21
1986	3	6	-26.3600	27.6600	2.93
1986	3	8	-26.4000	27.3200	2.83
1986	3	9	-26.2000	28.2000	2.54
1986	3	10	-26.2500	28.2200	2.86
1986	3	10	-26.4000	27.6700	2.89
1986	3	10	-26.4800	27.3000	2.52
1986	3	11	-26.3600	27.4600	2.88
1986	3	12	-28.0200	26.8500	3.24
1986	3	13	-26.3000	27.5700	2.79
1986	3	13	-26.3700	27.3400	3.20
1986	3	13	-26.9100	26.7600	2.77
1986	3	14	-26.8500	26.7100	2.78
1986	3	14	-26.8500	26.7100	2.78
1986	3	15	-26.1600	28.1700	2.69
1986	3	15	-27.9300	26.7500	3.37
1986	3	16	-26.3400	27.5800	2.67
1986	3	17	-26.4100	27.4100	3.16
1986	3	17	-26.3900	27.5100	3.38
1986	3	17	-26.4000	27.4300	2.84
1986	3	18	-26.3600	27.4500	3.00
1986	3	18	-26.4100	27.4400	3.12
1986	3	18	-26.3800	27.4600	3.03
1986	3	19	-26.9300	26.7600	2.81
1986	3	19	-26.9200	26.8300	3.16
1986	3	20	-26.9900	26.7800	2.65
1986	3	21	-26.9200	26.7100	3.24
1986	3	21	-26.2500	27.6500	2.52
1986	3	21	-26.9000	26.8500	2.61
1986	3	22	-26.4000	27.4300	2.91
1986	3	22	-26.2100	28.1600	2.50
1986	3	22	-28.0600	26.8400	3.09
1986	3	22	-26.1900	28.2300	2.69
1986	3	22	-26.4100	27.3700	3.18
1986	3	22	-26.4700	27.4900	2.85
1986	3	23	-29.4100	24.9200	3.66
1986	3	23	-26.4400	27.4900	2.60
1986	3	23	-26.2500	28.2400	3.26

1986	3	23	-26.3900	27.4400	2.98
1986	3	25	-26.2300	28.2400	2.55
1986	3	26	-26.3000	27.6500	2.56
1986	3	26	-26.3700	27.3100	2.59
1986	3	26	-27.9800	26.7100	2.69
1986	3	27	-26.3800	27.6700	2.76
1986	3	27	-26.2200	27.8600	2.84
1986	3	28	-26.3400	27.5000	2.52
1986	3	28	-26.4400	27.5800	2.56
1986	3	28	-26.4000	27.3600	3.16
1986	3	31	-26.4600	27.4100	2.59
1986	3	31	-26.4200	27.3700	3.17
1986	4	2	-26.3000	27.6000	2.80
1986	4	2	-26.4400	27.5000	2.93
1986	4	2	-27.0500	26.6800	2.87
1986	4	3	-27.9300	26.7300	2.52
1986	4	3	-26.2800	27.7100	2.58
1986	4	5	-26.4000	27.6500	3.60
1986	4	5	-27.9900	26.8000	2.89
1986	4	5	-26.9600	26.8000	2.81
1986	4	5	-26.4400	27.5200	2.77
1986	4	6	-27.0400	26.6000	2.60
1986	4	6	-26.4200	27.4900	2.53
1986	4	7	-26.4300	27.3900	2.62
1986	4	8	-26.3000	27.6000	2.50
1986	4	9	-26.8600	26.6700	3.16
1986	4	9	-26.4000	27.4500	2.59
1986	4	9	-26.8900	26.6700	3.00
1986	4	9	-26.4000	27.4400	3.12
1986	4	9	-26.4100	27.3600	2.69
1986	4	10	-26.4600	27.4800	2.61
1986	4	10	-26.4700	27.3500	2.67
1986	4	11	-26.8900	26.8000	2.84
1986	4	11	-26.3500	27.4800	2.74
1986	4	11	-26.4100	27.5000	2.58
1986	4	11	-26.4000	27.3900	2.85
1986	4	12	-28.0600	26.7300	2.61
1986	4	12	-26.3800	27.4600	3.31
1986	4	13	-26.9000	26.7400	2.75
1986	4	14	-26.2000	28.1800	3.43
1986	4	14	-26.4100	27.3700	3.14
1986	4	14	-28.0500	26.8300	2.53
1986	4	15	-27.9300	26.7200	2.79
1986	4	16	-26.3500	27.6500	2.70
1986	4	17	-26.9200	26.7600	2.80
1986	4	18	-26.3600	27.6900	2.92
1986	4	19	-26.3900	27.3900	2.70
1986	4	19	-26.9500	26.8300	3.49
1986	4	19	-26.8300	26.7300	2.75
1986	4	20	-26.8700	26.6600	2.64
1986	4	21	-26.8700	26.7100	3.06
1986	4	21	-26.3400	27.5200	2.72
1986	4	22	-26.9500	26.6500	3.18
1986	4	22	-26.4700	27.3700	2.65
1986	4	22	-26.4500	27.3500	3.90
1986	4	22	-26.3600	27.4200	2.57
1986	4	23	-26.3800	27.4400	3.28
1986	4	23	-26.3900	27.4400	3.08
1986	4	24	-26.1700	28.1700	2.55
1986	4	24	-28.0300	26.7900	2.91
1986	4	24	-26.4300	27.3400	2.64

1986	4	24	-26.4400	27.3000	2.69
1986	4	28	-26.4200	27.3700	2.83
1986	4	29	-26.4600	27.3700	2.86
1986	4	30	-26.3900	27.2900	2.68
1986	4	30	-26.4100	27.4300	3.11
1986	4	30	-26.4400	27.3300	3.52
1986	5	1	-26.1900	28.2100	2.75
1986	5	1	-26.4300	27.4400	2.68
1986	5	1	-26.4100	27.3500	2.94
1986	5	1	-26.4100	27.6600	2.62
1986	5	1	-26.9400	26.7900	2.60
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1986	5	2	-26.1500	27.7600	2.71
1986	5	2	-26.4800	27.4400	3.40
1986	5	2	-26.2000	28.2200	2.86
1986	5	3	-27.9400	26.7100	3.31
1986	5	4	-28.0100	26.7900	3.19
1986	5	4	-27.9800	26.8500	2.59
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1986	5	5	-26.4100	27.4900	2.69
1986	5	5	-26.4600	27.4200	2.62
1986	5	7	-26.3500	27.6200	2.57
1986	5	7	-26.4200	27.4400	3.43
1986	5	8	-26.4000	27.4700	2.59
1986	5	8	-26.4600	27.4000	2.66
1986	5	9	-27.9100	26.7200	2.93
1986	5	9	-26.2500	27.6500	2.85
1986	5	10	-26.1800	28.1800	3.65
1986	5	10	-26.9000	26.7500	2.88
1986	5	11	-26.3700	27.4500	3.00
1986	5	11	-27.0000	26.7000	2.76
1986	5	13	-26.4400	27.4000	2.82
1986	5	13	-26.3600	27.5500	2.53
1986	5	14	-26.8900	26.7300	2.53
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1986	5	16	-26.3900	27.5200	2.95
1986	5	16	-26.4500	27.4600	2.69
1986	5	16	-26.3800	27.4800	3.16
1986	5	17	-28.0600	26.8300	3.46
1986	5	17	-26.4500	27.3600	2.76
1986	5	18	-26.3900	27.4000	2.95
1986	5	19	-26.4400	27.4900	2.63
1986	5	20	-26.3800	27.3900	2.77
1986	5	20	-26.2800	27.6100	2.75
1986	5	20	-26.3500	27.6400	3.30
1986	5	20	-28.0000	26.8100	2.96
1986	5	21	-26.4000	27.6500	2.55
1986	5	21	-27.9400	26.7100	3.28
1986	5	21	-26.4500	27.4400	2.77
1986	5	22	-26.9300	26.7600	2.70
1986	5	23	-26.1900	28.2100	2.91
1986	5	23	-26.8400	26.7500	2.69
1986	5	24	-26.4500	27.3000	2.88
1986	5	24	-26.3900	27.5100	3.16
1986	5	26	-26.3600	27.5500	2.66
1986	5	26	-26.4000	27.3700	2.62
1986	5	26	-26.4400	27.4100	2.81
1986	5	27	-28.0100	26.7000	3.09
1986	5	28	-26.3800	27.7300	2.66
1986	5	29	-27.9500	26.7300	3.37
1986	5	29	-26.4100	27.5600	2.99

1986	5	29	-26.9400	26.8100	2.95
1986	5	30	-26.9300	26.7900	2.61
1986	5	30	-26.4000	27.4200	2.78
1986	5	30	-26.4400	27.4100	2.99
1986	5	30	-26.4400	27.4300	2.61
1986	5	31	-26.1000	28.2000	2.70
1986	5	31	-26.3600	27.4100	2.57
1986	5	31	-26.3400	27.6100	2.56
1986	5	31	-26.4700	27.4300	2.82
1986	6	1	-26.9000	26.8000	2.60
1986	6	1	-26.3000	27.6000	2.50
1986	6	3	-26.1900	28.2100	2.50
1986	6	3	-28.0500	26.7500	2.52
1986	6	4	-27.0700	26.7900	2.52
1986	6	5	-26.4500	27.4900	2.65
1986	6	8	-26.3700	27.2800	2.61
1986	6	8	-26.9100	26.7700	3.09
1986	6	8	-26.4500	27.3300	3.73
1986	6	8	-28.0500	26.8800	2.89
1986	6	9	-26.4700	27.3800	3.53
1986	6	9	-26.3200	27.5100	2.92
1986	6	9	-26.3800	27.4800	2.50
1986	6	9	-26.3700	27.3500	2.84
1986	6	10	-26.3000	27.6000	2.50
1986	6	11	-28.1300	26.8700	2.64
1986	6	11	-26.3600	27.4000	2.75
1986	6	11	-26.3600	27.6200	3.81
1986	6	12	-26.3000	27.4900	2.72
1986	6	13	-28.0000	26.7100	2.58
1986	6	13	-26.4000	27.3700	2.89
1986	6	15	-26.4400	27.2500	3.16
1986	6	15	-28.0200	26.7000	2.75
1986	6	16	-26.2000	28.2100	2.77
1986	6	17	-26.4600	27.2800	2.52
1986	6	17	-26.3300	27.5600	2.69
1986	6	17	-26.3800	27.6900	2.93
1986	6	19	-26.4000	27.3600	3.05
1986	6	20	-27.9800	26.7100	2.62
1986	6	21	-26.4000	27.4000	2.50
1986	6	21	-28.0000	26.7000	2.70
1986	6	21	-26.9000	26.6000	2.70
1986	6	21	-26.3700	27.2600	3.06
1986	6	21	-26.3300	27.5600	2.64
1986	6	22	-26.3800	27.2800	2.59
1986	6	22	-26.4000	27.5200	2.57
1986	6	23	-28.2000	26.4000	2.50
1986	6	24	-26.1700	28.2400	2.74
1986	6	25	-26.4200	27.4200	2.59
1986	6	25	-26.3300	27.5500	2.60
1986	6	26	-26.9200	26.7200	2.81
1986	6	26	-26.3600	27.4100	3.13
1986	6	26	-26.3900	27.2600	2.92
1986	6	27	-26.4200	27.5100	3.19
1986	6	27	-26.4100	27.3500	3.50
1986	6	28	-26.3400	27.3600	2.60
1986	6	28	-26.4000	27.3300	2.82
1986	6	29	-26.9000	26.7300	3.15
1986	6	30	-26.3900	27.5300	2.89
1986	6	30	-26.3500	27.3900	2.58
1986	6	30	-26.3800	27.4100	2.81
1986	7	1	-26.5100	27.3400	3.02

1986	7	1	-26.9600	26.6200	2.66
1986	7	2	-26.4400	27.4600	3.68
1986	7	2	-28.8100	27.3800	2.95
1986	7	3	-26.9500	26.7100	2.50
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1986	7	3	-26.4300	27.4100	3.79
1986	7	3	-26.3800	27.5300	2.86
1986	7	4	-27.9400	26.6700	2.67
1986	7	4	-26.3500	27.4200	3.05
1986	7	4	-26.1700	27.9200	2.69
1986	7	4	-26.4800	27.4200	2.71
1986	7	4	-26.4300	27.4400	2.60
1986	7	5	-26.3700	27.7100	2.51
1986	7	5	-26.3800	27.6000	2.98
1986	7	6	-26.2600	28.1800	2.94
1986	7	7	-26.2200	27.9300	2.52
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1986	7	8	-26.9700	26.7600	3.34
1986	7	8	-26.4500	27.4700	2.53
1986	7	8	-26.3500	27.3900	2.89
1986	7	8	-26.4100	27.3500	2.87
1986	7	9	-26.8600	26.7200	2.65
1986	7	10	-26.3500	27.4800	2.93
1986	7	10	-26.4400	27.3400	2.92
1986	7	10	-28.0200	26.8000	3.11
1986	7	10	-26.3900	27.4100	2.59
1986	7	11	-26.9400	26.7100	2.90
1986	7	11	-26.3900	27.4200	2.78
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1986	7	13	-26.4100	27.3600	3.29
1986	7	14	-26.8800	26.6500	2.82
1986	7	15	-28.0000	26.8300	3.37
1986	7	15	-26.2100	28.2000	3.67
1986	7	15	-28.0200	26.7700	2.88
1986	7	16	-26.4100	27.3900	2.68
1986	7	16	-26.3900	27.3200	2.84
1986	7	18	-27.9900	26.7700	2.92
1986	7	18	-28.0300	26.7800	3.05
1986	7	18	-26.2000	28.1500	2.72
1986	7	19	-26.9500	26.7500	3.00
1986	7	21	-26.8800	26.7300	3.07
1986	7	22	-26.9000	26.7700	3.84
1986	7	22	-26.8600	26.7400	2.66
1986	7	23	-26.3900	27.3700	2.77
1986	7	24	-26.9200	26.7300	2.63
1986	7	24	-26.2900	27.5200	2.50
1986	7	24	-26.9200	26.7700	2.94
1986	7	26	-26.8700	26.7700	2.65
1986	7	26	-26.4000	27.3800	2.52
1986	7	28	-26.9300	26.6900	2.50
1986	7	28	-26.8800	26.7300	2.58
1986	7	28	-26.4200	27.5100	2.89
1986	7	28	-26.4000	27.3400	2.50
1986	7	29	-26.3700	27.3800	2.54
1986	7	29	-26.8700	26.7300	2.79
1986	7	29	-26.4400	27.3200	2.61
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1986	7	29	-29.6300	27.5000	3.22
1986	7	29	-26.3600	27.6800	2.53
1986	7	29	-26.3700	27.5900	2.85
1986	7	30	-26.1800	28.1600	2.84

1986	7	30	-26.4300	27.3300	2.59
1986	7	30	-26.4600	27.3000	3.03
1986	7	31	-28.0600	26.8200	2.81
1986	7	31	-26.9300	26.7600	2.99
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1986	7	31	-26.3900	27.4600	3.07
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1986	8	2	-28.0300	26.8800	3.65
1986	8	5	-26.9100	26.7900	2.73
1986	8	5	-28.2000	28.1000	3.00
1986	8	6	-26.5100	28.5300	2.60
1986	8	7	-26.3200	27.7200	2.60
1986	8	7	-26.8200	26.7400	2.57
1986	8	7	-26.3700	27.4300	3.19
1986	8	7	-26.3500	27.6400	3.40
1986	8	7	-26.2700	27.6500	2.93
1986	8	8	-26.9200	26.7500	3.25
1986	8	8	-26.4200	27.5300	2.63
1986	8	8	-26.2400	28.1800	2.61
1986	8	8	-26.2200	28.2300	2.98
1986	8	9	-26.9400	26.8000	3.00
1986	8	10	-26.9400	26.7800	2.90
1986	8	10	-27.9600	26.6400	3.02
1986	8	11	-28.0000	26.8000	2.70
1986	8	11	-26.9200	26.6800	4.37
1986	8	11	-26.3800	27.4100	2.52
1986	8	12	-26.3600	27.4200	2.66
1986	8	13	-26.3000	27.6000	2.66
1986	8	13	-26.3800	27.5200	2.60
1986	8	13	-26.9000	26.7500	2.68
1986	8	14	-26.3200	27.7100	2.55
1986	8	14	-26.2200	28.2200	3.31
1986	8	15	-26.3900	27.6900	2.81
1986	8	17	-26.9200	26.7800	2.63
1986	8	18	-26.3800	27.4400	2.78
1986	8	19	-26.9400	26.7900	2.58
1986	8	19	-28.0600	26.8100	2.56
1986	8	20	-26.1000	28.2400	2.56
1986	8	20	-26.4300	27.4200	3.97
1986	8	20	-26.3900	27.4300	2.69
1986	8	21	-26.3400	27.5900	2.89
1986	8	21	-26.9000	26.7200	3.34
1986	8	22	-26.8100	26.7200	2.70
1986	8	22	-26.9400	26.7100	2.56
1986	8	22	-26.3600	27.3900	2.51
1986	8	22	-26.3500	27.4500	2.83
1986	8	22	-26.3300	27.6000	2.59
1986	8	24	-26.3300	27.5500	2.99
1986	8	26	-26.9000	26.7800	3.01
1986	8	26	-26.9000	26.7800	2.72
1986	8	27	-26.3500	27.3000	2.87
1986	8	28	-26.4100	27.3400	2.56
1986	8	28	-26.4200	27.3600	2.73
1986	8	28	-26.4000	27.4200	2.80
1986	8	28	-26.3700	27.4200	3.22
1986	8	29	-26.3500	27.5500	3.04
1986	8	29	-26.9400	26.7100	3.33
1986	8	29	-26.4400	31.7200	3.46
1986	8	30	-26.4300	27.4400	3.35
1986	8	31	-27.9600	26.7400	2.61
1986	9	2	-26.3500	27.4500	2.90

1986	9	2	-26.4300	27.3500	3.15
1986	9	3	-26.3100	27.6600	2.57
1986	9	4	-26.4000	27.3800	2.91
1986	9	5	-26.4300	27.3800	2.72
1986	9	5	-26.3500	27.3400	2.69
1986	9	6	-26.4000	27.4000	3.37
1986	9	6	-26.3200	27.4500	3.66
1986	9	8	-26.3800	27.3600	3.37
1986	9	8	-26.9100	26.7400	2.66
1986	9	8	-26.3800	27.4100	2.67
1986	9	9	-26.3000	27.6200	2.56
1986	9	9	-26.1900	28.2100	3.12
1986	9	9	-26.1900	28.2000	2.74
1986	9	10	-26.8800	26.8100	2.81
1986	9	11	-26.3100	27.7100	2.55
1986	9	12	-28.0300	26.7600	2.90
1986	9	12	-26.4400	27.2500	2.64
1986	9	13	-26.3700	27.3700	3.05
1986	9	13	-26.4100	27.2900	2.52
1986	9	15	-28.0000	26.8300	3.47
1986	9	15	-26.3400	27.3600	4.15
1986	9	17	-28.0200	26.7600	2.63
1986	9	18	-26.4200	27.4100	2.83
1986	9	18	-28.0400	26.7900	2.54
1986	9	18	-26.8900	26.7300	2.63
1986	9	20	-26.1900	28.2400	2.83
1986	9	20	-26.4300	27.2900	3.09
1986	9	22	-26.8900	26.7100	2.52
1986	9	23	-26.3600	27.3100	2.62
1986	9	23	-26.4400	27.4100	3.09
1986	9	24	-26.9100	26.7700	3.37
1986	9	25	-26.3200	27.5000	2.54
1986	9	25	-26.3500	27.4100	2.58
1986	9	26	-28.0300	26.8600	2.82
1986	9	26	-26.2500	28.0400	2.59
1986	9	26	-26.3500	27.4500	2.68
1986	9	26	-26.5200	27.3500	2.89
1986	9	27	-23.1000	26.1000	3.92
1986	9	29	-27.0000	26.6900	2.84
1986	9	29	-28.0200	26.7800	2.74
1986	9	30	-26.3700	27.3500	2.76
1986	10	2	-26.8200	26.7200	2.68
1986	10	2	-26.3400	27.3900	2.63
1986	10	2	-26.8700	26.7700	3.16
1986	10	2	-26.9300	26.8000	2.79
1986	10	4	-26.4500	27.3800	2.76
1986	10	5	-26.8600	26.6900	2.95
1986	10	5	-26.8100	26.7400	2.90
1986	10	5	-30.2400	28.1500	5.15
1986	10	6	-29.0600	27.0300	2.65
1986	10	6	-30.0300	28.6100	3.17
1986	10	7	-26.3400	27.4200	2.81
1986	10	7	-26.4200	27.4500	2.71
1986	10	8	-26.4400	27.3400	2.64
1986	10	9	-26.4600	27.4400	2.84
1986	10	9	-26.4300	27.4200	2.50
1986	10	9	-26.9100	26.8000	2.79
1986	10	10	-28.0500	26.8400	2.56
1986	10	10	-26.3900	27.3200	3.33
1986	10	10	-26.4400	27.4200	2.86
1986	10	10	-26.4200	27.3900	2.53

1986	10	10	-26.9900	26.7400	2.52
1986	10	10	-26.3000	27.6000	2.77
1986	10	10	-26.9300	26.7600	3.03
1986	10	10	-26.4600	27.3900	3.26
1986	10	12	-26.8000	26.7000	2.80
1986	10	13	-30.2600	27.6900	3.62
1986	10	14	-26.3500	27.5800	3.38
1986	10	14	-26.3800	27.5700	3.69
1986	10	14	-26.3300	27.5700	2.90
1986	10	14	-26.4200	27.3800	3.15
1986	10	14	-26.9200	26.8100	2.55
1986	10	14	-26.9300	26.7700	2.90
1986	10	15	-26.4400	27.4000	2.91
1986	10	15	-26.5000	27.4400	2.78
1986	10	17	-26.4300	27.4500	2.54
1986	10	18	-26.4000	27.4300	3.06
1986	10	20	-26.4200	27.5400	2.95
1986	10	21	-28.0500	26.8900	2.86
1986	10	21	-26.4300	27.4200	2.90
1986	10	22	-26.9400	26.7500	2.88
1986	10	22	-26.4100	27.3700	2.54
1986	10	22	-26.9100	26.7800	2.70
1986	10	23	-26.1900	28.2000	2.62
1986	10	23	-26.4400	27.5300	2.56
1986	10	24	-26.8000	26.7000	2.60
1986	10	26	-26.4500	27.3500	2.80
1986	10	27	-29.3800	27.5800	2.70
1986	10	27	-26.4100	27.4000	3.62
1986	10	27	-26.4200	27.4600	2.75
1986	10	28	-26.9400	26.7600	2.52
1986	10	28	-26.9300	26.7600	4.82
1986	10	28	-26.9600	26.7700	3.09
1986	10	29	-26.9100	26.7000	2.79
1986	10	29	-26.4400	27.4500	2.89
1986	10	29	-26.3900	27.3900	2.83
1986	10	29	-26.9800	26.7700	2.53
1986	10	29	-26.4000	27.4000	2.78
1986	10	30	-26.3000	27.4000	2.50
1986	10	30	-26.9300	26.7500	2.84
1986	10	30	-26.4000	27.4100	3.68
1986	10	31	-26.4400	27.4300	2.72
1986	10	31	-26.4900	27.3600	2.94
1986	10	31	-26.4100	27.3500	3.18
1986	10	31	-26.9000	26.7000	2.70
1986	10	31	-26.9500	26.7900	2.56
1986	10	31	-26.3600	27.3700	2.74
1986	11	1	-26.3400	27.4600	2.55
1986	11	1	-26.4200	27.5000	2.83
1986	11	3	-26.4000	27.4700	3.55
1986	11	3	-26.4300	27.4800	3.20
1986	11	3	-28.0600	26.8400	3.52
1986	11	5	-26.4100	27.3900	3.15
1986	11	6	-26.3700	27.4000	3.17
1986	11	6	-26.9700	26.7800	3.09
1986	11	7	-26.9400	26.8400	3.33
1986	11	8	-26.2100	28.2300	2.58
1986	11	8	-23.2100	25.9000	3.68
1986	11	8	-28.1000	26.8700	3.16
1986	11	8	-26.4000	27.5800	3.02
1986	11	11	-26.8900	26.7600	2.80
1986	11	11	-26.4700	27.3900	2.60

1986	11	11	-26.2200	28.1600	3.06
1986	11	12	-26.3000	27.5500	2.91
1986	11	13	-28.0500	26.8100	3.18
1986	11	13	-26.9100	26.8000	4.39
1986	11	13	-27.9400	26.7400	2.91
1986	11	14	-26.3500	27.5100	2.85
1986	11	15	-26.4200	27.5500	2.54
1986	11	15	-26.3500	27.4000	2.71
1986	11	15	-26.4300	27.6000	2.70
1986	11	16	-28.0600	26.8600	2.59
1986	11	17	-26.4200	27.4100	2.99
1986	11	17	-26.4300	27.4100	2.62
1986	11	18	-26.3400	27.4200	2.56
1986	11	18	-26.4700	27.4100	2.85
1986	11	18	-26.4700	27.4300	2.77
1986	11	19	-26.4000	27.5600	3.04
1986	11	19	-26.4200	27.6200	2.62
1986	11	19	-28.0900	26.8200	2.66
1986	11	19	-26.8900	26.7500	4.07
1986	11	19	-26.4100	27.4100	2.65
1986	11	19	-26.4300	27.4300	2.64
1986	11	19	-26.4400	27.4700	2.67
1986	11	20	-28.0500	26.8400	2.83
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1986	11	21	-26.1500	28.1700	2.79
1986	11	22	-26.9600	26.7500	2.52
1986	11	23	-26.1900	28.1700	3.10
1986	11	24	-28.0400	26.6900	2.56
1986	11	24	-28.0600	26.7900	3.29
1986	11	24	-26.9600	26.7700	3.18
1986	11	25	-26.4200	27.4600	2.76
1986	11	26	-26.1800	28.2100	2.89
1986	11	26	-26.4400	27.5000	2.75
1986	11	27	-26.8800	26.7300	2.79
1986	11	27	-26.4200	27.3800	3.15
1986	11	28	-28.0600	26.7900	2.83
1986	11	29	-26.9900	26.6500	2.51
1986	11	30	-26.3700	27.6900	2.83
1986	12	1	-26.4300	27.4600	2.54
1986	12	2	-27.9800	26.7700	3.13
1986	12	2	-26.3600	27.4100	2.68
1986	12	2	-26.4100	27.5600	3.26
1986	12	3	-26.9800	26.6900	2.84
1986	12	4	-28.0300	26.7000	2.84
1986	12	4	-28.7300	27.9500	2.66
1986	12	5	-26.0900	27.7800	2.54
1986	12	7	-26.2100	28.2500	2.80
1986	12	7	-26.2100	28.2100	3.20
1986	12	7	-26.1900	28.1700	2.50
1986	12	7	-26.2100	28.2500	2.83
1986	12	8	-26.4100	27.4600	2.68
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1986	12	9	-26.9200	26.7100	2.96
1986	12	10	-26.3800	27.5500	2.52
1986	12	10	-28.1000	26.9000	2.73
1986	12	11	-26.8500	26.6600	2.75
1986	12	12	-26.3600	27.4900	3.37
1986	12	12	-26.4600	27.3300	2.68
1986	12	12	-26.3000	27.6100	2.94
1986	12	13	-27.9900	26.7600	2.52
1986	12	13	-26.5200	27.4300	2.79

1986	12	13	-26.3700	27.6000	2.60
1986	12	13	-26.3700	27.4200	3.14
1986	12	13	-26.8800	26.7600	2.60
1986	12	14	-26.2200	28.1900	3.13
1986	12	14	-26.3300	27.4600	2.75
1986	12	15	-26.4000	27.3000	3.00
1986	12	15	-26.1700	28.1900	2.89
1986	12	15	-26.4900	27.4300	2.60
1986	12	15	-26.4300	27.4300	3.28
1986	12	16	-26.4000	27.5800	2.79
1986	12	18	-26.4600	27.4100	3.60
1986	12	18	-26.2000	28.2200	3.25
1986	12	18	-26.3700	27.4300	2.57
1986	12	19	-26.3200	27.7100	2.61
1986	12	20	-26.2100	28.2300	2.72
1986	12	20	-26.4700	27.3500	2.59
1986	12	21	-26.9300	26.7700	2.57
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1986	12	22	-26.4800	27.3600	2.91
1986	12	23	-26.4200	27.4200	2.73
1986	12	23	-26.3400	27.6600	2.65
1986	12	24	-26.4200	27.4000	2.59
1986	12	26	-28.0000	26.8000	2.64
1986	12	27	-26.3600	27.4700	2.56
1986	12	27	-26.4200	27.4300	3.19
1986	12	29	-29.9800	27.6100	3.09
1986	12	29	-26.3900	27.4800	2.58
1986	12	29	-26.4400	27.5900	3.61
1986	12	30	-26.3800	27.6100	2.91
1986	12	30	-26.2500	27.7000	3.10
1986	12	30	-26.3400	27.4600	2.79
1986	12	30	-26.4300	27.4600	2.67
1986	12	30	-26.2200	28.2700	2.74
1986	12	31	-26.9700	26.7000	2.54
1986	12	31	-26.3900	27.4700	2.53
1986	12	31	-26.4100	27.3600	2.82
1986	12	31	-26.2800	27.6100	2.87
1987	1	1	-26.2000	28.2000	2.73
1987	1	2	-26.4100	27.4900	2.63
1987	1	2	-26.4400	27.5700	2.75
1987	1	2	-26.4200	27.5200	2.58
1987	1	3	-26.4100	27.5600	3.42
1987	1	5	-26.4300	27.4700	2.57
1987	1	5	-26.2400	27.8400	2.57
1987	1	5	-26.1900	28.1600	2.63
1987	1	7	-26.2000	28.1600	2.50
1987	1	7	-26.4500	27.3700	3.02
1987	1	7	-26.9100	26.7600	2.50
1987	1	7	-27.9700	26.6700	2.90
1987	1	8	-26.4700	27.4300	3.19
1987	1	8	-26.4900	27.4600	3.17
1987	1	8	-26.3800	27.3600	2.70
1987	1	8	-26.9500	26.7500	2.73
1987	1	8	-26.4900	27.3400	2.99
1987	1	8	-26.9000	26.6800	3.68
1987	1	9	-26.2100	28.1500	3.24
1987	1	9	-26.1400	28.1000	2.95
1987	1	12	-26.9100	26.7700	2.61
1987	1	13	-26.4100	27.4200	2.90
1987	1	13	-26.4500	27.3300	2.90
1987	1	14	-26.3800	27.4100	3.07

1987	1	16	-26.8900	26.8500	2.93
1987	1	16	-27.9100	26.6800	3.71
1987	1	16	-26.3900	27.4500	2.92
1987	1	16	-26.9200	26.7600	2.88
1987	1	17	-26.8600	26.7700	3.68
1987	1	18	-26.2200	28.1500	3.24
1987	1	18	-26.8500	26.8000	3.71
1987	1	18	-26.8900	26.7800	2.91
1987	1	19	-26.9300	26.7700	2.83
1987	1	20	-26.4100	27.3600	3.00
1987	1	20	-26.9000	26.7700	2.54
1987	1	20	-26.3700	27.5900	2.81
1987	1	20	-26.4100	27.3300	2.83
1987	1	20	-26.1900	28.2200	3.05
1987	1	22	-26.9200	26.7400	2.96
1987	1	23	-28.0200	26.8900	3.53
1987	1	24	-26.3500	27.4000	2.69
1987	1	24	-26.3700	27.4900	2.80
1987	1	25	-26.4200	27.3100	3.57
1987	1	25	-26.4000	27.3700	2.71
1987	1	26	-26.4500	27.4400	2.57
1987	1	27	-26.1900	28.1600	3.30
1987	1	27	-26.4200	27.3100	2.52
1987	1	27	-26.4100	27.3600	2.50
1987	1	27	-27.9200	26.7200	3.12
1987	1	27	-26.1900	28.1600	3.30
1987	1	28	-26.4300	27.4400	2.94
1987	1	29	-26.9200	26.7900	2.85
1987	1	29	-26.3500	27.5300	2.75
1987	1	29	-26.8900	26.7200	2.90
1987	1	29	-27.9500	26.6700	2.73
1987	1	29	-26.4100	27.4800	2.95
1987	1	30	-26.4200	27.3800	2.86
1987	1	31	-26.5000	27.4400	2.79
1987	2	1	-26.4000	27.4300	3.76
1987	2	1	-26.3900	27.5100	2.73
1987	2	2	-26.3600	27.6800	2.57
1987	2	3	-26.4100	27.6000	2.53
1987	2	4	-26.3900	27.4100	2.77
1987	2	4	-26.3300	27.5800	3.23
1987	2	5	-26.3700	27.4700	3.06
1987	2	5	-26.1000	27.8000	3.05
1987	2	5	-26.1800	27.7200	2.77
1987	2	6	-26.4100	27.3900	3.19
1987	2	6	-26.1900	28.2000	2.70
1987	2	6	-26.8900	26.7700	3.32
1987	2	6	-26.4800	27.3400	3.22
1987	2	8	-26.4000	27.4300	3.14
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1987	2	9	-26.4400	27.4800	2.57
1987	2	9	-26.4300	27.3700	2.81
1987	2	11	-26.1900	28.1800	2.59
1987	2	11	-28.0400	26.8200	3.10
1987	2	12	-26.1900	28.2400	2.66
1987	2	12	-26.4000	27.6000	2.83
1987	2	12	-26.9400	26.6900	2.69
1987	2	13	-26.8900	26.7900	2.81
1987	2	14	-29.4900	24.7800	4.13
1987	2	15	-26.3700	27.6500	2.93
1987	2	16	-26.1400	27.8500	2.50

1987	2	17	-26.3700	27.6000	2.76
1987	2	18	-26.2500	27.6200	2.79
1987	2	19	-26.4100	27.4800	3.31
1987	2	21	-26.3400	27.6100	3.00
1987	2	22	-26.3000	27.6400	2.56
1987	2	25	-26.9000	26.7800	2.51
1987	2	26	-27.0100	26.6500	2.75
1987	2	26	-26.4400	27.4000	2.89
1987	2	26	-26.3900	27.3800	2.79
1987	2	27	-26.3800	27.4700	2.82
1987	2	28	-27.9800	26.7100	2.52
1987	3	1	-26.4400	27.4600	2.73
1987	3	2	-27.9900	26.7800	2.69
1987	3	2	-28.0600	26.8400	2.72
1987	3	2	-26.2200	28.2500	2.58
1987	3	2	-26.4100	27.4700	2.97
1987	3	2	-26.4300	27.4300	2.85
1987	3	4	-26.4200	27.3800	2.60
1987	3	4	-26.9200	26.8000	3.02
1987	3	4	-26.4500	27.4100	2.58
1987	3	4	-26.4400	27.5000	2.60
1987	3	4	-26.4600	27.4900	3.40
1987	3	6	-26.3700	27.4500	2.71
1987	3	6	-26.9900	26.7600	2.93
1987	3	7	-26.9500	26.7400	3.02
1987	3	8	-26.5100	27.4100	3.32
1987	3	9	-26.2000	28.0300	2.75
1987	3	11	-26.2200	27.8900	2.72
1987	3	11	-26.4300	27.4400	2.51
1987	3	11	-26.3800	27.3800	2.54
1987	3	13	-26.3800	27.5000	2.96
1987	3	13	-26.3200	27.5500	2.74
1987	3	14	-26.1900	28.2100	3.03
1987	3	14	-26.4900	27.4400	2.70
1987	3	16	-26.9000	26.6900	2.57
1987	3	16	-26.3800	27.4800	2.56
1987	3	16	-26.3700	27.3400	2.89
1987	3	16	-26.1700	28.1000	2.59
1987	3	17	-26.9100	26.7500	3.24
1987	3	17	-26.5000	27.4300	2.86
1987	3	18	-26.3400	27.4300	2.78
1987	3	18	-26.4200	27.4900	2.51
1987	3	18	-26.3600	27.6400	2.55
1987	3	19	-26.9400	26.8100	2.82
1987	3	19	-28.1000	26.8200	2.52
1987	3	19	-26.4900	27.3800	2.73
1987	3	20	-26.8100	26.7700	3.05
1987	3	20	-26.8900	26.7900	2.67
1987	3	20	-26.3900	27.4000	2.73
1987	3	24	-26.4000	27.3200	3.55
1987	3	24	-26.3800	27.4100	2.55
1987	3	25	-26.3500	27.4500	2.51
1987	3	25	-27.9500	26.6900	2.52
1987	3	27	-26.4200	27.5100	3.11
1987	3	27	-26.3400	27.6200	2.57
1987	3	28	-26.4100	27.5600	2.75
1987	3	29	-26.1800	27.7200	2.68
1987	3	30	-26.4500	27.4700	2.61
1987	3	30	-26.2000	28.2500	2.66
1987	3	31	-26.2300	28.2300	2.57
1987	3	31	-26.3700	27.5300	3.20

1987	4	1	-26.4000	27.5200	2.72
1987	4	1	-26.3600	27.3700	2.54
1987	4	2	-26.9300	26.7300	3.15
1987	4	2	-26.3600	27.3600	2.52
1987	4	3	-26.8900	26.6400	2.64
1987	4	4	-26.2100	27.7800	2.98
1987	4	8	-26.4900	27.4200	2.57
1987	4	9	-26.9300	26.7900	3.37
1987	4	9	-26.9500	26.7500	3.15
1987	4	10	-28.0800	26.9300	2.88
1987	4	11	-26.3500	27.4200	3.08
1987	4	12	-26.8600	26.7100	3.28
1987	4	12	-26.2300	27.7400	2.78
1987	4	12	-26.2100	28.2500	3.10
1987	4	13	-28.0900	26.8200	2.59
1987	4	14	-26.8800	26.8100	4.38
1987	4	15	-26.2000	27.7400	2.66
1987	4	15	-26.4000	27.5500	2.82
1987	4	15	-26.3600	27.4100	3.19
1987	4	15	-26.3400	27.4600	2.96
1987	4	15	-26.4100	27.4900	2.70
1987	4	16	-28.0800	26.8500	3.39
1987	4	16	-26.3800	27.4900	2.65
1987	4	16	-26.3900	27.4300	2.51
1987	4	16	-26.3500	27.4100	3.30
1987	4	20	-26.3500	27.5300	2.53
1987	4	20	-26.4300	27.4700	3.66
1987	4	21	-26.1900	28.1500	2.52
1987	4	21	-26.3000	27.4000	2.90
1987	4	21	-26.9600	26.7400	2.82
1987	4	22	-26.4100	27.6000	2.80
1987	4	22	-26.4300	27.4400	3.31
1987	4	22	-26.3800	27.3100	2.86
1987	4	23	-27.9500	26.7500	2.60
1987	4	23	-26.1900	28.0200	2.96
1987	4	23	-26.3700	27.4200	2.77
1987	4	24	-28.0000	26.7900	3.09
1987	4	24	-26.9100	26.8100	2.55
1987	4	24	-26.2600	27.6100	2.85
1987	4	24	-26.4500	27.4400	2.51
1987	4	27	-26.4000	27.4200	2.63
1987	4	28	-26.8600	26.8300	2.70
1987	4	29	-26.8900	26.7400	2.83
1987	4	29	-26.3800	27.4200	3.09
1987	5	1	-26.2000	28.1500	3.55
1987	5	2	-26.4000	27.3000	3.70
1987	5	3	-26.4200	27.5700	2.50
1987	5	4	-26.3800	27.5700	3.30
1987	5	4	-27.9900	26.6800	3.33
1987	5	6	-26.4600	27.4300	2.83
1987	5	6	-26.4300	27.3400	2.65
1987	5	6	-26.3700	27.2600	2.87
1987	5	6	-26.9000	26.8100	3.04
1987	5	7	-26.4100	27.4500	3.47
1987	5	9	-26.3800	27.4400	3.04
1987	5	9	-26.3300	27.4300	2.65
1987	5	9	-26.8900	26.7900	2.55
1987	5	9	-26.3900	27.5400	2.83
1987	5	9	-26.4500	27.4500	2.96
1987	5	12	-26.3700	27.3800	2.65
1987	5	13	-26.4300	27.4800	3.12

1987	5	14	-26.2200	28.2200	2.72
1987	5	14	-26.1700	27.8100	2.69
1987	5	14	-26.4100	27.3900	3.09
1987	5	14	-26.4100	27.5200	2.51
1987	5	15	-26.4200	27.5900	3.25
1987	5	15	-26.3800	27.3800	3.23
1987	5	15	-27.9500	26.7300	2.58
1987	5	17	-26.3500	27.6900	2.63
1987	5	17	-26.3700	27.5100	2.86
1987	5	17	-26.3600	27.4500	3.05
1987	5	18	-29.2600	27.3100	2.76
1987	5	18	-26.1600	28.1000	3.18
1987	5	19	-26.8600	26.6800	2.55
1987	5	20	-26.2900	27.6300	2.96
1987	5	20	-26.3400	27.4900	3.11
1987	5	20	-26.3600	27.5000	2.79
1987	5	20	-26.8900	26.8200	3.71
1987	5	20	-26.9000	26.7200	3.15
1987	5	20	-26.9000	26.7000	2.64
1987	5	20	-26.9100	26.7900	2.70
1987	5	21	-26.8900	26.8100	2.64
1987	5	22	-26.3800	27.6700	2.74
1987	5	22	-27.9500	26.6600	2.52
1987	5	23	-26.4200	27.4900	3.26
1987	5	23	-26.4100	27.4400	3.07
1987	5	23	-28.0500	26.8000	2.87
1987	5	25	-26.8500	26.7100	2.54
1987	5	25	-26.9400	26.6600	2.50
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1987	5	26	-26.4300	27.4300	2.59
1987	5	26	-26.9100	26.7900	2.78
1987	5	26	-26.4000	27.4100	2.64
1987	5	26	-26.4200	27.3200	2.68
1987	5	26	-26.1800	28.1600	2.92
1987	5	27	-26.4400	27.3400	3.24
1987	5	27	-26.4100	27.4500	2.67
1987	5	27	-26.1700	28.2000	2.77
1987	5	27	-26.4200	27.4000	2.94
1987	5	27	-26.4500	27.4700	2.53
1987	5	27	-26.3200	27.7200	2.58
1987	5	28	-26.3200	27.5800	2.62
1987	5	29	-26.2600	27.6300	2.81
1987	5	29	-26.9300	26.8000	3.92
1987	5	29	-26.8900	26.7000	3.34
1987	5	30	-29.7500	25.1100	2.61
1987	5	30	-26.3700	27.4800	2.89
1987	5	30	-27.9400	26.7100	2.57
1987	5	30	-29.4600	25.1000	2.91
1987	5	31	-26.8700	26.8100	2.72
1987	5	31	-26.3700	27.4800	2.92
1987	5	31	-26.9100	26.7100	2.82
1987	5	31	-29.2800	27.5000	2.97
1987	6	1	-26.8900	26.8100	2.76
1987	6	1	-26.4700	27.4400	2.67
1987	6	2	-26.4100	27.2800	2.89
1987	6	4	-26.3600	27.4100	2.51
1987	6	4	-26.4000	27.3000	2.84
1987	6	4	-26.9600	26.7800	2.96
1987	6	5	-26.3500	27.3400	2.73
1987	6	8	-27.9700	26.7500	4.11
1987	6	8	-30.0100	27.1300	3.36

1987	6	8	-26.3400	27.6400	3.02
1987	6	9	-26.3500	27.4200	2.84
1987	6	9	-26.4100	27.3900	3.49
1987	6	10	-26.4500	27.3100	3.55
1987	6	11	-26.3800	27.6100	2.64
1987	6	11	-26.4600	27.3600	2.74
1987	6	11	-28.0600	26.7700	2.58
1987	6	12	-26.4200	27.5100	2.55
1987	6	12	-26.2000	27.8500	3.13
1987	6	14	-26.3900	27.6800	2.83
1987	6	16	-26.4000	27.2800	2.59
1987	6	16	-26.2500	28.2200	2.96
1987	6	18	-27.9900	26.7800	3.08
1987	6	18	-26.3200	27.5100	2.89
1987	6	19	-26.4700	27.3800	3.05
1987	6	19	-26.9500	26.7500	2.85
1987	6	22	-26.9100	26.6900	2.92
1987	6	23	-26.2100	27.9600	2.57
1987	6	23	-26.3600	27.6800	2.79
1987	6	23	-26.1700	28.1700	2.65
1987	6	24	-26.4500	27.3000	2.65
1987	6	25	-26.3900	27.4300	3.41
1987	6	25	-26.9000	26.7400	2.95
1987	6	25	-26.4500	27.4300	2.72
1987	6	26	-26.2300	28.1400	2.90
1987	6	26	-26.2200	27.6200	2.97
1987	6	26	-26.3400	27.6100	2.56
1987	6	26	-26.5000	27.4400	2.75
1987	6	30	-26.3500	27.5700	2.85
1987	6	30	-28.0300	26.7600	3.14
1987	6	30	-26.3500	27.3500	2.86
1987	7	2	-26.1700	27.7700	3.19
1987	7	2	-26.4400	27.4100	2.64
1987	7	3	-28.0400	26.8900	3.02
1987	7	3	-26.3800	27.4100	2.57
1987	7	4	-26.9500	26.6900	2.53
1987	7	4	-26.9500	26.7800	3.45
1987	7	4	-26.1900	28.1400	3.61
1987	7	5	-26.3600	27.4300	2.86
1987	7	5	-26.1900	28.1400	2.95
1987	7	6	-26.4000	27.3100	2.70
1987	7	6	-26.9000	26.7000	3.37
1987	7	6	-26.3900	27.3800	2.61
1987	7	6	-26.1700	28.2100	2.92
1987	7	7	-26.9100	26.7800	2.66
1987	7	7	-26.2300	28.1500	3.31
1987	7	8	-26.9300	26.7400	2.59
1987	7	9	-27.9800	26.7600	2.66
1987	7	9	-26.4000	27.5600	2.50
1987	7	9	-28.0000	26.7300	3.21
1987	7	9	-26.4200	27.5400	2.79
1987	7	9	-26.5100	27.4100	2.91
1987	7	10	-26.1500	29.2000	3.53
1987	7	10	-26.3900	27.6800	2.93
1987	7	11	-26.3300	27.4500	2.65
1987	7	12	-27.9000	26.6700	2.61
1987	7	12	-26.3600	27.3800	3.28
1987	7	12	-27.0800	26.7600	2.54
1987	7	13	-27.9100	26.7200	3.06
1987	7	13	-26.1700	28.1900	3.36
1987	7	14	-26.4100	27.4200	2.53

1987	7	14	-28.0800	26.8700	2.84
1987	7	15	-26.3900	27.5300	3.11
1987	7	16	-26.2300	28.1700	3.57
1987	7	16	-26.1800	28.1400	3.34
1987	7	18	-26.1700	28.2100	3.13
1987	7	20	-26.3500	27.4900	2.54
1987	7	20	-26.3800	27.6100	3.62
1987	7	21	-26.9400	26.7600	2.94
1987	7	21	-26.3600	27.4800	2.62
1987	7	21	-26.3600	27.4000	2.55
1987	7	23	-26.3700	27.4400	2.63
1987	7	24	-26.4100	27.5600	2.94
1987	7	24	-26.4100	27.4200	3.28
1987	7	24	-26.9300	26.7200	3.33
1987	7	25	-26.8300	26.7200	3.08
1987	7	26	-27.0300	27.4000	3.00
1987	7	27	-26.2500	28.2500	2.56
1987	7	27	-28.0600	26.8500	3.38
1987	7	27	-26.4100	27.4400	2.69
1987	7	28	-26.9300	26.7600	2.53
1987	7	29	-28.0700	26.8700	3.33
1987	7	29	-26.4000	27.4200	2.72
1987	7	29	-28.0700	26.8700	3.33
1987	7	30	-26.8900	26.8200	4.28
1987	7	30	-26.9100	26.8200	3.19
1987	7	31	-26.9200	26.7900	2.51
1987	7	31	-26.3300	27.5100	2.94
1987	7	31	-26.4000	27.4100	2.69
1987	8	2	-26.3500	27.5500	3.39
1987	8	3	-26.1900	28.1500	3.45
1987	8	3	-26.3500	27.4600	2.67
1987	8	3	-26.4200	27.4600	2.93
1987	8	4	-26.3600	27.6800	2.98
1987	8	4	-26.8800	26.7600	3.51
1987	8	4	-27.9900	26.8200	2.74
1987	8	4	-26.7100	30.9700	4.70
1987	8	5	-26.3500	27.5500	2.50
1987	8	6	-26.4000	27.5200	2.50
1987	8	6	-27.6100	23.2700	2.67
1987	8	6	-26.3300	27.4400	3.11
1987	8	6	-26.3500	27.5400	3.08
1987	8	7	-26.4400	27.4800	2.99
1987	8	7	-26.3500	27.6300	2.55
1987	8	7	-26.4900	27.4400	2.59
1987	8	11	-27.9800	26.8100	2.98
1987	8	14	-26.9100	26.7600	2.74
1987	8	15	-26.4100	27.5800	2.74
1987	8	15	-26.3400	27.5100	3.09
1987	8	17	-26.9000	26.7600	2.60
1987	8	17	-26.3200	27.5300	2.66
1987	8	18	-27.0000	26.7500	2.72
1987	8	18	-26.4300	27.4400	2.79
1987	8	19	-27.9000	26.6500	3.16
1987	8	20	-26.9000	26.7300	2.60
1987	8	20	-26.4200	27.4600	2.65
1987	8	21	-26.3300	27.5900	3.18
1987	8	22	-28.0300	26.8500	2.68
1987	8	24	-26.3800	27.6200	2.85
1987	8	24	-26.2600	27.6500	2.75
1987	8	25	-26.8900	26.7800	3.10
1987	8	25	-26.3600	27.3300	3.48

1987	8	25	-26.3800	27.3000	2.70
1987	8	25	-26.3600	27.5800	2.86
1987	8	26	-26.3300	27.5800	3.08
1987	8	26	-29.4800	25.0400	3.50
1987	8	26	-26.4400	27.3300	2.86
1987	8	26	-26.4600	27.3400	2.68
1987	8	26	-26.5000	27.4100	3.13
1987	8	27	-26.3800	27.6300	2.94
1987	8	29	-26.4000	27.4000	3.17
1987	8	29	-26.4100	27.3700	2.95
1987	8	30	-26.8800	26.7700	2.66
1987	8	30	-26.9100	26.7800	2.84
1987	8	30	-26.9200	26.7100	2.84
1987	8	31	-28.0600	26.7700	3.46
1987	8	31	-26.1400	28.3400	3.21
1987	9	1	-26.8900	26.7800	2.84
1987	9	1	-26.4600	27.3600	3.07
1987	9	1	-26.4500	27.4100	2.69
1987	9	2	-26.1600	27.7700	2.78
1987	9	2	-26.3500	27.4100	2.89
1987	9	2	-26.1700	28.1500	3.59
1987	9	3	-26.3500	27.6700	2.54
1987	9	3	-26.4400	27.4100	2.64
1987	9	4	-26.3600	27.4300	3.24
1987	9	4	-28.0400	26.7800	2.50
1987	9	4	-26.4100	27.3200	2.92
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1987	9	4	-27.9800	26.8400	3.35
1987	9	5	-26.4300	27.4200	2.63
1987	9	7	-26.3900	27.4500	2.67
1987	9	7	-26.9400	26.7800	3.62
1987	9	9	-28.0400	23.1900	2.60
1987	9	9	-26.1800	28.1400	3.07
1987	9	9	-28.0100	26.7500	2.74
1987	9	10	-26.3500	27.6500	2.55
1987	9	11	-26.9600	26.7600	2.96
1987	9	11	-26.3600	27.4900	2.71
1987	9	12	-26.9500	26.7900	3.68
1987	9	12	-26.9400	26.7400	3.08
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1987	9	14	-28.0400	26.6700	2.69
1987	9	15	-27.9800	26.7500	2.80
1987	9	16	-28.0000	26.8100	2.98
1987	9	16	-26.8900	26.8100	2.90
1987	9	16	-26.3600	27.4000	3.14
1987	9	17	-26.4500	27.4000	3.50
1987	9	17	-26.3800	27.4200	3.03
1987	9	18	-26.4100	27.3600	3.29
1987	9	19	-26.3500	27.5200	2.88
1987	9	20	-26.2300	27.6100	3.01
1987	9	23	-26.3600	27.2900	3.40
1987	9	23	-26.3700	27.4800	2.76
1987	9	24	-26.4700	27.3500	3.07
1987	9	24	-26.4200	27.3200	3.12
1987	9	24	-26.4100	27.5200	2.58
1987	9	24	-26.3700	27.3000	2.79
1987	9	25	-26.9500	26.7100	2.86
1987	9	26	-28.0100	26.8000	3.09
1987	9	27	-26.4100	27.3500	3.29
1987	9	28	-26.9300	26.6900	2.51
1987	9	30	-26.9000	26.7900	5.04

1987	9	30	-26.3700	27.5000	2.73
1987	10	2	-26.3900	27.5800	3.05
1987	10	2	-26.3900	27.4800	3.37
1987	10	2	-26.1800	28.1300	2.95
1987	10	3	-26.2100	27.7100	2.68
1987	10	3	-26.3600	27.4700	3.15
1987	10	3	-26.8900	26.7000	2.97
1987	10	6	-26.4000	27.3200	2.82
1987	10	6	-26.3300	27.3900	2.91
1987	10	7	-26.4600	27.3200	2.62
1987	10	7	-26.2000	27.8600	2.79
1987	10	7	-26.8300	26.7100	2.78
1987	10	8	-28.0300	26.7100	3.13
1987	10	9	-26.3700	27.4500	3.07
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1987	10	10	-26.9000	26.6500	2.93
1987	10	12	-28.0100	26.8500	3.38
1987	10	12	-26.8900	26.6700	2.87
1987	10	12	-26.9100	26.6500	3.13
1987	10	13	-26.4500	27.3700	2.58
1987	10	13	-29.5800	25.4300	3.29
1987	10	15	-26.4300	27.4200	2.90
1987	10	16	-26.1700	28.1800	2.91
1987	10	17	-26.9200	26.6700	2.79
1987	10	17	-26.3400	27.4800	3.04
1987	10	17	-26.2600	28.1800	2.54
1987	10	18	-26.4400	27.4700	2.59
1987	10	19	-26.3200	27.4900	3.05
1987	10	19	-26.3800	27.2600	2.95
1987	10	20	-26.2300	27.6200	2.50
1987	10	20	-26.3900	27.2800	2.64
1987	10	22	-26.4100	27.3100	2.61
1987	10	22	-26.4700	27.4700	2.54
1987	10	22	-26.4100	27.3000	2.78
1987	10	23	-26.2300	27.7300	2.65
1987	10	23	-26.3700	27.4400	2.98
1987	10	26	-26.1900	28.2200	2.69
1987	10	26	-26.8900	26.7700	2.70
1987	10	27	-26.3900	27.4700	2.86
1987	10	28	-26.1300	27.8500	2.93
1987	10	29	-26.2200	28.2000	2.94
1987	10	30	-26.3200	27.4900	2.88
1987	10	30	-26.3900	27.3800	2.61
1987	10	30	-26.2800	27.7300	2.87
1987	10	31	-26.3900	27.5900	2.74
1987	11	1	-26.4000	27.3300	3.11
1987	11	3	-26.3800	27.5000	3.01
1987	11	3	-26.4200	27.2600	3.22
1987	11	4	-26.3700	27.3300	2.84
1987	11	4	-26.3400	27.4300	2.80
1987	11	6	-26.3100	27.4400	3.54
1987	11	7	-26.4300	27.4000	3.54
1987	11	7	-26.3500	27.4300	3.23
1987	11	7	-26.2900	27.6200	2.73
1987	11	7	-26.2800	27.5800	2.74
1987	11	8	-26.3900	27.3900	3.16
1987	11	9	-28.0600	26.8200	2.88
1987	11	11	-26.3600	27.6300	2.74
1987	11	14	-26.4400	27.3600	2.61
1987	11	15	-29.5200	25.1600	4.65

1987	11	18	-26.4600	27.2800	2.66
1987	11	18	-26.3500	27.5300	2.68
1987	11	19	-26.3900	27.5300	2.57
1987	11	19	-26.4100	27.4100	2.88
1987	11	19	-26.3800	27.5700	2.66
1987	11	19	-26.9000	26.7900	2.87
1987	11	20	-27.9500	26.7400	3.47
1987	11	20	-26.4100	27.3200	2.58
1987	11	22	-26.8800	26.7700	3.18
1987	11	23	-26.4000	27.3800	2.63
1987	11	23	-26.3700	27.5500	2.66
1987	11	24	-27.9000	26.6900	3.07
1987	11	24	-27.9500	26.6700	2.74
1987	11	25	-26.3300	27.4800	2.52
1987	11	25	-27.9000	26.6900	3.49
1987	11	25	-26.1900	27.7400	2.55
1987	11	25	-26.2300	28.1900	2.58
1987	11	28	-26.3800	27.4900	2.67
1987	11	28	-26.1900	28.1300	2.54
1987	11	30	-26.4100	27.4400	2.98
1987	12	1	-26.4500	27.5100	3.05
1987	12	2	-26.3800	27.5600	2.63
1987	12	2	-26.4200	27.5700	3.18
1987	12	3	-26.4100	27.5700	3.00
1987	12	4	-26.4000	27.5100	2.51
1987	12	7	-26.4500	27.4100	2.84
1987	12	8	-27.9800	26.7500	2.85
1987	12	8	-26.3900	27.5400	2.94
1987	12	9	-27.9200	26.7000	3.29
1987	12	10	-26.4800	27.2900	2.68
1987	12	10	-26.4600	27.4000	2.84
1987	12	11	-26.4100	27.4300	3.17
1987	12	11	-26.4300	27.6100	3.58
1987	12	12	-26.2700	28.2400	2.63
1987	12	12	-26.8700	26.6200	2.50
1987	12	12	-26.3800	27.4000	2.63
1987	12	13	-26.3800	27.6100	3.11
1987	12	13	-26.3500	27.4200	2.63
1987	12	13	-26.2900	27.5100	2.92
1987	12	14	-26.3900	27.7000	3.06
1987	12	15	-26.4000	27.2800	2.80
1987	12	16	-26.8400	26.8400	2.56
1987	12	17	-27.4900	30.9700	2.78
1987	12	18	-26.3800	27.4000	2.70
1987	12	18	-26.2600	28.2400	2.94
1987	12	18	-26.3900	27.6100	3.09
1987	12	19	-26.8700	26.6900	3.64
1987	12	19	-26.4100	27.3600	2.97
1987	12	19	-26.3900	27.2900	2.67
1987	12	20	-26.3700	27.6400	2.66
1987	12	21	-26.1200	27.7000	2.68
1987	12	22	-26.3700	27.2400	3.01
1987	12	22	-26.9600	26.7100	2.75
1987	12	22	-26.3200	27.6900	2.68
1987	12	22	-26.3700	27.5600	3.00
1987	12	23	-26.3700	27.5100	3.03
1987	12	23	-26.9700	26.8200	3.06
1987	12	23	-26.8500	26.7700	2.67
1987	12	23	-26.1500	28.1800	2.85
1987	12	24	-27.8500	26.7100	3.15
1987	12	27	-26.3900	27.2700	2.61

1987	12	28	-26.8500	26.6600	3.31
1987	12	29	-26.2500	28.2000	3.31
1987	12	30	-26.3900	27.3800	2.59
1988	1	1	-26.8400	26.7300	2.93
1988	1	5	-26.4200	27.3300	2.77
1988	1	5	-26.9500	26.7000	4.05
1988	1	6	-26.8500	26.7200	2.88
1988	1	6	-26.8900	26.6900	3.23
1988	1	7	-26.3700	27.4400	2.52
1988	1	8	-26.4100	27.3600	3.03
1988	1	11	-26.3400	27.5400	3.01
1988	1	13	-26.4300	27.3800	2.97
1988	1	13	-26.4600	27.4500	3.10
1988	1	14	-26.2900	27.5700	2.64
1988	1	15	-27.9200	26.7300	3.30
1988	1	17	-26.4500	27.4000	2.97
1988	1	17	-26.8500	26.7800	2.64
1988	1	18	-27.9600	26.7200	3.56
1988	1	19	-26.3400	27.5500	2.66
1988	1	21	-22.7000	28.0000	3.41
1988	1	22	-26.4500	27.3700	3.18
1988	1	22	-26.4800	27.3600	3.06
1988	1	22	-26.4400	27.3300	2.93
1988	1	22	-26.4700	27.3000	2.68
1988	1	22	-27.9300	26.7500	3.27
1988	1	23	-27.8400	26.6100	2.73
1988	1	24	-26.4200	27.2800	2.66
1988	1	24	-26.4300	27.4000	2.74
1988	1	25	-26.4700	27.3200	2.62
1988	1	30	-25.9200	25.8900	2.99
1988	1	30	-26.8600	26.7900	3.48
1988	1	30	-26.2500	27.7200	2.72
1988	1	31	-26.9100	26.7700	3.05
1988	1	31	-26.2200	27.6900	2.54
1988	2	1	-26.4500	27.4000	3.34
1988	2	1	-26.4000	27.4600	2.51
1988	2	2	-26.3800	27.4300	2.77
1988	2	4	-26.3200	26.3100	2.96
1988	2	5	-26.4300	27.3600	3.16
1988	2	5	-26.4600	27.3200	3.09
1988	2	5	-26.3300	27.4500	2.70
1988	2	7	-26.4300	27.4600	3.16
1988	2	7	-27.9500	26.7100	2.50
1988	2	9	-26.4900	27.2400	3.13
1988	2	9	-26.3800	27.4100	3.48
1988	2	9	-26.4900	27.3600	2.63
1988	2	9	-26.3500	27.3000	2.72
1988	2	10	-26.0200	26.6100	2.65
1988	2	10	-26.4000	27.2500	2.73
1988	2	11	-25.9300	26.0900	2.52
1988	2	11	-26.4900	27.2700	2.65
1988	2	11	-26.3900	27.2900	2.81
1988	2	12	-26.9100	26.8300	3.11
1988	2	12	-27.9500	26.7300	2.90
1988	2	12	-30.1500	28.3700	4.05
1988	2	14	-26.8900	26.6400	2.57
1988	2	14	-26.8000	26.7000	2.50
1988	2	14	-26.4200	27.2900	2.84
1988	2	16	-26.4000	27.4000	2.87
1988	2	16	-29.2400	25.2500	3.26
1988	2	17	-29.1200	25.2500	2.95

1988	2	18	-28.0500	26.8900	2.83
1988	2	18	-26.3300	27.5700	2.63
1988	2	19	-26.4200	27.3400	3.35
1988	2	20	-28.0000	26.8000	2.81
1988	2	22	-26.3900	27.3600	2.57
1988	2	23	-26.3500	27.4100	3.01
1988	2	23	-26.9100	26.7300	3.12
1988	2	24	-26.4400	27.2600	2.77
1988	2	24	-26.9200	26.7100	2.50
1988	2	25	-26.3600	27.5400	2.82
1988	2	25	-27.9800	26.8000	2.52
1988	2	26	-26.9300	26.6800	3.90
1988	2	26	-26.4000	27.3500	2.74
1988	2	27	-26.3300	27.6300	2.94
1988	3	1	-26.3700	27.3500	3.05
1988	3	2	-26.3700	27.3200	2.50
1988	3	2	-26.3600	27.3900	2.60
1988	3	2	-26.2100	28.1100	3.25
1988	3	3	-26.4600	27.3100	2.82
1988	3	3	-26.4600	27.4000	2.75
1988	3	3	-26.3500	27.4300	2.62
1988	3	3	-28.0000	26.7900	2.85
1988	3	4	-26.8700	26.7300	3.12
1988	3	4	-28.0600	26.8000	3.69
1988	3	4	-26.2300	28.1300	3.34
1988	3	6	-26.3900	27.3500	2.94
1988	3	7	-26.3900	27.5500	3.10
1988	3	7	-26.4500	27.4800	3.17
1988	3	8	-26.9100	26.7800	2.96
1988	3	8	-26.3900	27.3100	2.61
1988	3	8	-27.8400	26.6600	2.52
1988	3	9	-26.4900	27.3800	2.72
1988	3	9	-26.8900	26.7100	2.52
1988	3	12	-26.3700	27.4200	2.89
1988	3	12	-26.9000	26.6600	3.17
1988	3	12	-26.8500	26.7200	3.55
1988	3	14	-26.4100	27.4100	3.61
1988	3	14	-26.3300	27.3800	3.26
1988	3	14	-26.3800	27.3700	2.75
1988	3	14	-27.9200	26.7200	2.82
1988	3	14	-26.4300	27.2700	2.63
1988	3	14	-26.3900	27.4000	3.28
1988	3	16	-27.8800	26.6900	3.35
1988	3	16	-26.9300	26.7600	3.27
1988	3	17	-26.4000	27.3900	2.69
1988	3	19	-27.9200	26.7200	2.65
1988	3	20	-28.0800	26.8500	2.56
1988	3	21	-26.4500	27.4200	2.60
1988	3	23	-26.4200	27.4300	2.64
1988	3	23	-28.0400	26.8800	2.62
1988	3	24	-26.9000	26.7700	3.24
1988	3	27	-28.0700	26.8600	2.63
1988	3	27	-26.9200	26.7300	2.52
1988	3	27	-28.1200	26.8700	2.59
1988	3	28	-26.4300	27.3000	3.18
1988	4	2	-26.8000	26.8100	2.59
1988	4	2	-26.4500	27.3600	2.58
1988	4	5	-28.0100	26.7600	2.51
1988	4	6	-26.2600	27.5900	2.58
1988	4	6	-26.8800	26.6800	2.86
1988	4	9	-26.3400	27.5000	2.59

1988	4	10	-26.8900	26.6800	2.70
1988	4	11	-26.7900	26.7400	3.05
1988	4	11	-26.2100	28.2600	2.89
1988	4	11	-26.3400	27.5000	2.85
1988	4	12	-26.3500	27.4400	2.61
1988	4	13	-28.0300	26.8200	2.78
1988	4	16	-26.4100	27.3700	2.91
1988	4	16	-28.0300	26.8300	2.72
1988	4	17	-26.4000	27.3300	2.56
1988	4	17	-26.3100	27.6800	2.75
1988	4	18	-26.3900	27.4200	2.51
1988	4	20	-26.4400	27.3600	2.63
1988	4	21	-28.0100	26.8200	2.80
1988	4	21	-26.2400	28.2300	2.59
1988	4	22	-26.3500	27.3800	2.69
1988	4	23	-28.0100	26.7400	2.55
1988	4	24	-26.8300	26.7200	2.55
1988	4	24	-26.3900	27.5000	2.77
1988	4	25	-26.4200	27.3500	3.04
1988	4	26	-26.4600	27.2700	2.76
1988	4	26	-26.4400	27.3000	2.84
1988	4	26	-26.3900	27.4200	3.23
1988	4	27	-26.8800	26.7400	2.67
1988	4	27	-26.3700	27.2700	2.67
1988	4	28	-26.8500	26.7200	3.05
1988	4	28	-27.9300	26.7100	2.52
1988	4	28	-28.0200	26.8600	2.75
1988	5	1	-26.2400	28.2200	2.63
1988	5	3	-26.3500	27.5800	2.89
1988	5	3	-26.8200	26.7000	2.89
1988	5	4	-26.3700	27.4700	3.09
1988	5	4	-26.2100	28.1500	2.66
1988	5	4	-26.4000	27.3500	2.75
1988	5	6	-26.3900	27.4300	2.99
1988	5	7	-26.3900	27.4000	2.79
1988	5	8	-26.3000	27.6200	3.03
1988	5	9	-26.4000	27.4100	2.52
1988	5	9	-26.8600	26.6700	2.53
1988	5	9	-26.3800	27.4300	2.74
1988	5	9	-26.9000	26.6900	2.95
1988	5	9	-26.3800	27.4000	2.59
1988	5	10	-26.2300	28.2100	3.35
1988	5	10	-26.3700	27.4100	2.55
1988	5	10	-26.1900	28.1500	2.55
1988	5	10	-27.9100	26.7200	2.79
1988	5	11	-26.3800	27.4000	2.50
1988	5	12	-26.3700	27.3800	2.82
1988	5	12	-26.4000	27.4100	2.93
1988	5	12	-26.3900	27.4000	2.67
1988	5	12	-28.0600	26.9100	2.90
1988	5	13	-26.3600	27.6200	2.65
1988	5	13	-26.2700	27.6200	2.89
1988	5	14	-26.4100	27.4000	2.84
1988	5	14	-26.4400	27.3000	2.72
1988	5	15	-26.9300	26.7900	3.56
1988	5	16	-26.4000	27.5700	2.87
1988	5	16	-26.9200	26.7400	2.59
1988	5	17	-26.3500	27.4800	2.69
1988	5	17	-28.0700	26.8900	2.63
1988	5	18	-26.3500	27.3900	3.24
1988	5	18	-26.4000	27.3800	2.63

1988	5	18	-26.4100	27.3700	2.67
1988	5	19	-26.4100	27.3500	3.32
1988	5	19	-26.4100	27.3100	2.57
1988	5	21	-26.3000	27.3000	2.50
1988	5	23	-26.8300	26.7200	2.50
1988	5	23	-26.3500	27.3700	2.55
1988	5	23	-27.9500	26.7100	3.12
1988	5	25	-26.9800	26.6900	2.72
1988	5	26	-26.3700	27.4100	2.71
1988	5	26	-26.3600	27.5200	2.97
1988	5	27	-26.1700	28.0200	2.96
1988	5	27	-26.3800	27.3200	3.27
1988	5	27	-26.3800	27.3500	2.51
1988	5	27	-26.3600	27.4000	3.18
1988	5	28	-26.3800	27.3600	2.62
1988	5	29	-26.4300	27.2900	3.21
1988	5	29	-24.6400	30.7100	2.86
1988	5	29	-28.0100	26.7800	2.70
1988	5	29	-26.3700	27.3300	2.79
1988	5	30	-26.2000	28.2000	2.71
1988	5	30	-28.0000	26.6700	2.62
1988	5	30	-26.3500	27.4000	2.65
1988	6	2	-28.0300	26.8900	2.76
1988	6	3	-26.3500	27.5100	3.13
1988	6	3	-26.3900	27.3000	3.03
1988	6	3	-26.3700	27.4300	3.59
1988	6	3	-26.3700	27.3400	3.06
1988	6	4	-26.4000	27.2600	2.94
1988	6	4	-26.8300	26.7400	3.28
1988	6	4	-26.8600	26.6900	3.39
1988	6	6	-26.4000	27.3800	3.02
1988	6	6	-26.3700	27.2800	2.72
1988	6	6	-26.4200	27.3000	3.54
1988	6	7	-26.4100	27.3500	3.16
1988	6	7	-28.0000	26.8700	2.76
1988	6	7	-26.9400	26.7800	2.50
1988	6	7	-26.3600	27.6000	2.53
1988	6	7	-26.9200	26.7400	2.50
1988	6	7	-26.8900	26.7300	2.88
1988	6	8	-26.4400	27.3400	2.62
1988	6	9	-26.4000	27.3400	3.04
1988	6	10	-26.3300	27.5000	2.75
1988	6	11	-26.9100	26.7200	2.63
1988	6	13	-26.3800	27.2800	3.09
1988	6	13	-26.3600	27.4100	3.02
1988	6	14	-26.3900	27.5500	2.50
1988	6	15	-27.9300	26.6800	3.13
1988	6	15	-26.2000	28.1500	3.18
1988	6	15	-26.4000	27.6600	2.55
1988	6	16	-26.8400	26.7100	4.03
1988	6	16	-27.9400	26.7400	3.14
1988	6	16	-26.3400	27.4900	2.66
1988	6	16	-26.7900	26.7900	2.80
1988	6	17	-26.3500	27.4500	2.98
1988	6	17	-25.6800	27.2800	2.92
1988	6	17	-26.4000	27.3700	2.53
1988	6	18	-26.2100	28.2000	2.83
1988	6	20	-26.4100	27.4200	2.56
1988	6	21	-26.3900	27.2900	2.83
1988	6	21	-26.4300	27.4400	2.64
1988	6	21	-26.4100	27.2800	3.61

1988	6	22	-26.3500	27.3700	3.21
1988	6	22	-27.9900	26.7300	2.69
1988	6	22	-26.4200	27.4700	2.57
1988	6	23	-28.0100	26.7000	2.55
1988	6	23	-26.2000	28.1600	3.10
1988	6	23	-26.3400	27.5100	2.55
1988	6	24	-26.8600	26.7700	2.81
1988	6	25	-28.0100	26.8000	2.50
1988	6	26	-27.9300	26.6600	3.31
1988	6	26	-26.4000	27.4500	2.57
1988	6	28	-26.3400	27.5500	2.59
1988	6	29	-26.3800	27.3900	2.94
1988	7	1	-26.1900	28.1600	3.66
1988	7	1	-26.9000	26.7400	2.55
1988	7	1	-26.3900	27.3300	2.67
1988	7	2	-26.9000	26.7200	2.51
1988	7	4	-26.1800	28.1400	2.71
1988	7	5	-26.9000	26.6900	3.26
1988	7	5	-26.4800	27.3000	3.40
1988	7	5	-28.0100	26.6900	3.50
1988	7	5	-27.9500	26.7100	2.96
1988	7	5	-26.4700	27.4200	2.68
1988	7	6	-26.3700	27.3500	2.77
1988	7	6	-26.2400	28.1600	2.86
1988	7	6	-26.4200	27.4400	2.78
1988	7	8	-26.2100	28.2500	2.79
1988	7	9	-26.1900	28.1500	3.17
1988	7	10	-26.3500	27.4600	2.80
1988	7	12	-28.0700	26.8000	2.78
1988	7	12	-26.3800	27.5000	2.55
1988	7	13	-26.8500	26.6600	2.72
1988	7	15	-26.2200	28.2100	3.23
1988	7	15	-26.2900	27.6100	2.86
1988	7	15	-26.2300	28.2200	2.84
1988	7	15	-29.6000	25.5100	2.99
1988	7	16	-26.4000	27.4300	2.61
1988	7	16	-26.3900	27.4300	3.08
1988	7	16	-26.3500	27.4000	2.57
1988	7	19	-28.0000	26.8400	2.68
1988	7	19	-26.3700	27.3200	2.92
1988	7	19	-26.8800	26.6600	2.77
1988	7	20	-26.3600	27.3300	2.54
1988	7	21	-26.3400	27.4700	2.56
1988	7	22	-26.8800	26.6700	3.12
1988	7	23	-26.3100	27.5200	3.10
1988	7	24	-26.3900	27.4800	2.93
1988	7	25	-26.8800	26.6800	2.93
1988	7	25	-26.3300	27.4700	2.70
1988	7	25	-26.8900	26.6800	2.77
1988	7	26	-26.2200	28.2200	2.55
1988	7	26	-27.9900	26.6700	2.96
1988	7	27	-26.2400	28.1900	2.55
1988	7	27	-26.4100	27.3700	3.02
1988	7	27	-27.9900	26.7100	2.88
1988	7	27	-26.4000	27.4300	3.00
1988	7	27	-26.4900	27.3000	2.62
1988	7	27	-28.1300	26.8800	3.08
1988	7	28	-26.1800	28.1600	3.28
1988	7	28	-26.4200	27.4100	2.78
1988	7	28	-26.4200	27.2900	3.12
1988	7	31	-26.8400	26.8000	3.12

1988	8	1	-26.3600	27.3500	2.97
1988	8	3	-26.8000	26.7600	2.56
1988	8	5	-26.4000	27.3100	2.99
1988	8	6	-26.8900	26.7300	2.86
1988	8	8	-26.9000	26.8100	2.80
1988	8	8	-26.4000	27.2800	2.62
1988	8	9	-26.1800	28.1500	3.72
1988	8	9	-26.3600	27.4600	2.63
1988	8	9	-26.2000	28.1600	2.57
1988	8	9	-26.9200	26.8100	3.17
1988	8	10	-26.1500	28.1100	2.87
1988	8	10	-28.0400	26.8000	3.26
1988	8	10	-26.8700	26.7100	2.92
1988	8	11	-22.2300	30.1700	4.32
1988	8	11	-26.9000	26.6700	3.72
1988	8	11	-26.4000	27.4400	3.45
1988	8	11	-26.3600	27.4400	2.82
1988	8	14	-27.9200	26.7400	3.35
1988	8	15	-26.4600	27.3400	2.69
1988	8	16	-28.0400	26.7500	3.81
1988	8	16	-26.2100	28.0900	2.78
1988	8	16	-26.3800	27.4200	3.17
1988	8	17	-26.4100	27.4200	3.13
1988	8	17	-26.4400	27.2800	3.31
1988	8	17	-26.9600	26.7600	3.69
1988	8	18	-26.3400	27.4500	2.87
1988	8	18	-26.4900	27.3500	2.51
1988	8	19	-26.8700	26.6800	2.82
1988	8	20	-29.4200	30.1000	3.67
1988	8	22	-26.3900	27.2900	3.07
1988	8	24	-26.3800	27.3100	2.56
1988	8	25	-26.4300	27.3700	2.91
1988	8	25	-26.8800	26.6500	2.53
1988	8	26	-26.3600	27.4500	3.05
1988	8	27	-27.9800	26.8300	3.25
1988	8	27	-27.9900	26.7000	3.11
1988	8	27	-27.9200	26.7600	2.86
1988	8	28	-28.0200	26.8300	2.92
1988	8	29	-26.4100	27.3300	2.72
1988	8	30	-26.3500	27.4600	3.37
1988	8	30	-26.3800	27.3500	3.03
1988	8	30	-26.3500	27.4300	2.66
1988	8	30	-26.3700	27.5700	2.64
1988	8	31	-26.8900	26.7400	2.65
1988	8	31	-26.9100	26.7200	2.93
1988	8	31	-26.2700	27.6900	2.54
1988	8	31	-26.8500	26.7100	3.40
1988	9	1	-26.3800	27.4000	3.05
1988	9	2	-26.9100	26.7500	2.96
1988	9	2	-26.3800	27.4400	2.82
1988	9	2	-26.3500	27.5800	2.90
1988	9	4	-26.3800	27.3200	2.85
1988	9	5	-26.3900	27.5000	2.60
1988	9	6	-26.9800	26.8000	2.92
1988	9	6	-26.8900	26.7700	2.74
1988	9	7	-27.9800	26.6800	2.79
1988	9	7	-26.9100	26.7000	2.55
1988	9	8	-26.4300	27.3600	3.22
1988	9	9	-26.9200	26.7600	2.92
1988	9	9	-27.9700	26.7400	2.66
1988	9	10	-26.3500	27.3700	2.64

1988	9	10	-27.9200	26.6600	2.50
1988	9	11	-26.8600	26.8000	2.70
1988	9	11	-26.9400	26.7600	3.45
1988	9	12	-26.2800	27.6000	2.57
1988	9	12	-26.9000	26.7700	4.47
1988	9	12	-26.3700	27.3800	3.10
1988	9	13	-26.8700	26.7700	2.55
1988	9	13	-26.3700	27.4500	2.59
1988	9	14	-28.0100	26.6900	2.91
1988	9	14	-26.3700	27.3200	2.86
1988	9	15	-26.8300	26.7700	3.50
1988	9	16	-29.5200	27.5700	3.26
1988	9	16	-26.3800	27.3800	2.53
1988	9	17	-26.3900	27.3100	3.34
1988	9	17	-26.4400	27.3000	3.01
1988	9	18	-26.3600	27.3300	2.92
1988	9	18	-26.8600	26.8200	3.11
1988	9	21	-29.6200	25.1000	2.75
1988	9	21	-26.9600	26.7700	2.52
1988	9	24	-26.3100	27.6200	2.83
1988	9	27	-26.4000	27.3500	2.67
1988	9	27	-26.9100	26.7800	2.79
1988	9	27	-26.4400	27.3000	2.57
1988	9	29	-26.2500	27.7100	3.03
1988	9	29	-27.9000	26.6500	2.50
1988	9	29	-26.8900	26.7300	2.75
1988	9	29	-26.3600	27.4900	2.57
1988	9	29	-26.4000	27.3000	3.19
1988	9	29	-26.3800	27.3100	2.90
1988	9	30	-26.9600	26.7300	2.61
1988	10	5	-26.4400	27.4400	2.69
1988	10	5	-26.4300	27.5800	2.58
1988	10	5	-26.9000	26.7800	2.66
1988	10	5	-27.9900	26.6900	2.50
1988	10	6	-26.3400	27.3700	2.81
1988	10	6	-26.4100	27.5500	2.72
1988	10	6	-26.8900	26.7800	2.57
1988	10	6	-26.3600	27.4600	2.96
1988	10	7	-26.2200	27.9700	3.75
1988	10	8	-26.8800	26.7400	3.04
1988	10	8	-26.3800	27.2400	3.01
1988	10	8	-26.3900	27.3700	2.83
1988	10	8	-26.4700	27.4400	3.07
1988	10	8	-26.8400	26.7500	2.79
1988	10	10	-26.4200	27.3300	3.12
1988	10	10	-26.3600	27.2300	3.00
1988	10	11	-26.4400	27.3000	2.66
1988	10	11	-26.4700	27.3900	2.54
1988	10	13	-26.8900	26.7400	3.12
1988	10	13	-26.5000	27.4200	3.02
1988	10	13	-26.4600	27.2700	2.50
1988	10	14	-26.9300	26.7600	2.74
1988	10	14	-26.8700	26.6700	2.93
1988	10	14	-26.8800	26.6700	3.10
1988	10	14	-27.9300	26.6900	2.87
1988	10	15	-26.9200	26.7600	2.85
1988	10	16	-26.4300	27.4400	3.37
1988	10	17	-26.3600	27.3900	3.10
1988	10	18	-26.4500	27.3400	2.92
1988	10	19	-26.4100	27.3700	2.59
1988	10	19	-26.4600	27.2800	2.85

1988	10	20	-26.4200	27.2300	2.87
1988	10	20	-26.3900	27.2400	2.92
1988	10	21	-28.0300	26.7000	2.67
1988	10	21	-28.0500	26.8500	2.71
1988	10	23	-26.4200	27.6500	3.06
1988	10	24	-26.2100	28.2300	3.01
1988	10	24	-26.3700	27.4700	3.19
1988	10	25	-26.4700	27.4400	2.82
1988	10	26	-26.9200	26.7500	3.21
1988	10	27	-26.3300	27.5900	2.72
1988	10	27	-26.3200	27.5700	2.65
1988	10	27	-26.4200	27.3700	2.72
1988	10	27	-26.4100	27.4400	3.36
1988	10	27	-26.3900	27.4900	2.64
1988	10	28	-26.9200	26.8300	3.17
1988	10	28	-26.9200	26.8000	3.16
1988	10	29	-26.4300	27.5400	3.02
1988	10	29	-26.8900	26.7800	2.88
1988	10	29	-26.9200	26.7600	2.96
1988	10	30	-26.1800	28.2100	2.71
1988	10	30	-26.2400	28.2000	3.27
1988	11	3	-26.8800	26.7200	3.20
1988	11	5	-26.3200	27.5800	3.61
1988	11	5	-27.7500	26.6100	2.66
1988	11	5	-27.9800	26.8100	3.87
1988	11	7	-26.4000	27.6000	2.53
1988	11	9	-26.9300	26.6700	2.53
1988	11	9	-26.3700	27.2800	3.07
1988	11	10	-26.3400	27.4400	2.82
1988	11	11	-26.2100	28.1200	2.87
1988	11	13	-26.3500	27.4000	2.79
1988	11	14	-26.8900	26.7300	3.12
1988	11	14	-26.8900	26.7100	2.51
1988	11	18	-26.3900	27.4700	2.56
1988	11	19	-26.9800	26.8000	2.63
1988	11	19	-26.3600	27.4500	2.61
1988	11	19	-26.2000	28.2000	2.98
1988	11	19	-26.9300	26.6700	2.65
1988	11	20	-26.2200	28.1400	3.58
1988	11	20	-26.4000	27.6300	2.56
1988	11	22	-27.8400	26.6800	2.71
1988	11	22	-26.3500	27.5700	2.63
1988	11	22	-26.9500	26.6200	2.90
1988	11	24	-28.1200	26.8100	2.56
1988	11	24	-26.0000	32.3000	4.17
1988	11	25	-26.4000	27.2700	2.53
1988	11	26	-26.3600	27.3800	2.69
1988	11	27	-26.9200	26.7700	2.64
1988	11	28	-26.9700	26.7800	3.12
1988	11	28	-28.0200	26.6700	2.99
1988	11	30	-26.4000	27.2000	2.80
1988	11	30	-26.3700	27.2600	2.54
1988	12	1	-26.8100	26.7900	2.95
1988	12	1	-28.0200	26.8300	3.17
1988	12	2	-28.0300	26.8600	2.91
1988	12	2	-26.1800	28.1500	2.99
1988	12	3	-26.3400	27.4500	2.62
1988	12	4	-28.1300	26.8400	2.88
1988	12	4	-26.9200	26.6300	2.80
1988	12	5	-26.8300	26.8000	2.79
1988	12	5	-26.8900	26.7700	2.62

1988	12	7	-26.3600	27.6000	2.63
1988	12	8	-26.8700	26.6700	3.10
1988	12	9	-28.0400	26.8800	2.50
1988	12	12	-26.4200	27.4300	3.28
1988	12	12	-26.3800	27.4700	2.59
1988	12	14	-26.8100	26.7600	2.91
1988	12	14	-26.8500	26.7700	2.70
1988	12	15	-26.8700	26.7100	2.63
1988	12	15	-26.8300	26.8300	3.91
1988	12	15	-26.8500	26.7000	2.84
1988	12	15	-26.3400	27.3800	2.77
1988	12	18	-26.4600	27.3400	3.03
1988	12	19	-26.9000	26.7200	2.54
1988	12	21	-26.3400	27.4500	2.84
1988	12	21	-28.0800	23.7000	2.72
1988	12	21	-26.2700	28.2500	2.52
1988	12	22	-26.3700	27.4400	3.22
1988	12	22	-26.8900	26.7300	3.69
1988	12	23	-26.8600	26.7100	3.27
1988	12	23	-26.9000	26.7200	2.50
1988	12	24	-26.9400	26.7000	2.53
1988	12	26	-27.9600	26.7600	3.49
1988	12	29	-26.1800	28.2000	3.09
1988	12	29	-26.4000	27.2000	2.71
1988	12	29	-26.4400	27.3300	2.85
1988	12	29	-26.4600	27.3000	2.78
1988	12	29	-26.3600	27.3500	2.53
1988	12	30	-26.2000	28.1600	3.09
1988	12	30	-26.1800	28.1500	3.57
1988	12	30	-26.1800	28.1900	2.90
1988	12	31	-26.8900	26.7600	4.01
1989	1	2	-26.8800	26.6800	2.84
1989	1	3	-26.4200	27.4100	2.64
1989	1	4	-26.8900	26.7600	3.24
1989	1	5	-26.3700	27.4000	3.33
1989	1	5	-26.4100	27.4300	2.54
1989	1	5	-26.4000	27.3600	2.60
1989	1	6	-26.3500	27.4300	2.56
1989	1	6	-28.1500	29.9400	2.78
1989	1	6	-26.8700	26.8200	2.71
1989	1	6	-26.3200	27.5500	2.60
1989	1	6	-26.3700	27.4700	3.82
1989	1	7	-26.4400	27.4500	2.78
1989	1	13	-27.9400	26.7500	2.54
1989	1	13	-28.0400	26.7400	2.97
1989	1	14	-26.8800	26.6800	2.66
1989	1	14	-28.1000	26.8300	2.65
1989	1	15	-27.9300	26.7000	2.79
1989	1	16	-26.4000	27.2500	2.57
1989	1	16	-26.3600	27.4000	3.33
1989	1	17	-26.3900	27.3500	2.61
1989	1	17	-26.9500	26.6800	2.54
1989	1	20	-26.8300	26.8200	3.31
1989	1	21	-26.4000	27.2500	3.01
1989	1	23	-26.8200	26.7600	2.78
1989	1	23	-26.3600	27.3700	2.73
1989	1	25	-27.9400	26.7700	4.59
1989	1	25	-28.0100	26.7500	3.19
1989	1	25	-28.0000	26.7800	3.03
1989	1	27	-26.8800	26.8000	2.89
1989	1	27	-26.8100	26.7500	2.73

1989	1	28	-26.8600	26.7700	2.61
1989	1	29	-26.2200	28.2300	2.53
1989	1	30	-26.4300	27.5200	3.15
1989	1	31	-26.4000	27.5500	2.67
1989	2	1	-26.4900	27.3400	2.50
1989	2	1	-26.4200	27.4000	2.53
1989	2	2	-26.3700	27.5000	2.99
1989	2	2	-26.4600	27.4500	3.66
1989	2	4	-27.9400	26.7500	2.86
1989	2	5	-26.4500	27.4200	2.66
1989	2	5	-27.9900	26.6800	3.03
1989	2	5	-27.8100	26.6600	2.61
1989	2	6	-26.9500	26.7700	2.82
1989	2	7	-26.2300	28.2200	2.83
1989	2	8	-26.4100	27.5000	3.15
1989	2	9	-26.4500	27.4500	2.89
1989	2	9	-26.9300	26.7600	3.01
1989	2	9	-26.9500	26.7400	2.65
1989	2	10	-28.0000	26.8700	2.80
1989	2	10	-26.4700	27.3000	2.80
1989	2	10	-26.4600	27.4700	2.66
1989	2	10	-26.4400	27.3000	2.79
1989	2	12	-26.3800	27.2500	3.11
1989	2	12	-26.4500	27.4900	2.97
1989	2	13	-26.9500	26.7700	2.60
1989	2	14	-26.8400	26.7200	2.74
1989	2	14	-26.2000	27.7000	2.63
1989	2	14	-26.3200	27.4500	3.08
1989	2	14	-28.0200	26.8000	2.50
1989	2	14	-26.4500	27.4700	2.52
1989	2	14	-26.3300	27.6900	2.55
1989	2	15	-26.8800	26.7200	2.76
1989	2	16	-26.4100	27.3700	2.54
1989	2	17	-26.4500	27.4000	3.05
1989	2	17	-26.8900	26.7900	2.60
1989	2	17	-26.4200	27.3600	2.75
1989	2	17	-26.3800	27.3800	3.10
1989	2	20	-26.8800	26.7500	3.65
1989	2	21	-26.2300	28.2600	2.65
1989	2	21	-26.4200	27.3800	3.00
1989	2	22	-26.2400	28.2700	2.60
1989	2	23	-28.0800	26.0200	3.52
1989	2	23	-26.4300	27.3100	3.05
1989	2	24	-26.4000	27.3700	2.67
1989	2	24	-26.4300	27.4800	2.52
1989	2	24	-26.9900	26.7700	2.70
1989	2	25	-26.4300	27.5700	2.56
1989	2	25	-26.4400	27.3500	2.85
1989	2	28	-26.3500	27.4700	3.22
1989	2	28	-26.2400	28.2300	3.15
1989	3	1	-28.0300	26.8100	2.93
1989	3	2	-26.4000	27.3800	2.60
1989	3	2	-26.9100	26.7200	2.76
1989	3	2	-26.4000	27.3500	2.64
1989	3	3	-26.3400	27.3900	2.68
1989	3	5	-26.3700	27.4400	2.68
1989	3	6	-26.4200	27.4500	2.60
1989	3	7	-26.3600	27.3500	2.87
1989	3	8	-26.4000	27.4600	2.69
1989	3	8	-26.4500	27.3700	2.69
1989	3	8	-26.3600	27.4700	2.64

1989	3	9	-26.4500	27.3000	2.92
1989	3	10	-26.9300	26.6500	2.50
1989	3	10	-26.9600	26.8000	3.02
1989	3	10	-26.9000	26.7100	2.62
1989	3	10	-26.3500	27.3700	2.71
1989	3	10	-26.2100	27.6400	2.72
1989	3	11	-26.2700	27.6200	2.93
1989	3	11	-27.9000	26.7000	2.57
1989	3	11	-26.2200	27.7200	2.68
1989	3	13	-26.3400	27.4700	3.68
1989	3	13	-26.3700	27.4700	3.06
1989	3	14	-30.0700	28.6700	3.04
1989	3	14	-26.8700	26.7300	3.25
1989	3	15	-26.8800	26.7500	3.00
1989	3	15	-30.0300	29.0400	3.06
1989	3	15	-26.9600	26.6400	2.57
1989	3	15	-26.9300	26.7300	2.56
1989	3	15	-26.9200	26.7600	2.57
1989	3	16	-26.8300	26.8000	3.16
1989	3	16	-26.9200	26.6800	2.81
1989	3	16	-26.3800	27.2600	3.03
1989	3	17	-26.4000	27.4000	3.15
1989	3	18	-26.4100	27.4400	2.82
1989	3	18	-26.3200	27.5000	2.95
1989	3	18	-26.3600	27.4200	2.60
1989	3	19	-26.1700	27.7000	3.67
1989	3	19	-26.4000	27.3500	3.98
1989	3	23	-26.3400	27.4300	2.65
1989	3	23	-26.9200	26.7000	2.75
1989	3	23	-25.5600	27.4600	2.75
1989	3	23	-26.9200	26.6600	2.97
1989	3	24	-26.9100	26.7300	2.64
1989	3	24	-26.8400	26.7900	2.82
1989	3	25	-26.9700	26.5900	2.50
1989	3	26	-28.0600	26.8100	2.78
1989	3	27	-26.4000	27.2800	3.15
1989	3	29	-26.4000	27.4500	3.12
1989	3	29	-26.4600	27.3700	2.76
1989	3	29	-26.4000	27.4600	2.74
1989	3	30	-26.8000	26.7700	4.48
1989	3	30	-26.4100	27.3600	3.52
1989	3	30	-27.0000	26.6100	2.61
1989	3	30	-26.4300	27.4000	2.67
1989	3	31	-26.4100	27.3100	3.15
1989	3	31	-26.4100	27.4300	2.77
1989	4	1	-28.0100	26.7000	3.54
1989	4	1	-28.0700	26.6500	3.39
1989	4	1	-26.4200	27.3300	3.21
1989	4	1	-26.4000	27.3600	3.96
1989	4	2	-26.4200	27.2800	2.60
1989	4	2	-26.8600	26.7500	3.74
1989	4	2	-26.8300	26.7900	3.51
1989	4	2	-26.9200	26.7100	2.56
1989	4	2	-26.9300	26.6800	2.76
1989	4	3	-26.3900	27.2900	3.17
1989	4	3	-26.3700	27.5700	2.67
1989	4	4	-26.3500	27.4200	2.75
1989	4	5	-26.4200	27.4000	3.12
1989	4	5	-26.4800	27.3000	2.70
1989	4	6	-27.9200	26.6800	2.52
1989	4	6	-26.3500	27.4000	2.64

1989	4	6	-26.4100	27.3000	2.96
1989	4	7	-26.4100	27.2800	2.72
1989	4	7	-28.0500	26.6400	2.82
1989	4	8	-26.3800	27.4600	2.53
1989	4	8	-26.9000	26.6900	2.85
1989	4	8	-26.8800	26.7900	2.90
1989	4	9	-26.4600	27.5300	3.20
1989	4	11	-27.9900	26.7500	3.67
1989	4	11	-26.8500	26.6900	3.38
1989	4	12	-26.4300	27.3400	2.98
1989	4	12	-26.4000	27.5400	2.93
1989	4	13	-26.4000	27.5400	2.93
1989	4	13	-26.4500	27.3000	2.65
1989	4	13	-26.3300	27.5000	2.56
1989	4	13	-26.4200	27.3100	2.81
1989	4	14	-26.9000	26.6900	2.52
1989	4	14	-26.9500	26.7900	3.10
1989	4	14	-28.0300	26.7600	2.58
1989	4	15	-26.3600	27.4200	2.99
1989	4	17	-26.4300	27.3300	2.69
1989	4	19	-26.3600	27.5900	2.62
1989	4	19	-26.3300	27.5400	2.88
1989	4	20	-26.3600	27.5600	2.58
1989	4	20	-26.4500	27.3600	2.94
1989	4	20	-26.3500	27.4600	3.01
1989	4	20	-26.8900	26.7900	2.59
1989	4	20	-26.3800	27.3400	3.23
1989	4	22	-26.4400	27.4600	2.65
1989	4	22	-26.8100	26.7500	2.83
1989	4	22	-26.3500	27.2700	3.14
1989	4	23	-26.4000	27.4000	2.69
1989	4	24	-26.4800	27.4300	3.07
1989	4	24	-26.8600	26.7100	2.80
1989	4	24	-26.4400	27.4700	2.94
1989	4	24	-26.8900	26.7200	2.78
1989	4	25	-27.9400	26.7000	3.18
1989	4	25	-26.4200	27.3900	3.52
1989	4	26	-26.3700	27.3200	3.36
1989	4	26	-27.9900	26.7200	2.60
1989	4	26	-26.3400	27.5600	3.14
1989	4	27	-26.4200	27.3300	2.84
1989	4	27	-26.4000	27.4400	2.77
1989	4	27	-26.4500	27.3500	3.00
1989	4	27	-26.3000	27.5700	3.05
1989	4	27	-26.9100	26.7200	3.62
1989	4	27	-26.9100	26.7500	2.50
1989	4	27	-26.4100	27.2600	3.07
1989	4	27	-26.3600	27.3800	2.62
1989	4	27	-26.3100	27.6700	2.84
1989	4	29	-26.3900	27.2200	2.64
1989	4	29	-26.8200	26.7700	2.87
1989	4	30	-26.3700	27.3700	2.88
1989	4	30	-26.3600	27.4800	3.10
1989	4	30	-26.3600	27.2900	3.54
1989	4	30	-27.9600	26.6800	3.19
1989	5	2	-26.8700	26.8000	2.64
1989	5	3	-26.8200	26.8000	4.17
1989	5	5	-26.3500	27.4000	2.78
1989	5	5	-26.3900	27.4100	2.59
1989	5	6	-26.4500	27.4000	2.83
1989	5	8	-26.8600	26.8200	3.26

1989	5	8	-26.3800	27.5200	3.16
1989	5	9	-26.4600	27.3000	3.41
1989	5	9	-26.4300	27.3400	2.90
1989	5	9	-26.4500	27.3100	2.81
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1989	5	10	-26.8900	26.7400	2.90
1989	5	10	-26.4500	27.3200	2.54
1989	5	10	-26.3900	27.3400	3.30
1989	5	11	-26.4300	27.4300	2.73
1989	5	11	-26.9200	26.7500	2.66
1989	5	12	-26.4800	27.3900	3.27
1989	5	12	-26.9600	26.6700	2.59
1989	5	12	-26.3600	27.4400	2.66
1989	5	12	-26.2000	28.0800	3.04
1989	5	13	-29.4600	27.3200	2.78
1989	5	14	-26.8900	26.7600	2.84
1989	5	14	-28.0000	26.8200	2.50
1989	5	16	-26.4100	27.3500	2.56
1989	5	16	-26.4600	27.4600	2.76
1989	5	16	-26.3400	27.4000	3.02
1989	5	17	-26.4200	27.2900	3.01
1989	5	17	-26.4100	27.3100	2.54
1989	5	17	-26.8800	26.7600	3.23
1989	5	18	-26.4700	27.3600	2.80
1989	5	18	-26.4200	27.5600	2.93
1989	5	18	-26.9300	26.7400	3.08
1989	5	19	-26.3600	27.3800	2.94
1989	5	20	-26.3700	27.3500	2.95
1989	5	21	-26.4000	27.3800	3.36
1989	5	21	-26.3500	27.5800	3.03
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1989	5	22	-27.9900	26.8500	2.51
1989	5	22	-26.3900	27.3400	2.74
1989	5	23	-26.8900	26.7600	3.18
1989	5	23	-26.9300	26.7400	2.92
1989	5	24	-26.8000	26.8000	2.73
1989	5	25	-26.8900	26.8200	2.67
1989	5	25	-26.9300	26.7600	2.63
1989	5	26	-26.3900	27.3100	3.09
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1989	5	27	-26.3900	27.3600	2.62
1989	5	27	-26.3900	27.3800	2.68
1989	5	27	-26.4200	27.3200	2.62
1989	5	29	-26.4300	27.3300	2.89
1989	5	30	-26.8600	26.8200	2.77
1989	5	30	-26.8600	26.8000	2.66
1989	5	31	-26.8900	26.7500	2.88
1989	6	2	-26.9200	26.7100	3.16
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1989	6	3	-26.8200	26.8000	2.68
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1989	6	4	-26.4800	27.4000	2.69
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1989	6	5	-26.3600	27.4200	2.93
1989	6	6	-26.9000	26.7700	2.68
1989	6	9	-28.0000	26.7500	2.61
1989	6	9	-26.9300	26.7900	2.72

1989	6	9	-26.4500	27.4200	2.79
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1989	6	13	-27.9900	26.6900	3.13
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1989	6	14	-26.4700	27.3600	2.58
1989	6	15	-28.0300	26.7800	3.24
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1989	6	17	-26.4200	27.4000	2.87
1989	6	18	-26.4100	27.2600	3.26
1989	6	19	-29.1400	27.2200	2.68
1989	6	19	-29.8900	27.1800	3.18
1989	6	19	-26.4500	27.4200	2.98
1989	6	20	-26.4500	27.3200	2.74
1989	6	20	-26.9000	26.7200	2.88
1989	6	21	-26.9000	26.7600	2.71
1989	6	21	-26.4200	27.2800	2.63
1989	6	22	-26.9100	26.7200	2.95
1989	6	22	-26.3500	27.4100	2.79
1989	6	22	-26.4100	27.3600	2.69
1989	6	23	-26.4300	27.4000	2.98
1989	6	24	-27.9300	26.6800	2.86
1989	6	24	-26.4300	27.3800	2.67
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1989	6	27	-26.8200	26.7500	2.90
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1989	6	28	-26.4700	27.3500	3.03
1989	6	28	-26.5000	27.4200	2.99
1989	6	28	-26.4500	27.4900	4.02
1989	6	28	-27.9800	26.7500	3.18
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1989	7	4	-26.9000	26.6800	2.93
1989	7	4	-26.3300	27.5800	3.37
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1989	7	6	-26.9200	26.7500	3.09
1989	7	6	-26.1900	28.1500	3.14
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1989	7	7	-26.1800	28.1700	2.54
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1989	7	8	-26.4400	27.4000	2.87
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1989	7	10	-26.4300	27.4400	2.80
1989	7	11	-26.4400	27.5200	2.81
1989	7	11	-26.9100	26.6100	3.13
1989	7	11	-26.9300	26.6100	2.59

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1989	7	13	-26.4000	27.3000	2.51
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1989	7	14	-26.3600	27.5200	2.83
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1989	7	17	-26.4100	27.3400	2.83
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1989	7	18	-26.4000	27.4500	2.80
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1989	7	19	-26.4300	27.4800	2.95
1989	7	20	-26.3900	27.2400	2.50
1989	7	21	-26.4500	27.3000	2.91
1989	7	21	-26.4800	27.3400	3.12
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1989	7	22	-26.4000	27.3200	4.05
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1989	7	24	-26.3800	27.3100	2.71
1989	7	24	-26.4000	27.3800	2.50
1989	7	25	-26.4200	27.3700	2.84
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1989	7	27	-26.4000	27.5000	2.72
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1989	7	28	-26.3900	27.4400	2.81
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1989	7	29	-28.0700	26.8200	3.04
1989	7	31	-26.8100	26.8100	3.18
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1989	7	31	-28.0200	26.6900	2.89
1989	7	31	-26.4400	27.3700	3.21
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1989	8	7	-26.3600	27.2900	3.21
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1989	8	8	-26.3600	27.3400	2.55
1989	8	8	-26.3800	27.3700	2.74
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1989	8	9	-26.7000	26.7000	2.80
1989	8	10	-26.2300	28.2200	3.14
1989	8	10	-26.2900	27.5400	2.91
1989	8	10	-26.3100	27.5800	2.88
1989	8	11	-27.8400	26.6700	2.89
1989	8	12	-26.9100	26.8400	2.97
1989	8	12	-28.0000	26.8100	3.17
1989	8	12	-26.8900	26.7900	2.62
1989	8	12	-26.2700	27.5600	2.85
1989	8	13	-27.9300	26.7500	2.92
1989	8	13	-26.4100	27.5300	2.83
1989	8	14	-26.3800	27.4800	2.93
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1989	8	17	-26.4100	27.3800	2.50
1989	8	18	-26.3600	27.6600	2.63
1989	8	19	-26.4400	27.5100	3.25
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1989	8	19	-26.3800	27.5000	2.84
1989	8	20	-26.8700	26.7400	3.05
1989	8	21	-26.8600	26.6800	3.05
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1989	8	22	-26.8400	26.7900	2.92
1989	8	22	-26.4200	27.3700	2.68
1989	8	22	-28.0100	26.7600	2.85
1989	8	23	-26.4200	27.3700	2.68
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1989	8	25	-26.3800	27.5700	2.75
1989	8	27	-26.3500	27.3200	3.12
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1989	8	28	-26.3700	27.5200	2.52
1989	8	28	-26.4600	27.4100	2.60
1989	8	29	-26.4400	27.3400	2.81
1989	8	30	-26.4100	27.4300	3.14
1989	8	30	-27.8900	26.7100	2.62
1989	8	30	-26.4300	27.5000	2.81
1989	8	31	-26.3300	27.3200	3.03
1989	9	2	-26.2100	28.2400	2.78
1989	9	2	-27.8900	26.6700	3.18
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1989	9	4	-26.3500	27.3600	3.04
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1989	9	14	-26.3700	27.4900	3.12
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1989	9	14	-26.3700	27.4100	2.67
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1989	9	16	-26.4500	27.3300	2.55
1989	9	17	-26.4300	27.3100	3.27
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1989	9	18	-28.1200	26.8900	2.54
1989	9	18	-26.8800	26.8000	2.74
1989	9	20	-26.3500	27.3900	2.92
1989	9	21	-30.2700	27.4700	2.87
1989	9	21	-27.9300	26.7000	2.95
1989	9	21	-26.9600	26.6900	2.81

1989	9	21	-26.3600	27.4700	3.15
1989	9	21	-26.3500	27.5000	3.20
1989	9	22	-26.3800	27.2500	2.78
1989	9	25	-26.4100	27.3300	2.72
1989	9	25	-26.8400	26.7200	3.12
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1989	9	27	-26.4200	27.4100	2.56
1989	9	27	-26.3600	27.3500	2.70
1989	9	27	-26.3800	27.3400	3.31
1989	9	27	-26.4000	27.2500	2.51
1989	9	28	-27.9600	26.7600	3.33
1989	9	28	-26.3800	27.3400	2.75
1989	9	28	-26.3900	27.4500	2.55
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1989	9	28	-26.4200	27.3000	2.73
1989	9	29	-26.8600	26.7900	2.69
1989	9	29	-26.3400	27.4200	2.63
1989	9	29	-26.3600	27.4500	2.88
1989	9	29	-26.8700	26.7000	2.66
1989	9	29	-26.3800	27.3900	3.15
1989	9	29	-26.2100	28.1500	2.55
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1989	9	30	-28.0300	26.8800	3.05
1989	9	30	-26.4000	27.4800	2.56
1989	9	30	-26.4600	27.3200	3.12
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1989	10	1	-27.9400	26.7400	3.68
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1989	10	7	-26.4400	27.3100	2.84
1989	10	7	-26.8700	26.7500	4.16
1989	10	8	-26.8800	26.8000	4.21
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1989	10	11	-26.3800	27.4300	2.59
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1989	10	16	-26.4100	27.2500	2.73
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1989	10	17	-26.1800	28.2100	2.54
1989	10	18	-26.3800	27.2600	2.64
1989	10	18	-26.8700	26.7900	2.75
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1989	10	21	-26.2000	28.1500	3.05
1989	10	21	-26.1800	28.2100	2.88
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1989	10	21	-28.0300	26.7100	2.61
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1989	10	25	-26.4400	27.3700	2.50
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1989	10	29	-26.2100	27.6300	2.68
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1989	11	3	-26.3900	27.3100	2.80
1989	11	3	-26.4100	27.2900	2.90
1989	11	4	-26.1800	28.1400	3.00
1989	11	4	-26.2100	28.1700	3.60
1989	11	4	-26.9300	26.7900	3.50
1989	11	6	-29.2300	25.3200	4.10
1989	11	6	-26.4000	27.2900	3.80
1989	11	6	-29.1800	25.3600	2.90
1989	11	9	-26.8500	26.7000	3.30
1989	11	9	-26.4500	27.2800	2.70
1989	11	9	-26.4400	27.4400	2.90
1989	11	9	-26.9300	26.6800	2.80
1989	11	11	-26.8900	26.7700	2.70
1989	11	11	-26.3200	27.4300	2.50
1989	11	12	-26.9100	26.7900	3.10
1989	11	13	-26.3800	27.3800	3.50
1989	11	13	-26.3900	27.5700	2.70
1989	11	14	-26.4000	27.3700	3.50
1989	11	14	-27.9800	26.7600	2.60
1989	11	15	-26.3600	27.3300	3.30
1989	11	16	-28.0000	26.7100	2.80
1989	11	17	-26.8100	26.7500	2.60
1989	11	20	-26.9200	26.6300	3.70
1989	11	23	-26.4100	27.3800	2.70
1989	11	23	-26.4100	27.3300	2.70
1989	11	24	-26.4600	27.3700	3.10
1989	11	24	-26.9700	26.7700	2.90
1989	11	27	-26.8000	26.6000	3.90
1989	11	27	-28.0300	26.8800	3.80
1989	11	27	-27.9900	26.7400	2.90
1989	11	28	-26.4100	27.3800	2.90
1989	11	28	-27.9800	26.7200	2.60
1989	11	29	-26.9100	26.7100	3.20
1989	11	30	-26.4000	27.3000	2.80
1989	11	30	-26.2700	27.6000	2.70
1989	11	30	-26.3800	27.2300	2.50
1989	11	30	-26.8700	26.6700	3.10
1989	12	1	-26.3900	27.3600	2.90
1989	12	1	-26.8700	26.6600	2.80
1989	12	2	-26.3200	27.5100	2.57
1989	12	2	-26.8600	26.7300	3.60
1989	12	4	-26.3400	27.4200	2.80

1989	12	5	-26.3700	27.4000	2.60
1989	12	5	-26.3900	27.3500	2.60
1989	12	5	-26.4500	27.2600	2.50
1989	12	5	-26.3700	27.3700	2.50
1989	12	7	-26.4000	27.4000	2.60
1989	12	7	-26.9000	26.6900	2.50
1989	12	8	-26.2000	28.2700	2.90
1989	12	8	-26.3900	27.5200	2.70
1989	12	8	-26.9100	26.6300	2.90
1989	12	9	-27.9300	26.6700	2.50
1989	12	9	-28.0800	26.8300	3.00
1989	12	9	-26.8700	26.7600	2.60
1989	12	9	-27.9600	26.7800	2.50
1989	12	9	-26.4000	27.4500	3.50
1989	12	9	-26.8500	26.7000	2.90
1989	12	10	-26.3500	27.4800	2.70
1989	12	12	-26.3400	27.4400	2.80
1989	12	13	-26.4400	27.3900	2.60
1989	12	13	-26.2700	27.4300	2.80
1989	12	13	-26.3600	27.3600	3.00
1989	12	13	-26.2000	28.2000	2.70
1989	12	13	-26.3700	27.3200	2.60
1989	12	13	-26.3600	27.3400	2.60
1989	12	15	-26.4100	27.3900	2.90
1989	12	15	-26.3800	27.3700	2.50
1989	12	15	-26.3600	27.5100	2.70
1989	12	15	-28.0400	26.7900	2.90
1989	12	19	-26.3300	27.4400	2.70
1989	12	20	-27.9200	26.6600	2.60
1989	12	21	-26.3700	27.2600	2.50
1989	12	22	-26.4000	27.3400	2.60
1989	12	24	-26.3600	27.3500	2.50
1989	12	25	-26.3700	27.4000	2.90
1989	12	28	-26.3500	27.4600	2.60
1989	12	29	-26.9300	26.6700	2.90
1989	12	29	-26.8800	26.6700	2.60
1989	12	30	-26.9000	26.7200	2.70
1989	12	31	-26.3400	27.4200	2.70
1990	1	1	-26.4600	27.3300	3.20
1990	1	2	-26.3900	27.4800	3.10
1990	1	3	-26.2000	27.7200	2.50
1990	1	3	-26.4700	27.2800	3.10
1990	1	3	-26.4300	27.4700	3.70
1990	1	4	-26.3700	27.3000	2.50
1990	1	4	-26.4200	27.3400	3.00
1990	1	5	-28.0500	26.8800	2.60
1990	1	5	-26.3800	27.5100	3.10
1990	1	5	-27.7300	26.6400	3.30
1990	1	6	-26.3800	27.5500	3.10
1990	1	7	-26.3700	27.2400	2.60
1990	1	7	-26.4100	27.6600	2.50
1990	1	8	-26.9100	26.7900	3.00
1990	1	9	-26.3800	27.3500	2.90
1990	1	9	-26.4400	27.3800	4.20
1990	1	10	-26.8800	26.8300	3.10
1990	1	11	-26.4300	27.3600	2.60
1990	1	11	-26.4600	27.2500	3.30
1990	1	11	-26.4100	27.3500	2.50
1990	1	12	-26.9400	26.7800	2.90
1990	1	13	-28.0100	26.7300	3.00
1990	1	14	-26.8600	26.6900	3.60

1990	1	15	-27.8900	26.7600	2.60
1990	1	15	-26.5000	27.3000	2.50
1990	1	17	-28.1000	26.8700	3.00
1990	1	17	-28.0100	26.8400	2.80
1990	1	18	-26.9000	26.7400	3.30
1990	1	18	-26.4200	27.3900	2.70
1990	1	19	-26.3900	27.3100	2.70
1990	1	19	-26.3100	27.4600	2.80
1990	1	19	-26.3500	27.4000	2.80
1990	1	20	-26.3400	27.5300	2.50
1990	1	20	-27.9200	26.6300	3.10
1990	1	21	-26.8500	26.7500	3.50
1990	1	21	-26.3900	27.4300	2.80
1990	1	22	-26.3800	27.4400	2.80
1990	1	23	-26.8600	26.7200	3.30
1990	1	23	-26.3900	27.3300	3.10
1990	1	23	-26.4500	27.4000	2.90
1990	1	24	-26.3700	27.4600	3.20
1990	1	25	-26.1500	27.7900	2.90
1990	1	25	-26.3900	27.2700	3.00
1990	1	26	-26.4100	27.4700	2.60
1990	1	27	-26.3300	27.3400	3.00
1990	1	27	-26.8900	26.8400	2.70
1990	1	27	-26.4100	27.3900	2.90
1990	1	29	-26.4300	27.3600	2.70
1990	1	30	-26.3300	27.6100	3.00
1990	1	31	-28.0300	26.8800	3.20
1990	1	31	-26.8600	26.8300	2.90
1990	1	31	-26.4000	27.3100	2.80
1990	1	31	-26.3800	27.3400	2.50
1990	2	1	-26.3800	27.4300	2.60
1990	2	7	-26.8900	26.7800	3.50
1990	2	7	-26.3800	27.4100	3.30
1990	2	7	-26.8800	26.8700	2.70
1990	2	8	-26.9100	26.8100	3.70
1990	2	9	-26.3400	27.6800	3.20
1990	2	10	-26.9200	26.7300	2.60
1990	2	10	-26.3500	27.4000	3.10
1990	2	11	-26.9200	26.8000	2.60
1990	2	11	-26.3500	27.4200	2.90
1990	2	13	-28.0100	26.6800	2.70
1990	2	13	-26.3600	27.3800	2.50
1990	2	13	-26.3300	27.4500	2.70
1990	2	14	-26.4100	27.5200	4.10
1990	2	14	-26.8700	26.7300	2.80
1990	2	14	-26.3600	27.3900	4.10
1990	2	14	-26.4000	27.3400	2.70
1990	2	15	-26.3400	27.4500	3.90
1990	2	15	-26.4000	27.2600	3.00
1990	2	15	-26.3700	27.2800	2.80
1990	2	16	-26.9600	26.7700	2.80
1990	2	16	-27.9800	26.8700	2.60
1990	2	16	-26.9100	26.7000	2.60
1990	2	16	-26.3300	27.5300	2.70
1990	2	16	-26.3900	27.4600	3.40
1990	2	17	-26.4300	27.4100	3.00
1990	2	18	-27.8600	26.7300	2.50
1990	2	19	-26.4200	27.2700	2.90
1990	2	19	-26.8700	26.7300	2.60
1990	2	20	-26.4600	27.3600	2.60
1990	2	20	-27.8700	26.7300	2.60

1990	2	21	-26.3500	27.3400	3.30
1990	2	21	-26.3800	27.3400	2.60
1990	2	22	-26.3700	27.2700	2.50
1990	2	22	-26.3500	27.3800	2.50
1990	2	22	-26.8300	26.8000	2.50
1990	2	22	-26.8400	26.7400	2.80
1990	2	22	-26.4200	27.4600	2.80
1990	2	23	-26.4400	27.4000	3.40
1990	2	24	-26.3900	27.4300	2.60
1990	2	24	-26.4300	27.3200	2.50
1990	2	24	-26.3500	27.5800	2.90
1990	2	25	-26.8900	26.6900	2.60
1990	2	25	-26.3600	27.3100	2.80
1990	2	25	-26.3900	27.2800	3.10
1990	2	27	-26.9000	26.7600	4.40
1990	2	28	-26.4200	27.3700	2.60
1990	3	1	-26.4300	27.3500	2.50
1990	3	1	-26.3700	27.4100	2.60
1990	3	1	-26.3600	27.4100	2.90
1990	3	3	-26.9100	26.7300	4.30
1990	3	4	-26.3800	27.6100	2.90
1990	3	4	-26.9100	26.6900	2.70
1990	3	4	-26.3900	27.2900	3.10
1990	3	5	-26.2000	28.2500	2.80
1990	3	6	-26.8400	26.6800	2.90
1990	3	7	-26.4000	27.4500	3.00
1990	3	8	-26.3800	27.5100	2.50
1990	3	8	-26.4000	27.5200	2.60
1990	3	8	-26.3700	27.3800	2.50
1990	3	8	-27.8000	26.6000	3.10
1990	3	9	-27.9300	26.7100	2.50
1990	3	9	-26.8800	26.6700	2.70
1990	3	10	-26.4200	27.3100	2.50
1990	3	10	-26.4100	27.5100	2.60
1990	3	11	-26.8700	26.7400	3.40
1990	3	11	-26.8700	26.6800	3.10
1990	3	11	-26.9400	26.7300	2.50
1990	3	12	-28.0200	26.6700	2.90
1990	3	12	-26.8900	26.6500	2.90
1990	3	12	-26.3500	27.4700	2.60
1990	3	13	-26.3800	27.4200	2.60
1990	3	13	-26.3500	27.4700	3.20
1990	3	13	-26.4900	27.4200	3.10
1990	3	14	-26.9000	26.7700	2.70
1990	3	14	-26.3300	27.4700	2.60
1990	3	14	-26.2000	28.2400	2.60
1990	3	15	-26.9000	26.7100	3.50
1990	3	15	-26.8600	26.6800	4.30
1990	3	17	-27.9100	26.7400	4.00
1990	3	19	-26.3600	27.4000	3.00
1990	3	19	-26.8500	26.7900	2.80
1990	3	20	-26.3700	27.3800	3.10
1990	3	21	-26.3600	27.4100	2.50
1990	3	21	-27.9100	26.7100	2.60
1990	3	22	-26.3700	27.3800	2.50
1990	3	22	-28.0600	30.5600	3.70
1990	3	23	-26.3800	27.3000	3.10
1990	3	24	-26.2300	28.2500	2.90
1990	3	24	-26.4000	27.3500	3.00
1990	3	25	-26.8800	26.7000	3.00
1990	3	26	-26.3500	27.3900	3.10

1990	3	26	-26.3700	27.3500	2.50
1990	3	26	-27.9500	26.6800	2.90
1990	3	27	-26.3900	27.5200	2.80
1990	3	27	-27.9800	26.7700	3.00
1990	3	28	-26.3800	27.3100	3.00
1990	3	28	-26.8200	26.5200	2.70
1990	3	29	-26.3500	27.3000	2.80
1990	3	29	-26.9600	26.6200	2.80
1990	3	29	-28.1300	26.8500	3.10
1990	3	30	-26.3800	27.3400	2.60
1990	4	1	-26.4200	27.2900	2.50
1990	4	3	-26.3400	27.3700	2.50
1990	4	3	-26.3600	27.3100	3.20
1990	4	3	-28.0200	26.6800	2.90
1990	4	4	-26.9500	26.6200	2.70
1990	4	4	-26.3900	27.4000	3.20
1990	4	4	-26.4200	27.3600	2.50
1990	4	4	-26.3400	27.5300	2.70
1990	4	5	-26.3300	27.4900	3.20
1990	4	5	-26.4400	27.4300	2.50
1990	4	6	-26.3000	27.3000	3.50
1990	4	6	-26.4000	27.3700	2.70
1990	4	9	-26.4100	27.4100	3.10
1990	4	10	-26.3500	27.5000	2.70
1990	4	10	-26.4100	27.3200	2.60
1990	4	11	-26.3800	27.4500	2.50
1990	4	11	-26.3600	27.3500	2.70
1990	4	12	-28.1500	26.8600	2.80
1990	4	13	-27.8800	26.6700	3.00
1990	4	17	-26.4400	27.4300	2.80
1990	4	17	-26.4900	27.4100	2.70
1990	4	18	-26.4300	27.3900	2.80
1990	4	20	-26.3600	27.3900	2.60
1990	4	20	-28.0300	26.6900	2.80
1990	4	20	-26.4400	27.4300	2.60
1990	4	23	-26.4300	27.3700	2.70
1990	4	24	-26.4100	27.3200	3.00
1990	4	25	-26.3600	27.4600	2.80
1990	4	25	-26.3200	27.6100	2.80
1990	4	25	-26.2500	28.2700	2.80
1990	4	26	-26.8700	26.7800	3.20
1990	4	26	-26.4500	27.3900	3.00
1990	4	27	-26.9500	26.7700	3.10
1990	4	27	-28.0000	26.8400	2.60
1990	4	27	-26.8600	26.7100	2.50
1990	4	27	-27.9000	26.6700	2.50
1990	4	28	-26.3600	27.4900	2.60
1990	4	28	-26.4100	27.4700	2.50
1990	4	28	-26.4600	27.4400	2.70
1990	4	29	-26.2200	28.1700	3.00
1990	4	29	-26.9000	26.6600	3.20
1990	4	30	-26.3900	27.3800	2.60
1990	4	30	-26.4200	27.3300	2.90
1990	4	30	-26.1900	28.2700	2.80
1990	5	1	-26.8800	26.7400	2.70
1990	5	1	-27.9800	26.6900	2.50
1990	5	1	-26.8600	26.7700	3.00
1990	5	1	-29.8200	27.7000	3.90
1990	5	2	-26.4600	27.4300	2.90
1990	5	3	-26.3700	27.3700	3.20
1990	5	3	-26.3800	27.2900	2.60

1990	5	4	-26.3600	27.3700	2.80
1990	5	5	-26.9300	26.6300	2.70
1990	5	5	-28.0100	26.9000	2.50
1990	5	6	-26.8100	26.8500	3.40
1990	5	7	-26.4500	27.5000	2.70
1990	5	7	-26.8500	26.7400	2.70
1990	5	8	-26.9200	26.7500	3.10
1990	5	9	-26.8000	26.8400	2.80
1990	5	10	-26.8500	26.7100	2.60
1990	5	10	-26.3400	27.5000	2.90
1990	5	11	-26.3700	27.3700	3.30
1990	5	11	-27.6800	26.5900	2.50
1990	5	12	-26.3600	27.3400	2.90
1990	5	12	-26.3400	27.4500	2.60
1990	5	13	-26.3400	27.4900	2.90
1990	5	13	-26.3800	27.3400	2.80
1990	5	14	-26.3700	27.4100	2.50
1990	5	14	-26.4300	27.4700	2.70
1990	5	14	-26.4200	27.4200	3.00
1990	5	15	-26.3700	27.4500	2.70
1990	5	15	-27.8200	26.5800	2.50
1990	5	15	-27.9900	26.8100	3.30
1990	5	15	-26.4000	27.4400	2.90
1990	5	15	-28.0000	26.6800	3.10
1990	5	16	-26.3300	27.5600	3.20
1990	5	16	-26.3400	27.5900	2.50
1990	5	16	-26.3100	27.6000	2.90
1990	5	17	-26.4100	27.5400	2.80
1990	5	18	-26.3600	27.5600	3.00
1990	5	18	-26.3500	27.3800	2.90
1990	5	18	-27.8800	26.7400	2.60
1990	5	19	-26.9200	26.6100	3.30
1990	5	20	-26.8800	26.7800	3.00
1990	5	20	-26.8500	26.7500	3.70
1990	5	21	-28.0600	26.8100	2.70
1990	5	21	-26.3600	27.3700	2.80
1990	5	22	-26.4500	27.3400	2.70
1990	5	22	-26.9000	26.7100	2.80
1990	5	22	-26.3600	27.4700	2.90
1990	5	22	-26.2400	28.2600	3.10
1990	5	22	-26.3400	27.5200	2.60
1990	5	23	-26.3700	27.3400	2.80
1990	5	24	-26.8800	26.6800	3.00
1990	5	25	-26.8800	26.7900	2.90
1990	5	27	-26.7700	26.8300	2.80
1990	5	27	-26.8700	26.7900	3.30
1990	5	28	-26.3800	27.4900	3.30
1990	5	29	-26.2000	28.1800	2.90
1990	6	1	-26.3900	27.3900	3.00
1990	6	2	-26.3900	27.4000	2.80
1990	6	2	-26.4300	27.4700	2.60
1990	6	2	-26.2700	27.6300	2.70
1990	6	2	-27.9800	26.8000	2.50
1990	6	4	-26.3700	27.3800	2.50
1990	6	4	-26.4100	27.5200	2.70
1990	6	5	-26.4300	27.4700	2.60
1990	6	6	-26.8900	26.6500	2.50
1990	6	6	-26.3600	27.3600	2.80
1990	6	6	-26.9100	26.7800	2.70
1990	6	7	-27.9800	26.7500	2.70
1990	6	7	-26.4400	27.3800	2.60

1990	6	7	-26.8800	26.7100	2.70
1990	6	7	-26.3600	27.4500	2.60
1990	6	7	-26.1900	28.1900	3.40
1990	6	8	-25.2200	25.9900	3.30
1990	6	8	-26.9100	26.7800	2.70
1990	6	8	-26.8500	26.7000	2.80
1990	6	9	-26.9100	26.6900	2.70
1990	6	10	-26.3600	27.4900	2.50
1990	6	10	-26.8400	26.7200	2.50
1990	6	10	-24.6000	32.1000	3.50
1990	6	11	-26.8600	26.7400	3.00
1990	6	12	-26.8700	26.6700	3.30
1990	6	12	-26.3900	27.4100	2.50
1990	6	13	-26.4300	27.3900	2.50
1990	6	13	-26.4200	27.3500	2.70
1990	6	13	-26.4700	27.4000	2.90
1990	6	14	-26.4000	27.4800	2.50
1990	6	15	-26.4100	27.3100	3.10
1990	6	15	-26.3600	27.3900	2.80
1990	6	15	-26.9000	26.7100	2.90
1990	6	15	-26.4300	27.3400	2.50
1990	6	15	-26.3800	27.4300	2.50
1990	6	15	-26.8400	26.6800	2.60
1990	6	18	-26.8800	26.6300	2.50
1990	6	18	-27.9500	26.7600	2.60
1990	6	18	-26.3800	27.4800	2.70
1990	6	19	-26.3900	27.5700	2.80
1990	6	19	-26.3700	27.3600	3.10
1990	6	19	-26.3900	27.3300	2.60
1990	6	20	-28.0700	26.9000	2.50
1990	6	21	-26.8300	26.7300	2.50
1990	6	21	-26.4300	27.3200	2.90
1990	6	22	-26.4100	27.3200	2.70
1990	6	22	-27.9000	26.6500	2.70
1990	6	22	-27.8700	26.6500	2.70
1990	6	23	-26.3600	27.3800	2.80
1990	6	24	-26.9100	26.6000	2.60
1990	6	24	-26.4100	27.3100	2.50
1990	6	24	-27.9600	26.6900	2.60
1990	6	26	-26.3900	27.3800	2.80
1990	6	27	-26.3600	27.3200	3.00
1990	6	27	-26.3500	27.4700	3.70
1990	6	27	-26.2100	27.5500	2.70
1990	6	29	-25.9200	27.4200	2.50
1990	6	29	-26.4400	27.2900	2.70
1990	6	29	-26.4000	27.3800	3.10
1990	6	30	-26.2100	28.2000	2.60
1990	6	30	-28.0400	26.6700	2.80
1990	7	1	-26.3300	27.4600	3.50
1990	7	3	-26.2000	28.1600	3.00
1990	7	5	-26.9300	26.6400	2.50
1990	7	5	-26.3600	27.3300	2.80
1990	7	6	-26.3300	27.4600	2.50
1990	7	6	-26.8800	26.6200	3.10
1990	7	6	-26.4000	27.4000	3.00
1990	7	6	-26.3700	27.5300	2.50
1990	7	8	-26.9400	26.7300	2.90
1990	7	9	-28.0600	26.9200	3.30
1990	7	13	-26.3700	27.3400	2.50
1990	7	14	-28.0300	26.6600	3.10
1990	7	15	-26.9700	26.7500	2.50

1990	7	16	-26.4500	27.4200	3.00
1990	7	16	-26.3900	27.5200	2.60
1990	7	16	-26.4300	27.3400	2.50
1990	7	16	-26.4300	27.2600	2.60
1990	7	17	-26.4000	27.3400	2.80
1990	7	17	-26.9000	26.7800	2.60
1990	7	17	-26.4200	27.2600	3.40
1990	7	17	-26.4500	27.3700	2.60
1990	7	18	-26.4100	27.3200	2.90
1990	7	18	-26.9400	26.6600	2.60
1990	7	18	-26.9500	26.7900	3.50
1990	7	18	-26.3800	27.3300	2.80
1990	7	19	-26.8600	26.7000	2.80
1990	7	20	-26.3500	27.5500	2.80
1990	7	20	-27.9600	26.7200	3.40
1990	7	22	-26.4000	27.3100	2.80
1990	7	22	-26.3700	27.3900	3.10
1990	7	22	-27.9300	26.6500	3.30
1990	7	24	-26.3800	27.3100	3.20
1990	7	24	-26.4400	27.4000	3.00
1990	7	24	-26.3500	27.4800	2.50
1990	7	25	-26.4200	27.2800	2.80
1990	7	25	-26.3500	27.3300	2.70
1990	7	25	-26.3400	27.4600	2.60
1990	7	25	-26.3700	27.3400	3.50
1990	7	27	-26.3500	27.2700	2.70
1990	7	27	-26.8300	26.7300	4.30
1990	7	27	-26.3900	27.3200	3.20
1990	7	28	-26.1800	28.2400	2.50
1990	7	29	-26.3700	27.5900	2.60
1990	7	29	-26.3200	27.4800	2.90
1990	7	30	-26.3800	27.4500	2.70
1990	7	30	-26.8800	26.6100	3.10
1990	7	31	-26.3800	27.3700	2.70
1990	8	1	-28.0300	26.8300	2.80
1990	8	1	-28.0800	26.8800	2.80
1990	8	1	-26.8700	26.6700	2.50
1990	8	1	-26.2200	28.1600	2.80
1990	8	1	-28.0300	26.7300	3.20
1990	8	2	-26.1000	27.7300	2.50
1990	8	2	-26.8800	26.6500	2.70
1990	8	3	-26.3700	27.3800	3.30
1990	8	3	-26.8900	26.6300	2.50
1990	8	4	-26.3300	27.4900	2.70
1990	8	6	-26.4000	27.4900	2.50
1990	8	6	-26.3700	27.3600	2.60
1990	8	7	-26.3900	27.4600	2.50
1990	8	8	-26.1900	28.2500	2.90
1990	8	8	-28.0900	26.8900	3.10
1990	8	9	-26.9100	26.7100	3.00
1990	8	11	-26.4400	27.3300	2.90
1990	8	13	-26.3600	27.4000	3.00
1990	8	14	-28.0100	26.6800	2.90
1990	8	14	-28.1300	26.8600	2.80
1990	8	15	-26.3700	27.5200	2.80
1990	8	15	-26.3400	27.5700	2.70
1990	8	16	-26.8900	26.7800	2.70
1990	8	16	-26.8200	26.7300	3.30
1990	8	16	-28.0400	26.7700	2.60
1990	8	17	-26.3600	27.3000	2.60
1990	8	19	-26.9100	26.8100	2.70

1990	8	19	-26.9300	26.6800	2.80
1990	8	19	-26.4000	27.3800	2.60
1990	8	21	-26.3700	27.3000	2.70
1990	8	21	-26.3500	27.3300	2.70
1990	8	21	-26.3700	27.4900	3.30
1990	8	22	-26.3600	27.4000	2.90
1990	8	23	-26.4300	27.3600	3.20
1990	8	24	-28.1300	26.8500	2.60
1990	8	24	-26.4300	27.3200	2.90
1990	8	24	-26.4900	27.4500	2.50
1990	8	27	-27.9200	26.7300	3.20
1990	8	28	-26.3700	27.4300	2.60
1990	8	28	-28.0000	26.7000	2.90
1990	8	28	-26.3500	27.4700	2.50
1990	8	28	-26.3400	27.4300	2.70
1990	8	29	-26.3600	27.4200	2.50
1990	8	31	-26.4500	27.4500	3.20
1990	9	2	-26.3600	27.2700	2.80
1990	9	4	-26.3300	27.4600	2.90
1990	9	5	-26.4000	27.5600	4.00
1990	9	6	-26.9000	26.7900	2.70
1990	9	7	-26.9500	26.7400	2.50
1990	9	7	-26.2600	27.7200	2.90
1990	9	10	-28.0000	26.7700	2.50
1990	9	10	-26.2800	27.6300	2.50
1990	9	10	-27.9900	26.8400	2.90
1990	9	11	-26.3500	27.4800	3.20
1990	9	12	-26.4100	27.5100	3.10
1990	9	13	-26.9000	26.8000	2.80
1990	9	13	-26.4300	27.3500	3.00
1990	9	14	-26.9100	26.6700	2.50
1990	9	14	-26.8800	26.7800	2.50
1990	9	14	-26.3500	27.5700	2.60
1990	9	15	-26.3600	27.5100	2.60
1990	9	16	-26.9200	26.7900	3.30
1990	9	16	-26.3500	27.4100	2.60
1990	9	18	-26.8500	26.8500	2.50
1990	9	18	-26.3600	27.4400	2.80
1990	9	19	-26.8100	26.8300	2.70
1990	9	20	-26.4100	27.4700	3.40
1990	9	21	-26.8500	26.8100	2.80
1990	9	22	-26.3800	27.6000	2.80
1990	9	22	-26.9200	26.7200	2.80
1990	9	22	-26.8900	26.8100	3.10
1990	9	23	-28.0600	26.8100	2.80
1990	9	24	-26.8300	26.7500	2.50
1990	9	24	-26.3900	27.4700	3.20
1990	9	25	-26.9200	26.7200	2.80
1990	9	26	-26.3400	27.4800	3.00
1990	9	26	-26.3700	27.4400	2.70
1990	9	26	-28.1000	26.9100	4.80
1990	9	27	-26.3500	27.4300	3.20
1990	9	27	-26.2100	28.1700	2.90
1990	9	27	-28.0700	26.8500	3.60
1990	9	27	-26.3400	27.4500	2.50
1990	9	27	-26.3800	27.5900	2.80
1990	9	28	-27.8300	26.6600	3.10
1990	9	28	-28.0400	26.9100	3.20
1990	9	28	-28.0200	26.7600	3.80
1990	9	29	-26.2100	28.2000	2.60
1990	9	30	-26.8600	26.8000	4.00

1990	9	30	-26.8600	26.8100	2.70
1990	9	30	-27.9900	26.7900	2.90
1990	9	30	-28.1600	26.8600	3.00
1990	10	1	-26.4300	27.4300	3.20
1990	10	3	-26.9700	26.7200	2.60
1990	10	3	-26.9100	26.8000	2.70
1990	10	3	-26.7600	26.7800	2.80
1990	10	3	-26.3500	27.4700	3.00
1990	10	4	-26.8800	26.8100	2.50
1990	10	4	-26.8900	26.8000	3.10
1990	10	4	-28.0800	26.8700	2.90
1990	10	4	-26.4200	27.3700	3.00
1990	10	5	-26.9500	26.7600	2.70
1990	10	5	-26.9500	26.6300	2.70
1990	10	5	-26.1800	27.7200	2.60
1990	10	6	-26.3800	27.4100	2.80
1990	10	6	-26.3400	27.4400	2.70
1990	10	8	-26.3800	27.4000	3.10
1990	10	9	-26.1600	27.7800	2.70
1990	10	9	-26.8900	26.8100	2.70
1990	10	9	-26.3800	27.3800	2.80
1990	10	9	-26.3700	27.4200	2.60
1990	10	9	-26.7400	26.8100	2.50
1990	10	9	-28.0800	26.8800	3.00
1990	10	10	-26.3600	27.4400	2.60
1990	10	11	-26.3800	27.5800	2.70
1990	10	11	-26.9500	26.7500	2.80
1990	10	12	-26.4100	27.4800	2.60
1990	10	13	-26.8000	26.7900	3.10
1990	10	13	-26.3400	27.4300	2.50
1990	10	14	-26.7700	26.7600	2.70
1990	10	14	-26.8900	26.6900	3.10
1990	10	14	-27.9500	26.8300	3.00
1990	10	14	-26.3900	27.4800	2.70
1990	10	15	-26.3800	27.3700	2.50
1990	10	16	-26.9000	26.6400	2.80
1990	10	17	-26.3700	27.4600	2.50
1990	10	17	-26.4000	27.4200	3.00
1990	10	17	-26.3500	27.4300	2.90
1990	10	18	-26.4400	27.4200	3.40
1990	10	18	-26.3700	27.3000	3.80
1990	10	18	-26.4400	27.3600	2.70
1990	10	18	-26.9400	26.7100	3.00
1990	10	18	-26.9300	26.6600	3.50
1990	10	19	-26.4000	27.3700	3.10
1990	10	19	-28.0900	26.8400	2.90
1990	10	19	-28.0500	26.8500	2.80
1990	10	19	-26.9100	26.6500	2.80
1990	10	20	-28.0700	26.9000	3.40
1990	10	21	-26.4200	27.4700	2.50
1990	10	22	-25.6400	27.2100	3.20
1990	10	22	-26.9200	26.7100	3.80
1990	10	22	-26.4100	27.4900	2.80
1990	10	23	-26.9100	26.8000	3.10
1990	10	23	-26.9000	26.7900	2.50
1990	10	24	-28.0400	26.9000	3.60
1990	10	25	-26.9300	26.8000	2.60
1990	10	25	-26.3500	27.5000	2.50
1990	10	25	-26.3200	27.4900	2.80
1990	10	26	-26.4200	27.3400	2.90
1990	10	26	-26.8700	26.7600	2.80

1990	10	26	-26.8900	26.7700	3.20
1990	10	26	-26.4100	27.4400	3.30
1990	10	26	-26.3700	27.4500	3.00
1990	10	26	-26.4100	27.3300	2.80
1990	10	29	-26.4600	27.3500	2.60
1990	10	30	-26.3400	27.5100	3.20
1990	10	31	-26.3800	27.4800	2.80
1990	11	1	-26.3400	27.5800	2.50
1990	11	1	-28.0000	26.8300	3.10
1990	11	1	-26.4100	27.4800	3.00
1990	11	2	-26.3900	27.5000	2.80
1990	11	3	-26.3700	27.4900	3.60
1990	11	3	-26.3700	27.4800	2.50
1990	11	8	-26.3600	27.7200	3.20
1990	11	8	-26.3800	27.5900	2.70
1990	11	10	-26.3700	27.2900	2.50
1990	11	11	-26.4000	27.3800	2.90
1990	11	12	-26.9300	26.7900	2.70
1990	11	12	-26.3800	27.4700	2.60
1990	11	13	-26.9400	26.7400	2.60
1990	11	13	-27.8700	26.6900	3.00
1990	11	14	-28.1200	26.9000	4.00
1990	11	14	-27.9900	26.7800	2.60
1990	11	14	-26.4100	27.5100	2.50
1990	11	14	-26.3900	27.4800	2.50
1990	11	15	-26.8900	26.8300	3.70
1990	11	16	-26.4100	27.4800	3.40
1990	11	16	-26.3900	27.5000	3.00
1990	11	16	-26.4000	27.3900	2.50
1990	11	16	-26.8800	26.6800	2.70
1990	11	17	-26.9300	26.6200	2.90
1990	11	18	-26.2300	28.1600	2.70
1990	11	18	-27.9100	26.7400	2.70
1990	11	20	-26.4200	27.3600	2.50
1990	11	20	-26.9500	26.6400	2.60
1990	11	21	-26.3300	27.5000	2.80
1990	11	21	-26.9300	26.6300	2.90
1990	11	21	-26.8500	26.7400	2.60
1990	11	22	-26.3300	27.4600	2.60
1990	11	22	-27.7600	26.6000	3.10
1990	11	23	-26.3900	27.3000	3.40
1990	11	25	-26.3800	27.2900	2.90
1990	11	25	-26.8800	26.7400	3.30
1990	11	26	-26.9100	26.6200	3.60
1990	11	26	-28.0400	26.6900	2.70
1990	11	27	-26.9300	26.7200	2.50
1990	11	27	-26.9000	26.6500	2.60
1990	11	27	-28.0600	26.7800	2.80
1990	11	29	-26.3800	27.3100	2.90
1990	11	30	-26.3600	27.3800	2.90
1990	12	1	-26.3700	27.3200	3.20
1990	12	2	-26.3700	27.3600	3.10
1990	12	3	-26.9000	26.7000	2.50
1990	12	3	-26.8800	26.7100	2.50
1990	12	4	-28.0600	26.8300	2.70
1990	12	5	-26.3500	27.3900	3.00
1990	12	5	-26.3800	27.3300	2.70
1990	12	6	-26.8600	26.7300	2.80
1990	12	6	-26.3700	27.3700	3.70
1990	12	7	-26.8600	26.7600	2.60
1990	12	7	-28.0500	26.7800	2.70

1990	12	7	-26.9200	26.6200	2.50
1990	12	7	-26.9500	26.7400	3.40
1990	12	12	-26.4400	27.3100	3.20
1990	12	13	-26.4400	27.4100	3.00
1990	12	15	-26.3900	27.4300	3.00
1990	12	17	-26.9300	26.6500	2.50
1990	12	19	-26.3800	27.3800	3.20
1990	12	19	-26.3800	27.3900	2.80
1990	12	19	-26.3800	27.3800	2.90
1990	12	19	-26.3900	27.3300	2.90
1990	12	19	-26.4000	27.4000	2.70
1990	12	20	-26.4000	27.3800	2.90
1990	12	20	-26.4100	27.4500	2.60
1990	12	22	-26.8500	26.7900	2.60
1990	12	22	-26.1600	27.8500	3.00
1990	12	22	-26.7600	26.8000	2.70
1990	12	24	-26.8400	26.7100	3.80
1990	12	24	-26.4000	27.3600	2.70
1990	12	25	-26.9300	26.6500	3.20
1990	12	25	-26.3600	27.4200	2.50
1990	12	25	-26.8700	26.6800	2.70
1990	12	25	-27.9900	26.6900	2.90
1990	12	26	-26.8700	26.6800	2.60
1990	12	28	-26.8600	26.7600	3.20
1990	12	28	-28.1200	26.8600	2.60
1990	12	31	-28.0800	26.8200	3.30
1991	1	1	-26.4200	27.3600	3.20
1991	1	2	-26.2100	28.2300	3.00
1991	1	3	-26.9000	26.8000	3.00
1991	1	4	-26.3800	27.3700	2.60
1991	1	5	-26.2100	28.2100	2.80
1991	1	6	-26.3600	27.3600	2.70
1991	1	8	-26.8800	26.6800	3.10
1991	1	9	-26.3700	27.3300	2.60
1991	1	9	-26.4000	27.4600	3.10
1991	1	9	-26.9000	26.6300	2.60
1991	1	10	-26.1500	27.8200	2.50
1991	1	13	-26.3700	27.3900	2.70
1991	1	14	-26.2100	28.1700	2.70
1991	1	15	-26.4000	27.3900	3.10
1991	1	21	-26.3500	27.5200	2.50
1991	1	22	-26.4800	27.4400	2.90
1991	1	23	-26.3800	27.4200	2.80
1991	1	24	-26.3800	27.4500	2.60
1991	1	24	-26.3700	27.5100	3.00
1991	1	25	-26.9100	26.6500	2.60
1991	1	25	-26.3800	27.4600	2.60
1991	1	26	-26.8900	26.6700	2.80
1991	1	26	-26.4000	27.4000	2.70
1991	1	29	-26.2000	28.2600	2.50
1991	1	29	-26.3800	27.5000	3.10
1991	1	29	-26.4000	27.4400	2.80
1991	1	30	-26.3400	27.4600	2.70
1991	1	30	-26.3700	27.3000	3.00
1991	1	30	-26.3600	27.4200	2.90
1991	1	30	-26.8800	26.6700	2.70
1991	2	1	-26.3400	27.5100	3.20
1991	2	2	-26.8500	26.6800	3.40
1991	2	3	-26.9000	26.6300	3.10
1991	2	3	-26.8600	26.7300	2.50
1991	2	5	-28.1000	26.9000	3.30

1991	2	6	-26.8200	26.7600	3.90
1991	2	7	-26.8600	26.8400	3.30
1991	2	7	-26.3500	27.4500	2.50
1991	2	7	-26.3700	27.3600	2.70
1991	2	8	-26.8800	26.8000	2.80
1991	2	8	-26.8900	26.8100	2.70
1991	2	8	-26.8500	26.8400	2.50
1991	2	9	-26.3700	27.4400	2.70
1991	2	10	-26.1900	28.1900	3.20
1991	2	10	-26.4500	27.4100	2.50
1991	2	11	-26.3600	27.4700	2.50
1991	2	13	-26.4200	27.5000	2.60
1991	2	15	-26.4300	27.3500	2.50
1991	2	15	-26.9100	26.6300	3.20
1991	2	16	-26.4200	27.3900	3.20
1991	2	16	-26.8800	26.8000	2.60
1991	2	16	-27.9400	26.7300	2.80
1991	2	18	-26.3300	27.6900	2.50
1991	2	19	-26.4100	27.5300	2.50
1991	2	20	-26.3400	27.4800	2.50
1991	2	21	-26.3400	27.4900	3.10
1991	2	21	-26.3400	27.5600	2.90
1991	2	27	-26.4300	27.4300	2.60
1991	2	27	-26.8700	26.8100	3.10
1991	2	27	-26.9300	26.7800	3.20
1991	3	1	-26.8000	26.7600	3.20
1991	3	1	-26.8400	26.7200	2.50
1991	3	2	-27.8900	26.7000	3.60
1991	3	2	-26.3600	27.5600	2.50
1991	3	3	-26.3000	27.6100	2.50
1991	3	3	-26.4000	27.5100	3.00
1991	3	3	-26.3800	27.5900	3.00
1991	3	4	-26.3900	27.4100	3.20
1991	3	4	-26.3400	27.5700	3.20
1991	3	4	-26.3500	27.5100	2.50
1991	3	4	-28.0600	26.6900	2.60
1991	3	5	-26.9400	26.7800	2.80
1991	3	5	-26.4000	27.4000	3.20
1991	3	6	-26.4000	27.4000	2.60
1991	3	6	-26.4000	27.3000	2.80
1991	3	7	-26.3000	27.4000	2.60
1991	3	7	-26.3000	27.3000	2.80
1991	3	7	-26.2000	28.1000	2.70
1991	3	7	-26.2000	28.1800	2.80
1991	3	8	-26.9100	26.7800	2.90
1991	3	8	-26.4300	27.3200	2.90
1991	3	8	-26.9000	26.7000	2.70
1991	3	11	-26.3000	27.3000	3.20
1991	3	11	-26.3500	27.4500	3.10
1991	3	13	-28.0000	26.7000	2.90
1991	3	13	-26.3000	27.4000	2.60
1991	3	14	-26.3000	27.4000	2.50
1991	3	15	-26.8800	26.6600	3.00
1991	3	15	-28.0600	26.8700	2.50
1991	3	15	-26.4200	27.4300	2.60
1991	3	16	-26.4100	27.4800	2.60
1991	3	19	-26.3500	27.5600	2.60
1991	3	19	-26.9300	26.6600	3.00
1991	3	19	-26.3400	27.5200	2.90
1991	3	20	-26.3600	27.3600	2.50
1991	3	20	-26.4300	27.4200	3.00

1991	3	20	-28.0000	26.8000	2.70
1991	3	20	-26.3000	27.4000	2.70
1991	3	21	-26.4600	27.4400	2.70
1991	3	21	-26.9100	26.7900	3.40
1991	3	22	-26.3500	27.4500	2.60
1991	3	22	-26.3500	27.4100	3.10
1991	3	22	-26.8900	26.6400	3.20
1991	3	23	-26.3000	27.3000	2.70
1991	3	24	-28.1400	26.8900	2.70
1991	3	24	-26.8900	26.8100	2.80
1991	3	25	-28.0600	26.8100	2.80
1991	3	26	-26.3000	27.5000	2.70
1991	3	26	-26.3000	27.5000	2.70
1991	3	27	-26.3800	27.3900	3.10
1991	3	27	-26.3800	27.4200	2.60
1991	3	27	-26.3800	27.5100	2.50
1991	3	27	-26.3800	27.5000	3.00
1991	3	27	-26.3700	27.5200	2.50
1991	3	27	-26.1800	28.1800	2.50
1991	3	29	-26.3900	27.3700	3.20
1991	3	29	-26.3300	27.5100	2.60
1991	3	30	-26.3800	27.5000	2.50
1991	3	30	-26.9200	26.7600	2.50
1991	4	1	-26.4200	27.3100	2.50
1991	4	2	-26.3400	27.4600	2.80
1991	4	3	-26.3800	27.5100	2.70
1991	4	4	-26.4600	27.4100	2.70
1991	4	5	-26.9200	26.6700	2.60
1991	4	6	-26.3500	27.4300	3.10
1991	4	6	-26.4200	27.4200	3.10
1991	4	7	-26.3700	27.4600	2.50
1991	4	7	-26.3300	27.5000	3.00
1991	4	7	-26.4000	27.3000	2.90
1991	4	10	-26.3400	27.5100	3.30
1991	4	11	-26.8800	26.7400	3.20
1991	4	11	-26.9100	26.7800	2.90
1991	4	11	-26.3500	27.5300	2.50
1991	4	11	-26.3600	27.5400	3.40
1991	4	11	-26.3600	27.3300	2.70
1991	4	12	-26.3200	27.6200	2.80
1991	4	12	-26.8900	26.6800	2.90
1991	4	13	-26.4400	27.3600	2.80
1991	4	14	-26.4000	27.4000	2.80
1991	4	14	-26.4100	27.3500	3.50
1991	4	15	-26.3800	27.4900	2.90
1991	4	15	-26.3800	27.4700	2.70
1991	4	16	-26.2200	28.2400	2.60
1991	4	16	-26.2100	28.2300	3.70
1991	4	16	-26.3400	27.4900	2.70
1991	4	16	-26.3800	27.4700	2.60
1991	4	16	-26.3500	27.4700	2.50
1991	4	16	-26.3500	27.4400	3.30
1991	4	17	-26.3600	27.4300	2.60
1991	4	18	-26.3600	27.4900	3.70
1991	4	19	-26.3900	27.4500	2.50
1991	4	19	-28.0800	26.8900	2.90
1991	4	19	-26.3900	27.4200	3.10
1991	4	20	-26.4100	27.3600	3.20
1991	4	20	-26.4100	27.4200	2.80
1991	4	21	-26.8900	26.8100	2.50
1991	4	22	-26.3400	27.4900	2.70

1991	4	23	-26.3100	27.6300	3.20
1991	4	23	-26.3600	27.4900	2.90
1991	4	25	-26.3500	27.6000	2.80
1991	4	26	-28.0100	26.7000	2.60
1991	4	27	-26.3300	27.4900	2.70
1991	4	28	-26.4000	27.3000	2.70
1991	4	28	-28.0000	26.8000	3.10
1991	4	28	-26.3000	27.4000	2.50
1991	4	29	-26.4000	27.3000	2.90
1991	4	29	-27.9000	26.7000	2.60
1991	4	30	-27.9600	26.7600	2.70
1991	4	30	-26.3300	27.5000	2.90
1991	4	30	-26.3800	27.5000	2.70
1991	5	1	-26.2100	28.2000	3.10
1991	5	1	-26.3500	27.4100	2.50
1991	5	2	-26.8000	26.7000	3.30
1991	5	3	-26.3000	27.6000	2.50
1991	5	3	-26.3000	27.4000	3.10
1991	5	5	-26.4200	27.5100	2.60
1991	5	6	-28.0100	26.7400	2.50
1991	5	6	-26.3800	27.3800	2.50
1991	5	7	-26.4000	27.3000	2.60
1991	5	8	-26.3000	27.4000	2.60
1991	5	8	-28.0000	26.8000	2.90
1991	5	8	-26.8000	26.8000	2.80
1991	5	8	-26.3000	27.4000	2.70
1991	5	9	-26.3900	27.3800	2.80
1991	5	10	-26.4000	27.3000	3.10
1991	5	10	-26.3000	27.4000	2.50
1991	5	12	-26.4000	27.4500	2.80
1991	5	13	-26.4300	27.3700	3.20
1991	5	16	-27.9000	26.7000	3.10
1991	5	17	-26.3800	27.4800	3.30
1991	5	21	-26.4000	27.4000	2.50
1991	5	21	-28.0000	26.7000	2.90
1991	5	23	-26.3900	27.4400	2.90
1991	5	25	-26.3000	27.4000	3.10
1991	5	25	-28.0000	26.8000	2.50
1991	5	26	-28.0500	26.8000	3.30
1991	5	27	-26.3600	27.4200	3.20
1991	5	27	-26.3900	27.5100	2.60
1991	5	28	-26.3800	27.4000	4.00
1991	5	28	-26.4000	27.4000	2.60
1991	5	29	-26.3000	27.4000	2.50
1991	5	29	-26.3000	27.3000	2.80
1991	5	29	-26.3000	27.4000	3.10
1991	5	30	-26.3000	27.4000	2.90
1991	5	30	-26.8500	26.7000	3.40
1991	5	31	-26.3000	27.4000	2.80
1991	5	31	-26.8600	26.7100	3.10
1991	6	1	-26.9100	26.6400	2.50
1991	6	1	-30.2100	27.9700	2.90
1991	6	1	-26.4300	27.3900	3.10
1991	6	3	-26.3800	27.5700	2.60
1991	6	3	-26.2000	28.2300	3.00
1991	6	4	-26.3400	27.4400	3.20
1991	6	5	-26.9400	26.7500	3.00
1991	6	7	-26.9000	26.6500	3.40
1991	6	7	-26.3500	27.4800	2.80
1991	6	7	-26.9400	26.7500	2.70
1991	6	7	-26.4300	27.3600	2.90

1991	6	8	-26.8600	26.7900	2.50
1991	6	8	-26.9300	26.7800	3.60
1991	6	10	-26.9000	26.7900	4.30
1991	6	11	-26.3700	27.5800	2.80
1991	6	12	-26.4100	27.3200	3.00
1991	6	12	-26.3600	27.5000	3.10
1991	6	12	-26.3600	27.4700	2.70
1991	6	13	-27.9700	26.7400	2.80
1991	6	13	-26.4100	27.3800	2.90
1991	6	13	-26.3800	27.4000	2.50
1991	6	13	-26.1900	28.2100	3.50
1991	6	13	-26.9100	26.7100	2.60
1991	6	14	-26.3600	27.4400	3.40
1991	6	14	-28.0900	26.8600	2.50
1991	6	14	-26.9100	26.6800	3.50
1991	6	14	-26.3700	27.3200	3.20
1991	6	14	-26.3900	27.6400	2.80
1991	6	15	-26.9400	26.7900	3.00
1991	6	17	-28.0300	26.7300	2.60
1991	6	17	-26.3800	27.5000	2.50
1991	6	17	-26.2200	28.1900	2.90
1991	6	17	-27.9600	26.6600	2.90
1991	6	17	-26.1900	28.1800	3.10
1991	6	18	-26.9100	26.7600	2.70
1991	6	19	-26.4000	27.3200	3.20
1991	6	19	-26.4200	27.4900	2.60
1991	6	19	-26.3800	27.3300	2.50
1991	6	19	-27.9900	26.7200	2.70
1991	6	20	-26.3500	27.5000	2.80
1991	6	21	-26.1900	28.1900	2.60
1991	6	22	-26.2000	28.2200	2.60
1991	6	23	-28.0500	26.7900	3.10
1991	6	24	-26.8500	26.8400	3.40
1991	6	24	-26.2000	28.2200	3.30
1991	6	24	-27.9600	26.7100	2.50
1991	6	25	-26.8600	26.7700	2.80
1991	6	26	-26.8800	26.7600	2.80
1991	6	26	-26.0900	27.8000	2.50
1991	6	26	-26.4000	27.3400	2.90
1991	6	26	-26.3500	27.4800	3.00
1991	6	26	-26.3900	27.3200	3.10
1991	6	26	-26.4400	27.3700	3.20
1991	6	27	-26.3700	27.5200	2.80
1991	6	28	-26.3600	27.4500	2.50
1991	6	29	-26.9200	26.7700	3.50
1991	6	29	-26.4000	27.3700	2.60
1991	6	29	-26.3300	27.4900	2.50
1991	6	30	-26.8800	26.8300	2.50
1991	6	30	-26.9100	26.7600	2.90
1991	7	1	-26.4400	27.3600	2.70
1991	7	1	-26.3000	27.4000	2.50
1991	7	3	-28.1200	26.8700	2.70
1991	7	3	-26.3500	27.4600	3.40
1991	7	4	-28.0400	26.6800	2.90
1991	7	4	-26.3000	27.4000	3.20
1991	7	4	-30.0500	27.4200	2.80
1991	7	5	-26.3700	27.4500	2.60
1991	7	6	-26.4300	27.4000	3.30
1991	7	6	-26.8900	26.7300	3.00
1991	7	6	-26.3800	27.4900	2.90
1991	7	9	-26.9300	26.6700	2.60

1991	7	9	-28.0900	26.8800	2.50
1991	7	11	-26.4000	27.3700	2.70
1991	7	11	-26.4700	27.3700	3.10
1991	7	11	-26.4600	27.3800	3.30
1991	7	12	-26.3800	27.3700	2.80
1991	7	12	-26.9200	26.6900	4.00
1991	7	12	-26.3700	27.3800	3.00
1991	7	13	-26.3600	27.3800	3.30
1991	7	16	-26.3700	27.5200	2.50
1991	7	16	-26.3400	27.4900	2.70
1991	7	17	-26.8500	26.8200	3.80
1991	7	18	-26.4300	27.3400	3.00
1991	7	18	-26.4600	27.4600	3.30
1991	7	19	-26.3800	27.3700	2.60
1991	7	19	-26.4000	27.4300	2.90
1991	7	19	-26.3600	27.4400	3.10
1991	7	20	-27.9600	26.7400	3.40
1991	7	21	-26.3700	27.4600	2.50
1991	7	22	-26.3800	27.3900	2.50
1991	7	22	-26.3600	27.4300	3.70
1991	7	23	-26.8000	26.7600	3.60
1991	7	23	-26.3900	27.3200	2.50
1991	7	25	-26.3700	27.3900	2.70
1991	7	26	-26.4300	27.4000	2.50
1991	7	26	-30.0100	29.1900	3.60
1991	7	28	-26.3000	27.4000	2.50
1991	7	28	-26.4100	27.3900	3.30
1991	7	29	-26.4000	27.3000	3.60
1991	7	29	-26.4000	27.3000	2.80
1991	7	30	-26.4000	27.3000	2.80
1991	7	30	-26.4000	27.4000	3.00
1991	7	30	-26.8900	26.8100	3.00
1991	7	31	-26.9200	26.7100	3.50
1991	8	1	-26.4100	27.5000	3.00
1991	8	1	-26.9000	26.6600	3.10
1991	8	2	-26.3700	27.4600	2.50
1991	8	2	-26.3300	27.6000	2.70
1991	8	3	-26.3700	27.3600	2.80
1991	8	4	-26.9400	26.6700	2.50
1991	8	5	-28.0900	26.8300	3.60
1991	8	5	-26.4500	27.4500	2.90
1991	8	8	-26.8900	26.7900	2.70
1991	8	9	-26.4100	27.4400	3.00
1991	8	9	-26.4400	27.4000	2.60
1991	8	12	-26.3900	27.4700	2.50
1991	8	12	-26.2100	28.2200	2.90
1991	8	14	-26.8900	26.8100	3.30
1991	8	15	-26.2700	27.6300	2.70
1991	8	16	-26.1900	28.2300	3.50
1991	8	17	-26.4500	27.3700	2.50
1991	8	17	-26.4600	27.3900	3.10
1991	8	18	-27.9800	26.7300	2.80
1991	8	18	-26.2700	27.7400	2.50
1991	8	19	-26.3800	27.3000	2.80
1991	8	19	-26.3800	27.3500	3.30
1991	8	20	-26.3700	27.4300	3.40
1991	8	20	-26.4100	27.3100	3.30
1991	8	21	-26.2200	28.2100	2.70
1991	8	21	-26.4100	27.3900	2.80
1991	8	21	-26.3700	27.3900	3.70
1991	8	22	-26.1800	28.2100	3.20

1991	8	22	-28.1200	26.8600	2.70
1991	8	22	-27.9900	26.6900	3.70
1991	8	23	-26.3600	27.5200	3.10
1991	8	24	-26.3800	27.4000	2.80
1991	8	25	-26.8600	26.7600	3.20
1991	8	26	-28.0200	26.8400	2.70
1991	8	26	-26.9400	26.7700	2.80
1991	8	27	-26.4100	27.3500	3.20
1991	8	28	-26.9300	26.7500	2.90
1991	8	28	-26.4300	27.4200	4.10
1991	8	28	-26.9200	26.7400	2.70
1991	8	31	-26.9000	26.7200	3.30
1991	8	31	-26.8900	26.6800	3.40
1991	9	1	-26.8100	26.7900	2.70
1991	9	1	-26.4200	27.3700	2.90
1991	9	2	-26.4000	27.4800	2.50
1991	9	2	-26.4600	27.4200	2.80
1991	9	3	-26.4200	27.3400	3.20
1991	9	3	-26.4600	27.4100	2.50
1991	9	4	-26.9500	26.7700	3.30
1991	9	5	-26.3600	27.5100	2.90
1991	9	5	-26.3400	27.5000	2.80
1991	9	6	-26.3500	27.4900	3.40
1991	9	7	-26.3500	27.4200	3.00
1991	9	7	-26.3700	27.4800	2.50
1991	9	8	-26.4000	27.5000	3.30
1991	9	8	-26.3500	27.4300	2.80
1991	9	9	-23.5300	24.4300	3.80
1991	9	9	-26.9000	26.6600	2.80
1991	9	9	-26.9600	26.7300	2.80
1991	9	10	-26.3700	27.4800	2.70
1991	9	10	-26.9300	26.7100	3.50
1991	9	10	-26.8700	26.8200	2.70
1991	9	10	-26.4100	27.3900	3.40
1991	9	11	-26.2600	27.6300	2.80
1991	9	11	-28.1100	26.8600	2.90
1991	9	11	-28.1900	26.7500	2.70
1991	9	13	-26.3900	27.3700	3.00
1991	9	14	-26.8900	26.6900	3.00
1991	9	14	-26.3000	27.6300	3.10
1991	9	14	-26.3200	27.6300	3.30
1991	9	16	-26.8600	26.7400	3.50
1991	9	17	-29.9200	26.1800	3.00
1991	9	17	-26.3900	27.4700	2.80
1991	9	18	-26.3900	27.4300	3.30
1991	9	18	-26.3400	27.4800	2.50
1991	9	18	-26.3600	27.4600	2.50
1991	9	19	-26.3400	27.4600	2.90
1991	9	20	-27.9300	26.6800	2.60
1991	9	20	-26.4700	27.3700	2.70
1991	9	20	-26.4000	27.5200	2.90
1991	9	21	-26.3700	27.4200	2.80
1991	9	23	-26.3900	27.4200	2.80
1991	9	24	-26.2700	27.7300	3.20
1991	9	24	-26.9200	26.7600	2.80
1991	9	25	-28.0200	26.6800	2.90
1991	9	25	-28.1300	26.8500	2.60
1991	9	26	-26.3600	27.5100	2.80
1991	9	26	-26.8900	26.7800	2.80
1991	9	26	-26.8900	26.6600	2.90
1991	9	26	-26.9400	26.6300	2.60

1991	9	26	-26.3900	27.4900	3.60
1991	9	26	-26.4000	27.4300	2.60
1991	9	27	-26.3600	27.5100	2.70
1991	9	27	-26.2600	27.6500	2.50
1991	9	28	-26.0900	27.7800	2.70
1991	9	29	-26.3700	27.4400	2.60
1991	9	29	-26.3900	27.3500	2.60
1991	9	29	-26.3500	27.4500	3.30
1991	9	30	-26.8900	26.7100	3.50
1991	9	30	-26.4000	27.3900	2.50
1991	10	3	-26.8900	26.6800	3.30
1991	10	3	-26.9000	26.7500	2.50
1991	10	5	-26.3700	27.4500	2.90
1991	10	7	-26.1800	28.2000	2.60
1991	10	7	-27.9500	26.6900	2.90
1991	10	7	-26.3700	27.4000	3.70
1991	10	9	-26.3900	27.4100	3.10
1991	10	10	-26.2200	28.2100	2.80
1991	10	10	-26.3900	27.4300	2.60
1991	10	10	-26.4400	27.3200	2.50
1991	10	10	-27.9600	26.7100	2.60
1991	10	10	-26.3700	27.4300	3.30
1991	10	11	-26.3700	27.4400	3.40
1991	10	13	-26.4000	27.3900	2.80
1991	10	13	-26.9300	26.7800	2.90
1991	10	14	-26.4100	27.3400	2.90
1991	10	14	-28.0300	26.7100	2.90
1991	10	15	-26.9100	26.6600	2.90
1991	10	15	-26.3200	27.4700	2.60
1991	10	16	-26.4100	27.4100	2.90
1991	10	16	-26.3600	27.5100	2.60
1991	10	17	-26.4300	27.4700	2.90
1991	10	17	-26.3600	27.4500	2.70
1991	10	18	-28.0500	26.8300	3.20
1991	10	18	-26.1900	28.2400	2.80
1991	10	18	-26.8600	26.7300	2.60
1991	10	18	-26.3900	27.4700	2.80
1991	10	18	-26.3500	27.4500	2.80
1991	10	23	-26.3200	27.6200	2.70
1991	10	24	-26.4300	27.3600	2.60
1991	10	24	-26.3500	27.4800	2.60
1991	10	24	-26.9100	26.6900	2.50
1991	10	25	-26.3400	27.6800	2.60
1991	10	25	-26.3900	27.3200	2.80
1991	10	25	-26.9200	26.7300	2.90
1991	10	25	-26.4500	27.4200	3.10
1991	10	26	-26.3900	27.4700	2.60
1991	10	27	-26.8700	26.7900	3.90
1991	10	27	-28.1000	26.8400	2.70
1991	10	28	-26.3900	27.4100	2.60
1991	10	29	-26.2000	28.2000	2.50
1991	10	29	-26.3600	27.4300	2.70
1991	10	30	-26.3800	27.4900	2.70
1991	10	30	-26.4000	27.3900	2.50
1991	10	30	-26.9100	26.6600	2.80
1991	10	30	-26.2500	27.6500	2.60
1991	10	31	-26.3800	27.3500	2.50
1991	10	31	-28.1000	26.9100	3.00
1991	10	31	-26.9300	26.6700	2.50
1991	10	31	-26.3800	27.4500	2.90
1991	11	1	-28.1400	26.8800	2.50

1991	11	2	-26.9300	26.7400	2.70
1991	11	2	-26.9400	26.7400	2.80
1991	11	2	-26.8800	26.6800	2.90
1991	11	3	-26.4500	27.3700	3.10
1991	11	3	-26.4200	27.4300	2.80
1991	11	3	-26.9300	26.7200	4.30
1991	11	4	-26.3500	27.4800	2.50
1991	11	5	-26.8400	26.8400	2.60
1991	11	6	-26.4700	27.4000	3.00
1991	11	6	-26.3600	27.4100	3.20
1991	11	6	-26.8700	26.7100	3.30
1991	11	6	-26.4000	27.3800	2.50
1991	11	7	-26.3500	27.4800	2.80
1991	11	8	-26.3700	27.4400	2.90
1991	11	8	-26.3800	27.3300	2.60
1991	11	8	-26.9100	26.6900	2.90
1991	11	8	-26.3400	27.4900	2.50
1991	11	9	-26.9200	26.6400	2.50
1991	11	9	-26.3700	27.4300	2.80
1991	11	10	-26.8900	26.7000	3.00
1991	11	10	-26.9200	26.6600	2.90
1991	11	12	-26.2700	27.6400	2.80
1991	11	12	-26.3900	27.4400	2.80
1991	11	13	-26.9100	26.6800	2.50
1991	11	13	-27.7800	26.6200	2.70
1991	11	14	-26.3700	27.3600	2.80
1991	11	15	-26.4100	27.3600	2.80
1991	11	15	-26.4000	27.3600	2.60
1991	11	16	-28.0400	26.7000	3.30
1991	11	17	-26.8700	26.7300	2.70
1991	11	18	-26.8200	26.7800	2.50
1991	11	19	-26.9000	26.6300	2.50
1991	11	19	-26.9200	26.6400	2.80
1991	11	20	-26.9200	26.6700	2.90
1991	11	20	-26.4400	27.3400	2.50
1991	11	21	-26.9000	26.6400	2.80
1991	11	21	-26.4100	27.4500	2.50
1991	11	22	-26.3700	27.3800	2.80
1991	11	22	-26.8500	26.6700	2.60
1991	11	22	-26.8500	26.7400	3.50
1991	11	23	-26.9100	26.6800	2.50
1991	11	24	-26.8800	26.7600	3.00
1991	11	25	-26.3600	27.4700	3.30
1991	11	25	-28.0500	26.7900	2.90
1991	11	25	-26.3000	27.6200	2.60
1991	11	26	-26.3700	27.4000	2.90
1991	11	27	-26.3600	27.4100	2.80
1991	11	27	-26.3600	27.4300	2.50
1991	11	27	-26.3800	27.3900	2.80
1991	11	28	-26.9300	26.6400	2.80
1991	11	29	-26.4200	27.3800	3.60
1991	11	30	-26.3700	27.5000	3.20
1991	12	1	-26.3900	27.4800	2.60
1991	12	1	-26.9300	26.7100	3.10
1991	12	1	-26.9000	26.7400	4.20
1991	12	2	-26.3900	27.3300	2.50
1991	12	2	-26.3700	27.5700	2.90
1991	12	3	-26.9000	26.6700	2.60
1991	12	3	-26.4400	27.3700	2.50
1991	12	4	-26.8800	26.6400	2.90
1991	12	4	-26.9200	26.6800	2.60

1991	12	4	-26.3800	27.4800	2.50
1991	12	5	-26.4000	27.3400	3.10
1991	12	5	-26.4500	27.3800	2.50
1991	12	6	-26.4300	27.4500	2.80
1991	12	6	-26.4200	27.3200	2.60
1991	12	8	-26.4300	27.3900	2.90
1991	12	9	-26.8600	26.8000	2.50
1991	12	9	-26.8900	26.8000	2.60
1991	12	10	-26.3800	27.4300	2.60
1991	12	11	-26.9200	26.6800	2.70
1991	12	11	-26.9100	26.6800	3.10
1991	12	13	-26.4300	27.4000	2.90
1991	12	13	-26.9300	26.6600	3.30
1991	12	14	-26.3500	27.4800	2.70
1991	12	15	-26.9300	26.7400	3.60
1991	12	17	-26.2100	28.2600	2.80
1991	12	17	-26.4600	27.4600	2.50
1991	12	17	-26.4600	27.3700	3.10
1991	12	18	-26.4300	27.4000	3.00
1991	12	18	-26.2000	28.2300	3.00
1991	12	18	-28.0300	26.7800	3.50
1991	12	19	-26.4000	27.5200	2.50
1991	12	19	-26.3500	27.5900	2.50
1991	12	19	-26.4400	27.3900	3.30
1991	12	19	-26.4100	27.4500	2.70
1991	12	20	-26.4200	27.4400	2.50
1991	12	21	-26.2100	28.2600	2.50
1991	12	21	-26.9200	26.7800	2.70
1991	12	21	-26.3000	27.6100	2.50
1991	12	21	-26.4100	27.3300	3.00
1991	12	21	-26.9300	26.8000	2.90
1991	12	21	-26.4300	27.3500	2.50
1991	12	23	-26.3900	27.4700	3.30
1991	12	23	-26.9300	26.7900	3.30
1991	12	23	-26.4100	27.4300	2.70
1991	12	24	-26.9300	26.7600	3.20
1991	12	24	-26.9500	26.7500	3.80
1991	12	24	-26.3900	27.3800	3.20
1991	12	24	-26.8700	26.8100	2.60
1991	12	25	-26.4300	27.4200	3.70
1991	12	31	-28.0000	26.7800	3.10
1992	1	1	-26.3700	27.5000	2.80
1992	1	1	-26.4500	27.4000	3.20
1992	1	3	-26.4400	27.3400	3.00
1992	1	4	-28.0000	26.8400	3.00
1992	1	4	-28.1400	26.8800	2.90
1992	1	4	-28.0900	26.8900	3.10
1992	1	4	-26.8600	26.7600	2.70
1992	1	4	-26.4000	27.5100	2.50
1992	1	5	-26.3900	27.4300	3.10
1992	1	7	-26.3400	27.4500	3.20
1992	1	7	-26.3500	27.4600	3.10
1992	1	7	-26.3400	27.6200	2.70
1992	1	7	-26.4000	27.4200	3.10
1992	1	8	-26.8600	26.6700	3.40
1992	1	8	-26.8900	26.7600	2.60
1992	1	9	-26.3800	27.4300	2.90
1992	1	9	-26.3700	27.4700	2.90
1992	1	9	-26.3500	27.4800	3.20
1992	1	10	-26.9000	26.8100	2.60
1992	1	10	-26.4000	27.3600	2.70

1992	1	10	-27.9800	26.7000	3.30
1992	1	12	-28.0600	26.9000	2.50
1992	1	13	-25.7600	27.4300	2.80
1992	1	13	-26.3700	27.4800	3.10
1992	1	13	-26.2100	28.2000	3.20
1992	1	14	-26.3600	27.4700	2.60
1992	1	14	-26.4400	27.3500	2.60
1992	1	15	-28.0700	26.8400	2.50
1992	1	15	-26.3600	27.4600	2.60
1992	1	15	-26.9100	26.7800	2.50
1992	1	16	-26.4100	27.4600	3.40
1992	1	16	-26.3700	27.4600	3.00
1992	1	16	-26.2500	27.6300	3.00
1992	1	16	-26.3900	27.4300	2.90
1992	1	16	-26.3600	27.4300	3.10
1992	1	17	-26.3700	27.4300	2.90
1992	1	17	-26.3800	27.3900	3.00
1992	1	18	-26.3600	27.4700	3.00
1992	1	18	-26.3700	27.4400	2.60
1992	1	18	-26.4100	27.4800	2.80
1992	1	18	-26.3600	27.3100	2.70
1992	1	18	-26.9300	26.7900	3.40
1992	1	18	-26.8900	26.6800	4.40
1992	1	19	-26.2100	28.2300	2.90
1992	1	19	-26.8700	26.7600	2.90
1992	1	21	-26.3600	27.4300	2.70
1992	1	21	-26.4200	27.3500	2.60
1992	1	21	-26.3800	27.3500	2.60
1992	1	21	-26.8800	26.6800	2.50
1992	1	22	-26.3200	27.6100	2.50
1992	1	22	-26.3800	27.4000	2.50
1992	1	28	-26.4000	27.4100	2.50
1992	1	29	-26.4200	27.3400	2.60
1992	1	30	-26.3600	27.4500	3.20
1992	1	30	-26.3900	27.4400	2.50
1992	2	2	-26.4600	27.3800	2.70
1992	2	4	-26.4100	27.4200	2.80
1992	2	4	-26.4200	27.4200	2.90
1992	2	4	-26.4300	27.4000	2.60
1992	2	5	-26.3600	27.4700	2.70
1992	2	5	-26.8800	26.7400	2.60
1992	2	5	-26.8800	26.7300	2.80
1992	2	5	-27.9700	26.7100	3.10
1992	2	7	-28.1400	26.8700	3.50
1992	2	7	-26.3700	27.4000	3.00
1992	2	7	-26.3900	27.3800	2.50
1992	2	9	-26.4400	27.3700	2.70
1992	2	9	-26.8500	26.7300	2.70
1992	2	10	-26.4200	27.3300	3.10
1992	2	10	-28.0200	26.7400	3.40
1992	2	10	-28.0300	26.7300	3.60
1992	2	10	-28.0000	26.6800	2.80
1992	2	12	-26.4200	27.3900	2.90
1992	2	12	-26.4300	27.4100	3.20
1992	2	12	-26.8400	26.7000	3.30
1992	2	12	-26.9000	26.7300	2.80
1992	2	12	-26.7800	26.7600	3.10
1992	2	14	-26.3900	27.4300	3.50
1992	2	14	-26.9200	26.7300	2.80
1992	2	14	-26.9300	26.7200	3.50
1992	2	15	-26.4300	27.5000	2.50

1992	2	15	-26.8200	26.7700	3.10
1992	2	17	-26.8500	26.7400	3.40
1992	2	17	-26.9000	26.7400	3.20
1992	2	18	-26.4500	27.3100	2.80
1992	2	18	-26.2100	28.1900	2.60
1992	2	18	-26.2100	28.2600	2.80
1992	2	18	-26.4200	27.4100	2.50
1992	2	19	-26.3500	27.4200	3.00
1992	2	21	-26.2200	28.2500	2.90
1992	2	23	-26.8900	26.7700	2.60
1992	2	25	-26.4200	27.3000	2.90
1992	2	25	-26.8700	26.6500	2.80
1992	2	25	-26.3600	27.3500	2.50
1992	2	26	-26.8800	26.7200	3.40
1992	2	27	-26.4300	27.4200	2.60
1992	2	28	-26.3600	27.4000	2.60
1992	3	1	-26.4300	27.3500	2.70
1992	3	1	-26.4000	27.4900	2.70
1992	3	2	-26.2500	27.6500	2.60
1992	3	2	-26.8800	26.7000	3.00
1992	3	3	-26.3500	27.5200	3.20
1992	3	3	-26.4100	27.4000	2.80
1992	3	3	-26.4100	27.3600	2.60
1992	3	4	-26.4200	27.4000	2.60
1992	3	4	-26.3600	27.3700	2.50
1992	3	5	-26.4300	27.4700	3.20
1992	3	5	-26.3600	27.4400	2.80
1992	3	6	-26.4500	27.3800	2.50
1992	3	6	-26.4100	27.3300	2.70
1992	3	7	-26.4000	27.3900	4.70
1992	3	7	-26.9100	26.6800	2.60
1992	3	8	-26.4100	27.2900	3.20
1992	3	8	-26.4300	27.3600	3.10
1992	3	8	-26.4400	27.4000	2.80
1992	3	8	-26.4300	27.3600	3.00
1992	3	8	-26.2100	28.2100	2.70
1992	3	9	-26.8900	26.7300	2.60
1992	3	9	-26.8400	26.7300	3.40
1992	3	11	-26.4000	27.3900	2.70
1992	3	11	-26.2300	28.2600	2.60
1992	3	11	-26.4600	27.3800	3.10
1992	3	11	-26.3800	27.3200	3.20
1992	3	11	-26.4300	27.3800	3.60
1992	3	12	-28.0100	26.7000	2.50
1992	3	13	-26.9300	26.6800	2.60
1992	3	13	-26.8700	26.7400	3.10
1992	3	13	-26.3500	27.4600	2.80
1992	3	14	-26.3900	27.2800	3.00
1992	3	15	-26.9100	26.7200	2.50
1992	3	16	-28.0500	26.8900	2.80
1992	3	17	-26.4000	27.4500	2.90
1992	3	17	-26.3600	27.4400	2.60
1992	3	18	-26.3900	27.4200	3.30
1992	3	18	-26.4200	27.3700	3.30
1992	3	18	-26.3700	27.4800	2.80
1992	3	19	-26.9100	26.6500	2.90
1992	3	22	-26.3900	27.4700	3.20
1992	3	23	-26.9100	26.7400	2.70
1992	3	23	-26.3900	27.3900	2.50
1992	3	25	-26.8600	26.7600	2.70
1992	3	25	-26.3900	27.4500	2.50

1992	3	26	-27.9600	26.7200	2.90
1992	3	26	-28.0200	26.7000	2.60
1992	3	28	-26.3900	27.3800	2.90
1992	3	29	-27.9900	26.7700	2.90
1992	3	29	-26.8900	26.6400	3.00
1992	3	31	-26.3600	27.4600	2.60
1992	3	31	-27.9600	26.6900	2.50
1992	3	31	-28.0400	26.8300	2.70
1992	4	2	-26.9200	26.6700	2.90
1992	4	2	-26.3800	27.4600	2.50
1992	4	2	-26.1900	28.1800	3.10
1992	4	4	-26.2000	28.2600	3.00
1992	4	4	-26.8800	26.6800	2.80
1992	4	5	-26.3800	27.4900	2.60
1992	4	5	-26.9100	26.7900	3.10
1992	4	6	-26.3900	27.3400	3.10
1992	4	7	-26.1600	27.7700	3.70
1992	4	8	-26.4000	27.4100	2.60
1992	4	9	-26.4300	27.4300	2.70
1992	4	9	-26.3600	27.4500	2.70
1992	4	9	-26.4600	27.3600	2.60
1992	4	10	-26.9300	26.7500	3.20
1992	4	10	-26.9000	26.7200	2.70
1992	4	11	-28.0200	26.7100	3.30
1992	4	11	-27.9900	26.7800	2.60
1992	4	12	-26.2100	28.1900	2.90
1992	4	13	-28.0000	26.7300	3.10
1992	4	13	-26.9500	26.7500	3.50
1992	4	13	-26.3700	27.4400	2.50
1992	4	14	-28.0300	26.8100	2.70
1992	4	14	-28.0300	26.7300	3.40
1992	4	15	-26.4000	27.3900	3.90
1992	4	16	-26.3600	27.4200	2.60
1992	4	16	-26.3900	27.4300	2.50
1992	4	17	-26.4000	27.4600	2.60
1992	4	19	-26.4200	27.4200	2.80
1992	4	20	-28.0900	26.9100	2.50
1992	4	21	-25.1000	24.7000	4.00
1992	4	21	-26.4000	27.3400	2.60
1992	4	22	-26.8700	26.7000	2.50
1992	4	22	-26.3700	27.3500	2.50
1992	4	22	-26.3600	27.4200	2.80
1992	4	22	-28.0400	26.7900	2.60
1992	4	23	-26.4100	27.4200	2.60
1992	4	24	-26.4000	27.4000	3.00
1992	4	25	-28.0300	26.7300	2.50
1992	4	26	-28.0300	26.8200	2.50
1992	4	27	-26.8700	26.6800	3.20
1992	4	28	-26.8800	26.7400	2.50
1992	4	28	-26.3900	27.4100	2.80
1992	4	28	-26.4100	27.3900	2.60
1992	4	29	-26.4100	27.3900	2.60
1992	4	29	-26.9200	26.7500	3.20
1992	4	30	-26.8200	26.7800	2.50
1992	4	30	-28.0600	26.8700	3.40
1992	5	1	-26.3600	27.4700	2.50
1992	5	1	-26.9300	26.7800	3.60
1992	5	1	-28.0000	26.6900	2.80
1992	5	2	-26.4500	27.3600	2.90
1992	5	2	-28.0400	26.7900	2.70
1992	5	5	-26.3900	27.4200	2.80

1992	5	5	-28.0300	26.7900	3.40
1992	5	5	-28.0400	26.7900	4.00
1992	5	5	-28.0400	26.8600	2.70
1992	5	6	-26.3400	27.4900	2.50
1992	5	6	-28.0500	26.7900	3.10
1992	5	7	-26.8900	26.7000	3.00
1992	5	7	-26.4100	27.4600	2.60
1992	5	7	-26.3900	27.4800	2.60
1992	5	7	-26.9300	26.7900	2.90
1992	5	8	-26.9000	26.8100	2.60
1992	5	8	-27.9700	26.7100	2.80
1992	5	9	-26.9000	26.8000	2.70
1992	5	9	-26.9300	26.7600	3.10
1992	5	9	-26.3900	27.3300	3.00
1992	5	9	-26.9400	26.7900	2.90
1992	5	9	-27.8600	26.6600	3.00
1992	5	9	-26.8600	26.7000	3.20
1992	5	11	-26.4000	27.3900	2.90
1992	5	12	-26.3700	27.4200	2.70
1992	5	12	-26.3900	27.4200	2.50
1992	5	12	-25.3600	27.1200	2.80
1992	5	13	-26.9000	26.7500	2.90
1992	5	13	-26.8200	26.7500	2.80
1992	5	13	-27.8200	26.6300	3.50
1992	5	16	-26.3900	27.5700	2.60
1992	5	17	-27.9100	26.6800	2.50
1992	5	18	-26.3500	27.4300	3.10
1992	5	18	-26.9300	26.7900	2.80
1992	5	19	-26.4200	27.4000	2.80
1992	5	19	-26.3500	27.4600	2.60
1992	5	20	-26.3900	27.4000	2.90
1992	5	21	-26.8800	26.7700	2.80
1992	5	21	-26.9400	26.7800	2.50
1992	5	22	-26.3800	27.4200	2.80
1992	5	22	-26.3400	27.4600	2.70
1992	5	22	-28.1100	26.9100	2.60
1992	5	23	-26.9100	26.7500	2.80
1992	5	23	-26.4000	27.4200	2.90
1992	5	26	-26.3200	27.6000	3.30
1992	5	26	-26.8100	26.7500	2.70
1992	5	27	-26.1700	27.8500	2.80
1992	5	27	-26.3600	27.4500	2.50
1992	5	27	-26.4000	27.4200	3.00
1992	5	27	-26.3500	27.5100	2.80
1992	5	28	-24.9000	27.4700	2.60
1992	5	28	-26.3800	27.4400	2.50
1992	5	28	-26.4600	27.3800	2.50
1992	5	29	-26.3600	27.4500	3.00
1992	5	30	-26.4300	27.4100	2.80
1992	5	31	-26.4000	27.5800	2.50
1992	6	1	-26.8700	26.6700	2.80
1992	6	1	-26.4400	27.4400	2.70
1992	6	2	-27.9500	26.7100	2.50
1992	6	2	-26.4100	27.3900	3.00
1992	6	2	-26.2000	28.2000	2.80
1992	6	4	-26.3800	27.4100	3.00
1992	6	5	-26.8600	26.7300	4.00
1992	6	6	-26.3700	27.4900	2.60
1992	6	6	-27.9300	26.7600	3.90
1992	6	8	-26.3600	27.4600	2.70
1992	6	9	-26.3500	27.4300	2.90

1992	6	10	-26.9300	26.8000	2.50
1992	6	10	-28.0400	26.8000	3.20
1992	6	11	-26.3500	27.4400	2.90
1992	6	11	-26.4300	27.3400	3.40
1992	6	12	-26.3900	27.3700	3.00
1992	6	13	-26.4200	27.4100	2.80
1992	6	13	-26.8900	26.8100	2.60
1992	6	13	-26.9100	26.8100	2.50
1992	6	14	-28.0100	26.6900	3.10
1992	6	14	-26.9100	26.7700	2.60
1992	6	15	-26.9300	26.7900	2.80
1992	6	15	-26.3500	27.4900	2.80
1992	6	15	-26.4500	27.3600	3.00
1992	6	19	-26.9400	26.7700	4.20
1992	6	19	-26.9000	26.8100	2.70
1992	6	19	-26.3700	27.5100	2.70
1992	6	19	-26.3800	27.4200	2.70
1992	6	20	-26.4000	27.4100	2.70
1992	6	21	-26.4400	27.3400	3.80
1992	6	22	-26.2000	28.2300	3.10
1992	6	22	-28.0600	26.9100	2.80
1992	6	22	-26.9100	26.7300	3.10
1992	6	23	-26.9200	26.6800	3.60
1992	6	23	-26.4500	27.4200	2.50
1992	6	24	-26.3600	27.5000	2.50
1992	6	24	-26.8300	26.7100	2.60
1992	6	25	-26.3800	27.3200	3.90
1992	6	25	-26.3700	27.4100	3.10
1992	6	25	-26.9100	26.8100	3.60
1992	6	26	-26.8700	26.7800	2.50
1992	6	27	-27.9500	26.6700	3.20
1992	6	27	-26.8300	26.7300	2.50
1992	6	29	-28.0200	26.6800	3.20
1992	6	30	-28.0100	26.6900	2.60
1992	7	2	-27.5900	30.7000	3.50
1992	7	2	-26.3800	27.3400	3.20
1992	7	2	-26.3900	27.4300	2.90
1992	7	2	-26.8800	26.7900	2.90
1992	7	3	-26.4000	27.4500	3.80
1992	7	3	-26.9000	26.7300	3.20
1992	7	3	-26.8700	26.7400	2.60
1992	7	3	-26.9000	26.7400	3.00
1992	7	4	-26.8900	26.7100	2.60
1992	7	4	-26.9100	26.7100	3.10
1992	7	5	-26.3200	27.6800	2.80
1992	7	5	-26.2200	28.2000	2.80
1992	7	5	-28.0400	26.7000	2.70
1992	7	5	-26.9000	26.7100	3.00
1992	7	6	-26.3800	27.5000	2.60
1992	7	7	-26.4200	27.4400	2.80
1992	7	8	-26.2000	28.2300	2.70
1992	7	8	-26.4300	27.3800	2.50
1992	7	9	-26.2000	28.2100	3.30
1992	7	9	-26.4200	27.3900	2.60
1992	7	10	-26.9100	26.7100	2.70
1992	7	10	-26.3900	27.4200	2.80
1992	7	12	-26.8600	26.7600	3.40
1992	7	12	-26.9300	26.6300	2.90
1992	7	13	-26.3700	27.5000	3.80
1992	7	14	-26.3700	27.3700	2.70
1992	7	15	-26.3100	27.6800	2.50

1992	7	15	-26.3600	27.4700	2.70
1992	7	15	-26.3700	27.5000	2.70
1992	7	16	-26.3700	27.4200	3.30
1992	7	17	-26.8600	26.8100	2.90
1992	7	17	-26.8600	26.7900	2.90
1992	7	17	-28.0600	26.8400	3.50
1992	7	18	-28.0600	26.8500	2.70
1992	7	18	-26.8900	26.7900	3.90
1992	7	19	-26.9100	26.7000	3.00
1992	7	19	-26.7900	26.7800	2.60
1992	7	20	-26.8800	26.7400	2.70
1992	7	20	-28.1000	26.8700	2.60
1992	7	21	-26.8800	26.7800	3.30
1992	7	21	-26.9100	26.7400	3.00
1992	7	21	-26.4000	27.4000	2.80
1992	7	21	-26.8700	26.8100	2.60
1992	7	22	-26.3500	27.4900	3.00
1992	7	22	-26.3400	27.4700	2.60
1992	7	23	-26.8800	26.7600	2.50
1992	7	23	-26.4000	27.3200	3.10
1992	7	24	-26.3500	27.5000	3.10
1992	7	24	-26.3800	27.4100	2.70
1992	7	25	-26.8600	26.7000	2.50
1992	7	25	-26.9300	26.8000	3.50
1992	7	26	-26.3700	27.6000	3.10
1992	7	26	-26.8300	26.7700	3.50
1992	7	27	-26.3400	27.4500	2.70
1992	7	27	-26.2000	28.2200	3.00
1992	7	29	-26.8000	26.8000	3.10
1992	7	29	-26.8600	26.7100	3.00
1992	7	29	-26.3900	27.4400	2.60
1992	7	30	-28.0500	26.8200	2.70
1992	7	30	-26.4200	27.4500	2.50
1992	7	31	-26.2000	28.2200	3.60
1992	7	31	-26.4000	27.2800	2.70
1992	7	31	-26.3800	27.4500	2.50
1992	8	1	-26.2100	28.1700	2.60
1992	8	1	-26.3600	27.4900	2.90
1992	8	1	-28.0000	26.6700	2.70
1992	8	1	-27.9600	26.7600	3.20
1992	8	3	-26.3800	27.3800	2.80
1992	8	3	-26.3700	27.3200	2.80
1992	8	5	-26.4100	27.4700	2.60
1992	8	5	-26.3300	27.4500	2.50
1992	8	5	-26.3800	27.5800	2.70
1992	8	6	-26.4600	27.4100	2.60
1992	8	6	-26.3700	27.4000	2.80
1992	8	6	-26.9100	26.7900	2.80
1992	8	6	-27.8700	26.6800	2.70
1992	8	7	-26.4000	27.5200	4.10
1992	8	8	-26.3600	27.4500	2.60
1992	8	10	-26.2000	28.2600	3.00
1992	8	11	-26.4400	27.4000	3.00
1992	8	12	-26.3600	27.4600	2.60
1992	8	13	-26.4200	27.3900	2.80
1992	8	13	-26.8500	26.8100	2.90
1992	8	13	-26.9000	26.7200	2.60
1992	8	14	-28.0400	26.7000	2.80
1992	8	14	-26.3700	27.4300	2.80
1992	8	14	-26.3700	27.4800	2.70
1992	8	15	-26.8900	26.7700	2.60

1992	8	15	-26.2100	27.7400	2.50
1992	8	15	-26.3900	27.3100	2.70
1992	8	16	-26.3600	27.3400	3.00
1992	8	18	-26.4300	27.4600	2.60
1992	8	19	-26.4000	27.4000	3.00
1992	8	19	-26.9100	26.6700	2.70
1992	8	19	-26.3900	27.5000	2.80
1992	8	20	-26.3800	27.5000	2.60
1992	8	20	-26.8700	26.7500	2.50
1992	8	20	-26.3900	27.4000	3.40
1992	8	20	-26.4400	27.4200	2.50
1992	8	20	-26.4100	27.4800	2.50
1992	8	22	-26.3500	27.5200	4.00
1992	8	22	-26.2700	27.6100	2.50
1992	8	22	-26.3900	27.4800	3.10
1992	8	23	-26.9100	26.8100	3.80
1992	8	23	-26.9400	26.8000	3.30
1992	8	23	-26.8800	26.7900	2.60
1992	8	23	-26.4600	27.4400	3.10
1992	8	24	-26.2300	28.2300	2.90
1992	8	25	-26.4200	27.4200	3.00
1992	8	25	-26.4500	27.4200	2.90
1992	8	26	-26.4000	27.4100	2.50
1992	8	26	-26.4000	27.5100	3.90
1992	8	27	-26.3500	27.4700	2.70
1992	8	28	-26.3300	27.5000	2.60
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1992	8	30	-26.3800	27.4400	3.60
1992	9	1	-26.9500	26.7700	3.90
1992	9	3	-26.2000	28.2400	2.60
1992	9	3	-28.0300	26.7100	2.70
1992	9	3	-28.0600	26.8200	2.80
1992	9	3	-28.0300	26.7600	2.80
1992	9	4	-27.9900	26.7100	2.50
1992	9	4	-26.8800	26.8100	3.40
1992	9	5	-27.9600	26.7300	2.80
1992	9	6	-28.0500	26.7800	2.70
1992	9	6	-26.3100	27.6300	2.60
1992	9	7	-26.8600	26.8000	2.80
1992	9	7	-26.3300	27.6100	2.70
1992	9	7	-26.3800	27.3000	3.00
1992	9	7	-27.9700	26.7000	3.00
1992	9	7	-27.9300	26.7100	2.60
1992	9	8	-26.4100	27.4800	2.70
1992	9	8	-26.9200	26.7800	3.10
1992	9	9	-26.3400	27.6000	3.00
1992	9	10	-26.3300	27.4900	3.00
1992	9	11	-26.3600	27.4700	2.70
1992	9	11	-26.3600	27.3300	2.90
1992	9	12	-26.3500	27.4900	2.60
1992	9	12	-26.3700	27.3800	2.80
1992	9	12	-26.4200	27.5100	2.90
1992	9	12	-26.3500	27.6100	2.50
1992	9	14	-26.4400	27.4400	2.70
1992	9	15	-26.3600	27.4100	2.70
1992	9	15	-26.3300	27.5100	3.20
1992	9	15	-26.8400	26.7700	2.80
1992	9	16	-26.3400	27.5100	2.80
1992	9	16	-26.3800	27.3700	2.70
1992	9	17	-27.9000	26.6900	2.50
1992	9	18	-26.4000	27.3600	2.80

1992	9	19	-26.3600	27.4900	2.60
1992	9	19	-26.2700	27.7200	2.70
1992	9	20	-26.8500	26.7700	2.60
1992	9	21	-26.8600	26.7600	2.50
1992	9	22	-26.2200	28.2100	2.60
1992	9	23	-26.9200	26.7600	3.00
1992	9	25	-26.8400	26.7400	2.80
1992	9	25	-26.8600	26.7100	2.60
1992	9	26	-26.4200	27.4600	2.50
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1992	9	27	-26.4500	27.3700	2.80
1992	9	27	-26.9600	26.7500	2.50
1992	9	29	-26.8600	26.7900	3.70
1992	9	29	-26.4300	27.3800	2.60
1992	9	30	-26.4700	27.4300	3.07
1992	9	30	-26.3600	27.5800	2.60
1992	9	30	-26.4300	27.4700	3.20
1992	10	1	-26.4000	27.4700	2.70
1992	10	2	-26.3600	27.4200	2.50
1992	10	2	-26.3600	27.6300	2.50
1992	10	2	-26.3800	27.3600	2.70
1992	10	3	-26.3700	27.4200	2.70
1992	10	3	-26.3900	27.4600	2.70
1992	10	4	-26.4100	27.4400	3.10
1992	10	5	-26.3700	27.4600	3.10
1992	10	5	-26.8700	26.7400	2.50
1992	10	6	-26.8300	26.7400	2.60
1992	10	6	-26.3900	27.3500	3.00
1992	10	6	-26.4200	27.4700	2.60
1992	10	7	-26.3800	27.4500	2.70
1992	10	8	-26.4000	27.4500	2.50
1992	10	8	-26.3600	27.5000	2.70
1992	10	9	-26.4000	27.4000	3.50
1992	10	9	-26.3800	27.4800	2.90
1992	10	9	-26.3600	27.4000	2.80
1992	10	9	-26.4000	27.3800	2.90
1992	10	9	-26.3600	27.4800	2.90
1992	10	10	-26.4000	27.3700	2.80
1992	10	10	-26.3900	27.5000	2.80
1992	10	10	-26.8200	26.8100	2.50
1992	10	10	-26.3700	27.4400	2.70
1992	10	11	-26.2900	27.6500	2.70
1992	10	12	-26.8600	26.7400	2.50
1992	10	15	-26.8700	26.7200	2.50
1992	10	16	-26.4200	27.3800	3.40
1992	10	16	-26.8700	26.7100	3.10
1992	10	16	-26.2100	28.2300	3.10
1992	10	16	-26.9400	26.7400	2.60
1992	10	16	-26.3600	27.5000	2.50
1992	10	16	-27.9300	26.6900	2.80
1992	10	16	-26.8800	26.7200	2.70
1992	10	17	-28.0100	26.7700	2.60
1992	10	17	-26.4100	27.4500	3.10
1992	10	17	-26.4000	27.4100	3.80
1992	10	17	-26.3900	27.3100	2.70
1992	10	17	-26.2000	28.2300	3.10
1992	10	19	-26.4000	27.2900	2.50
1992	10	21	-26.8700	26.6800	3.10
1992	10	21	-26.3900	27.4200	3.10
1992	10	21	-26.8500	26.7900	2.90
1992	10	21	-26.9100	26.7000	3.10

1992	10	22	-26.8400	26.7200	2.70
1992	10	22	-26.3700	27.4200	3.10
1992	10	22	-26.3800	27.3800	3.10
1992	10	23	-26.4300	27.3600	3.70
1992	10	23	-26.8800	26.7800	3.00
1992	10	24	-26.8000	26.7700	2.80
1992	10	24	-26.3600	27.3500	3.00
1992	10	27	-26.8700	26.8200	2.50
1992	10	28	-26.3900	27.4800	3.30
1992	10	28	-26.4100	27.4500	2.60
1992	10	30	-26.3100	27.6200	2.60
1992	10	30	-26.8400	26.7500	2.80
1992	10	30	-26.3400	27.5000	2.80
1992	11	3	-26.3800	27.4500	2.80
1992	11	4	-26.3800	27.6100	2.90
1992	11	4	-26.3900	27.4300	2.80
1992	11	5	-26.4000	27.4500	2.50
1992	11	5	-26.4600	27.4500	2.50
1992	11	5	-26.4000	27.4300	2.70
1992	11	5	-26.9000	26.7500	2.90
1992	11	6	-26.8900	26.7300	2.80
1992	11	6	-26.8300	26.7500	2.70
1992	11	7	-28.0200	26.8400	2.60
1992	11	8	-26.2100	28.2300	2.90
1992	11	8	-26.7700	26.8100	3.60
1992	11	9	-27.9100	26.7100	2.90
1992	11	9	-27.7900	26.6500	2.50
1992	11	11	-26.3900	27.4400	3.50
1992	11	12	-26.3500	27.6200	2.50
1992	11	13	-26.4500	27.3400	3.20
1992	11	14	-26.3800	27.4300	3.10
1992	11	14	-26.9400	26.7300	3.10
1992	11	16	-26.4500	27.3000	2.80
1992	11	16	-26.4100	27.3900	2.80
1992	11	18	-22.6000	25.3000	3.67
1992	11	18	-26.9200	26.7600	2.60
1992	11	18	-26.4500	27.4400	2.80
1992	11	18	-26.2600	27.6300	3.40
1992	11	19	-26.4300	27.3800	2.50
1992	11	20	-26.4600	27.4300	2.80
1992	11	21	-28.0400	26.7800	3.10
1992	11	21	-26.4300	27.4100	2.80
1992	11	24	-26.3900	27.4600	3.40
1992	11	24	-26.8800	26.7400	3.00
1992	11	25	-26.4000	27.4800	2.60
1992	11	25	-26.4100	27.4900	2.70
1992	11	26	-26.9500	26.7400	2.60
1992	11	27	-26.4700	27.4100	2.80
1992	11	28	-26.4600	27.3900	2.80
1992	11	28	-26.9200	26.6100	4.10
1992	11	28	-26.4000	27.4800	2.60
1992	11	30	-26.3700	27.4900	2.70
1992	11	30	-26.9000	26.8100	2.60
1992	12	1	-26.8400	26.8000	2.60
1992	12	1	-26.9100	26.7800	2.60
1992	12	2	-26.2000	28.1800	3.20
1992	12	4	-26.4400	27.4300	3.07
1992	12	5	-28.0600	26.8300	2.50
1992	12	5	-22.3000	27.9000	2.98
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1992	12	7	-26.9100	26.7800	2.70

1992	12	8	-28.0500	26.8300	2.80
1992	12	8	-26.3800	27.4700	2.80
1992	12	9	-26.4200	27.4500	2.60
1992	12	10	-26.3600	27.4900	2.90
1992	12	10	-26.4100	27.5100	2.50
1992	12	10	-26.9500	26.7400	2.90
1992	12	10	-26.3700	27.5100	2.60
1992	12	10	-26.8300	26.7900	2.70
1992	12	10	-26.9200	26.7500	2.80
1992	12	12	-26.4300	27.4600	2.70
1992	12	12	-28.0400	26.7700	2.80
1992	12	12	-26.3800	27.3500	2.90
1992	12	12	-26.8800	26.7600	2.90
1992	12	13	-26.3800	27.5000	3.20
1992	12	14	-26.8600	26.7900	2.90
1992	12	15	-26.3600	27.4200	2.70
1992	12	15	-26.4000	27.3900	3.70
1992	12	17	-28.0800	26.8300	2.70
1992	12	17	-26.9400	26.7600	2.80
1992	12	18	-26.2100	28.2100	3.30
1992	12	19	-26.4100	27.4200	2.80
1992	12	19	-26.9300	26.7300	3.10
1992	12	19	-26.9000	26.6700	3.50
1992	12	20	-26.3800	27.5000	2.60
1992	12	20	-28.0300	26.8500	3.20
1992	12	23	-26.9600	26.7400	2.60
1992	12	23	-26.4200	27.4400	3.80
1992	12	23	-28.0800	26.8700	2.60
1992	12	24	-26.8800	26.8100	2.90
1992	12	28	-26.3800	27.3300	3.00
1992	12	28	-26.3900	27.4200	2.80
1992	12	29	-26.2300	28.2500	3.00
1992	12	30	-28.0700	26.8700	3.20
1992	12	30	-26.4200	27.4000	2.60
1992	12	30	-26.3900	27.2900	3.00
1992	12	31	-26.4100	27.4000	2.60
1993	1	1	-26.3900	27.6500	2.50
1993	1	1	-26.4500	27.3100	3.00
1993	1	1	-26.3700	27.4800	3.40
1993	1	2	-26.9300	26.7700	2.70
1993	1	3	-26.4200	27.3700	2.80
1993	1	4	-26.4000	27.4100	2.90
1993	1	4	-26.3400	27.7200	2.50
1993	1	5	-26.4200	27.3900	3.50
1993	1	5	-26.3800	27.3900	2.60
1993	1	6	-26.3600	27.5900	3.00
1993	1	6	-26.3700	27.3700	2.60
1993	1	6	-26.4000	27.3800	2.60
1993	1	7	-26.9000	26.7600	3.00
1993	1	8	-26.4200	27.4400	2.80
1993	1	8	-28.0200	26.7200	3.20
1993	1	8	-28.0300	26.7600	2.70
1993	1	8	-26.8900	26.7700	2.70
1993	1	8	-26.8900	26.7200	3.00
1993	1	8	-27.9800	26.7300	3.00
1993	1	11	-26.4100	27.3600	2.60
1993	1	11	-25.1000	25.5000	3.58
1993	1	11	-26.8900	26.6600	2.70
1993	1	14	-26.3900	27.6600	2.60
1993	1	14	-26.3900	27.4600	3.20
1993	1	14	-26.9100	26.6400	3.10

1993	1	15	-26.3700	27.7000	2.60
1993	1	19	-26.3500	27.7000	2.80
1993	1	20	-26.9300	26.7800	2.60
1993	1	20	-26.8700	26.6700	2.50
1993	1	20	-26.3800	27.4800	2.80
1993	1	21	-26.4400	27.4300	2.60
1993	1	22	-28.0700	26.8400	2.70
1993	1	25	-26.4300	27.3400	2.70
1993	1	26	-27.9700	26.7200	2.90
1993	1	27	-26.3700	27.3700	3.40
1993	1	30	-26.8200	26.8100	3.40
1993	1	30	-26.8900	26.7500	3.10
1993	2	1	-26.2100	28.2300	2.50
1993	2	1	-26.8600	26.8500	2.90
1993	2	1	-26.3700	27.3100	3.20
1993	2	2	-26.4000	27.3600	2.60
1993	2	2	-26.4100	27.3300	2.70
1993	2	3	-24.1900	27.3900	3.70
1993	2	3	-26.3900	27.3700	3.00
1993	2	4	-26.2200	28.2500	3.50
1993	2	5	-28.0800	26.8500	2.90
1993	2	5	-26.4100	27.3600	3.00
1993	2	6	-26.2200	28.2500	3.40
1993	2	6	-26.3700	27.3300	3.10
1993	2	7	-26.8800	26.7600	2.70
1993	2	7	-26.9000	26.7800	2.70
1993	2	8	-26.8600	26.7600	2.50
1993	2	9	-26.9100	26.7700	3.00
1993	2	10	-23.9700	26.1800	4.10
1993	2	10	-26.9100	26.7800	2.50
1993	2	10	-26.4100	27.4500	3.80
1993	2	10	-26.3800	27.4200	2.80
1993	2	11	-26.4100	27.4300	3.40
1993	2	13	-26.4100	27.3300	3.00
1993	2	14	-26.9400	26.7400	2.80
1993	2	15	-28.0500	26.8700	2.70
1993	2	15	-26.3900	27.3900	2.90
1993	2	15	-26.3800	27.4300	2.60
1993	2	15	-26.3900	27.4000	2.50
1993	2	16	-26.4100	27.3800	2.50
1993	2	18	-26.2100	28.1900	2.70
1993	2	18	-26.2200	27.6400	2.80
1993	2	19	-26.8800	26.6600	2.80
1993	2	20	-26.8800	26.6700	3.20
1993	2	20	-26.8800	26.7500	4.10
1993	2	21	-26.9100	26.7500	2.50
1993	2	22	-26.3900	27.2800	2.50
1993	2	22	-26.9200	26.7900	3.30
1993	2	22	-26.3700	27.4300	3.20
1993	2	22	-26.4000	27.4200	2.50
1993	2	23	-26.4100	27.4600	4.00
1993	2	23	-26.8200	26.6900	4.94
1993	2	23	-26.8800	26.7600	3.90
1993	2	23	-26.9000	26.7800	3.90
1993	2	24	-26.9100	26.6900	4.10
1993	2	24	-26.4100	27.3300	2.50
1993	2	24	-26.9000	26.7700	2.90
1993	2	24	-26.3900	27.3400	3.10
1993	2	25	-26.2000	28.2300	2.80
1993	2	26	-26.3800	27.3900	3.80
1993	2	28	-26.8300	26.7800	2.60

1993	2	28	-26.4100	27.4000	2.70
1993	3	1	-26.9100	26.7400	2.80
1993	3	1	-26.9100	26.8100	3.00
1993	3	2	-26.3600	27.3000	2.90
1993	3	2	-26.3700	27.3200	2.60
1993	3	2	-26.4100	27.3800	2.60
1993	3	3	-26.9300	26.7700	2.50
1993	3	4	-26.3400	27.6000	3.20
1993	3	4	-26.9200	26.6800	3.40
1993	3	4	-27.9900	26.7500	3.50
1993	3	5	-26.9100	26.8100	2.50
1993	3	5	-26.3600	27.4200	2.60
1993	3	7	-26.3800	27.6100	2.70
1993	3	8	-26.8800	26.8100	3.00
1993	3	9	-26.8600	26.8300	2.60
1993	3	10	-26.3800	27.3700	2.80
1993	3	11	-26.8700	26.7700	3.40
1993	3	11	-28.0400	26.7900	3.10
1993	3	11	-27.9600	26.7400	3.00
1993	3	11	-26.4600	27.4200	2.60
1993	3	14	-28.0100	26.7100	2.50
1993	3	15	-26.8900	26.7500	2.80
1993	3	16	-26.4000	27.3900	2.50
1993	3	16	-26.3700	27.3200	2.70
1993	3	16	-26.3400	27.7200	2.60
1993	3	17	-28.0000	26.6900	2.80
1993	3	17	-27.9100	26.6500	2.60
1993	3	18	-26.3800	27.3700	2.50
1993	3	19	-26.9000	26.6700	3.20
1993	3	19	-26.4000	27.3900	3.30
1993	3	20	-26.8300	26.8300	2.70
1993	3	21	-27.9400	26.6900	3.00
1993	3	21	-28.0600	26.8800	3.00
1993	3	21	-26.3700	27.4400	3.10
1993	3	21	-26.4300	27.3500	3.40
1993	3	21	-26.4000	27.4700	3.20
1993	3	22	-26.3700	27.3600	3.10
1993	3	22	-26.7600	26.7700	3.60
1993	3	22	-26.9100	26.6200	2.60
1993	3	25	-26.3700	27.4000	2.70
1993	3	28	-26.9100	26.7900	3.00
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1993	3	30	-26.1700	27.8300	3.10
1993	3	30	-26.3800	27.4700	2.70
1993	3	31	-26.8900	26.7700	2.70
1993	4	2	-26.9100	26.7400	2.60
1993	4	3	-26.3800	27.4500	2.80
1993	4	3	-26.9300	26.7700	2.50
1993	4	5	-26.3800	27.3300	2.60
1993	4	6	-26.4000	27.4200	2.80
1993	4	6	-28.0500	26.8700	2.50
1993	4	6	-26.3900	27.4100	4.10
1993	4	6	-26.3800	27.6100	3.00
1993	4	6	-26.4000	27.5000	2.60
1993	4	7	-26.3700	27.4500	2.70
1993	4	7	-26.9100	26.8200	2.70
1993	4	7	-26.3900	27.5000	2.60
1993	4	9	-26.4300	27.3900	2.80
1993	4	10	-26.4100	27.4700	2.70
1993	4	13	-26.8900	26.8100	2.50
1993	4	14	-26.3700	27.4900	3.10

1993	4	14	-26.4300	27.3900	3.90
1993	4	14	-26.4300	27.4000	2.60
1993	4	14	-26.3800	27.4900	2.90
1993	4	14	-26.8900	26.7500	3.20
1993	4	15	-26.3800	27.4300	3.10
1993	4	15	-26.4200	27.4000	2.60
1993	4	15	-26.9200	26.7500	3.00
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1993	4	16	-26.3900	27.3300	3.00
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1993	4	17	-29.7500	26.7300	2.90
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1993	4	17	-25.4000	30.9200	3.20
1993	4	18	-28.0700	26.8500	3.70
1993	4	19	-26.3600	27.4900	2.70
1993	4	20	-26.8700	26.8200	3.40
1993	4	22	-26.4200	27.4300	3.10
1993	4	23	-26.9200	26.7900	2.70
1993	4	23	-26.3900	27.3500	2.60
1993	4	23	-26.3800	27.3800	3.20
1993	4	24	-26.3900	27.3900	2.70
1993	4	24	-26.8900	26.7400	2.80
1993	4	24	-26.9000	26.7400	2.50
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1993	4	26	-26.4100	27.4200	2.70
1993	4	27	-26.4200	27.4000	3.00
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1993	4	27	-26.8600	26.7900	2.60
1993	4	27	-26.8700	26.7500	2.80
1993	4	28	-26.9200	26.7700	4.50
1993	4	28	-28.0700	26.8500	2.70
1993	4	28	-26.4100	27.4900	3.00
1993	4	29	-26.4400	27.3600	2.80
1993	4	30	-26.8900	26.7100	3.30
1993	5	1	-28.0500	26.7700	3.10
1993	5	1	-26.9200	26.8100	2.60
1993	5	3	-26.1900	28.2100	2.50
1993	5	4	-26.8900	26.8200	2.70
1993	5	4	-26.9200	26.7400	2.50
1993	5	6	-27.9700	26.7400	2.70
1993	5	6	-26.8600	26.7600	2.50
1993	5	6	-26.8600	26.7400	3.90
1993	5	6	-26.4200	27.3500	3.00
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1993	5	7	-26.2100	28.1900	2.50
1993	5	7	-26.4300	27.3900	2.90
1993	5	8	-26.3700	27.3900	2.60
1993	5	8	-26.3900	27.3800	2.60
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1993	5	10	-26.3900	27.4100	3.70
1993	5	10	-26.4000	27.3900	2.60
1993	5	11	-26.8500	26.8500	4.00
1993	5	11	-26.9200	26.6700	3.40
1993	5	14	-26.9000	26.7200	3.80
1993	5	15	-26.8200	26.7300	2.80
1993	5	15	-26.8300	26.7900	2.50
1993	5	17	-26.3800	27.3500	2.70

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1993	5	17	-26.3500	27.4400	2.70
1993	5	18	-26.3900	27.4500	2.80
1993	5	18	-26.3300	27.6200	2.60
1993	5	19	-26.8800	26.7900	3.30
1993	5	19	-26.4000	27.4000	3.00
1993	5	19	-26.3400	27.4400	3.00
1993	5	20	-26.8800	26.6900	2.70
1993	5	22	-26.3600	27.4700	3.40
1993	5	22	-27.9800	26.7700	3.10
1993	5	23	-26.3700	27.4400	2.60
1993	5	23	-26.8600	26.7900	2.70
1993	5	23	-26.3600	27.4800	2.80
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1993	5	26	-26.3900	27.5100	3.80
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1993	5	27	-26.8900	26.7700	3.40
1993	5	27	-26.2400	27.7300	3.00
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1993	5	28	-26.8800	26.7500	3.00
1993	5	28	-26.4300	27.3800	4.00
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1993	5	31	-26.3700	27.4000	2.50
1993	5	31	-26.3800	27.5100	2.80
1993	6	1	-26.2000	28.2700	2.60
1993	6	1	-26.3800	27.5900	2.60
1993	6	1	-26.8700	26.7900	4.30
1993	6	1	-26.8800	26.7800	2.70
1993	6	2	-26.9200	26.7500	2.50
1993	6	2	-26.8700	26.8200	3.50
1993	6	2	-28.0500	26.8000	3.10
1993	6	2	-26.3700	27.2900	2.60
1993	6	3	-26.2000	28.2300	2.70
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1993	6	9	-26.8600	26.7300	3.10
1993	6	10	-29.7300	27.1000	2.70
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1993	6	11	-26.9100	26.7900	2.60
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1993	6	11	-26.4400	27.3100	3.20
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1993	6	11	-26.4000	27.3300	3.00
1993	6	12	-26.9000	26.7800	2.60
1993	6	15	-26.1900	28.2000	3.20
1993	6	15	-28.0600	26.8200	2.70
1993	6	16	-26.4400	27.3200	3.00
1993	6	18	-26.4200	27.4200	2.70
1993	6	18	-26.3600	27.3800	2.90
1993	6	18	-26.4300	27.4100	2.50
1993	6	18	-26.3700	27.4200	2.90

1993	6	19	-26.9400	26.7600	3.00
1993	6	19	-26.9000	26.7400	2.50
1993	6	19	-26.3800	27.4200	2.90
1993	6	20	-26.9000	26.7600	2.80
1993	6	21	-26.2000	28.1900	3.10
1993	6	21	-26.9200	26.7900	3.00
1993	6	22	-28.0800	26.8700	2.60
1993	6	23	-26.3700	27.4600	2.60
1993	6	24	-26.2300	27.6600	2.80
1993	6	24	-26.4000	27.4000	2.80
1993	6	24	-27.9300	26.7600	2.90
1993	6	25	-26.3800	27.6000	2.80
1993	6	25	-26.4200	27.4200	2.50
1993	6	26	-26.3700	27.4000	2.70
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1993	6	27	-27.9600	26.7000	2.70
1993	6	27	-26.3400	27.4600	2.80
1993	6	27	-26.3500	27.4600	2.90
1993	6	28	-28.1200	26.9000	2.50
1993	6	28	-26.9100	26.7300	3.40
1993	6	29	-26.3700	27.3600	2.80
1993	6	29	-26.8600	26.8400	3.20
1993	6	29	-26.3700	27.4300	2.80
1993	6	29	-26.3700	27.5100	2.90
1993	7	1	-26.3700	27.3200	2.80
1993	7	1	-26.8500	26.7000	2.60
1993	7	2	-26.3500	27.4400	2.90
1993	7	2	-26.3900	27.3200	3.20
1993	7	3	-26.3700	27.4000	2.80
1993	7	3	-26.9200	26.7200	2.70
1993	7	5	-26.3800	27.3000	3.10
1993	7	5	-26.3500	27.5000	2.70
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1993	7	6	-26.3500	27.6200	2.80
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1993	7	7	-26.9200	26.8000	2.90
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1993	7	10	-26.9300	26.6200	2.80
1993	7	10	-26.9500	26.7800	2.70
1993	7	10	-26.9300	26.8000	3.60
1993	7	10	-26.4100	27.4100	2.90
1993	7	11	-26.1900	28.2100	2.80
1993	7	11	-27.9200	26.6800	2.50
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1993	7	14	-26.3800	27.4800	3.10
1993	7	15	-26.3900	27.3200	3.00
1993	7	16	-26.3600	27.4500	2.70
1993	7	17	-26.4300	27.4500	3.10
1993	7	17	-26.8700	26.8000	2.60
1993	7	18	-26.4100	27.4400	2.60
1993	7	21	-26.3700	27.3000	3.10
1993	7	21	-26.3800	27.3100	2.60
1993	7	22	-26.8300	26.8200	4.10
1993	7	23	-26.8600	26.8300	2.60
1993	7	26	-26.3800	27.2800	4.17
1993	7	26	-26.8900	26.7600	3.00
1993	7	26	-26.3900	27.3200	3.90

1993	7	27	-26.9600	26.7400	2.50
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1993	7	27	-26.3800	27.3200	2.50
1993	7	27	-28.0500	26.9000	2.70
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1993	7	29	-26.3700	27.3400	2.90
1993	7	29	-26.3600	27.6100	2.60
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1993	7	30	-26.1300	27.7200	2.60
1993	7	30	-28.0700	26.8300	2.50
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1993	7	30	-26.8800	26.7200	3.10
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1993	7	31	-29.6000	27.7100	3.80
1993	8	2	-26.8700	26.7200	3.00
1993	8	5	-26.3700	27.4000	3.20
1993	8	6	-28.0900	26.8700	2.50
1993	8	6	-29.5300	27.7000	2.50
1993	8	7	-26.9000	26.7600	3.80
1993	8	9	-26.4000	27.3700	3.30
1993	8	11	-26.4000	27.3700	3.00
1993	8	12	-26.3400	27.5100	2.70
1993	8	12	-26.2400	28.2500	2.80
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1993	8	15	-28.0400	26.8600	3.40
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1993	8	16	-26.4100	27.2900	3.60
1993	8	17	-26.4200	27.2900	3.40
1993	8	17	-26.4000	27.4900	3.00
1993	8	17	-26.3800	27.3500	2.60
1993	8	18	-26.3400	27.5000	2.50
1993	8	18	-26.8900	26.7900	4.00
1993	8	18	-26.8700	26.8000	2.70
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1993	8	20	-26.4000	27.4100	2.70
1993	8	20	-26.9000	26.7400	3.90
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1993	8	23	-26.3900	27.6900	2.90
1993	8	23	-26.2800	27.6300	3.70
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1993	8	24	-26.3700	27.4600	2.70
1993	8	24	-26.4400	27.3500	3.40
1993	8	25	-26.4100	27.3500	2.50
1993	8	26	-26.8500	26.7600	2.80
1993	8	28	-26.3500	27.6400	2.80
1993	8	28	-26.8700	26.6800	3.70
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1993	8	30	-26.8700	26.7800	2.70
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1993	8	31	-26.9100	26.8200	3.40
1993	9	1	-26.3900	27.5100	3.10
1993	9	2	-26.3600	27.5000	3.20
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1993	9	5	-26.4000	27.4300	3.20
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1993	9	6	-28.0300	26.8100	2.70
1993	9	6	-26.3700	27.3900	3.00
1993	9	7	-26.4000	27.4200	2.60
1993	9	7	-26.8900	26.8200	2.50
1993	9	7	-28.1300	26.9000	3.70
1993	9	8	-26.8000	26.8000	2.90
1993	9	8	-26.8900	26.6800	2.70
1993	9	9	-26.8800	26.7500	3.00
1993	9	10	-26.1600	27.8300	2.70
1993	9	10	-26.9200	26.7600	2.70
1993	9	11	-26.3900	27.4000	2.50
1993	9	12	-27.9700	26.7100	2.70
1993	9	14	-26.3700	27.3300	2.60
1993	9	14	-26.3700	27.3100	2.50
1993	9	17	-26.4400	27.3700	2.50
1993	9	18	-26.8400	26.8300	3.60
1993	9	19	-26.8600	26.7600	2.60
1993	9	20	-26.9200	26.7100	3.20
1993	9	20	-26.8900	26.6300	3.80
1993	9	20	-28.0700	26.8400	3.60
1993	9	21	-26.9100	26.7000	2.70
1993	9	21	-26.3800	27.6900	3.10
1993	9	22	-26.3600	27.4600	3.10
1993	9	23	-26.3800	27.4000	2.80
1993	9	24	-26.8600	26.7900	2.60
1993	9	24	-26.4400	27.3100	2.70
1993	9	24	-26.2300	28.2300	2.90
1993	9	24	-26.4400	27.3400	3.40
1993	9	24	-26.4000	27.4400	2.90
1993	9	26	-26.3800	27.4500	2.50
1993	9	26	-26.3600	27.4700	3.00
1993	9	27	-26.3800	27.5100	2.50
1993	9	27	-26.3700	27.3000	3.10
1993	9	28	-26.4000	27.3100	3.10
1993	9	30	-26.8600	26.7900	2.70
1993	9	30	-26.3400	27.4700	3.10
1993	9	30	-26.8400	26.7200	2.80
1993	10	1	-26.3200	27.6500	2.80
1993	10	2	-26.9000	26.7100	2.60
1993	10	4	-26.4100	27.3200	3.10
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1993	10	5	-26.2900	27.6200	2.80
1993	10	5	-26.9000	26.7000	2.50
1993	10	5	-26.4100	27.4600	3.30
1993	10	5	-26.8600	26.7000	3.20
1993	10	5	-24.0000	22.9000	3.75
1993	10	7	-26.8700	26.8100	2.50
1993	10	7	-26.3800	27.4200	3.20
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1993	10	8	-26.8300	26.7400	2.50
1993	10	11	-28.4800	30.6700	3.30
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1993	10	13	-22.3000	27.9000	2.98
1993	10	16	-26.3400	27.4400	3.40
1993	10	16	-26.2100	28.2400	3.50
1993	10	16	-27.8100	26.6800	2.60
1993	10	19	-28.0600	26.7800	2.70
1993	10	22	-26.3300	27.4800	3.10
1993	10	22	-26.4300	27.3700	3.50

1993	10	22	-26.3800	27.2900	2.70
1993	10	23	-26.3900	27.4000	3.30
1993	10	24	-26.8500	26.6900	3.00
1993	10	24	-26.8700	26.6900	3.40
1993	10	24	-26.8200	26.7200	3.60
1993	10	26	-26.3500	27.6100	4.30
1993	10	26	-28.0000	26.7700	3.10
1993	10	27	-26.8700	26.7100	2.60
1993	10	28	-26.3600	27.4600	3.70
1993	10	28	-26.4400	27.3900	3.10
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1993	10	29	-26.3800	27.4800	3.00
1993	10	29	-26.8600	26.8500	2.70
1993	10	29	-26.3700	27.4300	2.80
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1993	10	30	-26.9300	26.7400	2.70
1993	10	31	-26.9200	26.7100	2.50
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1993	11	6	-26.9400	26.7400	2.70
1993	11	7	-27.9600	26.7100	3.00
1993	11	7	-27.9900	26.7000	3.00
1993	11	7	-26.3800	27.4000	2.70
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1993	11	9	-28.0100	26.7300	2.70
1993	11	9	-26.7400	26.8100	3.60
1993	11	10	-26.3700	27.2900	2.50
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1993	11	11	-26.8300	26.7800	2.80
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1993	11	15	-28.0000	26.7800	3.00
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1993	11	25	-26.3300	27.4900	2.80
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1993	11	27	-26.3900	27.3900	2.50
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1993	11	30	-28.0300	26.7100	2.70
1993	11	30	-26.3900	27.5100	2.50
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1993	12	9	-27.9200	26.7000	3.60
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1993	12	11	-26.3700	27.4400	2.80
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1993	12	27	-26.9100	26.7600	3.70
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1994	4	7	-28.0300	26.7600	3.10
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1994	4	30	-28.0400	26.7200	2.60
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1994	5	5	-26.4300	27.3300	2.60
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1994	5	7	-28.0300	26.8600	2.80
1994	5	7	-26.3700	27.4300	2.80
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1994	5	10	-26.4100	27.4000	3.00
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1994	5	18	-26.3900	27.3700	2.70
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1994	5	26	-26.3800	27.5200	2.50
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1994	5	28	-26.3900	27.3800	2.50
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1994	5	30	-26.8700	26.7900	3.00
1994	5	31	-26.4400	27.3200	3.00
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1994	6	3	-26.4300	27.3700	2.90
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1994	6	10	-26.8700	26.8400	2.70
1994	6	10	-26.2900	27.6200	2.70
1994	6	12	-26.9000	26.7800	3.10
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1994	6	12	-26.3900	27.4800	3.50
1994	6	12	-26.4000	27.5200	2.50
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1994	7	5	-26.9200	26.7500	2.60
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1994	7	6	-26.3700	27.4200	2.80
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1995	1	27	-26.3800	27.3500	2.80
1995	1	27	-26.3900	27.5800	2.60
1995	1	28	-26.3700	27.3100	2.80
1995	1	29	-26.3800	27.2900	2.80
1995	1	30	-26.9200	26.8000	2.50
1995	1	31	-26.3800	27.5000	2.50
1995	1	31	-26.3400	27.6000	2.60
1995	1	31	-26.2400	28.2400	3.10
1995	2	1	-26.8800	26.6800	2.90
1995	2	1	-26.4000	27.3100	2.70
1995	2	1	-26.8400	26.7000	3.50
1995	2	1	-26.4100	27.3500	2.70
1995	2	2	-26.9100	26.6700	3.80
1995	2	6	-26.1100	27.7100	3.00
1995	2	6	-26.8900	26.7100	2.60
1995	2	6	-26.2000	28.2400	2.70
1995	2	8	-26.9300	26.7100	2.80
1995	2	8	-26.4000	27.3500	2.50
1995	2	8	-29.7300	27.5500	3.70
1995	2	10	-26.8800	26.7700	4.30
1995	2	10	-26.8500	26.7000	2.80
1995	2	10	-26.3800	27.3900	2.60
1995	2	14	-26.3900	27.3200	3.20
1995	2	14	-26.3900	27.2900	2.90
1995	2	14	-26.3400	27.5800	2.80
1995	2	16	-26.3800	27.3700	3.60
1995	2	16	-26.3900	27.4900	3.10
1995	2	16	-26.3400	27.6100	2.70
1995	2	17	-28.0400	26.9000	2.70
1995	2	17	-26.3800	27.4100	3.00
1995	2	17	-26.3700	27.3300	2.60
1995	2	18	-26.3700	27.5100	2.50
1995	2	18	-26.8900	26.7800	3.20

1995	2	19	-26.4400	27.3100	3.00
1995	2	20	-26.3800	27.3600	2.50
1995	2	20	-26.8900	26.7500	2.60
1995	2	20	-26.4000	27.4600	2.80
1995	2	21	-26.3800	27.4200	2.70
1995	2	21	-26.8100	26.8000	2.50
1995	2	22	-26.4500	27.4300	3.20
1995	2	22	-26.8900	26.8200	2.70
1995	2	23	-26.2000	28.2300	2.80
1995	2	25	-26.4000	27.5900	3.10
1995	2	26	-26.9200	26.6200	2.60
1995	2	28	-26.4300	27.3300	3.00
1995	3	2	-26.9200	26.7000	3.40
1995	3	2	-27.9900	26.7100	2.70
1995	3	3	-26.3100	27.6400	2.70
1995	3	3	-26.2400	28.2500	2.80
1995	3	4	-26.4500	27.3300	2.50
1995	3	4	-26.4500	27.3100	3.00
1995	3	5	-28.0400	26.7100	2.70
1995	3	6	-26.4100	27.4400	3.20
1995	3	7	-26.4300	27.3000	2.70
1995	3	7	-26.3700	27.5800	2.70
1995	3	7	-26.9400	26.7800	2.60
1995	3	8	-26.4000	27.3000	2.90
1995	3	10	-26.4000	27.4800	2.90
1995	3	10	-26.3700	27.4300	3.40
1995	3	13	-26.4000	27.4200	3.20
1995	3	17	-26.4100	27.4200	3.00
1995	3	18	-26.8800	26.7900	3.00
1995	3	18	-26.4200	27.3400	3.20
1995	3	19	-26.4300	27.3600	3.40
1995	3	20	-26.3800	27.3300	3.10
1995	3	21	-26.4300	27.3100	3.10
1995	3	21	-26.4400	27.4200	3.00
1995	3	27	-26.9100	26.6900	2.60
1995	3	29	-26.3600	27.6200	2.60
1995	3	30	-26.4100	27.4000	2.80
1995	3	30	-26.9300	26.6400	3.30
1995	3	31	-28.1000	26.8700	2.50
1995	3	31	-26.9500	26.7500	3.30
1995	3	31	-26.3700	27.5900	3.20
1995	4	1	-27.9500	26.6700	2.80
1995	4	2	-26.8600	26.8100	3.30
1995	4	2	-28.0200	26.7000	2.50
1995	4	3	-26.3800	27.3200	2.70
1995	4	4	-26.3500	27.5000	2.90
1995	4	6	-28.0100	26.7300	3.00
1995	4	7	-26.2000	28.2400	3.10
1995	4	8	-26.8900	26.7200	3.40
1995	4	8	-26.4500	27.3300	3.30
1995	4	10	-26.8700	26.6800	2.90
1995	4	12	-26.3800	27.4700	2.50
1995	4	13	-26.9200	26.6500	3.00
1995	4	16	-26.9100	26.6600	2.80
1995	4	16	-26.4500	27.3100	2.60
1995	4	18	-25.3500	27.5900	2.90
1995	4	19	-26.3700	27.6100	2.90
1995	4	20	-26.3800	27.3600	2.90
1995	4	22	-26.9200	26.8000	2.80
1995	4	23	-26.9300	26.7900	2.80
1995	4	23	-26.4400	27.3600	3.40

1995	4	25	-26.4300	27.4200	2.90
1995	4	25	-26.9100	26.7000	3.00
1995	4	26	-26.3700	27.4600	2.70
1995	4	26	-26.1900	28.1900	2.70
1995	4	26	-26.3800	27.4900	3.00
1995	4	26	-26.3800	27.2900	2.70
1995	4	27	-26.3700	27.4300	2.90
1995	4	27	-26.4400	27.3700	2.60
1995	4	30	-26.4000	27.4700	2.80
1995	5	7	-26.9100	26.6400	3.00
1995	5	8	-26.2300	28.2300	2.70
1995	5	9	-26.7900	26.8200	2.70
1995	5	9	-26.8900	26.8100	2.50
1995	5	9	-26.4200	27.4300	2.70
1995	5	11	-26.3600	27.4700	2.80
1995	5	11	-26.4400	27.3900	3.00
1995	5	12	-26.4400	27.4100	3.20
1995	5	12	-26.3600	27.4700	3.00
1995	5	13	-27.8600	26.6800	2.50
1995	5	13	-26.4300	27.3300	3.20
1995	5	16	-26.3800	27.3800	3.00
1995	5	16	-26.9100	26.6600	3.20
1995	5	17	-26.3800	27.4000	2.60
1995	5	18	-26.9000	26.8100	3.10
1995	5	18	-26.9000	26.7800	2.70
1995	5	19	-28.0300	26.7200	3.90
1995	5	19	-26.3700	27.4500	2.80
1995	5	20	-26.8900	26.6900	4.10
1995	5	20	-26.8200	26.8300	2.70
1995	5	20	-26.3900	27.4400	2.90
1995	5	20	-27.9800	26.7000	3.00
1995	5	21	-27.8900	26.7100	3.00
1995	5	21	-26.7900	26.7500	3.60
1995	5	22	-26.4600	27.3200	3.30
1995	5	23	-26.3900	27.4600	2.60
1995	5	24	-26.3800	27.3700	2.50
1995	5	24	-26.4200	27.3800	3.00
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1995	5	25	-28.0300	26.7400	2.90
1995	5	27	-26.4100	27.4200	2.80
1995	5	27	-26.9300	26.7700	2.70
1995	5	27	-26.2100	28.2400	3.70
1995	5	29	-26.3800	27.3600	2.60
1995	5	29	-26.4300	27.3000	3.00
1995	5	31	-26.3800	27.4600	2.70
1995	5	31	-26.9200	26.7400	3.50
1995	5	31	-26.4400	27.3800	2.50
1995	5	31	-26.4200	27.3600	2.70
1995	5	31	-26.4100	27.4600	2.80
1995	5	31	-26.4000	27.3000	2.70
1995	6	1	-26.3300	27.4700	3.20
1995	6	1	-26.3700	27.3700	2.90
1995	6	2	-26.8400	26.8300	3.10
1995	6	3	-26.1800	28.2300	2.70
1995	6	4	-26.8900	26.7800	3.00
1995	6	4	-26.8900	26.7300	2.90
1995	6	4	-26.8800	26.7600	2.60
1995	6	4	-27.7300	30.1200	3.00
1995	6	5	-26.4500	27.4100	2.60
1995	6	6	-26.8700	26.7200	3.50
1995	6	6	-26.2100	28.1800	2.90

1995	6	6	-26.4300	27.3100	3.30
1995	6	6	-26.8800	26.7400	3.10
1995	6	7	-26.3800	27.3000	2.80
1995	6	7	-26.3600	27.2800	2.50
1995	6	8	-26.9100	26.6700	2.60
1995	6	8	-26.4000	27.5000	3.30
1995	6	8	-26.9500	26.7900	2.90
1995	6	8	-26.9000	26.8200	2.70
1995	6	9	-26.4300	27.3200	2.90
1995	6	9	-26.8800	26.8400	2.50
1995	6	9	-26.4200	27.4100	3.10
1995	6	10	-26.4200	27.3500	3.20
1995	6	12	-28.0200	26.7700	2.60
1995	6	12	-26.4200	27.3200	2.60
1995	6	13	-26.3500	27.4000	2.60
1995	6	13	-26.8600	26.8300	2.60
1995	6	15	-26.4200	27.3700	2.60
1995	6	15	-26.4500	27.4000	2.60
1995	6	16	-26.4100	27.3400	2.70
1995	6	16	-28.0300	26.7200	2.70
1995	6	17	-26.8800	26.7900	2.60
1995	6	18	-26.2400	28.2500	3.40
1995	6	18	-26.8800	26.7900	3.30
1995	6	19	-26.9000	26.7900	3.00
1995	6	21	-26.3900	27.6000	3.00
1995	6	22	-28.0100	26.7000	3.00
1995	6	22	-26.2400	28.2600	3.60
1995	6	22	-26.3500	27.6100	2.80
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1995	6	23	-26.4400	27.2700	2.90
1995	6	23	-26.9100	26.7500	2.50
1995	6	23	-26.9400	26.7600	3.20
1995	6	25	-26.3900	27.4100	2.70
1995	6	26	-26.3900	27.5100	2.90
1995	6	27	-26.4100	27.4700	2.50
1995	6	28	-26.3700	27.4300	2.60
1995	6	28	-26.2200	28.2400	2.50
1995	6	29	-26.8600	26.8100	2.60
1995	6	30	-26.3900	27.4500	3.50
1995	7	1	-26.8200	26.8300	2.70
1995	7	1	-26.4400	27.3900	2.70
1995	7	1	-26.8100	26.8200	2.50
1995	7	2	-26.9100	26.8100	2.60
1995	7	2	-26.3200	27.6200	2.60
1995	7	2	-26.4100	27.4300	3.20
1995	7	4	-27.9700	26.7000	3.70
1995	7	4	-26.8400	26.7300	2.80
1995	7	4	-26.9200	26.8000	2.70
1995	7	5	-26.8900	26.7200	2.90
1995	7	5	-26.1900	28.2300	2.70
1995	7	5	-26.9100	26.6900	3.00
1995	7	6	-26.9300	26.7800	2.90
1995	7	6	-26.8800	26.8100	2.80
1995	7	6	-26.7700	26.8400	2.60
1995	7	6	-26.1300	27.8200	2.60
1995	7	6	-26.3700	27.5000	2.90
1995	7	7	-26.2000	28.2300	2.60
1995	7	7	-26.9600	26.7600	2.80
1995	7	8	-26.3800	27.4500	2.60
1995	7	10	-26.3700	27.3600	2.70
1995	7	12	-26.9400	26.7800	2.80

1995	7	12	-26.3600	27.5900	2.70
1995	7	13	-26.9000	26.8200	2.50
1995	7	15	-26.3900	27.3200	2.70
1995	7	15	-27.6500	29.7500	3.30
1995	7	16	-26.9100	26.7700	2.80
1995	7	16	-26.4400	27.3400	3.20
1995	7	16	-26.4300	27.3500	2.80
1995	7	17	-28.0400	26.7600	2.70
1995	7	18	-26.3700	27.2900	2.90
1995	7	18	-26.9600	26.7500	2.90
1995	7	19	-26.3800	27.3400	2.60
1995	7	19	-27.9900	26.6900	2.90
1995	7	19	-26.4100	27.3600	2.70
1995	7	19	-26.4100	27.3500	2.90
1995	7	19	-26.3800	27.3000	2.60
1995	7	21	-26.3800	27.5100	3.10
1995	7	22	-26.9200	26.7000	2.60
1995	7	23	-26.3600	27.3000	3.10
1995	7	23	-27.8300	26.6300	3.10
1995	7	23	-26.3700	27.4900	2.50
1995	7	24	-26.8500	26.8400	2.50
1995	7	24	-26.4500	27.4100	2.50
1995	7	24	-26.8800	26.7300	3.10
1995	7	25	-26.2200	28.2500	3.40
1995	7	25	-26.1800	27.7900	2.60
1995	7	25	-27.3800	30.0000	2.70
1995	7	25	-26.7800	26.7900	2.70
1995	7	26	-26.3800	27.5900	2.80
1995	7	27	-26.9200	26.7900	2.60
1995	7	30	-26.8900	26.7200	3.00
1995	7	31	-26.9100	26.7900	3.10
1995	7	31	-26.9000	26.6400	3.10
1995	7	31	-26.3900	27.4400	2.50
1995	7	31	-27.9300	26.7100	3.20
1995	8	2	-26.9100	26.7700	3.00
1995	8	2	-26.9400	26.7700	2.60
1995	8	2	-26.4100	27.4600	2.50
1995	8	2	-28.0100	26.7500	2.90
1995	8	3	-26.9100	26.6800	3.40
1995	8	3	-26.8900	26.7500	3.70
1995	8	4	-26.2200	28.2400	3.40
1995	8	4	-26.4000	27.4400	3.10
1995	8	6	-26.4100	27.3900	2.70
1995	8	7	-26.9100	26.7500	2.90
1995	8	7	-27.9400	26.7400	2.50
1995	8	7	-26.9100	26.7500	2.70
1995	8	7	-26.3600	27.4300	2.80
1995	8	8	-25.4600	27.2000	2.90
1995	8	8	-28.5200	28.3500	2.60
1995	8	8	-26.9400	26.7700	2.70
1995	8	8	-26.1900	27.8700	2.80
1995	8	8	-26.2200	28.2400	3.10
1995	8	8	-26.3700	27.3600	3.40
1995	8	11	-26.4400	27.4100	3.90
1995	8	12	-26.4000	27.3900	2.70
1995	8	12	-26.4100	27.4300	2.90
1995	8	13	-26.4400	27.4200	3.10
1995	8	15	-26.4300	27.3600	2.90
1995	8	15	-26.3900	27.4800	2.90
1995	8	17	-26.4700	27.4300	2.50
1995	8	19	-26.3600	27.5100	2.80

1995	8	19	-26.3700	27.4800	2.60
1995	8	19	-26.9000	26.7700	3.30
1995	8	19	-26.4100	27.3800	3.10
1995	8	22	-26.8800	26.7900	2.90
1995	8	22	-26.8500	26.8300	2.80
1995	8	23	-26.9100	26.7400	3.20
1995	8	23	-26.4200	27.3900	3.00
1995	8	25	-26.3400	27.6100	2.60
1995	8	25	-26.1600	27.8700	2.90
1995	8	27	-26.3800	27.4700	2.80
1995	8	29	-26.9000	26.7300	2.80
1995	8	30	-26.4500	27.3200	2.90
1995	8	30	-26.2300	28.2400	3.10
1995	9	1	-26.8300	26.7900	2.60
1995	9	1	-26.4300	27.3700	2.50
1995	9	2	-26.3700	27.4300	2.70
1995	9	2	-26.3300	27.5000	2.50
1995	9	2	-26.3800	27.4100	2.90
1995	9	2	-26.3900	27.4800	3.10
1995	9	2	-26.9200	26.7500	2.50
1995	9	3	-26.4200	27.4600	3.70
1995	9	3	-26.3500	27.4800	2.70
1995	9	3	-26.9200	26.7100	3.40
1995	9	3	-26.8700	26.7700	2.70
1995	9	5	-26.2300	28.2200	3.40
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1995	9	5	-28.0100	26.7000	2.80
1995	9	5	-26.2500	27.6500	2.70
1995	9	6	-26.3800	27.4800	2.90
1995	9	7	-26.3600	27.4600	2.80
1995	9	9	-27.9100	26.7200	2.70
1995	9	9	-26.3800	27.4700	2.60
1995	9	10	-26.3500	27.4700	2.60
1995	9	10	-26.8600	26.7700	2.70
1995	9	10	-26.2500	27.6500	2.70
1995	9	11	-26.8700	26.7200	2.60
1995	9	11	-26.9000	26.7200	2.50
1995	9	11	-26.4100	27.4200	2.90
1995	9	12	-28.0200	26.7600	3.10
1995	9	12	-27.8500	26.6600	3.80
1995	9	12	-26.4600	27.3800	2.70
1995	9	12	-27.8700	26.6800	2.60
1995	9	13	-26.3900	27.3800	2.80
1995	9	13	-26.1700	27.8600	3.00
1995	9	14	-26.4200	27.3400	3.20
1995	9	14	-26.4300	27.4500	3.30
1995	9	16	-26.3600	27.2800	3.00
1995	9	17	-26.9100	26.6800	2.80
1995	9	17	-28.0300	26.7700	2.90
1995	9	18	-26.3900	27.4200	2.50
1995	9	20	-26.3700	27.5000	3.20
1995	9	20	-26.9000	26.7500	3.20
1995	9	21	-26.9200	26.7100	2.60
1995	9	21	-26.3900	27.3700	2.70
1995	9	22	-26.3500	27.4400	2.90
1995	9	23	-26.2300	28.1900	2.90
1995	9	24	-26.3400	27.4800	3.30
1995	9	24	-26.3800	27.3100	2.80
1995	9	24	-26.8800	26.6800	3.90
1995	9	25	-26.3800	27.3800	2.60
1995	9	25	-26.9100	26.7100	3.20

1995	9	27	-26.3500	27.4400	2.60
1995	9	27	-27.9600	26.7300	2.70
1995	9	28	-26.3900	27.4800	2.50
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1995	9	29	-26.4700	27.4500	2.60
1995	9	29	-26.3800	27.6800	3.10
1995	9	29	-26.2000	28.2300	2.80
1995	10	2	-26.3800	27.4700	2.70
1995	10	3	-26.3800	27.3700	2.80
1995	10	4	-28.0400	26.7700	2.50
1995	10	4	-26.9000	26.6500	2.70
1995	10	5	-26.3700	27.5900	2.80
1995	10	5	-26.3900	27.4500	2.70
1995	10	6	-26.4300	27.4900	3.60
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1995	10	9	-28.1200	26.8500	2.50
1995	10	9	-26.9100	26.6800	2.80
1995	10	10	-26.4300	27.4600	3.20
1995	10	11	-26.9300	26.7100	3.30
1995	10	12	-26.9500	26.7800	2.70
1995	10	12	-26.8700	26.8300	2.70
1995	10	14	-28.1000	26.8500	3.50
1995	10	15	-26.2500	27.7500	2.50
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1995	10	17	-26.3800	27.4400	2.70
1995	10	17	-26.4100	27.3800	3.00
1995	10	18	-26.9400	26.7600	2.50
1995	10	18	-26.3600	27.4900	2.70
1995	10	20	-26.4500	27.3700	2.60
1995	10	20	-26.1000	27.8000	2.60
1995	10	20	-26.8800	26.7600	2.80
1995	10	21	-26.3900	27.4600	2.60
1995	10	21	-28.0400	26.8000	2.80
1995	10	22	-24.2300	25.8800	3.90
1995	10	23	-26.8800	26.7300	2.90
1995	10	23	-26.4000	27.4000	3.10
1995	10	23	-26.4200	27.4300	2.80
1995	10	24	-26.3900	27.4700	2.90
1995	10	24	-26.4000	27.4000	3.00
1995	10	25	-26.4000	27.4000	3.60
1995	10	27	-26.2100	28.2400	3.50
1995	10	27	-26.8400	26.7500	2.90
1995	10	27	-26.3700	27.4200	2.50
1995	10	27	-26.9500	26.7400	3.00
1995	10	27	-26.4500	27.4300	2.60
1995	10	28	-26.4000	27.5900	4.10
1995	10	30	-26.9000	26.6900	2.70
1995	10	31	-26.8100	26.8200	2.60
1995	10	31	-28.0200	26.8000	2.50
1995	10	31	-26.3800	27.4200	2.70
1995	10	31	-26.3400	27.4900	2.90
1995	11	2	-28.1100	26.9100	2.60
1995	11	2	-26.2500	28.2500	2.60
1995	11	2	-26.3600	27.3300	2.60
1995	11	3	-26.9100	26.6500	2.90
1995	11	4	-26.3300	27.4800	2.90
1995	11	6	-26.9600	26.7400	2.70
1995	11	7	-26.2100	28.2500	2.70
1995	11	7	-26.3600	27.5000	2.60
1995	11	7	-26.4700	27.3900	2.90
1995	11	7	-26.3800	27.4200	2.50

1995	11	7	-26.2300	28.2300	2.90
1995	11	8	-26.8700	26.7800	2.60
1995	11	9	-26.9100	26.6200	2.70
1995	11	9	-26.9100	26.6000	2.50
1995	11	9	-26.8800	26.8000	2.50
1995	11	9	-26.9100	26.6800	2.50
1995	11	9	-26.3400	27.4700	2.60
1995	11	9	-26.3800	27.4200	2.80
1995	11	10	-26.9600	26.7400	3.40
1995	11	11	-26.9200	26.6800	3.70
1995	11	11	-26.3400	27.4800	2.50
1995	11	11	-27.9400	26.7500	3.80
1995	11	15	-26.9300	26.6500	3.50
1995	11	15	-26.8800	26.6800	3.00
1995	11	15	-26.8800	26.7500	3.40
1995	11	15	-26.8900	26.7200	2.90
1995	11	16	-26.3900	27.5900	2.70
1995	11	16	-26.8900	26.7800	2.60
1995	11	16	-26.8800	26.7100	2.90
1995	11	16	-26.1700	27.8400	2.50
1995	11	18	-26.3600	27.4400	2.70
1995	11	20	-26.3800	27.2800	3.10
1995	11	20	-26.4300	27.3500	2.60
1995	11	20	-26.3900	27.3800	2.60
1995	11	22	-26.9100	26.7400	2.90
1995	11	22	-26.4000	27.3700	2.90
1995	11	23	-26.8500	26.7300	2.70
1995	11	24	-26.2200	28.2300	3.00
1995	11	24	-26.3900	27.4000	3.10
1995	11	24	-26.3800	27.3200	2.60
1995	11	25	-26.8800	26.7200	4.70
1995	11	25	-26.3600	27.5000	2.50
1995	11	25	-26.9000	26.6400	2.80
1995	11	25	-26.9100	26.6300	3.10
1995	11	26	-26.8900	26.7200	2.70
1995	11	27	-26.3700	27.3400	3.40
1995	11	28	-26.3500	27.4300	2.90
1995	11	28	-26.3800	27.3500	2.70
1995	11	29	-26.8500	26.7300	3.10
1995	11	29	-26.4000	27.3600	2.50
1995	11	30	-26.4300	27.4100	2.80
1995	11	30	-26.9200	26.6600	3.20
1995	11	30	-26.2300	28.2200	2.60
1995	12	1	-26.4300	27.4000	2.80
1995	12	1	-26.8900	26.7600	2.70
1995	12	2	-26.9400	26.7900	2.90
1995	12	4	-26.8500	26.7800	2.50
1995	12	5	-26.3900	27.3600	2.80
1995	12	6	-26.2400	28.2600	2.70
1995	12	7	-28.0600	26.8500	3.00
1995	12	7	-26.9200	26.6900	3.00
1995	12	7	-28.1100	26.8400	2.70
1995	12	8	-26.3900	27.3300	2.60
1995	12	8	-27.9400	26.6700	2.70
1995	12	9	-27.9400	26.7400	3.20
1995	12	9	-26.9400	26.6400	3.00
1995	12	12	-28.0100	26.7100	2.60
1995	12	13	-28.0900	26.8400	2.90
1995	12	14	-26.3400	27.5800	2.60
1995	12	14	-26.9100	26.6600	2.80
1995	12	14	-26.9300	26.6200	2.80

1995	12	15	-26.2500	27.6500	2.60
1995	12	16	-27.9400	26.6700	3.50
1995	12	16	-26.9300	26.6500	2.80
1995	12	17	-27.9900	26.6900	4.20
1995	12	18	-26.3600	27.4900	2.80
1995	12	19	-26.3900	27.3000	2.50
1995	12	23	-26.9200	26.7600	2.70
1995	12	23	-27.9100	26.7400	3.40
1995	12	23	-26.3800	27.3500	2.60
1995	12	24	-26.9500	26.7600	3.10
1995	12	25	-26.3900	27.3400	2.60
1995	12	26	-27.9800	26.7600	3.00
1995	12	28	-26.8600	26.8400	2.60
1995	12	28	-26.4300	27.4100	3.30
1995	12	30	-26.3700	27.3100	2.60
1996	1	3	-29.2300	28.5000	3.00
1996	1	5	-26.3800	27.2800	2.60
1996	1	8	-27.9500	26.7500	2.70
1996	1	10	-26.8700	26.7000	2.60
1996	1	10	-26.3600	27.4600	2.70
1996	1	10	-28.0300	26.8800	2.60
1996	1	10	-26.8800	26.7500	2.60
1996	1	11	-26.9400	26.7800	2.60
1996	1	11	-26.8900	26.7100	2.90
1996	1	11	-26.2800	27.6200	2.50
1996	1	12	-26.8400	26.7100	2.90
1996	1	12	-28.0300	26.7300	3.20
1996	1	13	-26.4200	27.3400	2.50
1996	1	13	-26.9900	26.7600	2.60
1996	1	14	-27.9100	26.7400	3.00
1996	1	14	-26.3700	27.3700	2.80
1996	1	15	-26.8900	26.6700	2.70
1996	1	15	-26.9300	26.6800	2.80
1996	1	15	-26.2900	27.6200	2.80
1996	1	15	-26.4900	27.4500	2.50
1996	1	16	-26.3600	27.4900	2.90
1996	1	16	-27.9100	26.7200	3.40
1996	1	17	-26.1900	28.2300	3.00
1996	1	17	-26.4600	27.4200	2.50
1996	1	20	-28.0200	26.7200	2.80
1996	1	21	-28.0100	26.7800	3.30
1996	1	26	-26.3500	27.4800	2.80
1996	1	30	-26.4000	27.5000	2.80
1996	1	30	-26.3700	27.3100	2.80
1996	1	30	-26.3500	27.5100	2.60
1996	1	31	-26.4000	27.3700	2.50
1996	2	1	-26.4200	27.3400	3.10
1996	2	1	-28.0200	26.7500	2.60
1996	2	1	-26.4000	27.5000	2.70
1996	2	2	-26.3300	27.4800	2.50
1996	2	3	-26.3500	27.4100	3.40
1996	2	6	-26.3200	27.4900	2.90
1996	2	6	-26.3900	27.6000	2.60
1996	2	6	-27.8600	26.6900	3.60
1996	2	6	-27.8700	26.7200	3.60
1996	2	6	-26.3800	27.4500	2.50
1996	2	7	-27.9300	26.6400	2.90
1996	2	7	-26.8600	26.7200	2.70
1996	2	7	-26.3600	27.6100	2.50
1996	2	8	-26.9200	26.6900	3.00
1996	2	9	-26.3600	27.3600	3.20

1996	2	10	-26.9000	26.7600	2.70
1996	2	11	-26.9100	26.7700	2.50
1996	2	11	-26.8600	26.7700	2.90
1996	2	14	-26.3700	27.4100	3.20
1996	2	15	-26.1900	28.2100	2.90
1996	2	15	-26.1900	28.2100	2.50
1996	2	15	-26.4400	27.4000	2.70
1996	2	16	-27.8800	26.6900	3.10
1996	2	16	-28.0300	26.7400	3.00
1996	2	16	-26.3700	27.4400	2.50
1996	2	16	-26.1900	28.2100	2.60
1996	2	19	-26.9200	26.6700	2.60
1996	2	19	-27.9300	26.7600	2.80
1996	2	20	-26.9400	26.7200	2.50
1996	2	20	-26.3900	27.5100	2.50
1996	2	20	-26.3600	27.4800	3.10
1996	2	21	-26.8800	26.7300	3.50
1996	2	21	-26.8600	26.7500	2.60
1996	2	21	-26.3700	27.4300	2.80
1996	2	21	-28.0000	26.7100	3.00
1996	2	21	-28.1100	26.9000	3.60
1996	2	22	-26.8900	26.7300	2.80
1996	2	22	-26.3700	27.4500	2.50
1996	2	23	-27.7700	26.6100	2.70
1996	2	23	-27.7700	26.6100	2.70
1996	2	24	-26.9400	26.7200	3.50
1996	2	24	-28.0400	26.8000	3.10
1996	2	24	-26.9200	26.7200	2.80
1996	2	25	-26.9100	26.6500	3.90
1996	2	25	-28.0000	26.7600	2.70
1996	2	25	-26.3700	27.3700	2.70
1996	2	26	-26.3800	27.4800	2.70
1996	2	26	-26.1800	28.2100	2.60
1996	2	27	-26.2100	28.2100	2.60
1996	2	28	-26.3700	27.4900	2.50
1996	2	29	-27.8800	26.6500	2.90
1996	3	1	-26.2100	28.2000	4.00
1996	3	2	-26.4000	27.4200	3.30
1996	3	2	-26.2200	28.1800	2.50
1996	3	2	-26.9100	26.6400	3.80
1996	3	6	-26.9000	26.7200	2.80
1996	3	7	-26.3600	27.4200	3.00
1996	3	11	-26.2100	27.7400	2.60
1996	3	12	-26.8500	26.7300	4.40
1996	3	12	-26.3400	27.4900	2.50
1996	3	14	-26.2000	28.1700	2.90
1996	3	14	-26.1900	28.2400	2.80
1996	3	14	-26.1800	28.2000	3.10
1996	3	14	-26.4100	27.4300	2.60
1996	3	14	-28.1000	26.8900	2.70
1996	3	15	-26.3900	27.3700	2.70
1996	3	16	-26.2300	28.2700	3.40
1996	3	21	-26.3500	27.5100	3.10
1996	3	21	-26.4500	27.3900	3.50
1996	3	22	-26.3900	27.2900	2.60
1996	3	22	-26.3800	27.3300	2.60
1996	3	23	-26.2100	28.2100	2.90
1996	3	24	-26.8800	26.7200	3.20
1996	3	24	-26.3700	27.5500	3.40
1996	3	25	-26.8900	26.7900	2.60
1996	3	27	-26.4600	27.4400	3.40

1996	3	28	-26.9100	26.7200	2.90
1996	3	28	-26.2700	27.6300	3.00
1996	3	29	-26.9100	26.6400	3.00
1996	3	31	-26.3600	27.4800	2.80
1996	3	31	-28.0600	26.8200	2.60
1996	4	1	-26.3200	27.6100	3.10
1996	4	1	-26.1200	27.7400	2.80
1996	4	1	-26.4100	27.4400	2.60
1996	4	1	-27.9400	26.7500	2.80
1996	4	1	-27.8700	26.7200	2.60
1996	4	2	-26.9200	26.7700	2.60
1996	4	2	-26.4600	27.3900	3.30
1996	4	2	-26.3800	27.3500	3.20
1996	4	2	-26.3600	27.4900	2.80
1996	4	2	-26.3700	27.5000	2.80
1996	4	3	-26.8900	26.7200	3.20
1996	4	4	-26.8800	26.7100	2.60
1996	4	4	-26.8900	26.6700	3.40
1996	4	5	-26.3700	27.4300	3.20
1996	4	5	-26.9200	26.7100	4.68
1996	4	5	-26.9100	26.7200	3.70
1996	4	5	-26.8800	26.0000	3.60
1996	4	5	-27.9800	26.7800	3.00
1996	4	7	-26.9100	26.6500	3.30
1996	4	11	-27.9700	26.7200	3.00
1996	4	13	-27.9100	26.7100	2.60
1996	4	14	-26.3300	27.6200	3.10
1996	4	16	-26.3600	27.6000	3.20
1996	4	16	-26.3200	27.6200	2.60
1996	4	16	-26.8900	26.6800	3.00
1996	4	17	-26.3800	27.4400	2.50
1996	4	18	-26.8700	26.7900	2.80
1996	4	19	-26.2500	27.6300	3.10
1996	4	19	-26.3800	27.3000	2.80
1996	4	20	-26.9000	26.7300	2.90
1996	4	20	-27.9800	26.7200	2.90
1996	4	22	-27.9200	26.7400	2.70
1996	4	22	-26.2400	27.6500	2.80
1996	4	23	-27.8700	26.7000	2.80
1996	4	23	-26.3800	27.4300	2.90
1996	4	23	-26.3900	27.3500	2.80
1996	4	24	-26.4300	27.3500	2.80
1996	4	25	-26.9400	26.6100	2.60
1996	4	25	-26.8900	26.6500	3.80
1996	4	26	-28.0100	26.7900	2.80
1996	4	26	-26.3700	27.4000	3.10
1996	4	29	-27.8000	26.6500	3.30
1996	4	29	-26.3500	27.6100	3.90
1996	4	29	-27.7600	26.4800	4.26
1996	4	29	-26.3800	27.4600	4.43
1996	5	1	-28.0200	26.7100	2.60
1996	5	1	-26.8600	26.8000	2.60
1996	5	5	-26.3900	27.3900	3.80
1996	5	6	-26.8700	26.8100	3.40
1996	5	8	-26.3800	27.5200	2.50
1996	5	8	-26.8500	26.8400	3.00
1996	5	10	-26.3500	27.4400	3.60
1996	5	10	-26.8600	26.7600	2.60
1996	5	11	-28.0200	26.7300	2.50
1996	5	11	-26.9200	26.7300	2.60
1996	5	14	-26.8900	26.6900	3.10

1996	5	15	-26.8900	26.7600	2.50
1996	5	15	-26.8500	26.7500	2.50
1996	5	15	-26.7900	26.7600	2.90
1996	5	17	-26.9200	26.6600	3.20
1996	5	18	-27.8900	26.6700	2.60
1996	5	19	-26.8200	26.8000	2.60
1996	5	19	-27.9300	26.6700	2.50
1996	5	19	-26.9300	26.7800	3.60
1996	5	20	-26.7600	26.8100	2.60
1996	5	20	-26.3700	27.4800	3.00
1996	5	20	-26.4100	27.4000	2.50
1996	5	21	-26.4300	27.4000	2.50
1996	5	22	-26.8400	26.7700	2.90
1996	5	22	-26.7900	26.8100	2.90
1996	5	22	-26.2200	28.2400	2.60
1996	5	22	-26.3900	27.3300	2.60
1996	5	24	-30.0800	27.3700	3.10
1996	5	24	-26.3900	27.3600	3.20
1996	5	24	-26.4100	27.3800	2.70
1996	5	25	-26.2800	27.6500	2.50
1996	5	26	-26.3600	27.4200	3.20
1996	5	26	-27.9800	26.7800	2.60
1996	5	27	-27.8600	26.6700	2.60
1996	5	28	-26.3600	27.3400	2.80
1996	5	31	-27.8600	26.6500	3.40
1996	6	1	-26.3600	27.4100	2.60
1996	6	1	-26.4700	27.4400	2.50
1996	6	2	-26.8700	26.6800	2.80
1996	6	4	-26.3700	27.3800	3.20
1996	6	5	-26.9300	26.7200	3.00
1996	6	5	-26.8800	26.6500	2.60
1996	6	7	-26.9100	26.6500	3.20
1996	6	11	-26.8800	26.7200	2.50
1996	6	12	-26.4500	27.3700	2.70
1996	6	16	-26.9000	26.7000	3.40
1996	6	18	-26.9000	26.6900	2.90
1996	6	18	-26.9100	26.6600	2.90
1996	6	18	-26.2100	28.2400	2.60
1996	6	20	-29.5800	25.2000	3.00
1996	6	21	-26.9000	26.6800	2.50
1996	6	22	-26.3500	27.4900	2.50
1996	6	22	-26.3800	27.4200	2.80
1996	6	22	-26.3900	27.4300	2.70
1996	6	22	-26.9200	26.7700	2.60
1996	6	23	-26.3700	27.3300	3.30
1996	6	24	-26.9400	26.7800	2.90
1996	6	24	-26.8200	26.8100	2.60
1996	6	25	-26.8800	26.7400	2.50
1996	6	27	-26.3500	27.4600	2.70
1996	6	29	-26.8700	26.8200	3.80
1996	6	30	-28.1800	29.8400	3.20
1996	6	30	-26.9300	26.7400	2.50
1996	7	1	-26.3600	27.4700	2.80
1996	7	2	-28.0400	26.8000	3.00
1996	7	2	-26.9000	26.6700	3.30
1996	7	2	-26.9200	26.6900	3.40
1996	7	2	-26.9000	26.7100	3.30
1996	7	2	-26.3600	27.4500	3.40
1996	7	3	-26.9000	26.7200	2.50
1996	7	6	-26.2900	27.6100	3.00
1996	7	8	-26.9100	26.6500	2.70

1996	7	8	-26.9200	26.7500	2.80
1996	7	9	-28.0200	26.7700	2.60
1996	7	10	-26.4500	27.4100	3.40
1996	7	10	-26.8800	26.7600	3.30
1996	7	10	-26.4300	27.4500	2.70
1996	7	15	-26.3400	27.4500	3.00
1996	7	15	-26.4000	27.4900	2.50
1996	7	16	-26.9200	26.6600	2.80
1996	7	16	-26.9000	26.7100	3.40
1996	7	17	-26.8200	26.7400	2.80
1996	7	18	-26.9200	26.7200	2.60
1996	7	19	-26.8700	26.7800	2.70
1996	7	19	-26.3700	27.3000	2.90
1996	7	20	-26.3400	27.4600	2.50
1996	7	20	-26.9000	26.6400	3.30
1996	7	22	-26.9500	26.7400	3.00
1996	7	24	-26.8700	26.6600	2.60
1996	7	24	-26.3600	27.3000	2.70
1996	7	25	-26.3600	27.5900	2.50
1996	7	25	-26.4300	27.4400	2.70
1996	7	25	-26.7600	26.7900	2.60
1996	7	25	-28.0400	26.8500	2.60
1996	7	26	-26.3900	27.3000	2.70
1996	7	26	-26.9700	26.7300	2.50
1996	7	29	-26.3700	27.3700	2.90
1996	7	30	-26.7700	26.7500	3.60
1996	7	30	-26.8200	26.7600	3.30
1996	7	31	-26.4100	27.3800	3.50
1996	7	31	-26.3400	27.4700	2.90
1996	8	2	-26.3500	27.4500	3.20
1996	8	2	-26.4400	27.4200	2.80
1996	8	4	-26.3000	27.6500	3.40
1996	8	7	-26.3500	27.4700	3.50
1996	8	8	-26.2800	27.6400	2.50
1996	8	8	-26.2100	28.2500	2.80
1996	8	8	-27.9700	26.6900	2.60
1996	8	11	-26.9200	26.6300	2.80
1996	8	11	-26.9100	26.7700	2.70
1996	8	11	-26.2500	27.7200	3.40
1996	8	11	-26.9200	26.6300	2.50
1996	8	13	-27.9800	26.7700	2.60
1996	8	14	-26.2000	28.2300	2.90
1996	8	14	-26.2700	27.7400	2.50
1996	8	15	-26.9000	26.7000	3.00
1996	8	15	-27.7700	26.6800	2.50
1996	8	17	-27.9100	26.7400	2.50
1996	8	19	-26.3700	27.4700	3.00
1996	8	23	-27.9000	26.7200	3.60
1996	8	24	-26.4600	27.3800	2.70
1996	8	24	-26.3800	27.3200	3.00
1996	8	24	-26.3900	27.4200	2.70
1996	8	27	-27.8900	26.7100	2.70
1996	8	27	-26.3800	27.3100	2.90
1996	8	29	-26.2200	27.7400	2.60
1996	8	29	-26.8200	26.7300	2.70
1996	8	29	-26.8600	26.7300	2.60
1996	8	29	-26.1900	28.2300	3.10
1996	8	30	-26.2500	27.6300	3.00
1996	8	30	-26.4400	27.4700	2.80
1996	9	2	-26.3500	27.4000	3.00
1996	9	4	-26.9000	26.6600	2.90

1996	9	4	-26.9600	26.7400	2.70
1996	9	5	-26.8900	26.8200	2.50
1996	9	5	-26.9200	26.6100	3.70
1996	9	5	-26.1000	27.7500	2.50
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1996	9	7	-26.2300	27.6500	2.60
1996	9	7	-26.8900	26.7000	3.80
1996	9	8	-26.8800	26.8200	2.70
1996	9	9	-26.3700	27.4500	3.00
1996	9	10	-26.8400	26.7200	3.10
1996	9	11	-26.3600	27.4700	2.70
1996	9	11	-26.4000	27.4100	2.90
1996	9	12	-26.8300	26.8300	2.90
1996	9	13	-26.8800	26.6900	2.60
1996	9	13	-26.3900	27.3100	2.80
1996	9	14	-26.8200	26.7700	2.80
1996	9	16	-26.8500	26.7800	4.20
1996	9	16	-26.8900	26.8000	3.80
1996	9	17	-26.9000	26.7800	2.50
1996	9	17	-26.4400	27.3100	2.70
1996	9	18	-26.3500	27.4900	2.50
1996	9	18	-26.0900	27.7900	2.50
1996	9	18	-26.8900	26.7700	3.20
1996	9	19	-27.8800	26.6800	2.50
1996	9	24	-26.8700	26.7400	3.00
1996	9	24	-26.3900	27.2800	2.60
1996	9	25	-27.9200	26.6900	3.10
1996	9	26	-26.3700	27.2900	2.90
1996	9	28	-26.2000	28.2300	2.50
1996	9	28	-28.0800	26.9100	3.60
1996	9	28	-27.9000	26.7200	2.50
1996	9	29	-27.9000	26.6700	3.00
1996	9	29	-26.2700	27.7200	3.50
1996	9	30	-26.9300	26.7900	3.00
1996	10	1	-26.9000	26.7400	2.50
1996	10	1	-26.8100	26.7000	3.90
1996	10	2	-26.3800	27.3100	3.60
1996	10	2	-26.3700	27.2900	3.30
1996	10	2	-26.4900	27.4300	2.50
1996	10	2	-26.4200	27.6100	2.60
1996	10	2	-26.4400	27.2500	2.70
1996	10	2	-26.5100	27.4800	2.80
1996	10	3	-26.3900	27.3300	2.50
1996	10	4	-27.9800	26.7200	2.50
1996	10	5	-28.0100	26.6500	2.90
1996	10	6	-26.9300	26.6000	3.10
1996	10	6	-26.3800	27.3900	3.30
1996	10	6	-27.7100	26.6000	2.50
1996	10	6	-27.8700	26.6900	3.00
1996	10	9	-26.3600	27.2600	3.50
1996	10	10	-29.2000	30.6300	3.40
1996	10	10	-26.8300	26.6900	2.80
1996	10	14	-26.3500	27.3700	2.50
1996	10	15	-27.1200	26.7600	3.10
1996	10	15	-26.8600	26.8000	2.80
1996	10	16	-26.8900	26.6000	3.30
1996	10	17	-26.1800	28.2200	3.00
1996	10	17	-27.1100	26.7600	3.20
1996	10	18	-27.8600	26.6700	2.90
1996	10	18	-26.3900	27.5900	3.20
1996	10	18	-26.1800	28.2700	3.10

1996	10	21	-27.9400	26.7400	2.80
1996	10	22	-26.3500	27.4800	3.00
1996	10	22	-28.0000	26.6500	3.20
1996	10	23	-26.9300	26.7700	4.00
1996	10	26	-27.9400	26.7200	3.30
1996	10	28	-26.9500	26.7600	3.20
1996	10	28	-26.3600	27.4300	2.50
1996	10	29	-26.2800	28.3200	3.10
1996	10	30	-26.8900	26.7400	3.20
1996	10	30	-26.4000	27.4300	3.30
1996	10	31	-26.3500	27.2800	3.80
1996	11	1	-28.0200	26.8100	2.50
1996	11	1	-26.8300	26.7400	3.00
1996	11	2	-26.3300	27.4900	3.20
1996	11	2	-26.4300	27.3800	3.40
1996	11	3	-26.8600	26.8200	2.50
1996	11	4	-26.4700	27.3600	2.70
1996	11	4	-27.8600	26.6900	3.00
1996	11	7	-26.9800	26.7100	4.30
1996	11	7	-26.8600	26.8000	2.90
1996	11	8	-26.3800	27.4400	3.00
1996	11	8	-26.4000	27.4800	3.30
1996	11	8	-26.8300	26.7000	2.90
1996	11	9	-26.4000	27.4700	3.20
1996	11	9	-26.8400	26.8100	3.00
1996	11	12	-26.4100	27.3700	3.30
1996	11	13	-26.4200	27.4300	3.00
1996	11	14	-26.3300	27.4500	3.00
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1996	11	15	-26.8400	26.7000	3.50
1996	11	15	-26.3600	27.4700	2.90
1996	11	15	-26.7500	26.8000	2.70
1996	11	15	-26.4500	27.4600	3.20
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1996	11	18	-26.3900	27.4100	2.90
1996	11	18	-27.0200	26.7700	3.70
1996	11	19	-26.3600	27.5000	2.80
1996	11	20	-27.9500	26.6600	2.60
1996	11	21	-27.1100	26.8000	2.90
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1996	11	22	-26.3700	27.4700	2.60
1996	11	22	-26.3900	27.3400	3.00
1996	11	22	-28.0300	26.6800	2.80
1996	11	22	-27.9200	26.7100	2.60
1996	11	23	-27.8200	26.6200	2.70
1996	11	23	-27.9000	26.7800	2.80
1996	11	23	-26.4600	27.2700	2.50
1996	11	24	-26.3500	27.5100	2.60
1996	11	24	-27.9800	26.6900	2.60
1996	11	25	-26.8600	26.8200	2.60
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1996	11	28	-26.4700	27.2900	3.70
1996	11	29	-26.2600	28.2400	3.30
1996	11	30	-26.4700	27.3200	3.20
1996	12	2	-27.0300	26.7200	2.70
1996	12	2	-26.8400	26.7600	2.80
1996	12	3	-26.4600	27.3300	3.00
1996	12	4	-26.8800	26.6700	4.10
1996	12	5	-26.4800	27.4400	3.10

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1996	12	6	-26.8600	26.7400	2.90
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1996	12	8	-26.3300	27.4900	2.60
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1996	12	13	-26.7600	26.8000	2.50
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1996	12	14	-26.3900	27.4100	2.90
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1996	12	22	-26.4200	27.3200	3.30
1996	12	25	-26.3900	27.3100	3.40
1996	12	25	-26.4800	27.3200	3.20
1996	12	25	-26.8700	26.6900	4.20
1996	12	25	-26.9300	26.7000	3.90
1996	12	26	-27.8700	26.6500	2.70
1996	12	27	-26.2000	27.8100	2.80
1996	12	29	-26.4300	27.4800	3.10
1997	1	1	-26.4700	27.3600	3.70
1997	1	3	-26.3900	27.4100	4.40
1997	1	3	-26.4000	27.3800	3.90
1997	1	3	-26.3600	27.4700	4.10
1997	1	4	-26.4200	27.3700	3.70
1997	1	4	-26.9500	26.6800	3.00
1997	1	7	-26.9700	26.7400	2.50
1997	1	7	-26.4100	27.5000	2.50
1997	1	9	-26.3800	27.4500	4.10
1997	1	9	-26.8600	26.8700	3.30
1997	1	10	-26.4300	27.2800	2.90
1997	1	10	-26.9000	26.8000	3.10
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1997	1	11	-26.3600	27.4600	2.70
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1997	1	11	-26.3200	27.6300	2.90
1997	1	11	-26.1600	27.7600	3.10
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1997	1	14	-26.0900	27.7200	2.60
1997	1	15	-26.3700	27.4300	2.90
1997	1	15	-26.3600	27.4600	2.50
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1997	1	16	-27.9000	26.7500	2.60
1997	1	20	-26.8500	26.7200	3.50
1997	1	20	-26.9800	26.7600	4.00
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1997	1	22	-26.4100	27.5400	3.00
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1997	1	23	-26.3600	27.4200	2.80
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1997	1	23	-28.0300	26.8900	3.10
1997	1	23	-26.3400	27.4500	2.70
1997	1	23	-26.7900	26.7300	3.20

1997	1	24	-26.8500	26.8900	2.50
1997	1	26	-26.2700	27.6300	2.70
1997	1	27	-26.3000	27.6600	3.10
1997	1	28	-27.9000	26.6200	3.10
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1997	2	2	-26.3300	27.6300	2.70
1997	2	3	-26.4600	27.5400	3.40
1997	2	3	-26.3900	27.3900	3.40
1997	2	4	-26.4900	27.4400	3.40
1997	2	4	-26.3700	27.2700	2.70
1997	2	5	-26.8800	26.6100	3.20
1997	2	6	-27.7400	26.7300	3.60
1997	2	6	-26.2500	27.6900	3.00
1997	2	8	-26.4000	27.5900	2.50
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1997	2	9	-26.4300	27.5400	2.70
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1997	2	9	-26.5000	27.3400	2.50
1997	2	9	-26.3400	27.5300	2.90
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1997	2	10	-26.5300	27.4800	2.90
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1997	2	10	-26.8500	26.6400	2.50
1997	2	10	-27.0800	26.8500	2.80
1997	2	10	-26.9500	26.8300	2.70
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1997	2	12	-26.2200	28.1300	2.60
1997	2	13	-27.9800	26.7400	2.90
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1997	2	15	-26.8600	26.7500	2.50
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1997	2	16	-27.9800	26.7000	2.80
1997	2	17	-26.3800	27.3100	2.50
1997	2	18	-26.3300	27.3500	2.50
1997	2	18	-27.0300	26.8400	2.70
1997	2	19	-26.9600	26.8200	2.80
1997	2	19	-28.0500	26.7000	2.50
1997	2	21	-26.5000	27.4900	3.10
1997	2	21	-27.9200	26.6200	3.00
1997	2	21	-26.8000	26.7700	3.80
1997	2	22	-26.8600	26.7200	3.40
1997	2	22	-26.8300	26.7100	2.60
1997	2	24	-26.3700	27.4600	2.60
1997	2	25	-26.8100	26.8400	4.30
1997	2	27	-26.4900	27.3800	2.90
1997	2	28	-26.3600	27.4700	3.30
1997	3	1	-26.8400	26.8500	2.50
1997	3	1	-26.4000	27.3500	2.60
1997	3	1	-26.3800	27.2900	3.70
1997	3	1	-26.1200	26.3100	4.26

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1997	3	3	-27.9300	26.7100	2.90
1997	3	3	-26.9500	26.6100	2.70
1997	3	4	-26.3500	27.3400	2.50
1997	3	4	-26.4500	27.2900	3.00
1997	3	4	-26.3700	27.3800	2.90
1997	3	5	-26.8600	26.6700	2.70
1997	3	5	-26.3600	27.3300	3.00
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1997	3	5	-26.3500	27.4200	2.70
1997	3	6	-26.4000	27.4200	2.70
1997	3	6	-26.3400	27.4900	2.70
1997	3	6	-26.4400	27.3200	2.70
1997	3	7	-26.4400	27.3300	2.60
1997	3	7	-26.8700	26.7500	3.40
1997	3	7	-26.3900	27.4300	2.90
1997	3	7	-26.4100	27.4700	2.60
1997	3	7	-27.8900	26.6700	2.50
1997	3	8	-26.3600	27.3900	2.70
1997	3	8	-26.8700	26.8000	3.00
1997	3	9	-28.0200	26.6800	2.60
1997	3	10	-26.8800	26.7200	2.70
1997	3	10	-26.4400	27.4300	2.60
1997	3	10	-26.8400	26.7800	2.60
1997	3	12	-26.4000	27.3500	3.10
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1997	3	13	-28.0500	26.9100	2.90
1997	3	13	-26.9500	26.7200	2.80
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1997	3	14	-26.3500	27.4900	2.70
1997	3	15	-27.0900	26.7200	2.50
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1997	3	16	-26.3500	27.4000	3.40
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1997	3	19	-26.3300	27.4900	2.50
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1997	3	20	-26.3800	27.4300	2.90
1997	3	21	-26.9000	26.7600	3.10
1997	3	21	-26.8300	26.7200	2.70
1997	3	22	-26.4000	27.4200	3.80
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1997	3	24	-26.4900	27.3100	3.30
1997	3	24	-28.0000	26.7200	2.80
1997	3	25	-26.3700	27.4800	2.90
1997	3	26	-26.8900	26.7000	2.70
1997	3	26	-26.3700	27.4700	2.90
1997	3	27	-26.4300	27.3800	2.80
1997	3	27	-26.4100	27.5100	2.70
1997	3	28	-26.8900	26.7700	3.30
1997	3	28	-26.3300	27.4900	3.10

1997	3	29	-28.1100	26.5000	2.60
1997	3	30	-26.3200	27.5000	2.70
1997	4	1	-26.4600	27.5300	3.20
1997	4	2	-26.3700	27.5200	2.80
1997	4	2	-26.2800	27.3600	2.90
1997	4	3	-26.3600	27.3900	2.70
1997	4	3	-26.4600	27.4500	2.80
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1997	4	5	-26.8800	26.7700	2.80
1997	4	5	-27.9100	26.7300	3.30
1997	4	5	-26.1400	27.7300	2.70
1997	4	8	-26.3200	27.4900	2.70
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1997	4	10	-26.4300	27.3800	2.90
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1997	4	10	-26.3800	27.5700	2.70
1997	4	10	-26.7500	26.7400	2.90
1997	4	11	-26.3500	27.4800	3.20
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1997	4	13	-26.7700	26.8100	2.80
1997	4	13	-26.7800	26.8500	3.00
1997	4	13	-26.8400	26.8700	2.90
1997	4	13	-26.8800	26.7600	2.60
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1997	4	17	-26.3100	27.3300	3.10
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1997	4	17	-26.8200	26.7200	2.70
1997	4	17	-26.3900	27.4900	2.90
1997	4	18	-26.9400	26.6800	2.50
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1997	4	19	-28.0600	26.8700	2.50
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1997	4	23	-26.3800	27.3300	2.90
1997	4	23	-26.3700	27.5000	3.00
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1997	4	24	-26.4100	27.4900	3.20
1997	4	25	-26.9100	26.7300	2.90
1997	4	25	-26.4800	27.4000	2.50
1997	4	26	-26.4500	27.5300	2.80
1997	4	26	-26.4100	27.3200	3.40
1997	4	27	-26.9300	26.8100	2.60
1997	4	27	-26.8000	26.7800	3.60
1997	4	28	-28.0500	26.6400	2.80
1997	4	28	-28.0100	26.6800	2.80
1997	4	29	-28.0400	26.7300	2.70
1997	4	30	-26.3400	27.5500	2.70
1997	4	30	-26.8600	26.6300	2.80
1997	5	3	-26.2000	28.1800	2.80

1997	5	4	-27.9800	26.7200	2.70
1997	5	4	-26.4100	27.4000	3.10
1997	5	5	-26.4000	27.4200	2.80
1997	5	5	-26.8700	26.8000	3.40
1997	5	5	-27.9900	26.6300	3.10
1997	5	6	-26.3100	27.6200	2.60
1997	5	7	-26.3800	27.5100	3.90
1997	5	7	-26.3800	27.3200	2.60
1997	5	7	-26.9200	26.8300	3.40
1997	5	7	-26.3700	27.4500	2.90
1997	5	8	-26.9600	26.8300	2.50
1997	5	9	-26.3600	27.5200	2.90
1997	5	9	-27.1100	26.8200	3.00
1997	5	10	-27.9100	26.8000	2.70
1997	5	10	-26.3700	27.3500	2.50
1997	5	13	-26.3700	27.4200	3.30
1997	5	13	-26.2000	28.2100	2.60
1997	5	13	-26.4000	27.4000	2.80
1997	5	13	-26.1800	28.1900	2.90
1997	5	14	-27.8600	26.7400	2.70
1997	5	16	-27.8800	26.6900	2.90
1997	5	16	-26.1900	27.8300	3.20
1997	5	17	-26.3900	27.4300	2.80
1997	5	17	-26.3900	27.4400	3.20
1997	5	17	-26.4100	27.4000	2.60
1997	5	18	-26.4000	27.4500	2.80
1997	5	20	-26.3800	27.5600	2.80
1997	5	20	-26.4100	27.5900	2.70
1997	5	21	-26.8100	26.7300	3.30
1997	5	21	-26.8800	26.7000	3.80
1997	5	21	-26.8500	26.6500	2.70
1997	5	22	-27.9900	26.6800	2.70
1997	5	23	-26.8400	26.7100	3.40
1997	5	23	-26.3900	27.3900	2.80
1997	5	23	-26.8400	26.6700	4.10
1997	5	23	-26.8700	26.6500	2.70
1997	5	23	-26.3700	27.3600	2.80
1997	5	23	-26.8500	26.6900	4.00
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1997	5	25	-26.8500	26.7300	2.90
1997	5	25	-26.8400	26.7400	3.00
1997	5	25	-26.7800	26.7200	2.80
1997	5	26	-26.3500	27.5900	2.70
1997	5	26	-26.9000	26.6000	3.70
1997	5	26	-27.8500	26.6000	2.80
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1997	5	27	-26.3600	27.4600	2.90
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1997	5	28	-27.9800	26.7900	2.80
1997	5	28	-26.9100	26.8300	2.50
1997	5	28	-27.8500	26.6900	2.80
1997	5	28	-27.9100	26.6000	2.90
1997	5	29	-26.3200	27.6400	2.70
1997	5	29	-27.9700	26.6800	2.90
1997	5	30	-26.9800	26.7100	3.20
1997	5	30	-26.2400	28.2500	2.70
1997	5	30	-26.3800	27.4000	3.10
1997	5	31	-26.3900	27.4900	2.90
1997	6	1	-26.4500	27.3600	2.80
1997	6	1	-27.8100	26.5900	2.50

1997	6	5	-26.9100	26.8600	3.20
1997	6	6	-27.8700	26.7500	2.60
1997	6	6	-26.8500	26.8700	2.90
1997	6	6	-26.4000	27.4200	3.10
1997	6	6	-26.8700	26.7200	3.80
1997	6	7	-27.8400	26.7300	2.80
1997	6	8	-26.3900	27.4800	3.40
1997	6	10	-26.4100	27.6600	3.40
1997	6	11	-26.3800	27.5200	2.90
1997	6	11	-26.2500	27.6700	2.90
1997	6	11	-27.8500	26.7700	3.30
1997	6	11	-26.7400	26.8200	3.00
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1997	6	14	-26.9100	26.8000	3.10
1997	6	15	-26.3200	27.6100	2.70
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1997	6	17	-27.9900	26.6800	3.10
1997	6	18	-26.4100	27.5100	2.80
1997	6	18	-26.3600	27.6000	3.00
1997	6	18	-26.3600	27.5500	2.50
1997	6	18	-26.7500	26.8800	3.20
1997	6	19	-26.3500	27.4900	3.00
1997	6	19	-26.9200	26.7800	3.70
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1997	6	24	-26.3700	26.9500	2.90
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1997	6	24	-26.8800	26.8300	2.70
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1997	6	27	-26.3500	27.4000	2.50
1997	6	27	-26.4200	27.4200	3.00
1997	6	28	-26.4200	27.3300	4.10
1997	6	29	-26.4300	27.2500	4.10
1997	6	29	-26.4400	27.3500	3.40
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1997	6	30	-26.3800	27.5500	2.90
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1997	7	2	-26.4800	27.4000	2.80
1997	7	3	-26.4500	27.5100	2.70
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1997	7	3	-26.9500	26.7200	2.80
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1997	7	4	-26.8500	26.7300	3.00
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1997	7	5	-27.9500	26.7400	3.30
1997	7	6	-26.4100	27.4100	3.80
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1997	7	8	-26.3900	27.3300	2.80
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1997	7	9	-26.4300	27.4400	3.60
1997	7	9	-26.9400	26.7300	3.40
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1997	7	11	-26.4700	27.3600	2.70
1997	7	11	-28.0400	26.7300	2.60
1997	7	12	-27.9500	26.7300	2.80
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1997	7	18	-27.8600	26.6800	2.60
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1997	7	19	-26.3900	27.6000	3.30
1997	7	19	-26.4100	27.6000	3.40
1997	7	20	-28.0300	26.8200	2.60
1997	7	21	-26.4500	27.5000	2.80
1997	7	21	-26.8500	26.8200	4.00
1997	7	21	-27.8800	26.7600	2.60
1997	7	21	-26.8400	26.8400	2.60
1997	7	22	-26.9300	26.8100	2.70
1997	7	22	-26.8600	26.7800	2.80
1997	7	22	-26.9300	26.8100	3.20
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1997	7	23	-26.5000	27.4700	3.10
1997	7	23	-26.4800	27.4300	2.80
1997	7	23	-27.0400	26.7500	2.90
1997	7	24	-27.0100	26.7900	2.70
1997	7	25	-29.3800	27.7900	3.20
1997	7	25	-27.0900	26.8200	2.80
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1997	7	25	-26.8800	26.7600	2.70
1997	7	25	-26.5000	27.4800	2.50
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1997	7	25	-26.4000	27.3900	2.90
1997	7	25	-25.7000	27.4700	3.10
1997	7	26	-26.4200	27.6600	3.50
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1997	7	26	-26.3400	27.5000	2.70
1997	7	26	-26.4500	27.3600	2.70
1997	7	26	-26.4500	27.4700	2.70
1997	7	26	-26.4000	27.5400	2.60
1997	7	28	-26.3900	27.7100	3.00
1997	7	29	-28.1000	26.8300	4.00
1997	7	29	-27.9700	26.6500	2.80
1997	7	29	-26.9300	26.8500	3.00
1997	7	29	-26.4700	27.3700	2.60
1997	7	30	-26.5200	27.4300	2.90
1997	7	30	-26.9000	26.6600	2.70
1997	8	1	-28.1200	26.8200	4.10

1997	8	1	-26.4600	27.4100	2.70
1997	8	2	-26.4600	27.4300	2.70
1997	8	2	-26.4200	27.3900	2.60
1997	8	2	-26.4500	27.4200	2.90
1997	8	3	-26.9800	26.7700	2.90
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1997	8	4	-26.8400	26.7800	2.50
1997	8	4	-26.4700	27.4500	2.60
1997	8	4	-26.4300	27.4800	2.90
1997	8	6	-26.3800	27.5100	2.80
1997	8	6	-26.3900	27.6200	2.60
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1997	8	6	-26.3700	27.5900	2.60
1997	8	7	-28.1200	26.8900	3.40
1997	8	7	-26.4000	27.4900	2.80
1997	8	10	-27.9800	26.7200	2.80
1997	8	10	-27.0200	26.7700	2.80
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1997	8	11	-28.0000	26.7700	3.40
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1997	8	12	-27.9900	26.7400	2.70
1997	8	13	-26.3300	27.7400	2.60
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1997	8	14	-26.4300	27.4600	2.50
1997	8	14	-26.4100	27.4500	2.50
1997	8	14	-26.3900	27.6200	2.50
1997	8	16	-26.5200	27.4500	2.90
1997	8	17	-27.9300	26.6900	2.60
1997	8	17	-28.0400	26.7000	3.10
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1997	8	17	-26.7700	26.8300	2.50
1997	8	18	-26.4600	27.4500	3.40
1997	8	18	-26.9400	26.8000	2.80
1997	8	18	-27.0000	26.7200	3.30
1997	8	18	-27.0200	26.7300	3.00
1997	8	19	-26.4000	27.3200	2.60
1997	8	20	-26.4200	27.3500	3.00
1997	8	21	-26.9200	26.8000	3.40
1997	8	22	-26.8900	26.7700	2.70
1997	8	23	-26.9300	26.7300	2.50
1997	8	23	-26.8600	26.8200	2.80
1997	8	25	-28.0300	26.8400	2.80
1997	8	25	-26.1800	28.2200	3.80
1997	8	26	-26.2400	28.2000	3.10
1997	8	27	-26.3900	27.6000	3.20
1997	8	27	-26.5000	27.4700	2.70
1997	8	30	-26.8500	26.7100	2.70
1997	8	30	-26.9000	26.7700	2.70
1997	8	31	-26.9800	26.7800	2.60
1997	8	31	-26.4000	27.4200	3.10
1997	8	31	-26.9700	26.7500	3.00
1997	9	1	-26.3700	27.5100	2.50
1997	9	1	-26.9200	26.6200	2.50
1997	9	3	-26.8800	26.8300	2.90
1997	9	3	-26.4500	27.3900	3.70
1997	9	4	-26.4200	27.4000	2.90
1997	9	6	-26.4800	27.4200	2.90
1997	9	6	-26.4500	27.3800	3.00

1997	9	6	-26.4200	27.3500	2.50
1997	9	6	-26.4800	27.2800	3.00
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1997	9	8	-27.1400	26.7500	2.70
1997	9	9	-27.1400	26.7200	2.60
1997	9	9	-26.4100	27.5400	2.50
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1997	9	11	-26.4300	27.3400	2.70
1997	9	11	-26.4800	27.3000	2.90
1997	9	13	-26.8700	26.6800	3.00
1997	9	13	-27.1100	26.7000	4.00
1997	9	14	-28.1600	26.9000	3.30
1997	9	14	-26.8600	26.8300	2.60
1997	9	14	-28.0400	26.7000	2.70
1997	9	17	-26.4500	27.5100	3.20
1997	9	17	-26.4500	27.3300	3.70
1997	9	17	-26.2900	27.7600	2.90
1997	9	18	-26.4000	27.4300	3.50
1997	9	18	-26.4200	27.5400	3.10
1997	9	18	-26.4400	27.3600	3.00
1997	9	19	-28.0500	26.8300	2.70
1997	9	19	-26.4500	27.3500	2.70
1997	9	19	-26.4600	27.4800	3.20
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1997	9	22	-27.9700	26.6400	3.10
1997	9	22	-26.7700	26.7700	2.70
1997	9	23	-27.0500	26.7900	2.50
1997	9	24	-28.1700	26.6000	2.60
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1997	9	25	-26.4300	27.4700	4.50
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1997	9	27	-26.9500	26.7400	3.10
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1997	9	29	-26.3600	27.4500	2.80
1997	9	30	-26.9300	26.6300	3.90
1997	9	30	-26.8600	26.6500	2.60
1997	10	1	-27.7800	26.6600	2.50
1997	10	3	-26.8300	26.8000	2.80
1997	10	3	-26.8700	26.6600	3.00
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1997	10	5	-26.3500	27.7100	3.50
1997	10	5	-26.3800	27.4000	2.80
1997	10	5	-26.3700	27.3100	3.60
1997	10	6	-26.8200	26.7600	3.40
1997	10	6	-26.4100	27.3500	2.50
1997	10	6	-26.4400	27.5200	2.90
1997	10	6	-26.4900	27.4300	3.20
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1997	10	8	-26.3800	27.5600	3.10
1997	10	10	-26.9200	26.7200	2.70
1997	10	10	-27.0600	26.8000	2.60
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1997	10	10	-26.3600	27.5200	2.50
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1997	10	11	-26.8200	26.8100	3.70
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1997	10	15	-26.8100	26.8200	2.50
1997	10	16	-26.3700	27.4900	2.60
1997	10	17	-26.8800	26.7000	3.00
1997	10	18	-26.3800	27.3700	2.70
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1997	10	24	-27.0100	26.7800	3.60
1997	10	26	-27.9400	26.7300	3.00
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1997	10	28	-26.4300	27.2800	2.50
1997	10	28	-27.9700	26.8600	3.00
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1997	10	29	-26.8100	26.7700	3.40
1997	10	31	-27.8500	26.6100	2.60
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1997	11	1	-26.9200	26.7200	2.70
1997	11	1	-26.4700	27.4300	2.60
1997	11	1	-26.3700	27.3400	2.90
1997	11	1	-26.3800	27.4200	3.20
1997	11	1	-26.4300	27.3600	2.70
1997	11	1	-26.3700	27.4300	2.90
1997	11	2	-26.3600	27.5100	3.40
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1997	11	3	-26.8800	26.6900	2.90
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1997	11	15	-26.4300	27.3000	2.80
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1997	11	20	-26.3500	27.4600	3.40
1997	11	20	-26.3800	27.3900	2.50
1997	11	20	-26.1600	27.8600	2.80
1997	11	22	-26.8500	26.6900	3.20
1997	11	22	-26.9400	26.8000	2.60
1997	11	22	-26.8900	26.8300	2.50
1997	11	24	-26.3000	27.6400	2.70

1997	11	25	-26.3500	27.4800	3.10
1997	11	26	-26.4000	27.4400	2.50
1997	11	29	-26.2200	28.3000	3.40
1997	11	30	-26.8600	26.7300	3.20
1997	11	30	-26.8200	26.7600	3.10
1997	12	2	-26.9500	26.6000	2.60
1997	12	4	-27.0100	26.7200	2.60
1997	12	6	-26.3600	27.4500	2.50
1997	12	8	-26.2400	28.2500	2.70
1997	12	9	-28.0300	26.8400	2.70
1997	12	10	-26.8300	26.7300	2.80
1997	12	10	-26.4000	27.5500	2.80
1997	12	10	-26.3600	27.6100	3.00
1997	12	11	-26.8600	26.8100	4.20
1997	12	11	-26.9200	26.7000	3.20
1997	12	11	-26.8200	26.7400	3.60
1997	12	11	-26.8300	26.7100	3.20
1997	12	11	-26.9500	26.8300	2.70
1997	12	12	-26.9300	26.6500	4.30
1997	12	12	-26.3300	27.7500	2.90
1997	12	13	-26.2600	27.6200	2.90
1997	12	14	-26.3600	27.4400	3.20
1997	12	16	-25.9000	27.2000	3.40
1997	12	16	-26.8700	26.7600	3.30
1997	12	16	-26.9100	26.7400	2.60
1997	12	17	-26.3700	27.5800	3.00
1997	12	17	-26.3900	27.3700	2.80
1997	12	17	-25.7000	29.5000	3.30
1997	12	18	-26.8200	26.8500	2.50
1997	12	18	-26.5500	27.4600	2.60
1997	12	21	-26.3400	27.4400	3.40
1997	12	21	-26.9500	26.5800	2.80
1997	12	23	-26.9300	26.7600	2.50
1997	12	25	-26.9900	26.7400	2.70
1997	12	26	-26.8900	26.6300	2.50
1997	12	30	-26.8900	26.7200	2.70
1997	12	30	-26.3100	27.4700	2.90
1997	12	31	-26.4000	27.4900	2.70
1997	12	31	-27.9800	26.6700	2.70
1998	1	2	-26.3900	27.4900	3.60
1998	1	2	-27.9400	26.6400	2.70
1998	1	5	-27.9900	26.8000	3.30
1998	1	6	-26.5100	27.4500	3.00
1998	1	6	-26.8600	26.8100	3.50
1998	1	7	-26.4400	27.5000	2.80
1998	1	9	-26.4100	27.4900	3.00
1998	1	9	-26.8600	26.6800	2.70
1998	1	11	-26.1800	28.2600	2.70
1998	1	11	-26.3600	27.4100	2.80
1998	1	13	-26.9400	26.8100	3.60
1998	1	13	-26.2100	28.2600	3.20
1998	1	14	-26.8500	26.7700	3.00
1998	1	14	-26.8300	26.8500	3.50
1998	1	14	-26.9300	26.7200	2.50
1998	1	14	-26.8900	26.8600	2.50
1998	1	15	-26.8900	26.6100	3.80
1998	1	15	-26.8100	26.8300	3.80
1998	1	15	-26.8600	26.7800	3.70
1998	1	16	-26.8600	26.8200	3.20
1998	1	17	-26.8400	26.8400	3.80
1998	1	19	-27.9700	26.6800	3.10

1998	1	20	-27.9800	26.7900	2.90
1998	1	21	-26.3700	27.5200	3.00
1998	1	22	-27.9200	26.6900	3.30
1998	1	22	-26.7900	26.8500	3.20
1998	1	23	-27.7700	26.5800	2.80
1998	1	23	-26.9200	26.6500	2.60
1998	1	23	-27.8900	26.7800	3.40
1998	1	23	-26.2500	28.2100	3.00
1998	1	24	-26.3100	27.5100	2.70
1998	1	24	-26.3300	27.4700	2.80
1998	1	24	-26.1900	28.2600	2.60
1998	1	24	-26.1800	28.2500	3.50
1998	1	24	-26.3600	27.5400	3.30
1998	1	25	-27.9500	26.7500	2.80
1998	1	25	-26.9900	26.7900	2.50
1998	1	27	-26.2300	28.2600	2.70
1998	1	27	-27.7800	32.0200	3.70
1998	1	28	-28.0200	26.6700	2.70
1998	1	29	-26.2900	27.7300	3.30
1998	1	30	-26.1600	27.9000	2.60
1998	2	1	-26.3500	27.3900	2.80
1998	2	2	-27.9900	26.7100	2.60
1998	2	3	-27.9400	26.7100	2.60
1998	2	3	-27.9500	26.6300	3.30
1998	2	3	-28.0800	26.8500	3.70
1998	2	6	-26.8200	26.7400	2.60
1998	2	6	-26.9300	26.8300	3.60
1998	2	6	-26.9500	26.8100	3.80
1998	2	6	-26.8500	26.7200	2.90
1998	2	6	-27.8600	26.7900	2.60
1998	2	6	-26.4700	27.4000	2.60
1998	2	7	-27.8400	26.7400	2.80
1998	2	7	-26.9300	26.8000	3.30
1998	2	7	-26.3800	27.4300	2.90
1998	2	9	-26.2200	27.8100	3.30
1998	2	9	-27.8700	26.6300	3.10
1998	2	9	-26.4300	27.2800	2.50
1998	2	10	-26.4100	27.6500	2.60
1998	2	11	-26.9200	26.7200	3.10
1998	2	11	-26.3600	27.6000	3.30
1998	2	11	-26.3900	27.5000	2.90
1998	2	12	-26.3800	27.5000	3.20
1998	2	14	-26.8700	26.7000	3.20
1998	2	14	-26.8900	26.6800	2.50
1998	2	14	-26.9500	26.8200	2.90
1998	2	15	-26.8900	26.7700	3.40
1998	2	15	-26.3900	27.6100	2.70
1998	2	18	-26.9500	26.8200	4.00
1998	2	18	-26.4200	27.5900	3.40
1998	2	18	-26.4200	27.5000	2.50
1998	2	20	-26.4100	27.4200	3.20
1998	2	20	-26.4000	27.6100	3.60
1998	2	20	-26.9400	26.8300	2.70
1998	2	21	-26.9200	26.8400	3.10
1998	2	21	-26.9200	26.7400	3.20
1998	2	21	-26.8900	26.7400	2.70
1998	2	21	-26.4000	27.2900	2.50
1998	2	22	-26.8500	26.7200	3.00
1998	2	22	-26.8300	26.8300	2.70
1998	2	23	-26.3900	27.4300	2.70
1998	2	23	-26.9500	26.7800	3.20

1998	2	23	-26.8100	26.7300	2.70
1998	2	24	-26.8500	26.6800	2.50
1998	2	24	-26.3800	27.4300	3.40
1998	2	24	-26.4100	27.3300	2.60
1998	2	25	-28.0000	26.6600	2.90
1998	2	25	-26.9600	26.7700	2.60
1998	3	2	-26.3200	27.6400	3.00
1998	3	2	-26.8400	26.8000	2.50
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1998	3	2	-26.9300	26.8300	2.70
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1998	3	5	-27.0900	26.7500	3.40
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1998	3	5	-26.9500	26.7900	2.60
1998	3	6	-26.4200	27.4500	3.00
1998	3	6	-26.9100	26.7700	2.50
1998	3	6	-26.9200	26.8400	2.80
1998	3	7	-26.8600	26.6900	2.50
1998	3	7	-26.9100	26.6800	2.80
1998	3	7	-26.8700	26.6900	2.90
1998	3	8	-26.3800	27.4500	2.90
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1998	3	11	-26.8800	26.6800	3.30
1998	3	12	-26.8900	26.8200	2.60
1998	3	12	-26.8800	26.7300	3.50
1998	3	14	-26.8500	26.8700	3.30
1998	3	14	-26.9400	26.8300	3.00
1998	3	16	-26.9200	26.7200	3.20
1998	3	16	-26.9200	26.7200	2.80
1998	3	17	-26.9600	26.8100	3.50
1998	3	18	-26.4100	27.4300	3.10
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1998	3	20	-26.8600	26.6800	2.60
1998	3	20	-27.0400	26.7800	2.90
1998	3	23	-26.9000	26.7000	3.10
1998	3	24	-26.8600	26.8200	3.70
1998	3	24	-26.3500	27.5800	2.90
1998	3	25	-26.3900	27.4300	2.70
1998	3	25	-26.8500	26.7100	3.80
1998	3	26	-26.2800	27.6400	3.10
1998	3	26	-26.2900	27.6100	3.10
1998	3	26	-28.0400	26.8000	3.40
1998	3	27	-26.2700	27.7100	2.80
1998	3	27	-26.8200	26.7400	2.50
1998	3	28	-26.4000	27.4400	3.00
1998	3	28	-28.0000	26.7000	3.40
1998	3	29	-26.4300	27.4300	3.20
1998	3	30	-26.2500	28.2300	2.50
1998	3	31	-26.1900	27.7600	2.50
1998	3	31	-26.4900	27.4300	3.00
1998	3	31	-26.7800	26.7500	3.30
1998	4	1	-26.2300	28.2600	2.90
1998	4	1	-26.2900	27.7500	2.80
1998	4	2	-26.8300	26.7900	2.90
1998	4	3	-26.9000	26.8700	3.00
1998	4	3	-27.0400	26.7000	2.50
1998	4	4	-26.8600	26.6400	2.80
1998	4	4	-26.9200	26.8300	4.20

1998	4	4	-28.0300	26.7000	3.10
1998	4	6	-26.8900	26.7900	3.30
1998	4	6	-26.8600	26.7100	3.80
1998	4	8	-27.7800	26.6500	2.60
1998	4	10	-27.0600	26.7600	3.10
1998	4	12	-26.3600	27.3300	2.50
1998	4	14	-26.9100	26.8000	3.30
1998	4	14	-26.4300	27.4600	2.60
1998	4	15	-26.4000	27.3400	2.70
1998	4	15	-26.1300	27.7300	2.70
1998	4	17	-26.4000	27.3700	2.80
1998	4	17	-26.9000	26.8100	2.70
1998	4	18	-27.0700	26.8200	2.50
1998	4	18	-26.9200	26.7400	2.70
1998	4	19	-26.3900	27.6100	2.50
1998	4	20	-28.1400	26.8300	2.70
1998	4	20	-27.1600	26.7300	2.60
1998	4	20	-26.4000	27.4100	3.30
1998	4	20	-26.3600	27.4200	3.30
1998	4	21	-26.9200	26.8200	3.40
1998	4	21	-26.9300	26.8200	3.10
1998	4	22	-26.3700	27.6800	3.50
1998	4	22	-26.3600	27.4800	3.20
1998	4	22	-26.9000	26.7200	2.70
1998	4	22	-26.4500	27.4100	2.50
1998	4	24	-26.8600	26.7300	2.60
1998	4	24	-26.9700	26.7900	3.20
1998	4	24	-26.3900	27.3300	2.90
1998	4	24	-26.4400	27.2900	2.50
1998	4	25	-27.9000	26.6500	2.60
1998	4	25	-26.3700	27.5000	2.50
1998	4	26	-26.4100	27.5100	3.90
1998	4	26	-26.4000	27.4800	2.50
1998	4	27	-26.4800	27.3400	3.10
1998	4	28	-26.4500	27.4700	2.70
1998	4	28	-26.3400	27.4700	2.60
1998	4	28	-26.4400	27.3700	2.50
1998	5	1	-26.8400	26.8000	2.50
1998	5	2	-26.8700	26.6900	3.30
1998	5	2	-26.3800	27.2800	3.30
1998	5	5	-26.9500	26.8400	2.80
1998	5	8	-26.4600	27.4200	2.70
1998	5	8	-26.4200	27.4100	2.50
1998	5	9	-27.0000	26.7300	3.30
1998	5	11	-26.4300	27.3700	3.10
1998	5	11	-26.8900	26.8200	2.90
1998	5	11	-26.8600	26.7000	2.60
1998	5	11	-26.9100	26.8100	2.90
1998	5	13	-26.3600	27.5800	2.80
1998	5	13	-26.1900	28.2200	3.50
1998	5	13	-26.3800	27.5800	2.70
1998	5	13	-26.4300	27.3800	2.80
1998	5	14	-28.0900	26.8700	3.10
1998	5	14	-26.4000	27.4300	2.70
1998	5	14	-26.3200	27.6100	2.50
1998	5	15	-26.9400	26.7200	2.50
1998	5	15	-26.3100	27.7100	2.70
1998	5	15	-26.8900	26.7700	2.90
1998	5	16	-27.8800	26.6400	3.10
1998	5	17	-26.9200	26.7800	3.90
1998	5	17	-26.5000	27.4500	2.60

1998	5	17	-26.3600	27.4400	3.20
1998	5	19	-26.9000	26.6500	2.60
1998	5	19	-26.4700	27.3800	2.60
1998	5	19	-26.4200	27.4100	2.70
1998	5	21	-26.9100	26.7400	3.20
1998	5	21	-26.9000	26.7500	3.20
1998	5	23	-26.3800	27.3800	2.60
1998	5	25	-28.0800	26.8200	3.10
1998	5	25	-26.4200	27.3400	3.20
1998	5	26	-26.9000	26.7500	3.20
1998	5	26	-26.3600	27.5700	2.60
1998	5	27	-26.2100	28.1600	3.50
1998	5	27	-26.3900	27.5600	2.90
1998	5	29	-26.3900	27.4400	2.60
1998	5	30	-26.3800	27.3100	3.00
1998	5	31	-26.4300	27.2700	2.70
1998	6	1	-27.9200	26.6700	2.50
1998	6	2	-27.7700	26.6500	2.60
1998	6	2	-26.2100	28.1800	2.90
1998	6	2	-25.3400	30.8700	2.50
1998	6	3	-26.4300	27.4200	2.60
1998	6	3	-26.8400	26.8200	2.80
1998	6	3	-26.2800	27.7000	2.60
1998	6	4	-26.1800	28.2500	2.50
1998	6	5	-26.8600	26.6800	3.00
1998	6	6	-26.3800	27.4300	3.30
1998	6	7	-26.8400	26.7900	3.30
1998	6	8	-26.3700	27.3400	2.90
1998	6	9	-26.3600	27.4800	2.50
1998	6	11	-26.3600	27.4400	2.50
1998	6	12	-26.4100	27.6700	2.60
1998	6	12	-26.3700	27.3800	3.10
1998	6	13	-26.7900	26.7800	3.00
1998	6	13	-26.9000	26.7800	2.90
1998	6	15	-26.8800	26.7400	3.10
1998	6	16	-26.2300	27.6600	2.70
1998	6	17	-26.3600	27.3200	2.90
1998	6	19	-28.0800	26.8200	3.80
1998	6	19	-26.8800	26.7900	3.20
1998	6	19	-28.0200	26.9200	2.70
1998	6	19	-26.3500	27.5800	2.80
1998	6	19	-26.4200	27.4100	3.30
1998	6	22	-28.4500	28.8300	2.70
1998	6	22	-26.4100	27.3700	3.10
1998	6	22	-26.4100	27.3600	3.20
1998	6	22	-26.4000	27.2700	2.50
1998	6	22	-26.9200	26.7500	2.80
1998	6	24	-28.1500	26.8600	2.60
1998	6	25	-26.8800	26.8300	2.70
1998	6	25	-26.2100	28.1400	2.80
1998	6	25	-26.4500	27.3300	2.60
1998	6	26	-26.3800	27.3800	2.60
1998	6	27	-26.4200	27.4100	3.10
1998	6	27	-26.4100	27.3800	2.50
1998	6	27	-26.3600	27.3000	2.60
1998	6	28	-26.4100	27.4300	2.80
1998	6	29	-27.9600	26.6900	2.90
1998	6	30	-26.9100	26.6800	3.00
1998	7	1	-26.5000	27.4100	2.80
1998	7	1	-26.3300	27.6000	2.60
1998	7	1	-26.7500	26.8000	2.60

1998	7	2	-26.9700	26.7900	3.10
1998	7	2	-26.4100	27.2700	2.80
1998	7	2	-28.0000	26.6900	3.60
1998	7	2	-26.1800	27.7400	3.00
1998	7	3	-26.2200	28.2700	2.70
1998	7	3	-26.4700	27.3700	2.60
1998	7	4	-26.8800	26.6900	2.70
1998	7	4	-26.8600	26.8800	3.10
1998	7	4	-27.0500	26.8000	2.90
1998	7	5	-26.2100	28.2300	3.00
1998	7	5	-29.7300	26.2600	3.00
1998	7	5	-26.4000	27.7200	3.10
1998	7	6	-26.9200	26.6400	2.90
1998	7	6	-26.9700	26.7600	3.70
1998	7	6	-26.8600	26.8200	3.00
1998	7	7	-26.3000	27.6300	2.60
1998	7	7	-26.9300	26.7000	2.50
1998	7	7	-26.9100	26.8300	3.10
1998	7	7	-26.9300	26.5800	2.80
1998	7	8	-26.9200	26.7700	2.50
1998	7	8	-26.4300	27.3400	3.00
1998	7	8	-26.3400	27.6000	3.20
1998	7	9	-26.2100	28.2500	2.80
1998	7	9	-26.3400	27.5900	2.90
1998	7	9	-26.3700	27.5900	3.50
1998	7	9	-26.3900	27.4600	2.80
1998	7	10	-26.3800	27.4000	2.70
1998	7	11	-27.9100	26.7500	2.50
1998	7	11	-26.2100	28.2500	3.20
1998	7	11	-26.9200	26.7300	2.70
1998	7	12	-26.2800	27.6600	2.60
1998	7	13	-26.3400	27.5200	3.20
1998	7	13	-27.9300	26.7300	3.80
1998	7	14	-26.9000	26.6900	2.70
1998	7	15	-26.8000	26.8500	3.00
1998	7	15	-26.4300	27.3000	2.70
1998	7	15	-26.8300	26.7200	3.40
1998	7	15	-26.3900	27.3000	2.60
1998	7	15	-26.3500	27.4000	2.70
1998	7	16	-26.4200	27.3200	3.10
1998	7	16	-26.8700	26.8200	2.80
1998	7	17	-26.3500	27.5300	3.20
1998	7	17	-26.9100	26.8300	3.20
1998	7	17	-26.9300	26.5900	3.30
1998	7	18	-26.4700	27.4800	3.50
1998	7	18	-26.2000	28.2100	2.80
1998	7	18	-26.8600	26.6800	2.80
1998	7	18	-26.4900	27.3700	2.90
1998	7	19	-26.1900	28.2300	3.00
1998	7	21	-26.2200	28.1700	2.90
1998	7	22	-26.9300	26.7900	3.40
1998	7	22	-26.8500	26.7000	2.80
1998	7	22	-26.8100	26.8100	2.60
1998	7	23	-26.8900	26.7800	2.90
1998	7	23	-26.3800	27.4200	3.20
1998	7	24	-26.7800	26.7700	3.10
1998	7	25	-26.3900	27.3000	2.50
1998	7	25	-26.9600	26.8100	3.30
1998	7	26	-26.4100	27.5100	3.10
1998	7	26	-26.7600	26.8200	2.70
1998	7	26	-27.9800	26.7300	3.60

1998	7	26	-28.0500	26.7000	2.70
1998	7	26	-26.9000	26.8200	2.80
1998	7	27	-26.4200	27.3700	3.00
1998	7	27	-26.4400	27.4000	3.60
1998	7	29	-26.8700	26.6600	3.10
1998	7	29	-26.4100	27.5100	2.80
1998	7	29	-28.0300	26.8200	3.40
1998	7	29	-26.9100	26.6900	2.60
1998	7	30	-26.8700	26.8600	2.70
1998	7	30	-26.8500	26.6800	2.60
1998	7	30	-26.3900	27.6200	2.60
1998	7	30	-26.7400	26.8200	2.50
1998	7	31	-26.9100	26.8300	2.50
1998	7	31	-26.9300	26.6500	2.90
1998	7	31	-26.9200	26.7900	3.10
1998	7	31	-26.7300	26.8300	2.50
1998	7	31	-26.4100	27.3800	2.50
1998	7	31	-26.3700	27.6200	2.70
1998	8	1	-26.1800	28.2400	3.70
1998	8	1	-26.9400	26.6700	2.80
1998	8	2	-26.9100	26.5900	2.70
1998	8	2	-26.8900	26.8500	2.90
1998	8	4	-26.9200	26.8400	2.70
1998	8	4	-26.8900	26.7700	3.40
1998	8	4	-26.2300	27.7200	2.90
1998	8	4	-26.4300	27.3500	3.20
1998	8	5	-26.7900	26.7600	2.90
1998	8	5	-26.8600	26.8100	2.60
1998	8	5	-27.9000	26.6700	3.50
1998	8	5	-26.9000	26.8100	2.60
1998	8	5	-26.8900	26.6200	2.50
1998	8	6	-26.9000	26.7900	2.90
1998	8	7	-26.3800	27.5900	2.60
1998	8	8	-26.9000	26.7900	2.90
1998	8	8	-26.8900	26.8300	3.20
1998	8	9	-26.9900	26.7800	3.80
1998	8	11	-29.3700	27.7000	2.90
1998	8	11	-27.1000	26.8200	2.70
1998	8	12	-26.4400	27.2800	2.50
1998	8	12	-26.3500	27.6400	2.50
1998	8	13	-26.3700	27.3900	3.10
1998	8	13	-26.3700	27.3200	2.60
1998	8	13	-26.9100	26.7100	2.70
1998	8	14	-26.3100	27.6000	2.60
1998	8	15	-26.3300	27.6100	2.70
1998	8	15	-27.9300	26.6600	2.50
1998	8	15	-26.4200	27.4400	2.80
1998	8	16	-26.9000	26.6400	2.70
1998	8	16	-26.4400	27.3200	2.70
1998	8	17	-26.3800	27.5000	3.50
1998	8	17	-26.9000	26.7600	2.60
1998	8	17	-26.8900	26.6600	2.50
1998	8	17	-26.8400	26.8300	2.70
1998	8	18	-26.8600	26.6400	2.60
1998	8	18	-26.8400	26.6800	2.90
1998	8	19	-26.3300	27.6500	2.90
1998	8	20	-26.4800	27.3700	2.50
1998	8	20	-26.3400	27.3800	2.60
1998	8	20	-27.9600	26.7200	3.40
1998	8	20	-26.8100	26.8300	2.70
1998	8	21	-26.4200	27.4800	2.70

1998	8	21	-26.4000	27.3000	3.00
1998	8	21	-26.9300	26.8000	4.20
1998	8	21	-26.9400	26.7200	3.20
1998	8	22	-26.2300	27.6600	2.60
1998	8	23	-26.4200	27.6000	3.00
1998	8	24	-26.3000	27.6300	2.60
1998	8	24	-26.7900	26.7800	2.70
1998	8	25	-26.4600	27.3800	2.60
1998	8	25	-26.3600	27.3900	2.60
1998	8	25	-26.1800	28.2100	2.50
1998	8	26	-26.8100	26.8600	3.70
1998	8	26	-26.4000	27.4200	3.00
1998	8	27	-28.0600	26.8100	3.00
1998	8	27	-26.8800	26.6900	2.60
1998	8	27	-26.1900	28.2600	2.80
1998	8	29	-26.3700	27.4800	3.10
1998	8	29	-26.3600	27.4300	3.00
1998	8	30	-28.0700	26.8500	3.20
1998	8	30	-26.3600	27.4400	2.90
1998	8	30	-26.3700	27.3000	2.50
1998	9	1	-26.9500	26.8000	2.80
1998	9	1	-26.4100	27.5100	2.90
1998	9	1	-28.0000	26.7600	3.30
1998	9	1	-27.9000	26.6700	2.70
1998	9	1	-26.9000	26.7900	2.60
1998	9	2	-26.4800	27.3400	2.50
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1998	9	3	-27.0600	26.7500	2.70
1998	9	4	-26.3400	27.6400	3.30
1998	9	4	-27.9900	26.7700	2.50
1998	9	4	-26.4200	27.3300	2.60
1998	9	4	-26.9500	26.6200	2.50
1998	9	5	-26.4300	27.3400	2.60
1998	9	8	-26.3800	27.7000	3.20
1998	9	8	-26.1700	27.6800	3.00
1998	9	8	-26.3200	27.6500	2.70
1998	9	8	-26.3500	27.4700	3.30
1998	9	8	-26.8800	26.7600	2.60
1998	9	9	-26.8300	26.7800	2.60
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1998	9	9	-28.1000	26.8600	2.70
1998	9	10	-26.3900	27.5100	3.10
1998	9	10	-26.2900	27.7300	2.70
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1998	9	10	-26.8300	26.7700	3.00
1998	9	11	-26.3500	27.6500	2.60
1998	9	12	-26.3900	27.5000	2.50
1998	9	12	-26.9300	26.7100	2.60
1998	9	14	-26.9400	26.6600	2.60
1998	9	15	-26.3500	27.4000	3.00
1998	9	15	-28.0000	26.8400	2.70
1998	9	16	-27.9500	26.6500	3.70
1998	9	17	-26.3200	27.6100	2.60
1998	9	17	-26.2500	27.6600	2.80
1998	9	17	-26.8900	26.7600	2.90
1998	9	18	-27.8700	26.7500	3.40
1998	9	18	-28.0000	26.6700	2.70
1998	9	18	-27.9800	26.7400	3.30

1998	9	18	-27.9000	26.7000	2.50
1998	9	18	-27.9200	26.6400	2.70
1998	9	19	-26.8900	26.8300	3.70
1998	9	20	-26.4300	27.4400	2.70
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1998	9	22	-27.8800	26.7100	2.50
1998	9	23	-26.3900	27.3900	2.50
1998	9	24	-26.1700	28.2100	2.90
1998	9	24	-26.8300	26.7500	3.00
1998	9	25	-27.8900	26.7500	2.50
1998	9	25	-26.8400	26.7200	2.90
1998	9	25	-26.9200	26.8300	4.00
1998	9	25	-26.8500	26.7100	2.90
1998	9	26	-26.3200	27.5000	2.80
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1998	9	27	-26.4100	27.3200	2.90
1998	9	27	-26.8900	26.7800	2.70
1998	9	29	-26.8800	26.8500	3.30
1998	9	30	-26.3900	27.5000	2.70
1998	10	1	-26.5300	27.4500	2.50
1998	10	1	-26.8500	26.7000	2.80
1998	10	2	-26.4300	27.4600	3.70
1998	10	2	-26.3100	27.6100	3.80
1998	10	2	-27.1200	26.7900	2.70
1998	10	2	-26.9700	26.7800	3.20
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1998	10	3	-26.8900	26.7700	3.70
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1998	10	6	-26.8400	26.7500	2.70
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1998	10	7	-26.4100	27.2800	3.70
1998	10	7	-26.3600	27.4800	3.50
1998	10	7	-26.3500	27.4700	2.50
1998	10	7	-26.3700	27.4000	3.10
1998	10	7	-26.3600	27.4300	2.90
1998	10	8	-27.9200	26.6400	2.50
1998	10	8	-26.9300	26.7600	2.70
1998	10	8	-25.8600	27.1700	3.20
1998	10	9	-26.3600	27.4200	2.60
1998	10	9	-26.4400	27.3700	2.70
1998	10	10	-27.1300	26.7100	2.90
1998	10	10	-26.3700	27.2900	2.70
1998	10	12	-26.4500	27.2900	3.00
1998	10	12	-27.9900	26.7400	2.90
1998	10	12	-26.3200	27.6600	2.90
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1998	10	13	-26.9000	26.8400	2.90
1998	10	14	-26.4400	27.4400	2.70
1998	10	14	-26.3400	27.3900	2.50
1998	10	15	-26.9000	26.6600	2.50
1998	10	15	-26.8100	26.7200	2.90
1998	10	15	-26.3600	27.5100	2.80
1998	10	15	-26.8700	26.7300	2.60
1998	10	15	-27.9400	26.6900	2.70
1998	10	16	-27.5000	27.3700	2.80
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1998	10	16	-26.3700	27.3800	2.50
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1998	10	17	-26.4100	27.4600	2.50
1998	10	17	-27.0200	26.7300	2.90
1998	10	17	-26.8200	26.8400	2.60
1998	10	18	-26.3100	27.4700	2.60
1998	10	19	-26.9200	26.7100	2.60
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1998	10	23	-26.3500	27.4500	2.60
1998	10	23	-26.4200	27.5200	3.10
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1998	10	25	-26.9100	26.7000	3.10
1998	10	25	-26.8600	26.8200	2.60
1998	10	26	-26.2800	27.7100	2.80
1998	10	26	-28.0200	26.7600	2.90
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1998	10	27	-26.9100	26.8100	2.70
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1998	10	27	-26.3800	27.6000	3.00
1998	10	28	-26.3300	27.4700	2.70
1998	10	28	-26.8100	26.7600	3.20
1998	10	28	-26.8800	26.7700	2.50
1998	10	29	-27.9700	26.8200	3.10
1998	10	29	-26.8600	26.7700	2.70
1998	10	29	-26.8400	26.8300	2.70
1998	10	30	-26.4000	27.4700	3.40
1998	10	31	-26.4800	27.4400	2.50
1998	11	2	-26.4200	27.4400	3.30
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1998	11	5	-26.8800	26.8700	2.50
1998	11	6	-26.0800	27.7800	2.60
1998	11	7	-26.3800	27.2800	2.50
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1998	11	13	-26.4200	27.4000	2.80
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1998	11	18	-27.0200	26.7700	4.10
1998	11	19	-26.9300	26.7800	2.50
1998	11	19	-26.4500	27.2900	3.60
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1998	11	19	-26.4100	27.3400	2.70
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1998	11	24	-26.4300	27.4200	2.50
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1998	12	1	-28.0400	26.8800	3.70
1998	12	1	-27.7000	30.1600	3.50
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1998	12	3	-26.8800	26.6800	2.50
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1998	12	6	-26.4200	27.5800	2.70
1998	12	6	-28.0500	26.7300	3.50
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1998	12	12	-26.3800	27.3300	2.50
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1998	12	17	-26.3700	27.4900	3.00
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1998	12	21	-26.3800	27.4100	3.20

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1998	12	23	-26.4400	27.2800	3.10
1998	12	23	-26.3300	27.4400	2.60
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1998	12	24	-26.8700	26.6600	2.90
1998	12	26	-26.9200	26.8300	2.90
1998	12	27	-26.9000	26.8200	3.50
1998	12	27	-26.8700	26.8000	3.10
1998	12	28	-26.3200	27.5100	2.80
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1998	12	31	-26.9100	26.6700	2.80
1999	1	2	-26.9400	26.6600	2.60
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1999	1	3	-26.9100	26.7800	2.80
1999	1	3	-26.4000	27.3900	2.90
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1999	1	7	-26.9300	26.8200	3.70
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1999	1	11	-26.8900	26.7300	3.30
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1999	1	12	-26.3800	27.4100	3.70
1999	1	12	-26.3100	27.5800	3.60
1999	1	12	-26.9200	26.6900	2.70
1999	1	12	-26.9100	26.7200	2.80
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1999	1	13	-26.4400	27.4000	3.00
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1999	1	14	-26.8900	26.7300	2.70
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1999	1	21	-26.4300	27.5000	2.70
1999	1	22	-26.9600	26.7400	2.70
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1999	1	23	-26.8800	26.8500	2.90
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1999	1	23	-26.9300	26.7900	3.80
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1999	1	24	-26.8600	26.7800	3.10
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1999	1	27	-26.8800	26.7500	2.70
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1999	2	1	-26.4100	27.3500	2.90
1999	2	1	-26.8900	26.7900	2.80
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1999	2	2	-26.4200	27.3900	3.50
1999	2	2	-26.9300	26.8200	2.90
1999	2	2	-26.9500	26.6600	2.60
1999	2	3	-26.9200	26.7400	2.70
1999	2	3	-26.4800	27.4500	3.30
1999	2	3	-26.4500	27.4800	2.50
1999	2	4	-26.9400	26.7900	2.80
1999	2	5	-26.4100	27.4000	2.60
1999	2	6	-27.8700	26.7100	2.90
1999	2	6	-26.4100	27.5500	2.50
1999	2	6	-27.8900	26.6800	3.00
1999	2	7	-26.9200	26.8300	2.50
1999	2	8	-26.8300	26.7000	3.00
1999	2	10	-27.9300	26.6900	2.80
1999	2	11	-26.4900	27.3600	2.80
1999	2	11	-26.3600	27.4700	3.30
1999	2	13	-26.2900	27.7200	3.30
1999	2	15	-27.9100	26.6100	2.80
1999	2	16	-26.3600	27.3200	2.70
1999	2	16	-28.0400	26.9200	2.50
1999	2	16	-26.3900	27.3300	2.60
1999	2	17	-26.3400	27.5800	2.60
1999	2	18	-27.8500	26.6800	2.50
1999	2	18	-26.8500	26.6800	2.90
1999	2	19	-30.1200	27.0300	2.70
1999	2	19	-26.3600	27.2700	2.90
1999	2	20	-26.3800	27.4100	2.70
1999	2	21	-26.3400	27.4800	2.50
1999	2	21	-26.3800	27.3300	2.80
1999	2	21	-26.4500	27.4900	2.70
1999	2	22	-26.4100	27.3800	2.50
1999	2	22	-26.3700	27.2700	2.50
1999	2	24	-26.8100	26.7800	3.10
1999	2	25	-26.4100	27.5200	3.30
1999	2	25	-26.3500	27.4800	2.50
1999	2	25	-26.3500	27.7100	2.60
1999	2	26	-26.3300	27.5000	3.60
1999	2	26	-26.4100	27.3800	2.80
1999	2	26	-26.9300	26.6100	2.60
1999	2	27	-26.4100	27.4500	3.00
1999	3	1	-26.5000	27.3700	2.50
1999	3	2	-27.9900	26.6700	2.80
1999	3	3	-26.4700	27.3400	2.60
1999	3	3	-26.8700	26.7400	2.90
1999	3	6	-26.9100	26.8500	2.50
1999	3	8	-26.3500	27.6500	2.60
1999	3	8	-26.8600	26.7300	2.80
1999	3	9	-26.4600	27.4300	2.50
1999	3	9	-26.4200	27.4400	2.70
1999	3	10	-26.4300	27.4800	2.60
1999	3	10	-26.4700	27.4600	2.50
1999	3	10	-26.9100	26.8000	2.50
1999	3	10	-26.9600	26.7700	2.60
1999	3	12	-26.4100	27.5100	2.60
1999	3	12	-28.0300	26.7500	2.80
1999	3	12	-26.2300	27.7700	2.60

1999	3	16	-26.3100	27.7300	2.60
1999	3	17	-26.9300	26.6200	2.90
1999	3	18	-26.5100	27.4600	2.80
1999	3	18	-26.3500	27.3900	3.70
1999	3	18	-26.3600	27.4500	3.60
1999	3	19	-26.4400	27.3200	2.50
1999	3	19	-26.4000	27.4000	2.60
1999	3	19	-26.9800	26.7800	2.70
1999	3	20	-26.4200	27.5400	2.70
1999	3	20	-26.4300	27.4100	2.80
1999	3	22	-26.3500	27.4200	2.50
1999	3	22	-26.9100	26.7400	2.70
1999	3	22	-27.8700	26.7100	2.90
1999	3	22	-26.3500	27.5400	2.60
1999	3	23	-26.2400	28.2300	3.50
1999	3	23	-26.4200	27.3300	2.60
1999	3	23	-26.4400	27.3400	2.80
1999	3	24	-26.8600	26.7400	2.80
1999	3	24	-26.4100	27.5700	2.80
1999	3	25	-26.9100	26.8200	3.10
1999	3	25	-26.4400	27.2900	2.70
1999	3	25	-26.4300	27.3400	3.30
1999	3	25	-26.4800	27.4300	2.50
1999	3	26	-26.8400	26.6600	3.00
1999	3	26	-26.2500	28.1900	2.50
1999	3	26	-26.4900	27.4200	3.00
1999	3	27	-26.3500	27.3400	2.50
1999	3	29	-27.0900	26.7700	2.70
1999	3	31	-26.4100	27.3800	3.00
1999	4	1	-26.3700	27.4200	2.50
1999	4	1	-26.4400	27.3800	2.60
1999	4	3	-26.3700	27.4000	2.50
1999	4	4	-26.3600	27.5000	2.60
1999	4	4	-26.3600	27.4100	2.60
1999	4	5	-26.9000	26.7600	3.40
1999	4	5	-26.4000	27.6100	2.60
1999	4	5	-26.4100	27.4100	2.80
1999	4	9	-26.3500	27.7100	2.70
1999	4	9	-26.4100	27.5000	3.20
1999	4	9	-26.4200	27.4000	2.60
1999	4	12	-26.2800	27.6600	2.60
1999	4	13	-26.8700	26.7500	2.50
1999	4	13	-26.8500	26.7500	2.50
1999	4	14	-27.8300	26.6900	3.50
1999	4	14	-26.3700	27.4300	2.90
1999	4	14	-26.8900	26.8200	2.60
1999	4	14	-27.8400	26.7000	3.40
1999	4	15	-26.2300	28.2500	2.50
1999	4	15	-26.8600	26.7000	3.30
1999	4	16	-26.4000	27.6900	2.50
1999	4	17	-26.8800	26.7500	3.10
1999	4	17	-26.3500	27.4000	2.60
1999	4	18	-26.5300	27.4500	3.20
1999	4	18	-26.9600	26.7700	2.50
1999	4	19	-26.4100	27.4600	2.50
1999	4	20	-26.4300	27.4400	3.20
1999	4	20	-26.8800	26.8200	3.00
1999	4	21	-26.8500	26.8300	2.50
1999	4	21	-26.3600	27.2700	2.50
1999	4	21	-26.3600	27.3300	2.90
1999	4	22	-26.3400	27.4300	2.50

1999	4	22	-27.0300	26.7900	3.20
1999	4	22	-27.8000	26.6400	5.10
1999	4	23	-26.3800	27.3400	2.50
1999	4	24	-27.9000	26.6400	3.30
1999	4	25	-26.8400	26.7000	3.00
1999	4	27	-26.8600	26.7400	2.90
1999	4	27	-26.4000	27.4200	2.90
1999	4	28	-26.8100	26.7200	3.70
1999	4	29	-26.3800	27.3400	2.50
1999	4	29	-26.8900	26.8200	3.20
1999	4	29	-26.5100	27.4700	2.80
1999	4	29	-26.4300	27.4700	2.60
1999	5	1	-28.0000	26.7300	3.40
1999	5	2	-28.1000	26.8500	3.40
1999	5	3	-26.3300	27.5000	2.50
1999	5	3	-26.4100	27.4900	2.70
1999	5	3	-27.8800	26.7300	2.90
1999	5	3	-26.3500	27.5800	3.00
1999	5	4	-26.8500	26.7700	2.80
1999	5	5	-27.8200	26.7100	2.70
1999	5	5	-28.0400	26.8200	2.70
1999	5	6	-27.9100	26.7700	3.00
1999	5	7	-26.3900	27.4700	3.00
1999	5	7	-26.8400	26.7800	2.90
1999	5	9	-26.2500	27.6200	2.90
1999	5	10	-27.9700	26.6900	3.30
1999	5	10	-26.8300	26.7900	2.90
1999	5	12	-26.3800	27.5200	2.60
1999	5	12	-26.8200	26.8000	2.70
1999	5	13	-26.8700	26.8600	2.90
1999	5	16	-26.8800	26.6900	2.70
1999	5	19	-26.3400	27.4500	2.70
1999	5	19	-27.1000	26.7100	2.60
1999	5	19	-26.3400	27.5400	2.60
1999	5	19	-26.3700	27.3400	2.50
1999	5	20	-26.8700	26.6600	2.60
1999	5	20	-26.3900	27.4200	2.70
1999	5	25	-27.8400	26.1600	3.30
1999	5	27	-26.3700	27.3700	2.50
1999	5	27	-26.9600	26.7300	2.60
1999	5	28	-26.8600	26.8100	3.60
1999	5	28	-26.4100	27.4500	2.60
1999	5	28	-26.3900	27.3200	3.20
1999	5	28	-26.8400	26.6800	2.60
1999	5	29	-26.2500	27.2200	3.80
1999	5	29	-26.3900	27.4100	2.80
1999	5	30	-26.4100	27.4800	2.90
1999	6	1	-26.9000	26.6300	2.50
1999	6	1	-26.4200	27.3500	2.60
1999	6	3	-26.4100	27.4900	2.50
1999	6	4	-27.9800	26.7100	3.60
1999	6	5	-26.8200	26.8000	2.90
1999	6	5	-26.8000	26.8000	3.20
1999	6	10	-26.9100	26.8000	2.60
1999	6	11	-26.1800	27.7800	2.60
1999	6	13	-26.8400	26.8300	2.60
1999	6	13	-26.8500	26.8500	2.80
1999	6	14	-26.3300	27.4900	3.80
1999	6	15	-26.9300	26.7400	2.90
1999	6	19	-26.9300	26.7500	2.90
1999	6	21	-29.5800	25.3000	3.30

1999	6	21	-26.8300	26.7200	2.90
1999	6	21	-26.8500	26.7500	2.80
1999	6	22	-26.8600	26.8200	2.70
1999	6	24	-26.8500	26.7700	2.60
1999	6	24	-26.8500	26.8000	3.60
1999	6	24	-28.0200	26.8600	4.10
1999	6	25	-26.3800	27.5200	2.70
1999	6	25	-24.9000	30.0300	3.80
1999	6	26	-26.3500	27.4700	2.70
1999	6	27	-26.4100	27.4000	2.50
1999	6	27	-26.8900	26.6500	2.70
1999	6	28	-26.2100	28.2400	3.10
1999	6	28	-26.2400	28.1700	2.80
1999	6	28	-26.3700	27.4900	2.60
1999	6	30	-27.8700	26.7200	4.40
1999	6	30	-28.0600	26.8900	3.60
1999	7	1	-26.3800	27.4500	2.60
1999	7	1	-28.0400	26.8600	2.50
1999	7	1	-26.3600	27.5800	2.50
1999	7	2	-26.4000	27.2900	2.80
1999	7	3	-26.8900	26.7900	3.40
1999	7	3	-26.3500	27.5300	2.50
1999	7	3	-26.3800	27.6100	2.80
1999	7	3	-29.5000	25.1700	4.50
1999	7	5	-26.3800	27.4200	2.70
1999	7	7	-26.4100	27.4400	2.80
1999	7	7	-26.3600	27.6300	2.70
1999	7	8	-26.7500	26.7900	2.90
1999	7	8	-26.3500	27.4500	3.10
1999	7	8	-26.3900	27.3800	3.00
1999	7	8	-26.5300	27.4700	3.80
1999	7	8	-26.2700	27.7200	3.10
1999	7	9	-26.3800	27.3800	3.30
1999	7	9	-27.8200	26.7100	3.00
1999	7	10	-26.7700	26.8600	3.30
1999	7	10	-26.7900	26.8000	3.80
1999	7	11	-26.9300	26.8100	2.60
1999	7	12	-26.9200	26.7200	2.50
1999	7	12	-26.4200	27.4500	3.10
1999	7	12	-26.3900	27.4300	2.50
1999	7	14	-27.9700	26.7000	3.20
1999	7	14	-26.9300	26.7300	3.10
1999	7	14	-27.8900	26.6400	2.60
1999	7	16	-26.4600	27.4200	3.00
1999	7	16	-26.4100	27.4600	2.90
1999	7	16	-26.3500	27.2800	2.70
1999	7	17	-26.4100	27.3100	2.70
1999	7	18	-26.9400	26.7800	3.40
1999	7	18	-28.0400	26.8000	3.40
1999	7	18	-26.3100	27.4900	3.60
1999	7	19	-26.7900	26.8500	3.40
1999	7	19	-26.9400	26.6800	2.50
1999	7	20	-28.1200	26.9000	3.30
1999	7	22	-26.8000	26.7700	2.50
1999	7	22	-26.9000	26.7000	2.90
1999	7	23	-26.9100	26.6800	2.60
1999	7	23	-26.9000	26.7100	2.50
1999	7	23	-27.8600	26.7700	3.50
1999	7	24	-26.3800	27.3400	2.50
1999	7	24	-26.8100	26.7800	2.50
1999	7	26	-26.2200	28.1800	2.50

1999	7	28	-26.3800	27.3600	2.50
1999	7	30	-26.8800	26.6500	3.20
1999	7	30	-26.3700	27.4400	2.60
1999	7	31	-26.3600	27.5800	3.00
1999	7	31	-26.3400	27.5000	2.90
1999	7	31	-26.4800	27.4200	2.60
1999	7	31	-26.3600	27.4600	2.80
1999	7	31	-26.4000	27.4200	2.50
1999	8	1	-26.1900	28.2600	2.50
1999	8	1	-26.3900	27.5700	2.50
1999	8	1	-26.8300	26.8200	3.20
1999	8	3	-26.3500	27.4100	3.00
1999	8	3	-26.8200	26.8000	3.10
1999	8	3	-28.0000	26.6600	2.60
1999	8	3	-26.3700	27.6900	2.50
1999	8	4	-26.3800	27.5200	2.70
1999	8	4	-26.4000	27.3100	2.50
1999	8	7	-26.7000	30.4700	2.70
1999	8	7	-26.9200	26.8000	2.90
1999	8	8	-26.3300	27.5900	2.70
1999	8	9	-26.3400	27.5200	2.60
1999	8	10	-26.8400	26.7500	2.60
1999	8	10	-26.8800	26.8300	2.80
1999	8	11	-26.3400	27.6200	2.50
1999	8	11	-26.3700	27.6600	3.10
1999	8	13	-26.3500	27.5200	2.90
1999	8	13	-26.8500	26.8400	2.50
1999	8	14	-26.1900	28.2100	3.10
1999	8	14	-27.8600	26.7600	2.80
1999	8	14	-28.0200	26.7800	2.70
1999	8	16	-26.3700	27.5900	3.10
1999	8	16	-26.4000	27.3500	3.10
1999	8	16	-26.4300	27.3300	2.80
1999	8	17	-28.0200	26.8100	3.50
1999	8	18	-26.3900	27.4800	2.60
1999	8	18	-26.4600	27.3700	2.90
1999	8	18	-26.3500	27.6400	2.60
1999	8	18	-26.9600	26.7800	2.80
1999	8	18	-28.0000	26.8000	3.40
1999	8	20	-26.9700	26.6400	3.70
1999	8	21	-26.4800	27.4800	3.10
1999	8	21	-26.2100	28.1600	2.50
1999	8	22	-27.9300	26.7100	3.20
1999	8	22	-27.0700	26.7700	2.70
1999	8	22	-26.2300	28.1600	3.10
1999	8	22	-26.4400	27.4900	3.10
1999	8	23	-26.9600	26.7700	2.70
1999	8	23	-28.0300	26.9100	2.70
1999	8	24	-26.9400	26.7700	2.70
1999	8	24	-26.3800	27.6600	2.80
1999	8	25	-27.8700	26.6800	3.00
1999	8	25	-26.9100	26.7800	3.20
1999	8	26	-26.3700	27.4400	2.50
1999	8	27	-26.4400	27.2800	2.70
1999	8	27	-26.4000	27.5800	2.50
1999	8	27	-26.3600	27.4300	2.90
1999	8	28	-26.9300	26.7300	2.50
1999	8	29	-26.8800	26.8200	3.00
1999	8	30	-28.0100	26.7100	2.70
1999	8	31	-26.8900	26.6700	2.70
1999	8	31	-26.8900	26.7500	2.60

1999	9	4	-26.8300	26.7600	3.60
1999	9	5	-28.0200	26.7900	3.60
1999	9	6	-26.3800	27.3300	2.60
1999	9	6	-26.9500	26.7600	2.70
1999	9	6	-26.3800	27.5400	2.80
1999	9	6	-26.9300	26.8200	4.00
1999	9	7	-26.4300	27.4500	3.70
1999	9	7	-26.3900	27.3400	2.80
1999	9	7	-26.9400	26.7100	2.50
1999	9	8	-26.8400	26.7900	2.60
1999	9	9	-26.2300	27.6500	2.90
1999	9	9	-26.8000	26.7400	2.80
1999	9	10	-26.3400	27.5200	2.70
1999	9	10	-26.8400	26.7800	3.00
1999	9	10	-26.8900	26.7800	2.70
1999	9	11	-26.9400	26.8200	2.50
1999	9	12	-26.3100	27.6100	2.80
1999	9	13	-26.4100	27.5000	2.50
1999	9	13	-26.4200	27.4100	2.90
1999	9	13	-26.3900	27.3800	2.60
1999	9	14	-26.3200	27.5100	3.60
1999	9	14	-26.7600	26.5300	4.20
1999	9	14	-26.8900	26.7500	3.50
1999	9	15	-26.9100	26.7000	2.90
1999	9	16	-26.3000	27.6500	2.70
1999	9	16	-26.3700	27.3500	3.10
1999	9	17	-26.4200	27.3300	2.90
1999	9	17	-26.8900	26.7700	2.90
1999	9	17	-26.9100	26.8100	3.50
1999	9	18	-26.8000	26.8000	2.90
1999	9	18	-26.4100	27.5200	3.20
1999	9	20	-26.3500	27.4800	3.00
1999	9	21	-26.3100	27.6200	2.90
1999	9	21	-26.3000	27.6500	3.20
1999	9	22	-26.8200	26.7300	2.80
1999	9	23	-26.3900	27.4000	3.50
1999	9	25	-26.4400	27.4400	2.70
1999	9	25	-26.4300	27.4100	3.30
1999	9	25	-28.0000	26.8900	2.50
1999	9	28	-26.4100	27.3800	2.60
1999	9	28	-26.3600	27.4300	2.50
1999	9	29	-26.3400	27.4300	2.60
1999	9	29	-26.8400	26.7100	3.80
1999	9	29	-26.9100	26.7300	2.80
1999	9	29	-26.8500	26.7500	2.80
1999	9	30	-26.4000	27.5100	2.50
1999	9	30	-26.3900	27.5700	2.80
1999	10	2	-26.2400	28.2500	3.10
1999	10	2	-26.3600	27.5200	3.20
1999	10	2	-26.4200	27.4900	3.20
1999	10	3	-26.3900	27.6700	2.90
1999	10	4	-26.8700	26.7600	3.40
1999	10	5	-26.8900	26.8400	3.30
1999	10	6	-26.3500	27.4700	3.30
1999	10	6	-26.2500	27.6400	2.80
1999	10	6	-26.4300	27.4600	2.60
1999	10	8	-26.9700	26.7300	2.50
1999	10	10	-26.3600	27.4900	3.10
1999	10	11	-26.8900	26.8000	3.50
1999	10	11	-26.8600	26.7200	3.40
1999	10	11	-26.8400	26.7800	4.00

1999	10	11	-26.8400	26.8000	2.90
1999	10	12	-26.8500	26.7500	3.90
1999	10	12	-26.8900	26.8000	2.90
1999	10	12	-26.9000	26.7600	3.30
1999	10	12	-26.8600	26.8200	2.50
1999	10	12	-26.3600	27.4200	3.20
1999	10	13	-28.0200	26.8600	3.70
1999	10	13	-26.4500	27.4300	2.50
1999	10	14	-28.0300	26.8400	2.70
1999	10	14	-26.4400	27.4400	2.60
1999	10	14	-26.4100	27.3900	2.70
1999	10	14	-26.8200	26.8200	2.90
1999	10	16	-26.3500	27.6900	2.60
1999	10	16	-26.3500	27.4600	2.80
1999	10	16	-26.3700	27.4600	2.60
1999	10	17	-26.5000	27.4400	2.80
1999	10	17	-28.0500	26.8100	3.00
1999	10	18	-26.8400	26.8500	3.70
1999	10	18	-26.3400	27.5100	2.70
1999	10	18	-26.3600	27.3900	2.50
1999	10	18	-26.4100	27.4100	2.60
1999	10	18	-26.8900	26.7700	3.00
1999	10	19	-26.4100	27.4400	2.60
1999	10	20	-26.8700	26.8300	2.70
1999	10	21	-26.4400	27.3300	2.90
1999	10	21	-26.4300	27.4700	2.50
1999	10	25	-26.7600	26.7900	3.70
1999	10	26	-26.7900	26.7200	3.30
1999	10	26	-26.2800	27.6300	2.60
1999	10	26	-26.3600	27.4100	3.10
1999	10	26	-26.8400	26.7300	3.70
1999	10	26	-26.3900	27.3600	2.50
1999	10	26	-26.7900	26.7700	2.70
1999	10	26	-26.8300	26.8200	2.60
1999	10	27	-27.9500	26.7200	3.20
1999	10	27	-26.4300	27.3200	2.60
1999	10	28	-26.7900	26.7700	3.10
1999	10	28	-26.9000	26.8200	3.00
1999	10	29	-26.1700	27.8000	2.50
1999	10	30	-26.8700	26.8200	2.50
1999	10	30	-26.8900	26.7000	2.90
1999	10	30	-26.2500	27.6600	2.60
1999	10	30	-26.7800	26.7700	2.90
1999	11	1	-26.8900	26.8100	2.80
1999	11	3	-26.3700	27.3300	3.20
1999	11	3	-26.3700	27.4300	3.00
1999	11	10	-26.4100	27.5000	2.90
1999	11	12	-26.8300	26.8100	3.00
1999	11	13	-26.8700	26.7900	2.80
1999	11	13	-27.9400	26.7400	2.80
1999	11	14	-26.7600	26.8000	2.70
1999	11	14	-26.2300	27.6600	3.40
1999	11	14	-26.3600	27.5000	2.70
1999	11	15	-26.7700	26.8100	2.70
1999	11	16	-26.4900	27.3700	3.00
1999	11	16	-26.3600	27.5400	2.80
1999	11	18	-26.1500	27.7300	2.60
1999	11	20	-26.3500	27.5900	3.90
1999	11	23	-26.9400	26.7000	3.30
1999	11	23	-26.8300	26.8500	2.70
1999	11	24	-27.7900	26.7000	2.90

1999	11	25	-26.8600	26.7900	3.10
1999	11	25	-26.4300	27.4900	2.60
1999	11	27	-26.9500	26.7100	2.50
1999	11	28	-26.9400	26.8100	2.60
1999	11	28	-27.0400	26.7500	2.50
1999	11	28	-26.1400	27.7500	2.60
1999	11	28	-26.8500	26.7500	2.50
1999	11	30	-27.9500	26.7700	3.10
1999	12	2	-27.8600	26.7000	2.50
1999	12	3	-26.3600	27.2800	3.00
1999	12	3	-26.4400	27.4800	3.40
1999	12	3	-26.3600	27.3500	3.00
1999	12	4	-26.8700	26.7400	2.50
1999	12	4	-24.8600	31.3100	4.30
1999	12	6	-26.3800	27.4600	2.50
1999	12	8	-26.3300	27.4900	3.80
1999	12	8	-26.3700	27.6900	2.60
1999	12	9	-26.1800	27.7300	2.50
1999	12	9	-26.8400	26.7900	2.70
1999	12	10	-26.8700	26.7200	2.50
1999	12	10	-26.3600	27.4100	2.70
1999	12	11	-26.9200	26.8100	2.70
1999	12	11	-26.3500	27.4100	3.30
1999	12	12	-26.3400	27.6300	2.80
1999	12	13	-26.8100	26.8500	2.70
1999	12	14	-26.3700	27.7100	2.60
1999	12	15	-26.8900	26.8500	2.70
1999	12	15	-26.8600	26.8500	3.20
1999	12	16	-26.8800	26.8100	2.80
1999	12	16	-27.8700	26.6500	2.60
1999	12	17	-26.8200	26.7300	2.60
1999	12	18	-26.3300	27.5000	2.50
1999	12	18	-27.8600	26.7700	2.60
1999	12	18	-26.3600	27.3500	2.50
1999	12	18	-26.3700	27.3600	3.00
1999	12	18	-26.3800	27.3500	2.50
1999	12	20	-26.9100	26.8300	2.70
1999	12	20	-26.8400	26.7200	2.70
1999	12	21	-26.4400	27.5000	3.20
1999	12	21	-27.8700	26.6500	3.50
1999	12	21	-27.9500	26.6500	2.80
1999	12	22	-26.3900	27.3800	2.70
1999	12	22	-26.3300	27.5000	3.60
1999	12	23	-28.0300	26.8600	2.70
1999	12	25	-26.7900	26.7800	3.10
1999	12	26	-26.3700	27.4100	2.50
1999	12	26	-26.3800	27.4400	2.80
1999	12	29	-26.3500	27.5100	3.50
1999	12	30	-26.2900	27.6100	2.70
1999	12	30	-26.3900	27.3700	2.90
1999	12	31	-26.8300	26.8400	2.80
2000	1	1	-26.4100	27.5200	2.50
2000	1	1	-26.3800	27.4800	2.90
2000	1	1	-26.8900	26.8400	2.90
2000	1	3	-27.9100	26.7200	2.70
2000	1	5	-26.2000	27.7800	2.60
2000	1	5	-26.8300	26.8000	3.20
2000	1	5	-26.8800	26.8100	2.80
2000	1	8	-26.3700	27.3900	2.50
2000	1	8	-26.8400	26.8400	2.50
2000	1	9	-26.8700	26.8700	3.30

2000	1	12	-26.8600	26.8000	3.20
2000	1	13	-28.0100	26.9000	3.00
2000	1	13	-26.8400	26.7500	3.30
2000	1	14	-26.3900	27.3300	2.80
2000	1	14	-26.9000	26.8300	3.00
2000	1	16	-26.9100	26.8200	2.50
2000	1	17	-26.3400	27.4900	2.80
2000	1	17	-26.1900	28.2300	2.90
2000	1	18	-26.8100	26.7800	2.50
2000	1	19	-26.8600	26.7200	2.50
2000	1	19	-26.9200	30.4200	3.10
2000	1	19	-27.9500	26.7500	2.80
2000	1	21	-26.8400	26.7600	2.70
2000	1	22	-26.1600	27.6900	3.10
2000	1	22	-26.8600	26.7600	2.80
2000	1	23	-26.3700	27.4100	3.10
2000	1	23	-26.8600	26.8400	2.80
2000	1	24	-26.3800	27.4300	2.90
2000	1	25	-26.8300	26.7900	2.50
2000	1	26	-26.8300	26.7500	3.40
2000	1	26	-26.7900	26.7400	3.30
2000	1	26	-26.7700	26.7900	2.80
2000	1	27	-26.8600	26.8000	2.80
2000	1	29	-26.2500	27.7300	2.60
2000	1	30	-26.3500	27.6100	3.00
2000	1	31	-26.8100	26.7700	2.90
2000	2	2	-26.4300	27.4100	2.70
2000	2	2	-26.7800	26.7900	2.70
2000	2	3	-26.3700	27.3900	2.80
2000	2	3	-26.3800	27.4300	2.80
2000	2	3	-26.1100	27.7100	3.00
2000	2	3	-26.8000	26.8500	2.90
2000	2	3	-26.7700	26.8300	2.70
2000	2	6	-26.7900	26.7600	2.80
2000	2	7	-26.4300	27.3900	2.50
2000	2	7	-26.3600	30.6600	4.10
2000	2	8	-26.7300	30.5800	3.40
2000	2	8	-26.4000	27.3000	3.90
2000	2	8	-28.0300	26.7300	2.60
2000	2	9	-26.8700	26.8300	2.90
2000	2	9	-26.8200	26.8000	3.60
2000	2	9	-27.9300	26.7500	3.20
2000	2	10	-26.3300	27.6100	2.70
2000	2	11	-27.8700	26.7200	2.50
2000	2	12	-26.2000	28.1500	2.80
2000	2	12	-28.1800	26.6000	3.00
2000	2	16	-26.8800	26.6900	2.90
2000	2	18	-26.8700	26.7100	2.70
2000	2	18	-26.4100	27.3700	2.90
2000	2	18	-28.0400	26.8900	2.70
2000	2	19	-26.4200	27.3600	2.80
2000	2	21	-26.8500	26.7400	2.60
2000	2	21	-26.8800	26.8300	3.10
2000	2	21	-26.2700	27.6600	2.70
2000	2	22	-26.8900	26.8000	2.80
2000	2	23	-26.3600	27.3400	3.00
2000	2	24	-26.3100	27.6900	2.60
2000	2	25	-26.8800	26.8300	3.10
2000	2	25	-26.8600	26.8500	3.30
2000	2	28	-27.9700	26.7800	3.30
2000	2	29	-27.9700	26.7900	3.20

2000	2	29	-26.4000	27.4400	2.50
2000	3	3	-26.4700	27.4700	2.50
2000	3	4	-26.3600	27.4700	3.20
2000	3	5	-28.0900	26.8500	2.60
2000	3	7	-26.4300	27.5000	3.00
2000	3	7	-26.3900	27.3800	3.60
2000	3	8	-26.3600	27.4600	3.10
2000	3	11	-26.3600	27.4500	3.10
2000	3	11	-26.9300	26.7300	2.70
2000	3	11	-26.9100	26.6700	2.60
2000	3	12	-26.3700	27.4300	2.90
2000	3	12	-28.0400	26.9000	2.60
2000	3	13	-26.4500	27.3700	3.20
2000	3	14	-27.9700	26.7400	3.10
2000	3	14	-26.2200	28.2000	2.80
2000	3	15	-27.0500	26.7900	2.50
2000	3	16	-28.0200	26.6800	3.20
2000	3	16	-28.1700	26.5800	2.80
2000	3	16	-27.0300	26.8200	2.50
2000	3	19	-26.1700	27.8500	2.50
2000	3	22	-27.0400	26.7400	3.00
2000	3	22	-26.3400	27.7100	3.70
2000	3	23	-26.9600	26.7700	3.10
2000	3	24	-26.7500	26.8100	2.60
2000	3	24	-26.9300	26.7100	3.10
2000	3	24	-26.3700	27.3900	2.70
2000	3	26	-26.9300	26.7500	3.20
2000	3	27	-26.8500	26.7700	3.00
2000	3	29	-26.4300	27.3800	3.20
2000	3	29	-26.2000	28.2300	3.10
2000	3	30	-26.3900	27.3900	3.50
2000	3	31	-26.8700	26.7300	3.10
2000	4	1	-26.1600	27.7400	3.10
2000	4	1	-26.9400	26.6700	3.20
2000	4	1	-26.8500	26.7500	3.00
2000	4	3	-26.8900	26.8000	2.60
2000	4	3	-26.2400	27.6300	3.30
2000	4	3	-26.3400	27.4800	2.80
2000	4	3	-26.3600	27.4100	2.60
2000	4	4	-26.3900	27.5000	2.50
2000	4	5	-26.4100	27.3500	3.40
2000	4	6	-26.4000	27.3400	2.60
2000	4	6	-26.3800	27.3400	2.50
2000	4	7	-26.9000	26.7700	2.50
2000	4	7	-26.3600	27.6300	2.80
2000	4	7	-26.4300	27.4000	3.00
2000	4	7	-26.3800	27.3700	2.80
2000	4	7	-26.3900	27.4900	2.50
2000	4	7	-26.8400	26.7900	3.40
2000	4	7	-26.3900	27.3700	3.10
2000	4	8	-26.4600	27.4100	2.50
2000	4	8	-26.7600	26.8200	3.00
2000	4	9	-26.3100	27.6600	2.50
2000	4	10	-26.3600	27.3200	2.80
2000	4	11	-27.8500	26.6200	2.70
2000	4	12	-26.8200	26.7600	2.70
2000	4	12	-24.7000	29.6000	2.60
2000	4	13	-26.4400	27.3500	3.00
2000	4	13	-26.3600	27.4200	2.90
2000	4	14	-27.9100	26.7700	3.20
2000	4	14	-26.4500	27.4400	2.50

2000	4	15	-26.4500	27.4700	3.00
2000	4	15	-26.4800	27.4500	2.60
2000	4	16	-26.3600	27.4500	2.50
2000	4	17	-26.4600	27.3700	3.10
2000	4	17	-26.3700	27.3700	2.70
2000	4	18	-27.9100	26.7600	2.50
2000	4	19	-26.3900	27.3600	2.90
2000	4	20	-26.4300	27.3200	2.70
2000	4	21	-26.7900	26.7700	3.20
2000	4	21	-27.8700	26.7800	2.90
2000	4	24	-26.3000	27.6200	2.50
2000	4	25	-26.8900	26.7900	3.10
2000	4	26	-26.3900	27.4500	3.00
2000	4	27	-26.9300	26.6800	2.60
2000	4	28	-26.9500	26.7000	2.70
2000	4	29	-26.8500	26.7800	3.40
2000	4	29	-27.9400	26.6700	2.60
2000	4	29	-26.9100	26.7200	2.50
2000	4	29	-26.3600	27.3900	3.00
2000	4	29	-26.8800	26.8300	4.00
2000	4	29	-26.2600	27.6600	3.30
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2000	5	1	-26.8800	26.7700	2.70
2000	5	1	-26.3800	27.5200	3.40
2000	5	2	-27.9000	26.7500	2.60
2000	5	4	-26.3000	27.6200	3.10
2000	5	5	-26.3800	27.3500	3.00
2000	5	5	-26.2500	27.7100	2.60
2000	5	5	-26.2900	27.6200	2.50
2000	5	6	-26.3400	27.4800	2.70
2000	5	6	-26.8200	26.7200	2.70
2000	5	6	-26.4100	27.3000	2.50
2000	5	6	-27.9000	26.7600	3.50
2000	5	7	-26.7900	26.7400	2.80
2000	5	8	-26.2600	27.6600	3.40
2000	5	8	-26.3500	27.5200	2.50
2000	5	9	-26.3400	27.5200	2.70
2000	5	9	-26.3500	27.4900	2.50
2000	5	9	-26.8300	26.8200	2.60
2000	5	11	-26.3300	27.7200	2.70
2000	5	11	-26.4100	27.3300	2.50
2000	5	11	-27.9800	26.8700	3.00
2000	5	11	-27.7400	26.7000	2.80
2000	5	11	-26.3100	27.5900	2.80
2000	5	12	-26.3900	27.4500	3.00
2000	5	12	-26.4700	27.3900	2.70
2000	5	13	-26.4000	27.2900	2.70
2000	5	16	-26.8200	26.8200	2.70
2000	5	18	-26.8500	26.8600	3.60
2000	5	19	-26.8900	26.6600	3.40
2000	5	21	-26.2500	27.7400	3.30
2000	5	22	-26.0900	27.7900	2.50
2000	5	22	-26.8800	26.7700	2.50
2000	5	23	-26.4400	27.3600	2.90
2000	5	23	-26.9500	26.6200	2.80
2000	5	23	-26.7600	26.8500	2.70
2000	5	24	-26.8600	26.7700	2.60
2000	5	24	-26.2200	28.1800	2.60
2000	5	26	-26.9300	26.7800	2.70
2000	5	26	-26.9300	26.7200	3.00
2000	5	27	-26.3500	27.4700	2.80

2000	5	27	-26.3800	27.6000	2.60
2000	5	28	-26.4600	27.2800	3.10
2000	5	28	-26.3400	27.6200	3.50
2000	5	29	-26.4600	27.3000	2.80
2000	5	30	-26.3800	27.3100	3.00
2000	5	30	-26.3800	27.4300	2.80
2000	5	30	-27.9600	26.6700	4.30
2000	5	30	-26.3700	27.5100	3.30
2000	5	30	-26.5000	27.4100	2.80
2000	5	30	-26.3700	27.3500	2.60
2000	5	31	-26.1200	27.7900	2.70
2000	5	31	-26.8700	26.7600	2.60
2000	5	31	-26.3900	27.4400	3.30
2000	5	31	-26.8600	26.7600	2.60
2000	6	3	-26.9000	26.7600	2.70
2000	6	3	-26.8600	26.8100	2.70
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2000	6	4	-26.3700	27.4000	2.50
2000	6	4	-26.8400	26.7000	3.10
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2000	6	5	-26.8400	26.7300	2.80
2000	6	6	-27.9900	26.7500	3.10
2000	6	7	-26.3700	27.2900	2.80
2000	6	8	-26.7900	26.8100	3.00
2000	6	9	-26.1800	28.1800	3.30
2000	6	9	-26.3600	27.4100	3.30
2000	6	9	-26.8500	26.8500	2.80
2000	6	10	-26.3600	27.5100	2.80
2000	6	10	-26.3600	27.4500	2.60
2000	6	10	-26.3700	27.3800	2.50
2000	6	10	-26.3600	27.4700	3.00
2000	6	11	-26.3700	27.3700	2.70
2000	6	11	-26.3700	27.3900	2.90
2000	6	12	-26.4200	27.4800	2.70
2000	6	14	-26.8900	26.6900	3.20
2000	6	14	-26.8600	26.7200	2.60
2000	6	14	-26.9100	26.7200	3.10
2000	6	14	-26.9300	26.7500	2.70
2000	6	14	-26.8700	26.7600	2.70
2000	6	15	-26.3600	27.3900	3.60
2000	6	15	-26.4200	27.4600	3.10
2000	6	15	-26.4500	27.3300	2.50
2000	6	15	-26.3800	27.4100	3.30
2000	6	16	-26.3200	27.6100	3.00
2000	6	16	-26.4200	27.4200	4.10
2000	6	16	-26.4200	27.4600	2.80
2000	6	17	-26.4200	27.4600	3.00
2000	6	19	-26.4300	27.4300	2.50
2000	6	19	-26.9400	26.7600	3.60
2000	6	19	-26.3700	27.7000	2.50
2000	6	20	-26.2500	27.7200	2.80
2000	6	20	-26.4100	27.4000	2.90
2000	6	20	-27.8600	26.6600	3.20
2000	6	20	-26.3900	27.5100	3.00
2000	6	22	-26.3800	27.3600	3.40
2000	6	23	-26.3600	27.4200	2.70
2000	6	24	-26.3700	27.4200	2.70
2000	6	24	-26.3700	27.4700	2.70
2000	6	24	-27.0700	26.8400	2.60
2000	6	24	-26.4500	27.4500	3.20
2000	6	25	-29.3300	27.3100	3.20

2000	6	25	-26.9600	26.7600	3.10
2000	6	25	-26.8700	26.6900	4.30
2000	6	26	-26.4000	27.4800	3.50
2000	6	26	-26.3900	27.5000	3.00
2000	6	26	-26.9200	26.8000	3.30
2000	6	27	-26.4000	27.3800	2.50
2000	6	29	-26.3700	27.4500	2.70
2000	7	1	-26.9600	26.6600	3.80
2000	7	1	-26.4000	27.6800	3.40
2000	7	2	-26.5000	27.4700	2.50
2000	7	2	-26.1800	27.8100	3.00
2000	7	3	-26.3100	29.8100	4.34
2000	7	4	-26.8600	26.8100	3.20
2000	7	4	-26.3800	27.4700	2.50
2000	7	5	-28.0100	26.8600	3.10
2000	7	5	-26.3600	27.4600	3.50
2000	7	5	-26.8700	26.8600	2.90
2000	7	6	-26.9400	27.2300	4.26
2000	7	7	-26.8300	26.7500	2.90
2000	7	8	-26.3900	27.4100	2.60
2000	7	11	-26.8600	26.7700	2.60
2000	7	11	-26.8900	26.7400	3.20
2000	7	11	-26.2400	27.7400	2.60
2000	7	12	-26.9300	26.7700	2.70
2000	7	12	-26.3400	27.4800	3.10
2000	7	13	-26.7700	26.7700	2.50
2000	7	13	-29.5200	28.0200	2.80
2000	7	13	-26.4000	27.5800	3.70
2000	7	14	-26.1200	27.7300	3.10
2000	7	14	-27.9400	26.7500	3.10
2000	7	14	-26.8000	26.8500	2.90
2000	7	16	-27.8900	26.6500	3.90
2000	7	18	-26.4000	27.2800	2.60
2000	7	19	-26.3900	27.3200	2.50
2000	7	19	-27.9300	26.7200	2.60
2000	7	21	-26.8600	26.7700	2.70
2000	7	21	-29.6900	27.2700	3.10
2000	7	23	-26.3700	27.3800	2.50
2000	7	24	-26.3300	27.4900	2.50
2000	7	27	-26.3000	27.7000	3.00
2000	7	27	-26.4300	27.4200	2.50
2000	7	27	-26.4300	27.3800	2.70
2000	7	28	-26.8400	26.7800	3.70
2000	7	29	-27.8400	26.6600	4.00
2000	7	30	-26.3600	27.4300	2.60
2000	7	31	-26.3600	27.7200	3.40
2000	7	31	-26.3900	27.6100	2.60
2000	7	31	-26.4400	27.4300	3.10
2000	7	31	-26.4200	27.3300	2.60
2000	8	1	-26.3600	27.5900	3.30
2000	8	1	-26.9100	26.8000	2.60
2000	8	2	-26.3500	27.6100	3.30
2000	8	4	-26.3400	27.5200	3.30
2000	8	4	-26.3900	27.3900	3.20
2000	8	6	-26.9000	26.7700	3.80
2000	8	6	-26.9100	26.7500	3.70
2000	8	6	-26.4600	27.4400	3.60
2000	8	8	-26.9400	26.7600	2.90
2000	8	9	-26.3700	27.6200	2.70
2000	8	9	-26.9000	26.8000	2.60
2000	8	10	-26.3500	27.6000	2.60

2000	8	10	-26.8700	26.7900	2.50
2000	8	10	-26.7900	26.7000	4.34
2000	8	10	-26.3900	27.3900	2.70
2000	8	12	-26.3900	27.4500	3.00
2000	8	13	-26.8600	26.7800	3.30
2000	8	13	-26.4300	27.4500	3.20
2000	8	14	-26.3400	27.5100	2.80
2000	8	14	-26.3700	27.3400	2.80
2000	8	15	-26.8600	26.7800	2.60
2000	8	15	-26.4300	27.3100	2.60
2000	8	15	-26.3600	27.4100	2.50
2000	8	16	-26.8800	26.7900	3.00
2000	8	17	-27.8900	26.7000	2.50
2000	8	18	-26.3300	27.4800	3.00
2000	8	19	-26.3300	27.4400	2.80
2000	8	19	-26.3900	27.4400	2.50
2000	8	20	-27.8100	26.6500	3.30
2000	8	20	-26.4500	27.6000	4.51
2000	8	20	-26.3700	27.4800	2.60
2000	8	21	-28.0200	26.8700	2.90
2000	8	21	-26.3600	27.3400	3.30
2000	8	21	-27.8300	26.7000	3.40
2000	8	21	-27.9900	26.8900	3.30
2000	8	21	-26.3800	27.5100	2.60
2000	8	22	-26.3900	27.2800	3.20
2000	8	23	-26.3700	27.7100	2.50
2000	8	24	-26.8200	26.8300	2.60
2000	8	25	-26.2900	27.6400	2.60
2000	8	28	-26.3500	27.6100	2.70
2000	8	29	-26.7800	26.7900	3.00
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2000	9	1	-26.3700	27.3200	2.70
2000	9	1	-26.3600	27.5200	2.50
2000	9	1	-26.3200	27.6500	3.10
2000	9	1	-26.3600	27.3800	2.90
2000	9	2	-26.8200	26.8500	2.80
2000	9	5	-26.3600	27.3500	2.70
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2000	9	9	-26.4400	27.3400	3.10
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2000	9	22	-26.4000	27.4600	3.20
2000	9	23	-26.3700	27.3600	3.00
2000	9	23	-26.3900	27.4000	3.30
2000	9	24	-26.8900	26.7800	3.50
2000	9	25	-27.9800	26.7400	3.20

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2000	9	28	-26.8300	26.7400	2.70
2000	9	28	-26.3900	27.4300	2.70
2000	9	28	-26.3700	27.3400	2.60
2000	9	28	-26.8400	26.7400	2.90
2000	9	28	-26.8200	26.7700	3.20
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2000	10	3	-26.7600	26.7900	2.60
2000	10	4	-26.3600	27.4300	2.50
2000	10	5	-27.9100	26.6400	2.70
2000	10	6	-26.5200	27.4600	2.60
2000	10	7	-26.4600	27.4100	3.30
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2000	10	23	-26.3800	27.6300	2.60
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2000	10	25	-26.9100	26.8000	3.20
2000	10	25	-26.8900	26.8200	2.80
2000	10	26	-23.9100	26.3100	2.70
2000	10	27	-26.3900	27.4800	2.50
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2000	11	1	-26.2400	27.7500	2.60
2000	11	1	-26.4100	27.3500	3.40
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2000	11	3	-26.4100	27.5200	2.60
2000	11	4	-26.7700	24.5500	4.26
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2000	11	6	-26.3300	27.7100	2.60
2000	11	7	-26.8800	26.7200	2.80
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2000	11	13	-26.8100	26.7400	2.50
2000	11	13	-26.9200	26.8100	2.80
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2000	11	16	-27.9200	26.7000	2.90
2000	11	20	-26.9000	26.7400	2.50
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2000	11	22	-23.1700	30.7900	3.70
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2000	11	29	-28.0000	26.6800	2.70
2000	12	1	-26.8300	26.8400	3.50

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2000	12	5	-26.4800	27.4400	2.90
2000	12	5	-26.8800	26.7800	3.60
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2000	12	8	-26.4300	27.3600	2.90
2000	12	8	-26.7400	26.8100	2.50
2000	12	9	-26.9500	26.8000	3.20
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2000	12	13	-26.1800	29.4100	3.20
2000	12	13	-26.9500	26.7300	2.90
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2000	12	15	-27.8300	26.7100	2.60
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2000	12	19	-26.9300	26.7800	2.70
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2001	1	4	-26.8600	26.8000	2.60
2001	1	4	-26.3600	27.4000	2.60
2001	1	4	-26.3900	27.4700	2.50
2001	1	4	-27.8600	26.6700	3.00
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2001	1	12	-26.4200	27.3500	2.80
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2001	1	20	-26.8600	26.6600	2.50
2001	1	23	-28.0200	26.7300	2.60
2001	1	24	-26.2700	27.5000	2.90
2001	1	24	-26.7500	26.8200	3.80
2001	1	24	-26.4800	27.4400	4.60
2001	1	25	-26.8800	26.8200	4.20
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2001	2	15	-26.3900	27.3800	2.60
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2001	2	19	-26.8800	26.8400	2.50
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2001	2	21	-27.0800	26.7800	3.70

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2001	2	23	-26.9100	26.8100	2.60
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2001	2	24	-28.1700	26.6200	2.60
2001	2	24	-26.9400	26.7900	2.80
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2001	2	25	-26.4000	27.2900	3.10
2001	2	25	-26.8500	26.7200	3.30
2001	2	25	-26.9000	26.8200	3.20
2001	2	25	-26.4200	27.4000	3.50
2001	2	27	-26.3600	27.5800	2.50
2001	3	1	-26.8600	26.8000	2.90
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2001	3	2	-25.1800	25.5500	3.50
2001	3	3	-26.3800	27.4000	2.60
2001	3	4	-26.7900	26.7500	3.00
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2001	3	4	-26.8500	26.7000	3.30
2001	3	5	-26.3300	27.5100	3.30
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2001	3	26	-26.3900	27.6100	2.60
2001	3	26	-27.9300	26.8700	3.10
2001	3	28	-26.8000	26.8200	2.90
2001	3	31	-26.9400	26.7800	3.90
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2001	4	7	-26.8300	26.8300	3.30
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2001	4	11	-26.4000	27.6600	2.50
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2001	4	21	-26.8400	26.7700	3.60
2001	4	21	-26.8800	26.8000	3.10
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2001	5	1	-26.8800	26.7200	2.80
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2001	5	11	-26.4700	27.3300	2.80
2001	5	11	-26.4700	27.4100	3.10
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2001	5	13	-26.3400	27.6400	2.60
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2001	7	13	-26.8900	26.7100	2.60
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2001	7	17	-26.3700	27.3500	3.40
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2001	7	26	-26.8700	26.7500	3.40
2001	7	27	-26.3000	27.6100	2.60
2001	7	28	-26.3800	27.4800	2.80
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2001	7	31	-26.8900	26.7300	3.30
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2001	8	15	-27.9300	26.6700	2.60
2001	8	15	-26.3700	27.5900	3.10
2001	8	16	-26.2000	28.2300	3.00
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2006	7	19	-26.4080	27.4860	2.80
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2006	7	22	-26.4220	27.3610	2.80
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2007	7	31	-26.4090	27.4530	2.80
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2007	8	17	-26.4480	27.3140	2.60
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2007	8	24	-26.3770	27.5170	2.80
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2020	4	18	-26.1040	29.2080	2.50
2020	4	19	-29.6120	26.3530	2.60
2020	4	20	-27.6900	23.1860	2.50
2020	4	20	-26.2890	29.2160	2.70
2020	4	22	-26.4400	27.3340	3.50
2020	4	22	-26.4110	27.3350	2.50
2020	4	24	-26.4100	27.3290	3.60
2020	4	28	-26.3350	29.2110	2.90
2020	4	29	-26.4320	27.2360	2.80
2020	4	30	-27.8830	23.0970	2.70
2020	4	30	-26.1980	29.1370	2.90
2020	5	1	-26.4390	27.3630	2.50
2020	5	2	-25.6720	28.7360	2.50
2020	5	6	-26.9550	26.8330	3.00
2020	5	10	-26.4630	29.2510	2.70
2020	5	13	-26.9280	26.7180	2.90
2020	5	15	-26.4120	27.3780	2.60
2020	5	17	-26.4420	29.2250	2.80
2020	5	19	-26.4450	27.5120	2.60
2020	5	26	-27.8830	26.5670	2.60
2020	5	27	-26.3800	29.1760	2.80
2020	5	28	-26.3930	27.3350	2.50
2020	5	29	-26.0280	29.2370	2.70
2020	5	29	-25.6470	28.7810	2.50
2020	6	1	-25.9160	29.3330	2.60
2020	6	9	-26.4780	29.3180	2.90
2020	6	11	-27.9020	30.9370	2.90
2020	6	12	-26.8910	26.6430	2.50
2020	6	12	-26.3370	29.2170	2.60
2020	6	15	-26.1370	29.2240	2.50

2020	6	22	-26.1640	29.1810	2.50
2020	6	23	-27.8640	26.6840	2.50
2020	6	23	-26.0950	29.4290	2.60
2020	6	27	-28.2350	27.9340	2.80
2020	6	27	-26.2650	27.8010	2.70
2020	7	2	-23.2890	26.0980	2.50
2020	7	6	-26.1690	29.1360	2.50
2020	7	7	-26.3750	27.3450	3.60
2020	7	8	-25.9970	29.4200	2.70
2020	7	10	-26.1610	29.2750	2.50
2020	7	10	-27.6350	31.0370	2.70
2020	7	13	-29.9670	27.7340	2.80
2020	7	25	-26.2860	29.0670	2.60
2020	7	26	-23.5680	25.3390	3.90
2020	7	28	-26.0290	29.2140	2.50
2020	7	31	-27.9110	26.7820	2.90
2020	8	1	-26.3580	29.2240	2.70
2020	8	4	-25.9500	29.2370	2.50
2020	8	4	-26.0210	29.1500	2.50
2020	8	7	-26.4240	29.3030	2.70
2020	8	13	-25.9490	29.1890	2.60
2020	8	14	-26.4400	27.2960	2.50
2020	8	19	-22.9640	25.0890	2.60
2020	8	27	-27.7990	23.1850	2.70
2020	8	27	-26.2780	29.2010	2.50
2020	8	29	-25.9700	29.2190	2.60
2020	9	2	-25.9950	29.2400	2.50
2020	9	3	-26.4590	27.6730	2.70
2020	9	8	-27.5040	31.2590	2.50
2020	9	9	-26.7040	30.4330	2.60
2020	9	9	-26.8390	26.7090	2.80
2020	9	10	-25.9920	29.3250	2.60
2020	9	10	-26.0360	29.4470	2.70
2020	9	11	-27.7490	31.6670	2.90
2020	9	12	-27.9960	26.6380	3.00
2020	9	12	-28.3030	27.1120	2.80
2020	9	14	-27.1710	26.9490	2.90
2020	9	17	-26.0100	29.5140	2.50
2020	9	23	-26.2520	29.2570	2.50
2020	9	25	-28.3380	25.4940	2.70
2020	9	27	-28.4290	27.2040	2.50
2020	9	28	-26.0810	29.2990	2.80
2020	9	28	-26.3800	29.2490	2.70
2020	9	28	-26.2480	30.1060	2.60
2020	9	30	-27.8280	24.9170	2.50
2020	10	1	-26.4500	27.7460	2.80
2020	10	1	-25.7570	29.5370	2.60
2020	10	1	-26.2860	27.9970	2.60
2020	10	1	-27.7880	23.1510	2.60
2020	10	3	-29.5070	24.8680	3.40
2020	10	4	-26.5950	27.5980	2.70
2020	10	10	-24.4990	30.7060	2.60
2020	10	11	-26.1070	29.4360	2.50
2020	10	13	-26.3520	27.7500	2.70
2020	10	13	-26.4800	29.2400	2.70
2020	10	14	-25.3390	32.2550	2.60
2020	10	15	-21.3680	26.4030	2.60
2020	10	19	-28.1340	26.5620	2.70
2020	10	20	-28.0630	26.7650	2.50
2020	10	21	-26.4760	27.7280	2.60
2020	10	24	-26.3180	29.1750	2.60

2020	10	24	-26.3180	29.1750	2.60
2020	10	26	-26.9230	26.6700	2.80
2020	10	26	-26.9230	26.6700	2.80
2020	11	3	-26.9510	26.7400	2.90
2020	11	4	-26.2710	29.1970	2.50
2020	11	6	-26.3390	29.2560	2.60
2020	11	6	-26.3390	29.2560	2.60
2020	11	6	-26.1050	29.2340	2.60
2020	11	6	-26.1050	29.2340	2.60
2020	11	7	-22.2930	29.6770	3.20
2020	11	11	-26.2350	27.3460	2.70
2020	11	13	-27.4130	24.3890	2.70
2020	11	15	-26.4500	27.5230	2.70
2020	11	18	-26.2000	29.1370	2.50
2020	11	20	-28.4040	30.8030	2.80
2020	11	27	-26.0370	26.7230	2.70
2020	12	6	-26.8490	26.7710	4.10
2020	12	6	-26.9100	26.7100	3.10
2020	12	12	-26.4670	29.5790	2.50
2020	12	17	-26.4650	27.3760	3.20
2020	12	19	-26.1230	29.2370	2.50
2020	12	20	-24.6830	25.9820	3.60
2020	12	24	-26.3480	29.2490	2.70
2020	12	24	-27.6200	23.0400	2.50
2021	1	7	-27.4280	30.7110	2.50
2021	1	8	-26.8870	26.7640	3.60
2021	1	11	-26.9740	26.7840	2.70
2021	1	13	-26.4380	27.7040	2.50
2021	1	13	-26.3170	27.6920	2.50
2021	1	16	-26.3890	27.4590	2.60
2021	1	23	-28.0990	26.8250	2.50
2021	1	25	-25.9920	29.1940	2.50
2021	1	30	-26.1130	29.2260	2.70
2021	2	1	-26.4140	27.4180	2.60
2021	2	3	-26.0040	29.2760	2.60
2021	2	5	-24.6220	30.5280	3.30
2021	2	7	-26.2880	27.6180	2.70
2021	2	12	-26.3710	29.2390	2.50
2021	2	14	-26.8250	26.7560	3.00
2021	2	14	-25.7910	31.3620	3.00
2021	2	16	-24.3100	31.0320	2.90
2021	2	20	-26.0980	29.2370	2.70
2021	2	20	-26.0980	29.2370	2.70
2021	2	26	-26.4460	27.5270	2.50
2021	3	1	-26.8730	26.7360	3.10
2021	3	8	-26.0970	29.2250	2.60
2021	3	16	-27.0440	26.6020	3.10
2021	3	17	-26.5100	29.1020	2.80
2021	3	18	-26.4050	27.6070	2.60
2021	3	20	-26.0840	29.2030	2.60
2021	3	24	-26.4840	27.3370	2.70
2021	3	24	-30.1040	27.8590	2.50
2021	3	27	-26.3840	27.5740	2.50
2021	3	29	-26.3400	27.5830	2.90
2021	4	4	-26.2120	29.0980	2.50
2021	4	9	-26.3520	27.5650	3.20
2021	4	21	-26.9230	26.6670	2.70
2021	4	24	-22.3340	24.7120	3.60
2021	4	27	-25.7600	29.9470	2.50
2021	4	30	-26.9740	26.6110	2.80
2021	5	3	-26.8590	26.7730	2.60

2021	5	3	-26.9030	26.7400	2.60
2021	5	10	-26.2240	27.7610	2.50
2021	5	11	-26.1180	29.2600	2.60
2021	5	14	-26.3930	27.7120	2.60
2021	5	14	-26.4180	27.5710	2.70
2021	6	3	-26.4500	27.5190	3.20
2021	6	3	-26.4100	27.5090	2.70
2021	6	9	-30.0720	26.7760	2.50
2021	6	12	-26.4320	27.6470	2.90
2021	6	13	-26.3240	29.2850	2.50
2021	6	17	-30.1260	28.3190	2.50
2021	6	18	-26.4610	29.3480	2.50
2021	6	21	-26.0880	29.2170	2.60
2021	6	23	-26.8210	26.5430	2.60
2021	6	24	-26.4440	27.3730	2.70
2021	7	2	-26.1590	29.1410	2.50
2021	7	4	-26.1200	29.2640	2.50
2021	7	10	-26.4130	27.4930	2.50
2021	7	14	-28.0030	26.7170	3.80
2021	7	14	-28.0290	26.7260	2.60
2021	7	15	-26.4470	29.3010	2.50
2021	7	16	-26.0590	29.2210	2.60
2021	7	22	-26.2000	29.2900	2.50
2021	7	30	-26.2360	28.2540	3.50
2021	7	31	-26.4440	27.5830	3.20
2021	8	1	-26.5380	29.2480	2.70
2021	8	3	-29.7800	28.0210	2.50
2021	8	4	-26.3300	29.7610	2.70
2021	8	9	-27.0360	26.5380	2.50
2021	8	13	-25.8730	29.5080	2.50
2021	8	14	-26.3830	27.3570	2.90
2021	8	14	-25.3750	28.3560	2.50
2021	8	16	-23.4940	30.7860	2.90
2021	8	17	-26.8000	26.7390	2.50
2021	8	18	-26.0310	29.2940	2.60
2021	8	22	-24.5250	27.4620	2.50
2021	8	26	-26.6600	30.4440	2.50
2021	8	27	-25.9880	29.2730	2.50
2021	8	28	-26.1780	29.2640	2.50
2021	9	2	-26.0510	29.2170	2.80
2021	9	7	-28.9730	26.9020	2.70
2021	9	8	-26.1350	29.2500	2.70
2021	9	8	-25.8400	29.3660	2.70
2021	9	8	-26.3320	29.2500	2.80
2021	9	8	-26.4040	27.5680	2.70
2021	9	13	-26.0500	29.2240	2.70
2021	9	14	-25.7600	29.7210	2.50
2021	9	17	-26.8960	26.7540	3.00
2021	9	17	-26.1120	29.2570	3.00
2021	9	18	-27.6190	23.1280	2.60
2021	9	21	-22.7830	25.4400	2.50
2021	9	21	-26.3910	29.3120	2.70
2021	9	23	-26.1330	29.1750	2.50
2021	10	5	-26.8870	26.8320	3.10
2021	10	9	-24.5720	27.3930	2.60
2021	10	14	-26.4050	29.4100	2.60
2021	10	15	-27.6960	23.3570	3.00
2021	10	16	-26.3290	27.5510	2.90
2021	10	22	-26.1820	27.8420	2.50
2021	10	22	-26.2420	28.9560	2.60
2021	10	23	-26.3480	27.4230	2.60

2021	10	26	-26.3390	29.3350	2.50
2021	10	27	-26.3550	28.0980	3.10
2021	10	27	-27.8870	26.6620	3.00
2021	10	29	-26.3530	29.5010	2.70
2021	11	2	-24.8380	29.0530	2.50
2021	11	3	-28.0580	26.8060	2.50
2021	11	3	-26.4050	27.3150	2.90
2021	11	4	-27.2660	23.2790	2.50
2021	11	6	-26.1150	29.2010	2.50
2021	11	6	-26.9330	26.8000	2.70
2021	11	13	-26.9210	26.7680	2.50
2021	11	23	-26.4180	27.5290	2.50
2021	11	26	-26.9840	26.7940	2.60
2021	11	27	-26.8810	26.7620	2.60
2021	12	3	-26.4470	29.2620	2.60
2021	12	5	-25.7160	29.7430	2.50
2021	12	11	-26.8190	26.7740	2.50
2021	12	12	-26.9470	26.7880	2.80
2021	12	16	-26.4450	27.6340	3.20
2021	12	16	-26.4390	27.6050	2.70
2021	12	16	-22.6960	25.6400	3.20
2021	12	22	-27.8120	26.6190	2.60
2021	12	22	-26.8620	26.7640	2.60
2021	12	23	-26.3510	29.3060	2.70
2021	12	24	-27.2020	31.5300	2.80
2021	12	26	-26.4350	27.6710	2.70
2022	1	9	-26.3930	29.2290	2.70
2022	1	11	-24.7430	28.8500	3.00
2022	1	18	-26.4250	27.6000	3.50
2022	1	18	-26.4250	27.6000	3.50
2022	1	25	-26.4020	29.3650	2.50
2022	1	25	-26.4020	29.3650	2.50
2022	1	31	-25.8230	27.3750	2.50
2022	2	2	-27.9300	26.7630	2.80
2022	2	4	-26.3450	27.5100	2.80
2022	2	4	-26.3450	27.5100	2.80
2022	2	4	-26.3450	27.5100	2.80
2022	2	5	-23.5890	30.6600	3.00
2022	2	5	-23.5890	30.6600	3.00
2022	2	5	-23.5890	30.6600	3.00
2022	2	6	-26.9640	26.7540	3.80
2022	2	6	-26.9640	26.7540	3.80
2022	2	15	-26.4180	27.4400	3.00
2022	2	15	-26.4180	27.4400	3.00
2022	2	16	-26.4260	27.3990	3.10
2022	3	1	-25.4380	30.1370	2.50
2022	3	1	-25.4380	30.1370	2.50
2022	3	11	-26.2690	29.2120	2.50
2022	3	13	-26.5130	29.0060	3.90
2022	3	13	-26.4800	28.8920	3.90
2022	3	19	-27.9660	26.7340	2.50
2022	3	27	-26.9780	26.8020	2.60
2022	4	16	-26.7530	26.7500	2.80
2022	4	16	-22.5100	24.7010	3.20
2022	4	18	-27.9920	26.8110	2.60
2022	4	20	-26.4100	29.3280	2.60
2022	4	21	-26.8180	26.8310	2.70
2022	4	28	-26.7420	26.5430	2.60
2022	5	5	-27.7930	26.6630	2.60
2022	5	11	-27.0600	26.6640	2.50
2022	5	16	-25.6230	29.6530	2.50

2022	5	21	-26.8350	26.6570	2.60
2022	5	22	-26.8960	26.7860	2.50
2022	5	27	-26.3860	29.3330	2.60
2022	5	30	-26.3810	29.1980	2.70
2022	6	13	-29.3800	27.9510	2.50
2022	6	15	-27.8730	26.6880	3.10
2022	6	16	-25.8980	30.6710	3.00
2022	7	8	-26.4440	29.2780	2.50
2022	7	17	-26.9590	26.7000	3.70
2022	7	22	-26.8050	27.0700	2.60
2022	7	26	-29.5600	29.8660	2.60
2022	7	29	-26.4370	29.3070	2.70
2022	7	31	-26.9010	26.7160	2.90
2022	8	9	-26.4180	27.4580	3.00
2022	8	19	-26.9250	26.7860	3.80
2022	8	19	-24.9800	27.2010	3.00
2022	8	20	-26.4730	27.4140	2.70
2022	8	27	-26.3360	28.3890	2.80
2022	9	14	-26.4270	27.5150	2.60
2022	9	19	-26.4310	29.3450	2.60
2022	10	1	-26.4100	27.5070	2.70
2022	10	9	-26.3560	27.6700	2.70
2022	10	16	-26.5240	29.1760	2.80
2022	10	17	-26.4380	29.4190	2.50
2022	10	19	-25.2570	27.9370	2.50
2022	10	30	-26.4360	27.5020	3.10
2022	11	5	-28.8540	31.0840	3.90
2022	11	6	-28.8330	30.9580	2.50
2022	11	6	-27.9050	26.6030	2.70
2022	11	14	-26.3330	27.5210	3.10
2022	11	22	-27.3110	29.1650	2.50
2022	12	2	-26.9110	26.8120	2.70
2022	12	8	-26.8820	26.7060	3.00
2022	12	11	-26.4390	27.7340	2.80
2022	12	18	-26.9360	26.6750	2.80

Appendix B

Seismic Sources and their Recurrence Parameters

SEISMOGENIC ZONES

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Zone#1

24.49	-30.77
24.40	-30.16
24.50	-29.45
24.70	-29.01
25.18	-28.99
25.57	-29.06
25.64	-29.62
25.54	-30.11
25.30	-30.59
25.08	-30.85
24.90	-31.05
24.80	-31.13

Zone#2

28.44	-31.25
27.57	-31.25
26.78	-31.15
26.52	-30.54
26.60	-29.80
26.94	-29.39
27.21	-29.09
28.10	-28.94
28.56	-28.91
29.06	-29.37
29.75	-29.57
30.48	-29.93
30.82	-30.39
30.94	-31.43
30.40	-31.74
29.50	-31.36
29.03	-31.36
28.56	-31.31
28.44	-31.18

Zone #3

24.84	-23.54
24.67	-23.20
24.30	-22.82
24.52	-22.29
24.90	-22.16
25.47	-22.18

25.57	-22.75
25.47	-23.05
25.32	-23.15
25.16	-23.41
25.02	-23.54

Zone #4

24.76	-23.69
25.33	-23.38
26.10	-23.08
31.01	-21.06
31.68	-22.44
31.36	-23.00
24.83	-24.32

Zone #5

26.68	-25.17
26.55	-24.83
26.80	-24.40
28.02	-24.04
29.27	-23.74
30.36	-23.59
31.13	-23.38
30.97	-24.32
29.30	-24.96
28.16	-25.09
27.24	-25.14
26.81	-25.22

Zone #6

26.25	-27.15
26.13	-27.05
26.40	-27.23
26.84	-27.71
27.48	-27.84
27.91	-28.27
27.49	-28.45
26.53	-28.63
25.72	-28.20
25.82	-27.61

Zone #7

26.26	-26.72
26.29	-26.34
26.62	-26.29
26.99	-26.59
27.15	-27.13
26.97	-27.33
26.71	-27.31
26.57	-27.23
26.35	-27.03

Zone #8

27.61	-26.85
27.31	-26.77
27.03	-26.57
26.87	-26.08
27.21	-25.85
27.76	-25.93
27.86	-25.98
27.88	-26.46
27.77	-27.05

Zone #9

27.93	-26.18
28.01	-25.70
28.67	-25.52
28.84	-26.06
28.75	-26.62
28.32	-26.80
28.04	-26.77
27.98	-26.52
27.98	-26.41

Diffuse (Background Seismicity) Point Seismic Sources and Their Parameters

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Lat	Long	Depth	m_{min}	Lambda	b	m_{max}

-27.492	22.267	12.0	4.0	3.763133e-03	0.89	7.00
-26.992	22.267	12.0	4.0	3.455566e-04	1.10	7.00
-26.492	22.267	12.0	4.0	2.926960e-04	1.11	7.00
-25.992	22.267	12.0	4.0	2.750206e-04	1.09	7.00
-25.492	22.267	12.0	4.0	2.482620e-04	1.06	7.00
-24.992	22.267	12.0	4.0	2.592829e-04	1.04	7.00
-24.492	22.267	12.0	4.0	2.674489e-04	1.04	7.00
-27.992	22.767	12.0	4.0	9.150787e-04	1.03	7.00
-27.492	22.767	12.0	4.0	5.738546e-04	1.07	7.00
-26.992	22.767	12.0	4.0	3.320472e-04	1.13	7.00
-26.492	22.767	12.0	4.0	3.579272e-04	1.11	7.00
-25.992	22.767	12.0	4.0	2.901077e-04	1.09	7.00
-25.492	22.767	12.0	4.0	2.737265e-04	1.05	7.00
-24.992	22.767	12.0	4.0	2.619951e-04	1.05	7.00
-24.492	22.767	12.0	4.0	2.921675e-04	1.04	7.00
-23.992	22.767	12.0	4.0	5.356412e-04	1.00	7.00
-23.492	22.767	12.0	4.0	1.107971e-03	0.88	7.00
-28.492	23.267	12.0	4.0	2.758677e-03	0.91	7.00
-27.992	23.267	12.0	4.0	2.305394e-03	0.90	7.00

-27.492	23.267	12.0	4.0	4.318979e-04	1.05	7.00
-26.992	23.267	12.0	4.0	4.017545e-04	1.13	7.00
-26.492	23.267	12.0	4.0	3.572685e-04	1.11	7.00
-25.992	23.267	12.0	4.0	3.423694e-04	1.05	7.00
-25.492	23.267	12.0	4.0	3.420414e-04	1.02	7.00
-24.992	23.267	12.0	4.0	3.463555e-04	1.01	7.00
-24.492	23.267	12.0	4.0	5.728429e-04	1.00	7.00
-23.992	23.267	12.0	4.0	1.229374e-03	0.89	7.00
-23.492	23.267	12.0	4.0	1.288850e-03	0.86	7.00
-22.992	23.267	12.0	4.0	1.361977e-03	0.85	7.00
-28.992	23.767	12.0	4.0	3.332882e-03	0.93	7.00
-28.492	23.767	12.0	4.0	3.440302e-03	0.91	7.00
-27.992	23.767	12.0	4.0	2.916413e-03	0.91	7.00
-27.492	23.767	12.0	4.0	1.911528e-03	0.92	7.00
-26.992	23.767	12.0	4.0	4.559847e-04	1.07	7.00
-26.492	23.767	12.0	4.0	8.001167e-04	1.05	7.00
-25.992	23.767	12.0	4.0	3.826405e-04	1.03	7.00
-25.492	23.767	12.0	4.0	4.512002e-04	0.97	7.00
-24.992	23.767	12.0	4.0	6.869198e-04	0.91	7.00
-24.492	23.767	12.0	4.0	1.647832e-03	0.87	7.00
-23.992	23.767	12.0	4.0	1.952029e-03	0.85	7.00
-23.492	23.767	12.0	4.0	2.049780e-03	0.83	7.00
-22.992	23.767	12.0	4.0	2.044402e-03	0.83	7.00
-22.492	23.767	12.0	4.0	1.656846e-03	0.82	7.00
-29.492	24.267	12.0	4.0	4.007740e-03	0.92	7.00
-28.992	24.267	12.0	4.0	3.782092e-03	0.93	7.00
-28.492	24.267	12.0	4.0	3.466312e-03	0.93	7.00
-27.992	24.267	12.0	4.0	3.130176e-03	0.93	7.00
-27.492	24.267	12.0	4.0	2.779810e-03	0.93	7.00
-26.992	24.267	12.0	4.0	9.427209e-04	1.04	7.00
-26.492	24.267	12.0	4.0	1.618816e-03	1.00	7.00
-25.992	24.267	12.0	4.0	1.428172e-03	0.97	7.00
-25.492	24.267	12.0	4.0	9.553425e-04	0.95	7.00
-24.992	24.267	12.0	4.0	1.244434e-03	0.90	7.00
-24.492	24.267	12.0	4.0	1.938737e-03	0.86	7.00
-23.992	24.267	12.0	4.0	2.150923e-03	0.84	7.00
-23.492	24.267	12.0	4.0	2.287970e-03	0.82	7.00
-22.992	24.267	12.0	4.0	2.248391e-03	0.81	7.00
-22.492	24.267	12.0	4.0	2.090898e-03	0.82	7.00
-21.992	24.267	12.0	4.0	1.793169e-03	0.82	7.00
-28.992	24.767	12.0	4.0	4.090089e-03	0.96	7.00
-28.492	24.767	12.0	4.0	3.972257e-03	0.95	7.00
-27.992	24.767	12.0	4.0	3.482764e-03	0.95	7.00
-27.492	24.767	12.0	4.0	3.160401e-03	0.95	7.00
-26.992	24.767	12.0	4.0	1.197471e-03	1.03	7.00
-26.492	24.767	12.0	4.0	2.105181e-03	1.01	7.00
-25.992	24.767	12.0	4.0	2.098540e-03	0.95	7.00
-25.492	24.767	12.0	4.0	1.269885e-03	0.92	7.00
-24.992	24.767	12.0	4.0	1.754350e-03	0.91	7.00
-24.492	24.767	12.0	4.0	2.130517e-03	0.88	7.00
-23.992	24.767	12.0	4.0	2.119691e-03	0.87	7.00
-23.492	24.767	12.0	4.0	2.392251e-03	0.83	7.00
-21.992	24.767	12.0	4.0	2.272159e-03	0.81	7.00
-28.992	25.267	12.0	4.0	5.428740e-03	0.91	7.00
-28.492	25.267	12.0	4.0	5.009402e-03	0.92	7.00
-27.992	25.267	12.0	4.0	4.141321e-03	0.95	7.00
-27.492	25.267	12.0	4.0	3.183471e-03	0.95	7.00
-26.992	25.267	12.0	4.0	1.490321e-03	1.01	7.00
-26.492	25.267	12.0	4.0	2.326408e-03	1.00	7.00
-25.992	25.267	12.0	4.0	2.755765e-03	0.97	7.00
-25.492	25.267	12.0	4.0	1.558349e-03	0.92	7.00

-24.992	25.267	12.0	4.0	1.597590e-03	0.94	7.00
-24.492	25.267	12.0	4.0	2.023460e-03	0.89	7.00
-21.992	25.267	12.0	4.0	2.242798e-03	0.82	7.00
-21.492	25.267	12.0	4.0	2.183708e-03	0.82	7.00
-29.992	25.767	12.0	4.0	6.709118e-03	0.89	7.00
-29.492	25.767	12.0	4.0	6.541939e-03	0.91	7.00
-28.992	25.767	12.0	4.0	6.297851e-03	0.93	7.00
-28.492	25.767	12.0	4.0	5.374635e-03	0.92	7.00
-27.492	25.767	12.0	4.0	3.653842e-03	0.93	7.00
-26.992	25.767	12.0	4.0	1.520195e-03	1.00	7.00
-26.492	25.767	12.0	4.0	1.244132e-03	1.01	7.00
-25.992	25.767	12.0	4.0	2.921844e-03	0.99	7.00
-25.492	25.767	12.0	4.0	1.541412e-03	0.94	7.00
-24.992	25.767	12.0	4.0	1.732822e-03	0.92	7.00
-24.492	25.767	12.0	4.0	2.361993e-03	0.90	7.00
-22.992	25.767	12.0	4.0	2.483212e-03	0.85	7.00
-22.492	25.767	12.0	4.0	2.296800e-03	0.83	7.00
-21.992	25.767	12.0	4.0	2.290770e-03	0.84	7.00
-21.492	25.767	12.0	4.0	2.249244e-03	0.83	7.00
-29.992	26.267	12.0	4.0	6.865687e-03	0.91	7.00
-29.492	26.267	12.0	4.0	6.859579e-03	0.91	7.00
-28.992	26.267	12.0	4.0	6.766415e-03	0.92	7.00
-28.492	26.267	12.0	4.0	5.996322e-03	0.94	7.00
-26.992	26.267	2.5	4.0	2.816841e-03	0.92	7.00
-26.492	26.267	12.0	4.0	1.290415e-03	1.02	7.00
-25.992	26.267	12.0	4.0	3.221076e-03	0.97	7.00
-25.492	26.267	12.0	4.0	1.815428e-03	0.93	7.00
-24.992	26.267	12.0	4.0	1.857414e-03	0.93	7.00
-24.492	26.267	12.0	4.0	1.877663e-03	0.94	7.00
-22.992	26.267	12.0	4.0	2.638340e-03	0.86	7.00
-22.492	26.267	12.0	4.0	2.489563e-03	0.87	7.00
-21.992	26.267	12.0	4.0	2.291269e-03	0.84	7.00
-21.492	26.267	12.0	4.0	2.097009e-03	0.85	7.00
-29.492	26.767	12.0	4.0	6.895894e-03	0.93	7.00
-28.992	26.767	12.0	4.0	6.297717e-03	0.95	7.00
-27.492	26.767	12.0	4.0	1.849213e-03	1.02	7.00
-25.992	26.767	12.0	4.0	2.800489e-03	0.92	7.00
-25.492	26.767	12.0	4.0	2.800489e-03	0.92	7.00
-23.992	26.767	12.0	4.0	1.831848e-03	0.92	7.00
-22.492	26.767	12.0	4.0	2.701974e-03	0.87	7.00
-21.992	26.767	12.0	4.0	2.474055e-03	0.85	7.00
-21.492	26.767	12.0	4.0	2.253376e-03	0.83	7.00
-20.992	26.767	12.0	4.0	1.388014e-03	0.85	7.00
-28.992	27.267	12.0	4.0	6.543028e-03	0.96	7.00
-28.492	27.267	12.0	4.0	4.330838e-03	1.02	7.00
-27.492	27.267	12.0	4.0	1.805988e-03	1.03	7.00
-26.992	27.267	12.0	4.0	2.786642e-03	0.92	7.00
-25.492	27.267	12.0	4.0	2.786642e-03	0.92	7.00
-23.992	27.267	12.0	4.0	1.413976e-03	0.95	7.00
-22.492	27.267	12.0	4.0	2.063461e-03	0.90	7.00
-21.992	27.267	12.0	4.0	1.626418e-03	0.91	7.00
-21.492	27.267	12.0	4.0	1.181930e-03	0.90	7.00
-20.992	27.267	12.0	4.0	1.464941e-03	0.87	7.00
-28.992	27.767	12.0	4.0	4.987520e-03	1.02	7.00
-28.492	27.767	12.0	4.0	4.132774e-03	1.02	7.00
-27.992	27.767	12.0	4.0	2.579510e-03	1.02	7.00
-27.492	27.767	12.0	4.0	2.093630e-03	1.03	7.00
-25.492	27.767	12.0	4.0	2.762799e-03	0.92	7.00
-23.992	27.767	12.0	4.0	1.642057e-03	0.97	7.00
-21.992	27.767	12.0	4.0	1.317525e-03	0.89	7.00
-21.492	27.767	12.0	4.0	9.909068e-04	0.91	7.00

-20.992	27.767	12.0	4.0	1.599769e-03	0.85	7.00
-28.492	28.267	12.0	4.0	4.389783e-03	1.05	7.00
-27.992	28.267	12.0	4.0	3.007084e-03	1.02	7.00
-27.492	28.267	12.0	4.0	2.542158e-03	1.03	7.00
-26.992	28.267	12.0	4.0	2.737888e-03	0.92	7.00
-25.492	28.267	12.0	4.0	2.737888e-03	0.92	7.00
-21.992	28.267	12.0	4.0	1.077142e-03	0.93	7.00
-21.492	28.267	12.0	4.0	1.074092e-03	0.89	7.00
-28.992	28.767	12.0	4.0	4.876374e-03	1.00	7.00
-28.492	28.767	12.0	4.0	4.556122e-03	1.00	7.00
-27.992	28.767	12.0	4.0	3.551097e-03	1.00	7.00
-27.492	28.767	12.0	4.0	3.154235e-03	1.02	7.00
-26.992	28.767	12.0	4.0	2.717668e-03	0.92	7.00
-25.492	28.767	12.0	4.0	2.717668e-03	0.92	7.00
-21.492	28.767	12.0	4.0	1.227901e-03	0.89	7.00
-28.992	29.267	12.0	4.0	4.455963e-03	0.98	7.00
-28.492	29.267	12.0	4.0	4.718138e-03	0.98	7.00
-27.992	29.267	12.0	4.0	4.115187e-03	0.98	7.00
-27.492	29.267	12.0	4.0	3.413662e-03	0.99	7.00
-26.992	29.267	12.0	4.0	2.698468e-03	0.92	7.00
-26.492	29.267	12.0	4.0	2.698468e-03	0.92	7.00
-25.992	29.267	12.0	4.0	2.698468e-03	0.92	7.00
-25.492	29.267	12.0	4.0	2.698468e-03	0.92	7.00
-24.992	29.267	12.0	4.0	2.093683e-03	1.01	7.00
-23.492	29.267	12.0	4.0	2.063014e-03	0.95	7.00
-21.492	29.267	12.0	4.0	9.485829e-04	0.90	7.00
-29.492	29.767	12.0	4.0	4.354407e-03	0.96	7.00
-28.992	29.767	12.0	4.0	5.007122e-03	0.96	7.00
-28.492	29.767	12.0	4.0	5.134305e-03	0.97	7.00
-27.992	29.767	12.0	4.0	4.143555e-03	0.95	7.00
-27.492	29.767	12.0	4.0	3.130732e-03	0.98	7.00
-26.992	29.767	12.0	4.0	2.675826e-03	0.93	7.00
-26.492	29.767	12.0	4.0	2.675826e-03	0.93	7.00
-25.992	29.767	12.0	4.0	2.675826e-03	0.93	7.00
-25.492	29.767	12.0	4.0	2.675826e-03	0.93	7.00
-24.992	29.767	12.0	4.0	2.479167e-03	1.01	7.00
-23.492	29.767	12.0	4.0	2.134661e-03	0.94	7.00
-21.492	29.767	12.0	4.0	1.632527e-03	0.82	7.00
-29.492	30.267	12.0	4.0	4.228928e-03	0.95	7.00
-28.992	30.267	12.0	4.0	5.384137e-03	0.93	7.00
-28.492	30.267	12.0	4.0	5.346749e-03	0.93	7.00
-27.992	30.267	12.0	4.0	4.373684e-03	0.93	7.00
-27.492	30.267	12.0	4.0	3.585988e-03	0.94	7.00
-26.992	30.267	12.0	4.0	3.940094e-03	0.95	7.00
-26.492	30.267	12.0	4.0	3.357145e-03	0.97	7.00
-25.992	30.267	12.0	4.0	3.660497e-03	0.97	7.00
-25.492	30.267	12.0	4.0	3.342694e-03	0.98	7.00
-24.992	30.267	12.0	4.0	3.125735e-03	0.99	7.00
-23.492	30.267	12.0	4.0	2.122845e-03	0.95	7.00
-28.992	30.767	12.0	4.0	4.555653e-03	0.93	7.00
-28.492	30.767	12.0	4.0	4.938346e-03	0.90	7.00
-27.992	30.767	12.0	4.0	4.049558e-03	0.89	7.00
-27.492	30.767	12.0	4.0	3.917907e-03	0.93	7.00
-26.992	30.767	12.0	4.0	4.108011e-03	0.94	7.00
-26.492	30.767	12.0	4.0	3.913367e-03	0.94	7.00
-25.992	30.767	12.0	4.0	3.651844e-03	0.96	7.00
-25.492	30.767	12.0	4.0	3.474012e-03	0.96	7.00
-24.992	30.767	12.0	4.0	3.188171e-03	0.97	7.00
-24.492	30.767	12.0	4.0	2.398507e-03	0.99	7.00
-28.992	31.267	12.0	4.0	3.793567e-03	0.90	7.00
-28.492	31.267	12.0	4.0	4.174257e-03	0.89	7.00

-27.992	31.267	12.0	4.0	3.807675e-03	0.90	7.00
-27.492	31.267	12.0	4.0	3.961385e-03	0.91	7.00
-26.992	31.267	12.0	4.0	4.015518e-03	0.92	7.00
-26.492	31.267	12.0	4.0	3.930552e-03	0.94	7.00
-25.992	31.267	12.0	4.0	3.572695e-03	0.96	7.00
-25.492	31.267	12.0	4.0	4.007093e-03	0.93	7.00
-24.992	31.267	12.0	4.0	3.837492e-03	0.95	7.00
-24.492	31.267	12.0	4.0	2.891615e-03	0.96	7.00
-23.992	31.267	12.0	4.0	3.385048e-03	0.88	7.00
-23.492	31.267	12.0	4.0	7.197385e-03	0.67	7.00
-27.992	31.767	12.0	4.0	3.974773e-03	0.89	7.00
-27.492	31.767	12.0	4.0	3.976581e-03	0.91	7.00
-26.992	31.767	12.0	4.0	4.058391e-03	0.90	7.00
-26.492	31.767	12.0	4.0	4.048118e-03	0.92	7.00
-25.992	31.767	12.0	4.0	4.149482e-03	0.92	7.00
-25.492	31.767	12.0	4.0	4.108311e-03	0.90	7.00
-24.992	31.767	12.0	4.0	3.662648e-03	0.93	7.00
-24.492	31.767	12.0	4.0	3.174876e-03	0.89	7.00
-23.992	31.767	12.0	4.0	6.881661e-03	0.71	7.00
-23.492	31.767	12.0	4.0	1.471477e-02	0.55	7.00
-27.492	32.267	12.0	4.0	4.171304e-03	0.86	7.00
-26.992	32.267	12.0	4.0	4.482452e-03	0.86	7.00
-26.492	32.267	12.0	4.0	4.788090e-03	0.84	7.00
-25.992	32.267	12.0	4.0	4.306889e-03	0.90	7.00
-25.492	32.267	12.0	4.0	3.656263e-03	0.90	7.00
-24.992	32.267	12.0	4.0	3.759942e-03	0.87	7.00
-24.492	32.267	12.0	4.0	4.263571e-03	0.79	7.00

Appendix C

Results of the PSHA. It contains the relevant details of the computations, input data, estimated seismic hazard characteristics and their uncertainties.

This appendix provides tabulated values of median and mean seismic hazard curves quantiles 5%, 15%, 84%, 95% quantiles of median PGAs, return periods, seismic hazard in terms of spectral acceleration, uniform hazard response spectra, elastic response spectra and results of de-aggregation after application of logic tree procedure.

Tabulated median and mean hazard curves, their quantiles and return periods

SEISMIC HAZARD AFTER LOGIC TREE (After account of site effect)

PGA[g]	PSHA <u>(median)</u>		
All calculations are performed for Vs30 = 655 [m/s]			
EARTHQUAKE DESIGNED LEVELS for MEAN hazard curve (Vs30 = 655[m/s])			
=====			
Return Period [Y]	EDL [g]		
145	0.020 <0.008	0.031>	SD = 0.011
200	0.023 <0.010	0.036>	SD = 0.013
475	0.035 <0.018	0.053>	SD = 0.017
1000	0.050 <0.028	0.072>	SD = 0.022
2475	0.074 <0.045	0.103>	SD = 0.029
5000	0.100 <0.065	0.135>	SD = 0.035
10000	0.131 <0.089	0.173>	SD = 0.042

SEISMIC HAZARD AFTER LOGIC TREE (Vs30 = 655[m/s])

PGA[g]	PSHA (median Probability)
0.010	0.02038
0.012	0.01408
0.014	0.01010
0.016	0.00798
0.018	0.00665
0.020	0.00564

0.022	0.00481
0.024	0.00401
0.026	0.00323
0.028	0.00263
0.030	0.00212
0.032	0.00187
0.034	0.00169
0.036	0.00150
0.038	0.00133
0.040	0.00117
0.042	0.00102
0.044	0.00091
0.046	0.00084
0.048	0.00077
0.050	0.00070
0.052	0.00064
0.054	0.00058
0.056	0.00053
0.058	0.00049
0.060	0.00045
0.062	0.00042
0.064	0.00039
0.066	0.00036
0.068	0.00034
0.070	0.00031
0.072	0.00029
0.074	0.00028
0.076	0.00026
0.078	0.00024
0.080	0.00023
0.082	0.00021
0.084	0.00020
0.086	0.00019
0.088	0.00018
0.090	0.00017
0.092	0.00016
0.094	0.00015
0.096	0.00015
0.098	0.00014

SEISMIC HAZARD AFTER LOGIC TREE (Vs30 = 655[m/s])

=====

PGA[g]	PSHA (mean Probability)
0.020	0.00708
0.022	0.00601
0.025	0.00509
0.027	0.00426
0.030	0.00344
0.032	0.00277
0.034	0.00220
0.037	0.00191
0.039	0.00172
0.042	0.00152
0.044	0.00134
0.046	0.00118
0.049	0.00102
0.051	0.00091
0.054	0.00083

0.056	0.00076
0.058	0.00070
0.061	0.00063
0.063	0.00057
0.066	0.00052
0.068	0.00048
0.070	0.00044
0.073	0.00041
0.075	0.00038
0.078	0.00035
0.080	0.00033
0.082	0.00031
0.085	0.00029
0.087	0.00027
0.090	0.00025
0.092	0.00024
0.094	0.00022
0.097	0.00021
0.099	0.00019
0.102	0.00018
0.104	0.00017
0.106	0.00016
0.109	0.00015
0.111	0.00015
0.114	0.00014
0.116	0.00013

SEISMIC HAZARD AFTER LOGIC TREE (Vs30 = 655[m/s])

=====

PGA[g]	PSHA (Quantile 5 percent)
0.000	0.02327
0.000	0.00084
0.001	0.00081
0.001	0.00078
0.002	0.00075
0.002	0.00071
0.003	0.00064
0.003	0.00055
0.004	0.00051
0.004	0.00049
0.005	0.00047
0.005	0.00046
0.006	0.00045
0.006	0.00043
0.006	0.00041
0.007	0.00039
0.007	0.00036
0.008	0.00034
0.008	0.00032
0.009	0.00031
0.009	0.00030
0.010	0.00029
0.010	0.00028
0.011	0.00027
0.011	0.00026
0.011	0.00026
0.012	0.00025
0.012	0.00024

0.013	0.00023
0.013	0.00023
0.014	0.00022
0.014	0.00021
0.015	0.00021
0.015	0.00020
0.016	0.00020
0.016	0.00019
0.017	0.00018
0.017	0.00018
0.017	0.00017
0.018	0.00016
0.018	0.00016
0.019	0.00015
0.019	0.00015
0.020	0.00014
0.020	0.00014

SEISMIC HAZARD AFTER LOGIC TREE (Vs30 = 655[m/s])

=====

PGA[g]	PSHA (Quantile 15 percent)
0.010	0.00476
0.011	0.00393
0.012	0.00287
0.014	0.00200
0.015	0.00183
0.016	0.00169
0.017	0.00154
0.018	0.00138
0.020	0.00119
0.021	0.00099
0.022	0.00090
0.023	0.00084
0.024	0.00079
0.026	0.00073
0.027	0.00067
0.028	0.00060
0.029	0.00055
0.030	0.00050
0.032	0.00047
0.033	0.00045
0.034	0.00042
0.035	0.00040
0.036	0.00037
0.038	0.00034
0.039	0.00032
0.040	0.00030
0.041	0.00029
0.042	0.00027
0.044	0.00026
0.045	0.00025
0.046	0.00024
0.047	0.00022
0.048	0.00021
0.050	0.00020
0.051	0.00019
0.052	0.00018
0.053	0.00017

0.054	0.00017
0.056	0.00016
0.057	0.00015
0.058	0.00014

SEISMIC HAZARD AFTER LOGIC TREE (Vs30 = 655[m/s])

=====

PGA[g]	PSHA (Quantile 85 percent)

0.020	0.01588
0.023	0.01089
0.026	0.00884
0.028	0.00712
0.031	0.00571
0.034	0.00483
0.037	0.00404
0.040	0.00329
0.042	0.00280
0.045	0.00235
0.048	0.00200
0.051	0.00178
0.054	0.00157
0.056	0.00138
0.059	0.00122
0.062	0.00108
0.065	0.00096
0.068	0.00087
0.070	0.00079
0.073	0.00072
0.076	0.00065
0.079	0.00059
0.082	0.00054
0.084	0.00049
0.087	0.00045
0.090	0.00042
0.093	0.00039
0.096	0.00036
0.098	0.00033
0.101	0.00031
0.104	0.00029
0.107	0.00027
0.110	0.00025
0.112	0.00023
0.115	0.00022
0.118	0.00020
0.121	0.00019
0.124	0.00018
0.126	0.00017
0.129	0.00016
0.132	0.00015
0.135	0.00014

SEISMIC HAZARD AFTER LOGIC TREE (Vs30 = 655[m/s])

=====

PGA[g]	PSHA (Quantile 95 percent)

0.030	0.01389

0.034	0.01012
0.037	0.00832
0.041	0.00655
0.044	0.00520
0.048	0.00441
0.052	0.00363
0.055	0.00304
0.059	0.00264
0.062	0.00225
0.066	0.00195
0.070	0.00171
0.073	0.00149
0.077	0.00132
0.080	0.00117
0.084	0.00104
0.088	0.00093
0.091	0.00084
0.095	0.00076
0.098	0.00069
0.102	0.00063
0.106	0.00057
0.109	0.00052
0.113	0.00047
0.116	0.00043
0.120	0.00040
0.124	0.00037
0.127	0.00034
0.131	0.00032
0.134	0.00030
0.138	0.00028
0.142	0.00026
0.145	0.00024
0.149	0.00022
0.152	0.00020
0.156	0.00019
0.160	0.00018
0.163	0.00017
0.167	0.00016
0.170	0.00015
0.174	0.00014

SEISMIC HAZARD AFTER LOGIC TREE (Vs30 = 655[m/s])

=====

PGA[g]	Return Period [Y]
0.009	3.980782e+01
0.022	2.502172e+02
0.030	4.606265e+02
0.035	6.710359e+02
0.040	8.814453e+02
0.045	1.091855e+03
0.048	1.302264e+03
0.051	1.512673e+03
0.055	1.723083e+03
0.057	1.933492e+03
0.060	2.143901e+03
0.062	2.354311e+03
0.065	2.564720e+03
0.067	2.775129e+03

0.069	2.985539e+03
0.071	3.195948e+03
0.073	3.406358e+03
0.075	3.616767e+03
0.077	3.827176e+03
0.079	4.037586e+03
0.080	4.247995e+03
0.082	4.458404e+03
0.083	4.668814e+03
0.085	4.879223e+03
0.086	5.089632e+03
0.088	5.300042e+03
0.089	5.510451e+03
0.091	5.720860e+03
0.092	5.931270e+03
0.093	6.141679e+03
0.094	6.352089e+03
0.096	6.562498e+03
0.097	6.772907e+03
0.098	6.983317e+03
0.099	7.193726e+03
0.100	7.404135e+03
0.101	7.614545e+03
0.102	7.824954e+03
0.103	8.035363e+03
0.104	8.245773e+03
0.106	8.456182e+03
0.107	8.666591e+03
0.108	8.877001e+03
0.108	9.087410e+03
0.109	9.297820e+03
0.110	9.508229e+03
0.111	9.718638e+03
0.112	9.929048e+03
0.113	1.013946e+04
0.114	1.034987e+04

PSHA in Terms of Spectral Acceleration

Prob of exceedance after LOGIC TREE (for Freq = 1.0 Hz)

Spectral Acceleration [g] Lambda [1/Y] Probability

All calculations are performed for Vs30 = 655 [m/s]

Prob of exceedance after LOGIC TREE (for Freq = 1.0 Hz)

Sa [g]	Lambda [1/Y]	Prob
0.011	7.66e-03	0.007618
0.017	4.14e-03	0.004131
0.022	2.60e-03	0.002597
0.028	1.77e-03	0.001771

0.033	1.27e-03	0.001272
0.039	9.49e-04	0.000948
0.044	7.27e-04	0.000727
0.050	5.70e-04	0.000570

Prob of exceedance after LOGIC TREE (for Freq = 2.5.0 Hz)

=====

Sa [g]	Lambda [1/Y]	Prob
0.011	3.06e-02	0.029838
0.016	1.62e-02	0.016016
0.022	1.01e-02	0.009989
0.027	6.85e-03	0.006804
0.033	4.94e-03	0.004915
0.038	3.72e-03	0.003702
0.043	2.89e-03	0.002878
0.049	2.30e-03	0.002292
0.054	1.87e-03	0.001862
0.060	1.54e-03	0.001537
0.065	1.29e-03	0.001286
0.070	1.09e-03	0.001088
0.076	9.31e-04	0.000930
0.081	8.02e-04	0.000802
0.086	6.97e-04	0.000696
0.092	6.09e-04	0.000609
0.097	5.36e-04	0.000536
0.102	4.74e-04	0.000474
0.108	4.22e-04	0.000421
0.113	3.76e-04	0.000376
0.118	3.38e-04	0.000338
0.124	3.04e-04	0.000304
0.129	2.75e-04	0.000275
0.134	2.49e-04	0.000249
0.139	2.26e-04	0.000226

Prob of exceedance after LOGIC TREE (for Freq = 5.0 Hz)

=====

Sa [g]	Lambda [1/Y]	Prob
0.011	5.65e-02	0.053595
0.016	3.02e-02	0.029264
0.021	1.87e-02	0.018324
0.027	1.26e-02	0.012459
0.032	9.04e-03	0.008958
0.037	6.76e-03	0.006710
0.042	5.21e-03	0.005188
0.048	4.13e-03	0.004113
0.053	3.34e-03	0.003328
0.058	2.75e-03	0.002741
0.064	2.29e-03	0.002289
0.069	1.94e-03	0.001936
0.074	1.66e-03	0.001656
0.079	1.43e-03	0.001429
0.084	1.25e-03	0.001244
0.089	1.09e-03	0.001091
0.094	9.64e-04	0.000963
0.100	8.56e-04	0.000855
0.105	7.64e-04	0.000763
0.110	6.85e-04	0.000685

0.115	6.17e-04	0.000617
0.120	5.59e-04	0.000559
0.125	5.07e-04	0.000507
0.130	4.62e-04	0.000462
0.135	4.22e-04	0.000422
0.140	3.87e-04	0.000387
0.145	3.56e-04	0.000356
0.150	3.28e-04	0.000328
0.155	3.03e-04	0.000303
0.160	2.81e-04	0.000280
0.165	2.60e-04	0.000260
0.170	2.42e-04	0.000242
0.175	2.25e-04	0.000226
0.180	2.10e-04	0.000210
0.185	1.96e-04	0.000196
0.190	1.84e-04	0.000184
0.195	1.72e-04	0.000172
0.200	1.62e-04	0.000162

Prob of exceedance after LOGIC TREE (for Freq = 10.0 Hz)

=====

Sa [g]	Lambda [1/Y]	Prob
0.010	7.95e-02	0.071213
0.016	4.48e-02	0.041916
0.021	2.86e-02	0.027389
0.026	1.97e-02	0.019106
0.031	1.43e-02	0.013955
0.037	1.07e-02	0.010550
0.042	8.30e-03	0.008196
0.047	6.57e-03	0.006509
0.052	5.31e-03	0.005265
0.058	4.35e-03	0.004326
0.063	3.62e-03	0.003601
0.068	3.05e-03	0.003034
0.073	2.59e-03	0.002581
0.078	2.22e-03	0.002216
0.083	1.92e-03	0.001918
0.089	1.68e-03	0.001673
0.094	1.47e-03	0.001468
0.099	1.30e-03	0.001296
0.104	1.15e-03	0.001151
0.109	1.03e-03	0.001027
0.114	9.21e-04	0.000920
0.119	8.29e-04	0.000828
0.124	7.49e-04	0.000748
0.129	6.79e-04	0.000678
0.134	6.17e-04	0.000617
0.139	5.63e-04	0.000563
0.144	5.16e-04	0.000515
0.149	4.73e-04	0.000473
0.154	4.35e-04	0.000435
0.159	4.01e-04	0.000401
0.164	3.71e-04	0.000371
0.169	3.44e-04	0.000344
0.174	3.19e-04	0.000319
0.179	2.97e-04	0.000296
0.185	2.76e-04	0.000276
0.190	2.58e-04	0.000258

Mean Uniform Hazard Response Spectra [Vs30 = 655 m/s]

HORIZONTAL UHRS AFTER LOGIC TREE

Freq [Hz]	Period [SEC]	UHRS [g]
0.30	3.340	0.008
0.35	2.867	0.010
0.40	2.512	0.012
0.45	2.235	0.014
0.50	2.013	0.016
0.55	1.831	0.018
0.60	1.679	0.020
0.65	1.550	0.021
0.69	1.440	0.023
0.74	1.345	0.024
0.79	1.261	0.026
0.84	1.187	0.027
0.89	1.121	0.029
0.94	1.062	0.030
0.99	1.009	0.031
1.04	0.962	0.033
1.09	0.918	0.034
1.14	0.878	0.036
1.19	0.842	0.037
1.24	0.808	0.039
1.29	0.777	0.040
1.34	0.748	0.042
1.39	0.722	0.043
1.44	0.697	0.044
1.48	0.674	0.045
1.53	0.652	0.046
1.58	0.632	0.046
1.63	0.613	0.047
1.68	0.595	0.048
1.73	0.578	0.049
1.78	0.562	0.050
1.83	0.546	0.051
1.88	0.532	0.052
1.93	0.518	0.052
1.98	0.506	0.053
2.03	0.493	0.054
2.08	0.481	0.055
2.13	0.470	0.056
2.18	0.460	0.056
2.23	0.449	0.057
2.32	0.430	0.059
2.42	0.413	0.060
2.52	0.397	0.062
2.62	0.382	0.062
2.72	0.368	0.063
2.82	0.355	0.064
2.92	0.343	0.065
3.02	0.332	0.065

3.11	0.321	0.066
3.26	0.307	0.067
3.41	0.293	0.068
3.56	0.281	0.069
3.71	0.270	0.070
3.85	0.259	0.071
4.05	0.247	0.072
4.25	0.235	0.073
4.45	0.225	0.075
4.69	0.213	0.076
4.94	0.202	0.078
5.24	0.191	0.079
5.53	0.181	0.080
5.88	0.170	0.081
6.27	0.159	0.082
6.72	0.149	0.083
7.21	0.139	0.083
7.80	0.128	0.084
8.50	0.118	0.084
9.29	0.108	0.084
10.27	0.097	0.084
11.46	0.087	0.083
12.99	0.077	0.081
14.96	0.067	0.079
17.63	0.057	0.075
21.43	0.047	0.071
27.31	0.037	0.065
37.58	0.027	0.056
60.24	0.017	0.047
98.95	0.010	0.038

HORIZONTAL UHRS AFTER ACCOUNT OF SITE EFFECT (Ref Return Period = 1,000 years)

=====

Freq [Hz]	Period [SEC]	UHRS [g]
0.30	3.340	0.013
0.35	2.867	0.015
0.40	2.512	0.018
0.45	2.235	0.021
0.50	2.013	0.024
0.55	1.831	0.027
0.60	1.679	0.030
0.65	1.550	0.032
0.69	1.440	0.035
0.74	1.345	0.037
0.79	1.261	0.039
0.84	1.187	0.041
0.89	1.121	0.043
0.94	1.062	0.045
0.99	1.009	0.047
1.04	0.962	0.049
1.09	0.918	0.051
1.14	0.878	0.053
1.19	0.842	0.055
1.24	0.808	0.057
1.29	0.777	0.059
1.34	0.748	0.061
1.39	0.722	0.062
1.44	0.697	0.064

1.48	0.674	0.065
1.53	0.652	0.066
1.58	0.632	0.067
1.63	0.613	0.069
1.68	0.595	0.070
1.73	0.578	0.071
1.78	0.562	0.072
1.83	0.546	0.073
1.88	0.532	0.074
1.93	0.518	0.076
1.98	0.506	0.077
2.03	0.493	0.078
2.08	0.481	0.079
2.13	0.470	0.080
2.18	0.460	0.081
2.23	0.449	0.082
2.32	0.430	0.084
2.42	0.413	0.086
2.52	0.397	0.088
2.62	0.382	0.089
2.72	0.368	0.090
2.82	0.355	0.091
2.92	0.343	0.092
3.02	0.332	0.093
3.11	0.321	0.094
3.26	0.307	0.096
3.41	0.293	0.097
3.56	0.281	0.099
3.71	0.270	0.100
3.85	0.259	0.101
4.05	0.247	0.103
4.25	0.235	0.105
4.45	0.225	0.106
4.69	0.213	0.109
4.94	0.202	0.111
5.24	0.191	0.112
5.53	0.181	0.114
5.88	0.170	0.115
6.27	0.159	0.117
6.72	0.149	0.119
7.21	0.139	0.119
7.80	0.128	0.119
8.50	0.118	0.119
9.29	0.108	0.119
10.27	0.097	0.119
11.46	0.087	0.117
12.99	0.077	0.114
14.96	0.067	0.110
17.63	0.057	0.105
21.43	0.047	0.098
27.31	0.037	0.090
37.58	0.027	0.080
60.24	0.017	0.067
98.95	0.010	0.054

HORIZONTAL UHRS AFTER ACCOUNT OF SITE EFFECT(Ref Return Period = 2,475 years)

=====
Freq [Hz] Period [SEC] UHRS [g]

0.30	3.340	0.019
0.35	2.867	0.023
0.40	2.512	0.028
0.45	2.235	0.033
0.50	2.013	0.038
0.55	1.831	0.042
0.60	1.679	0.046
0.65	1.550	0.050
0.69	1.440	0.054
0.74	1.345	0.057
0.79	1.261	0.060
0.84	1.187	0.063
0.89	1.121	0.065
0.94	1.062	0.068
0.99	1.009	0.071
1.04	0.962	0.075
1.09	0.918	0.078
1.14	0.878	0.081
1.19	0.842	0.084
1.24	0.808	0.087
1.29	0.777	0.090
1.34	0.748	0.093
1.39	0.722	0.095
1.44	0.697	0.097
1.48	0.674	0.098
1.53	0.652	0.100
1.58	0.632	0.102
1.63	0.613	0.104
1.68	0.595	0.106
1.73	0.578	0.107
1.78	0.562	0.109
1.83	0.546	0.111
1.88	0.532	0.112
1.93	0.518	0.114
1.98	0.506	0.116
2.03	0.493	0.117
2.08	0.481	0.119
2.13	0.470	0.121
2.18	0.460	0.122
2.23	0.449	0.124
2.32	0.430	0.127
2.42	0.413	0.130
2.52	0.397	0.132
2.62	0.382	0.134
2.72	0.368	0.136
2.82	0.355	0.137
2.92	0.343	0.139
3.02	0.332	0.140
3.11	0.321	0.142
3.26	0.307	0.145
3.41	0.293	0.147
3.56	0.281	0.149
3.71	0.270	0.151
3.85	0.259	0.153
4.05	0.247	0.156
4.25	0.235	0.158
4.45	0.225	0.161
4.69	0.213	0.164
4.94	0.202	0.167
5.24	0.191	0.170
5.53	0.181	0.172

5.88	0.170	0.174
6.27	0.159	0.176
6.72	0.149	0.179
7.21	0.139	0.179
7.80	0.128	0.179
8.50	0.118	0.179
9.29	0.108	0.179
10.27	0.097	0.178
11.46	0.087	0.174
12.99	0.077	0.168
14.96	0.067	0.162
17.63	0.057	0.154
21.43	0.047	0.144
27.31	0.037	0.132
37.58	0.027	0.118
60.24	0.017	0.100
98.95	0.010	0.080

HORIZONTAL UHRS AFTER ACCOUNT OF SITE EFFECT(Ref Return Period = 5,000 years)

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Freq [Hz]	Period [SEC]	UHRS [g]
0.30	3.340	0.027
0.35	2.867	0.032
0.40	2.512	0.039
0.45	2.235	0.045
0.50	2.013	0.052
0.55	1.831	0.058
0.60	1.679	0.063
0.65	1.550	0.069
0.69	1.440	0.073
0.74	1.345	0.077
0.79	1.261	0.081
0.84	1.187	0.085
0.89	1.121	0.089
0.94	1.062	0.093
0.99	1.009	0.097
1.04	0.962	0.101
1.09	0.918	0.105
1.14	0.878	0.109
1.19	0.842	0.113
1.24	0.808	0.118
1.29	0.777	0.122
1.34	0.748	0.126
1.39	0.722	0.128
1.44	0.697	0.131
1.48	0.674	0.133
1.53	0.652	0.136
1.58	0.632	0.138
1.63	0.613	0.141
1.68	0.595	0.143
1.73	0.578	0.145
1.78	0.562	0.148
1.83	0.546	0.150
1.88	0.532	0.152
1.93	0.518	0.155
1.98	0.506	0.157
2.03	0.493	0.159
2.08	0.481	0.161

2.13	0.470	0.164
2.18	0.460	0.166
2.23	0.449	0.168
2.32	0.430	0.172
2.42	0.413	0.176
2.52	0.397	0.180
2.62	0.382	0.182
2.72	0.368	0.184
2.82	0.355	0.187
2.92	0.343	0.189
3.02	0.332	0.191
3.11	0.321	0.194
3.26	0.307	0.197
3.41	0.293	0.200
3.56	0.281	0.203
3.71	0.270	0.205
3.85	0.259	0.208
4.05	0.247	0.212
4.25	0.235	0.215
4.45	0.225	0.219
4.69	0.213	0.223
4.94	0.202	0.227
5.24	0.191	0.230
5.53	0.181	0.233
5.88	0.170	0.236
6.27	0.159	0.239
6.72	0.149	0.242
7.21	0.139	0.242
7.80	0.128	0.242
8.50	0.118	0.241
9.29	0.108	0.240
10.27	0.097	0.238
11.46	0.087	0.232
12.99	0.077	0.224
14.96	0.067	0.216
17.63	0.057	0.205
21.43	0.047	0.191
27.31	0.037	0.176
37.58	0.027	0.158
60.24	0.017	0.134
98.95	0.010	0.108

HORIZONTAL UHRS AFTER ACCOUNT OF SITE EFFECT (Ref Return Period = 10,000 years)

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Freq [Hz]	Period [SEC]	UHRS [g]
0.30	3.340	0.033
0.35	2.867	0.043
0.40	2.512	0.052
0.45	2.235	0.061
0.50	2.013	0.069
0.55	1.831	0.076
0.60	1.679	0.083
0.65	1.550	0.090
0.69	1.440	0.097
0.74	1.345	0.102
0.79	1.261	0.107
0.84	1.187	0.112
0.89	1.121	0.118

0.94	1.062	0.123
0.99	1.009	0.128
1.04	0.962	0.134
1.09	0.918	0.139
1.14	0.878	0.145
1.19	0.842	0.150
1.24	0.808	0.156
1.29	0.777	0.161
1.34	0.748	0.167
1.39	0.722	0.170
1.44	0.697	0.174
1.48	0.674	0.177
1.53	0.652	0.180
1.58	0.632	0.184
1.63	0.613	0.187
1.68	0.595	0.191
1.73	0.578	0.194
1.78	0.562	0.197
1.83	0.546	0.200
1.88	0.532	0.204
1.93	0.518	0.207
1.98	0.506	0.210
2.03	0.493	0.213
2.08	0.481	0.216
2.13	0.470	0.219
2.18	0.460	0.222
2.23	0.449	0.224
2.32	0.430	0.230
2.42	0.413	0.235
2.52	0.397	0.240
2.62	0.382	0.244
2.72	0.368	0.247
2.82	0.355	0.250
2.92	0.343	0.253
3.02	0.332	0.256
3.11	0.321	0.259
3.26	0.307	0.263
3.41	0.293	0.267
3.56	0.281	0.271
3.71	0.270	0.274
3.85	0.259	0.278
4.05	0.247	0.282
4.25	0.235	0.287
4.45	0.225	0.291
4.69	0.213	0.297
4.94	0.202	0.302
5.24	0.191	0.306
5.53	0.181	0.309
5.88	0.170	0.313
6.27	0.159	0.317
6.72	0.149	0.321
7.21	0.139	0.320
7.80	0.128	0.320
8.50	0.118	0.319
9.29	0.108	0.317
10.27	0.097	0.313
11.46	0.087	0.305
12.99	0.077	0.294
14.96	0.067	0.283
17.63	0.057	0.268
21.43	0.047	0.250

27.31	0.037	0.230
37.58	0.027	0.207
60.24	0.017	0.176
98.95	0.010	0.142

VERTICAL UHRS AFTER LOGIC TREE

MEAN VERTICAL UHRS AFTER ACCOUNT OF SITE EFFECT (Ref Return Period = 475 years)

Freq [Hz]	Period [SEC]	UHRS [g]
0.30	3.340	0.006
0.35	2.867	0.006
0.40	2.512	0.008
0.45	2.235	0.009
0.50	2.013	0.011
0.55	1.831	0.012
0.60	1.679	0.013
0.65	1.550	0.014
0.69	1.440	0.015
0.74	1.345	0.016
0.79	1.261	0.017
0.84	1.187	0.018
0.89	1.121	0.019
0.94	1.062	0.020
0.99	1.009	0.021
1.04	0.962	0.022
1.09	0.918	0.023
1.14	0.878	0.024
1.19	0.842	0.025
1.24	0.808	0.026
1.29	0.777	0.027
1.34	0.748	0.028
1.39	0.722	0.029
1.44	0.697	0.029
1.48	0.674	0.030
1.53	0.652	0.031
1.58	0.632	0.031
1.63	0.613	0.032
1.68	0.595	0.032
1.73	0.578	0.033
1.78	0.562	0.034
1.83	0.546	0.034
1.88	0.532	0.035
1.93	0.518	0.035
1.98	0.506	0.036
2.03	0.493	0.036
2.08	0.481	0.037
2.13	0.470	0.037
2.18	0.460	0.038
2.23	0.449	0.039
2.32	0.430	0.040
2.42	0.413	0.041
2.52	0.397	0.041
2.62	0.382	0.042
2.72	0.368	0.043

2.82	0.355	0.043
2.92	0.343	0.044
3.02	0.332	0.044
3.11	0.321	0.045
3.26	0.307	0.045
3.41	0.293	0.046
3.56	0.281	0.047
3.71	0.270	0.047
3.85	0.259	0.048
4.05	0.247	0.049
4.25	0.235	0.049
4.45	0.225	0.050
4.69	0.213	0.051
4.94	0.202	0.052
5.24	0.191	0.053
5.53	0.181	0.054
5.88	0.170	0.055
6.27	0.159	0.055
6.72	0.149	0.056
7.21	0.139	0.056
7.80	0.128	0.056
8.50	0.118	0.056
9.29	0.108	0.057
10.27	0.097	0.057
11.46	0.087	0.056
12.99	0.077	0.056
14.96	0.067	0.054
17.63	0.057	0.053
21.43	0.047	0.051
27.31	0.037	0.049
37.58	0.027	0.046
60.24	0.017	0.040
98.95	0.010	0.030

MEAN VERTICAL UHRS AFTER ACCOUNT OF SITE EFFECT (Ref Return Period = 1,000 years)

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Freq [Hz]	Period [SEC}	UHRS [g]
0.30	3.340	0.009
0.35	2.867	0.010
0.40	2.512	0.012
0.45	2.235	0.014
0.50	2.013	0.016
0.55	1.831	0.018
0.60	1.679	0.020
0.65	1.550	0.022
0.69	1.440	0.023
0.74	1.345	0.025
0.79	1.261	0.026
0.84	1.187	0.027
0.89	1.121	0.029
0.94	1.062	0.030
0.99	1.009	0.031
1.04	0.962	0.033
1.09	0.918	0.034
1.14	0.878	0.035
1.19	0.842	0.037
1.24	0.808	0.038
1.29	0.777	0.040

1.34	0.748	0.041
1.39	0.722	0.042
1.44	0.697	0.043
1.48	0.674	0.044
1.53	0.652	0.044
1.58	0.632	0.045
1.63	0.613	0.046
1.68	0.595	0.047
1.73	0.578	0.048
1.78	0.562	0.048
1.83	0.546	0.049
1.88	0.532	0.050
1.93	0.518	0.051
1.98	0.506	0.052
2.03	0.493	0.052
2.08	0.481	0.053
2.13	0.470	0.054
2.18	0.460	0.054
2.23	0.449	0.055
2.32	0.430	0.057
2.42	0.413	0.058
2.52	0.397	0.059
2.62	0.382	0.060
2.72	0.368	0.061
2.82	0.355	0.061
2.92	0.343	0.062
3.02	0.332	0.063
3.11	0.321	0.063
3.26	0.307	0.064
3.41	0.293	0.065
3.56	0.281	0.066
3.71	0.270	0.067
3.85	0.259	0.068
4.05	0.247	0.069
4.25	0.235	0.071
4.45	0.225	0.072
4.69	0.213	0.073
4.94	0.202	0.075
5.24	0.191	0.076
5.53	0.181	0.077
5.88	0.170	0.078
6.27	0.159	0.079
6.72	0.149	0.080
7.21	0.139	0.080
7.80	0.128	0.080
8.50	0.118	0.080
9.29	0.108	0.081
10.27	0.097	0.080
11.46	0.087	0.079
12.99	0.077	0.078
14.96	0.067	0.076
17.63	0.057	0.073
21.43	0.047	0.071
27.31	0.037	0.068
37.58	0.027	0.064
60.24	0.017	0.057
98.95	0.010	0.042

MEAN VERTICAL UHRS AFTER ACCOUNT OF SITE EFFECT (Ref Return Period = 2,475 years)

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Freq [Hz]	Period [SEC]	UHRS [g]
0.30	3.340	0.013
0.35	2.867	0.015
0.40	2.512	0.019
0.45	2.235	0.022
0.50	2.013	0.026
0.55	1.831	0.028
0.60	1.679	0.031
0.65	1.550	0.034
0.69	1.440	0.036
0.74	1.345	0.038
0.79	1.261	0.040
0.84	1.187	0.042
0.89	1.121	0.044
0.94	1.062	0.046
0.99	1.009	0.048
1.04	0.962	0.050
1.09	0.918	0.052
1.14	0.878	0.054
1.19	0.842	0.056
1.24	0.808	0.058
1.29	0.777	0.060
1.34	0.748	0.062
1.39	0.722	0.064
1.44	0.697	0.065
1.48	0.674	0.066
1.53	0.652	0.067
1.58	0.632	0.069
1.63	0.613	0.070
1.68	0.595	0.071
1.73	0.578	0.072
1.78	0.562	0.073
1.83	0.546	0.074
1.88	0.532	0.076
1.93	0.518	0.077
1.98	0.506	0.078
2.03	0.493	0.079
2.08	0.481	0.080
2.13	0.470	0.081
2.18	0.460	0.082
2.23	0.449	0.083
2.32	0.430	0.085
2.42	0.413	0.087
2.52	0.397	0.089
2.62	0.382	0.090
2.72	0.368	0.091
2.82	0.355	0.092
2.92	0.343	0.093
3.02	0.332	0.095
3.11	0.321	0.096
3.26	0.307	0.097
3.41	0.293	0.099
3.56	0.281	0.100
3.71	0.270	0.102
3.85	0.259	0.103
4.05	0.247	0.105
4.25	0.235	0.107
4.45	0.225	0.108
4.69	0.213	0.111

4.94	0.202	0.113
5.24	0.191	0.114
5.53	0.181	0.116
5.88	0.170	0.117
6.27	0.159	0.119
6.72	0.149	0.121
7.21	0.139	0.121
7.80	0.128	0.121
8.50	0.118	0.121
9.29	0.108	0.120
10.27	0.097	0.120
11.46	0.087	0.118
12.99	0.077	0.115
14.96	0.067	0.112
17.63	0.057	0.108
21.43	0.047	0.104
27.31	0.037	0.100
37.58	0.027	0.095
60.24	0.017	0.084
98.95	0.010	0.062

MEAN VERTICAL UHRS AFTER ACCOUNT OF SITE EFFECT (Ref Return Period = 5,000 years)

=====

Freq [Hz]	Period [SEC}	UHRS [g]
0.30	3.340	0.018
0.35	2.867	0.021
0.40	2.512	0.026
0.45	2.235	0.030
0.50	2.013	0.035
0.55	1.831	0.039
0.60	1.679	0.042
0.65	1.550	0.046
0.69	1.440	0.049
0.74	1.345	0.052
0.79	1.261	0.055
0.84	1.187	0.057
0.89	1.121	0.060
0.94	1.062	0.063
0.99	1.009	0.065
1.04	0.962	0.068
1.09	0.918	0.071
1.14	0.878	0.073
1.19	0.842	0.076
1.24	0.808	0.079
1.29	0.777	0.082
1.34	0.748	0.084
1.39	0.722	0.086
1.44	0.697	0.088
1.48	0.674	0.090
1.53	0.652	0.091
1.58	0.632	0.093
1.63	0.613	0.095
1.68	0.595	0.096
1.73	0.578	0.098
1.78	0.562	0.099
1.83	0.546	0.101
1.88	0.532	0.102
1.93	0.518	0.104

1.98	0.506	0.106
2.03	0.493	0.107
2.08	0.481	0.109
2.13	0.470	0.110
2.18	0.460	0.111
2.23	0.449	0.113
2.32	0.430	0.116
2.42	0.413	0.118
2.52	0.397	0.121
2.62	0.382	0.123
2.72	0.368	0.124
2.82	0.355	0.126
2.92	0.343	0.127
3.02	0.332	0.129
3.11	0.321	0.130
3.26	0.307	0.133
3.41	0.293	0.135
3.56	0.281	0.136
3.71	0.270	0.138
3.85	0.259	0.140
4.05	0.247	0.143
4.25	0.235	0.145
4.45	0.225	0.147
4.69	0.213	0.150
4.94	0.202	0.153
5.24	0.191	0.155
5.53	0.181	0.157
5.88	0.170	0.159
6.27	0.159	0.161
6.72	0.149	0.163
7.21	0.139	0.163
7.80	0.128	0.163
8.50	0.118	0.162
9.29	0.108	0.162
10.27	0.097	0.161
11.46	0.087	0.158
12.99	0.077	0.154
14.96	0.067	0.150
17.63	0.057	0.144
21.43	0.047	0.138
27.31	0.037	0.133
37.58	0.027	0.127
60.24	0.017	0.113
98.95	0.010	0.084

MEAN VERTICAL UHRS AFTER ACCOUNT OF SITE EFFECT (Ref Return Period = 10,000 years)

=====

Freq [Hz]	Period [SEC}	UHRS [g]
0.30	3.340	0.022
0.35	2.867	0.029
0.40	2.512	0.035
0.45	2.235	0.041
0.50	2.013	0.047
0.55	1.831	0.051
0.60	1.679	0.056
0.65	1.550	0.061
0.69	1.440	0.065
0.74	1.345	0.068

0.79	1.261	0.072
0.84	1.187	0.076
0.89	1.121	0.079
0.94	1.062	0.083
0.99	1.009	0.086
1.04	0.962	0.090
1.09	0.918	0.094
1.14	0.878	0.097
1.19	0.842	0.101
1.24	0.808	0.105
1.29	0.777	0.108
1.34	0.748	0.112
1.39	0.722	0.114
1.44	0.697	0.117
1.48	0.674	0.119
1.53	0.652	0.121
1.58	0.632	0.124
1.63	0.613	0.126
1.68	0.595	0.128
1.73	0.578	0.130
1.78	0.562	0.133
1.83	0.546	0.135
1.88	0.532	0.137
1.93	0.518	0.139
1.98	0.506	0.141
2.03	0.493	0.143
2.08	0.481	0.145
2.13	0.470	0.147
2.18	0.460	0.149
2.23	0.449	0.151
2.32	0.430	0.155
2.42	0.413	0.158
2.52	0.397	0.162
2.62	0.382	0.164
2.72	0.368	0.166
2.82	0.355	0.168
2.92	0.343	0.170
3.02	0.332	0.172
3.11	0.321	0.174
3.26	0.307	0.177
3.41	0.293	0.180
3.56	0.281	0.182
3.71	0.270	0.185
3.85	0.259	0.187
4.05	0.247	0.190
4.25	0.235	0.193
4.45	0.225	0.196
4.69	0.213	0.200
4.94	0.202	0.204
5.24	0.191	0.206
5.53	0.181	0.208
5.88	0.170	0.211
6.27	0.159	0.213
6.72	0.149	0.216
7.21	0.139	0.216
7.80	0.128	0.216
8.50	0.118	0.215
9.29	0.108	0.213
10.27	0.097	0.211
11.46	0.087	0.207
12.99	0.077	0.201

14.96	0.067	0.196
17.63	0.057	0.188
21.43	0.047	0.180
27.31	0.037	0.174
37.58	0.027	0.167
60.24	0.017	0.148
98.95	0.010	0.110

Quantiles of Mean Horizontal UHRS after Logic Tree

Quantiles of HORIZONTAL UHRS AFTER LOGIC TREE (Return Period = 475 years)

Freq	Period	5 percent	15 percent	84 percent	95 percent	MEAN	MEDIAN
0.25	4.000	0.000	0.002	0.009	0.011	0.005	0.004
1.24	0.808	0.000	0.009	0.061	0.077	0.035	0.026
2.23	0.449	0.000	0.014	0.091	0.114	0.052	0.039
3.21	0.311	0.000	0.017	0.107	0.134	0.062	0.046
4.20	0.238	0.000	0.019	0.118	0.148	0.068	0.051
5.19	0.193	0.000	0.020	0.129	0.161	0.075	0.056
6.18	0.162	0.000	0.021	0.134	0.168	0.078	0.058
7.16	0.140	0.000	0.022	0.137	0.172	0.080	0.059
8.15	0.123	0.000	0.022	0.138	0.173	0.080	0.060
9.14	0.109	0.000	0.022	0.139	0.174	0.081	0.060
10.12	0.099	0.000	0.022	0.140	0.175	0.081	0.060
11.11	0.090	0.000	0.022	0.138	0.173	0.080	0.060
12.10	0.083	0.000	0.022	0.136	0.170	0.079	0.059
13.09	0.076	0.000	0.022	0.134	0.167	0.078	0.058
14.08	0.071	0.000	0.022	0.131	0.164	0.076	0.058
15.06	0.066	0.000	0.022	0.129	0.161	0.075	0.057
16.05	0.062	0.000	0.021	0.126	0.158	0.074	0.056
17.04	0.059	0.000	0.021	0.124	0.155	0.073	0.055
18.03	0.055	0.000	0.021	0.122	0.152	0.071	0.054
19.01	0.053	0.000	0.021	0.119	0.149	0.070	0.053
20.00	0.050	0.000	0.021	0.117	0.146	0.069	0.053
20.99	0.048	0.000	0.021	0.115	0.143	0.068	0.052
21.98	0.046	0.000	0.020	0.113	0.140	0.067	0.051
22.96	0.044	0.000	0.020	0.110	0.138	0.065	0.050
23.95	0.042	0.000	0.020	0.108	0.135	0.064	0.049
24.94	0.040	0.000	0.020	0.106	0.132	0.063	0.049
25.93	0.039	0.000	0.020	0.105	0.130	0.062	0.048
26.91	0.037	0.000	0.019	0.103	0.128	0.061	0.047
27.90	0.036	0.000	0.019	0.102	0.126	0.060	0.047
28.89	0.035	0.000	0.019	0.100	0.124	0.060	0.046
29.88	0.033	0.000	0.019	0.098	0.122	0.059	0.045
30.86	0.032	0.000	0.019	0.097	0.120	0.058	0.045
31.85	0.031	0.000	0.018	0.095	0.119	0.057	0.044
32.84	0.030	0.000	0.018	0.094	0.117	0.056	0.044
33.83	0.030	0.000	0.018	0.093	0.115	0.055	0.043
34.81	0.029	0.000	0.018	0.092	0.114	0.055	0.043
35.80	0.028	0.000	0.018	0.091	0.113	0.054	0.042
36.79	0.027	0.000	0.018	0.090	0.112	0.054	0.042

37.77	0.026	0.000	0.017	0.089	0.111	0.053	0.042
38.76	0.026	0.000	0.017	0.088	0.110	0.053	0.041
39.75	0.025	0.000	0.017	0.087	0.108	0.052	0.041
40.74	0.025	0.000	0.017	0.086	0.107	0.052	0.040
41.73	0.024	0.000	0.017	0.086	0.106	0.051	0.040
42.71	0.023	0.000	0.017	0.085	0.105	0.051	0.040
43.70	0.023	0.000	0.017	0.084	0.104	0.050	0.039
44.69	0.022	0.000	0.016	0.083	0.103	0.050	0.039
45.68	0.022	0.000	0.016	0.082	0.102	0.049	0.038
46.66	0.021	0.000	0.016	0.081	0.101	0.049	0.038
47.65	0.021	0.000	0.016	0.080	0.099	0.048	0.038
48.64	0.021	0.000	0.016	0.079	0.098	0.048	0.037
49.62	0.020	0.000	0.016	0.078	0.097	0.047	0.037
50.61	0.020	0.000	0.016	0.078	0.096	0.047	0.037
51.60	0.019	0.000	0.016	0.077	0.096	0.047	0.037
52.59	0.019	0.000	0.016	0.077	0.096	0.046	0.036
53.58	0.019	0.000	0.015	0.077	0.095	0.046	0.036
54.56	0.018	0.000	0.015	0.076	0.095	0.046	0.036
55.55	0.018	0.000	0.015	0.076	0.094	0.046	0.036
56.54	0.018	0.000	0.015	0.076	0.094	0.045	0.036
57.53	0.017	0.000	0.015	0.075	0.093	0.045	0.035
58.51	0.017	0.000	0.015	0.075	0.093	0.045	0.035
59.50	0.017	0.000	0.015	0.074	0.092	0.045	0.035
60.49	0.017	0.000	0.015	0.074	0.092	0.044	0.035
61.48	0.016	0.000	0.015	0.074	0.091	0.044	0.035
62.46	0.016	0.000	0.015	0.073	0.091	0.044	0.035
63.45	0.016	0.000	0.015	0.073	0.090	0.044	0.034
64.44	0.016	0.000	0.015	0.073	0.090	0.044	0.034
65.42	0.015	0.000	0.014	0.072	0.089	0.043	0.034
66.41	0.015	0.000	0.014	0.072	0.089	0.043	0.034
67.40	0.015	0.000	0.014	0.071	0.089	0.043	0.034
68.39	0.015	0.000	0.014	0.071	0.088	0.043	0.033
69.38	0.014	0.000	0.014	0.071	0.088	0.042	0.033
70.36	0.014	0.000	0.014	0.070	0.087	0.042	0.033
71.35	0.014	0.000	0.014	0.070	0.087	0.042	0.033
72.34	0.014	0.000	0.014	0.070	0.086	0.042	0.033
73.33	0.014	0.000	0.014	0.069	0.086	0.041	0.033
74.31	0.013	0.000	0.014	0.069	0.085	0.041	0.032
75.30	0.013	0.000	0.014	0.068	0.085	0.041	0.032
76.29	0.013	0.000	0.014	0.068	0.084	0.041	0.032
77.28	0.013	0.000	0.014	0.068	0.084	0.041	0.032
78.26	0.013	0.000	0.013	0.067	0.083	0.040	0.032
79.25	0.013	0.000	0.013	0.067	0.083	0.040	0.031
80.24	0.012	0.000	0.013	0.066	0.082	0.040	0.031
81.23	0.012	0.000	0.013	0.066	0.082	0.040	0.031
82.21	0.012	0.000	0.013	0.066	0.081	0.039	0.031
83.20	0.012	0.000	0.013	0.065	0.081	0.039	0.031
84.19	0.012	0.000	0.013	0.065	0.081	0.039	0.031
85.17	0.012	0.000	0.013	0.065	0.080	0.039	0.030
86.16	0.012	0.000	0.013	0.064	0.080	0.039	0.030
87.15	0.011	0.000	0.013	0.064	0.079	0.038	0.030
88.14	0.011	0.000	0.013	0.063	0.079	0.038	0.030
89.12	0.011	0.000	0.013	0.063	0.078	0.038	0.030
90.11	0.011	0.000	0.013	0.063	0.078	0.038	0.029
91.10	0.011	0.000	0.012	0.062	0.077	0.037	0.029
92.09	0.011	0.000	0.012	0.062	0.077	0.037	0.029
93.08	0.011	0.000	0.012	0.062	0.076	0.037	0.029
94.06	0.011	0.000	0.012	0.061	0.076	0.037	0.029
95.05	0.011	0.000	0.012	0.061	0.075	0.036	0.029
96.04	0.010	0.000	0.012	0.060	0.075	0.036	0.028
97.03	0.010	0.000	0.012	0.060	0.074	0.036	0.028

98.01 0.010 0.000 0.012 0.060 0.074 0.036 0.028

Quantiles of HORIZONTAL UHRS AFTER LOGIC TREE (Return Period = 1,000 years)

Freq	Period	5 percent	15 percent	84 percent	95 percent	MEAN	MEDIAN
0.25	4.000	0.000	0.002	0.013	0.017	0.008	0.006
1.24	0.808	0.000	0.013	0.090	0.113	0.052	0.038
2.23	0.449	0.000	0.020	0.130	0.163	0.075	0.056
3.21	0.311	0.000	0.024	0.154	0.192	0.089	0.066
4.20	0.238	0.000	0.027	0.170	0.213	0.099	0.074
5.19	0.193	0.000	0.029	0.186	0.232	0.107	0.080
6.18	0.162	0.000	0.030	0.194	0.243	0.112	0.084
7.16	0.140	0.000	0.031	0.198	0.248	0.115	0.085
8.15	0.123	0.000	0.031	0.199	0.249	0.115	0.086
9.14	0.109	0.000	0.031	0.199	0.250	0.115	0.086
10.12	0.099	0.000	0.031	0.200	0.250	0.115	0.086
11.11	0.090	0.000	0.031	0.196	0.246	0.114	0.085
12.10	0.083	0.000	0.031	0.193	0.241	0.112	0.084
13.09	0.076	0.000	0.031	0.189	0.236	0.110	0.083
14.08	0.071	0.000	0.031	0.185	0.231	0.108	0.081
15.06	0.066	0.000	0.030	0.181	0.227	0.106	0.080
16.05	0.062	0.000	0.030	0.178	0.222	0.104	0.079
17.04	0.059	0.000	0.030	0.174	0.217	0.102	0.077
18.03	0.055	0.000	0.029	0.170	0.213	0.100	0.076
19.01	0.053	0.000	0.029	0.167	0.208	0.098	0.075
20.00	0.050	0.000	0.029	0.163	0.203	0.096	0.073
20.99	0.048	0.000	0.029	0.160	0.200	0.094	0.072
21.98	0.046	0.000	0.028	0.157	0.196	0.093	0.071
22.96	0.044	0.000	0.028	0.154	0.192	0.091	0.070
23.95	0.042	0.000	0.028	0.151	0.189	0.090	0.069
24.94	0.040	0.000	0.028	0.149	0.185	0.088	0.068
25.93	0.039	0.000	0.027	0.146	0.182	0.087	0.067
26.91	0.037	0.000	0.027	0.144	0.180	0.086	0.066
27.90	0.036	0.000	0.027	0.142	0.177	0.085	0.065
28.89	0.035	0.000	0.027	0.140	0.175	0.083	0.065
29.88	0.033	0.000	0.026	0.138	0.172	0.082	0.064
30.86	0.032	0.000	0.026	0.136	0.169	0.081	0.063
31.85	0.031	0.000	0.026	0.134	0.167	0.080	0.062
32.84	0.030	0.000	0.025	0.132	0.164	0.079	0.061
33.83	0.030	0.000	0.025	0.131	0.162	0.078	0.061
34.81	0.029	0.000	0.025	0.129	0.161	0.077	0.060
35.80	0.028	0.000	0.025	0.128	0.159	0.077	0.060
36.79	0.027	0.000	0.025	0.127	0.158	0.076	0.059
37.77	0.026	0.000	0.025	0.126	0.156	0.075	0.059
38.76	0.026	0.000	0.024	0.125	0.155	0.074	0.058
39.75	0.025	0.000	0.024	0.123	0.153	0.074	0.058
40.74	0.025	0.000	0.024	0.122	0.152	0.073	0.057
41.73	0.024	0.000	0.024	0.121	0.150	0.072	0.057
42.71	0.023	0.000	0.024	0.120	0.149	0.072	0.056
43.70	0.023	0.000	0.023	0.119	0.147	0.071	0.055
44.69	0.022	0.000	0.023	0.117	0.146	0.070	0.055
45.68	0.022	0.000	0.023	0.116	0.144	0.070	0.054
46.66	0.021	0.000	0.023	0.115	0.143	0.069	0.054
47.65	0.021	0.000	0.023	0.114	0.141	0.068	0.053
48.64	0.021	0.000	0.022	0.113	0.140	0.068	0.053
49.62	0.020	0.000	0.022	0.111	0.138	0.067	0.052

50.61	0.020	0.000	0.022	0.111	0.137	0.066	0.052
51.60	0.019	0.000	0.022	0.110	0.137	0.066	0.052
52.59	0.019	0.000	0.022	0.110	0.136	0.066	0.051
53.58	0.019	0.000	0.022	0.109	0.135	0.065	0.051
54.56	0.018	0.000	0.022	0.108	0.135	0.065	0.051
55.55	0.018	0.000	0.022	0.108	0.134	0.065	0.051
56.54	0.018	0.000	0.022	0.107	0.133	0.064	0.050
57.53	0.017	0.000	0.021	0.107	0.132	0.064	0.050
58.51	0.017	0.000	0.021	0.106	0.132	0.064	0.050
59.50	0.017	0.000	0.021	0.106	0.131	0.063	0.050
60.49	0.017	0.000	0.021	0.105	0.130	0.063	0.049
61.48	0.016	0.000	0.021	0.105	0.130	0.063	0.049
62.46	0.016	0.000	0.021	0.104	0.129	0.062	0.049
63.45	0.016	0.000	0.021	0.104	0.128	0.062	0.049
64.44	0.016	0.000	0.021	0.103	0.128	0.062	0.048
65.42	0.015	0.000	0.020	0.102	0.127	0.061	0.048
66.41	0.015	0.000	0.020	0.102	0.126	0.061	0.048
67.40	0.015	0.000	0.020	0.101	0.126	0.061	0.048
68.39	0.015	0.000	0.020	0.101	0.125	0.060	0.047
69.38	0.014	0.000	0.020	0.100	0.124	0.060	0.047
70.36	0.014	0.000	0.020	0.100	0.124	0.060	0.047
71.35	0.014	0.000	0.020	0.099	0.123	0.060	0.047
72.34	0.014	0.000	0.020	0.099	0.122	0.059	0.046
73.33	0.014	0.000	0.020	0.098	0.122	0.059	0.046
74.31	0.013	0.000	0.019	0.098	0.121	0.059	0.046
75.30	0.013	0.000	0.019	0.097	0.120	0.058	0.046
76.29	0.013	0.000	0.019	0.096	0.120	0.058	0.045
77.28	0.013	0.000	0.019	0.096	0.119	0.058	0.045
78.26	0.013	0.000	0.019	0.095	0.118	0.057	0.045
79.25	0.013	0.000	0.019	0.095	0.118	0.057	0.045
80.24	0.012	0.000	0.019	0.094	0.117	0.057	0.044
81.23	0.012	0.000	0.019	0.094	0.116	0.056	0.044
82.21	0.012	0.000	0.019	0.093	0.116	0.056	0.044
83.20	0.012	0.000	0.018	0.093	0.115	0.056	0.043
84.19	0.012	0.000	0.018	0.092	0.114	0.055	0.043
85.17	0.012	0.000	0.018	0.092	0.114	0.055	0.043
86.16	0.012	0.000	0.018	0.091	0.113	0.055	0.043
87.15	0.011	0.000	0.018	0.090	0.112	0.054	0.042
88.14	0.011	0.000	0.018	0.090	0.112	0.054	0.042
89.12	0.011	0.000	0.018	0.089	0.111	0.054	0.042
90.11	0.011	0.000	0.018	0.089	0.110	0.053	0.042
91.10	0.011	0.000	0.018	0.088	0.110	0.053	0.041
92.09	0.011	0.000	0.017	0.088	0.109	0.053	0.041
93.08	0.011	0.000	0.017	0.087	0.108	0.052	0.041
94.06	0.011	0.000	0.017	0.087	0.108	0.052	0.041
95.05	0.011	0.000	0.017	0.086	0.107	0.052	0.040
96.04	0.010	0.000	0.017	0.086	0.106	0.051	0.040
97.03	0.010	0.000	0.017	0.085	0.105	0.051	0.040
98.01	0.010	0.000	0.017	0.084	0.105	0.051	0.040

Quantiles of HORIZONTAL UHRS AFTER LOGIC TREE (Return Period = 2,475 years)

Freq	Period	5 percent	15 percent	84 percent	95 percent	MEAN	MEDIAN
0.25	4.000	0.000	0.004	0.021	0.026	0.012	0.009
1.24	0.808	0.000	0.020	0.136	0.172	0.078	0.058
2.23	0.449	0.000	0.030	0.198	0.248	0.114	0.085

3.21	0.311	0.000	0.037	0.234	0.294	0.135	0.101
4.20	0.238	0.000	0.041	0.261	0.326	0.151	0.113
5.19	0.193	0.000	0.045	0.284	0.356	0.164	0.123
6.18	0.162	0.000	0.046	0.297	0.372	0.171	0.128
7.16	0.140	0.000	0.047	0.302	0.379	0.174	0.130
8.15	0.123	0.000	0.047	0.302	0.379	0.174	0.130
9.14	0.109	0.000	0.047	0.302	0.378	0.174	0.130
10.12	0.099	0.000	0.047	0.301	0.377	0.174	0.129
11.11	0.090	0.000	0.046	0.294	0.369	0.170	0.127
12.10	0.083	0.000	0.046	0.288	0.361	0.167	0.125
13.09	0.076	0.000	0.046	0.281	0.352	0.164	0.123
14.08	0.071	0.000	0.045	0.275	0.345	0.160	0.121
15.06	0.066	0.000	0.045	0.270	0.337	0.157	0.119
16.05	0.062	0.000	0.044	0.264	0.330	0.154	0.116
17.04	0.059	0.000	0.044	0.258	0.323	0.151	0.114
18.03	0.055	0.000	0.043	0.253	0.315	0.148	0.112
19.01	0.053	0.000	0.043	0.247	0.308	0.145	0.110
20.00	0.050	0.000	0.042	0.241	0.301	0.142	0.108
20.99	0.048	0.000	0.042	0.237	0.295	0.139	0.106
21.98	0.046	0.000	0.042	0.232	0.290	0.137	0.105
22.96	0.044	0.000	0.041	0.228	0.284	0.135	0.103
23.95	0.042	0.000	0.041	0.224	0.279	0.132	0.102
24.94	0.040	0.000	0.040	0.220	0.274	0.130	0.100
25.93	0.039	0.000	0.040	0.217	0.270	0.128	0.099
26.91	0.037	0.000	0.040	0.214	0.266	0.127	0.098
27.90	0.036	0.000	0.039	0.211	0.263	0.125	0.097
28.89	0.035	0.000	0.039	0.208	0.259	0.124	0.096
29.88	0.033	0.000	0.039	0.205	0.256	0.122	0.095
30.86	0.032	0.000	0.038	0.203	0.252	0.121	0.093
31.85	0.031	0.000	0.038	0.200	0.248	0.119	0.092
32.84	0.030	0.000	0.038	0.197	0.245	0.118	0.091
33.83	0.030	0.000	0.038	0.195	0.242	0.116	0.090
34.81	0.029	0.000	0.037	0.193	0.240	0.115	0.090
35.80	0.028	0.000	0.037	0.191	0.238	0.114	0.089
36.79	0.027	0.000	0.037	0.190	0.236	0.113	0.088
37.77	0.026	0.000	0.037	0.188	0.233	0.112	0.087
38.76	0.026	0.000	0.036	0.186	0.231	0.111	0.087
39.75	0.025	0.000	0.036	0.184	0.229	0.110	0.086
40.74	0.025	0.000	0.036	0.183	0.227	0.109	0.085
41.73	0.024	0.000	0.035	0.181	0.225	0.108	0.084
42.71	0.023	0.000	0.035	0.179	0.223	0.107	0.084
43.70	0.023	0.000	0.035	0.178	0.220	0.106	0.083
44.69	0.022	0.000	0.035	0.176	0.218	0.105	0.082
45.68	0.022	0.000	0.034	0.174	0.216	0.104	0.082
46.66	0.021	0.000	0.034	0.172	0.214	0.103	0.081
47.65	0.021	0.000	0.034	0.171	0.212	0.102	0.080
48.64	0.021	0.000	0.034	0.169	0.210	0.101	0.079
49.62	0.020	0.000	0.033	0.167	0.207	0.100	0.079
50.61	0.020	0.000	0.033	0.166	0.206	0.100	0.078
51.60	0.019	0.000	0.033	0.165	0.205	0.099	0.078
52.59	0.019	0.000	0.033	0.165	0.204	0.099	0.077
53.58	0.019	0.000	0.033	0.164	0.203	0.098	0.077
54.56	0.018	0.000	0.032	0.163	0.202	0.098	0.077
55.55	0.018	0.000	0.032	0.162	0.201	0.097	0.076
56.54	0.018	0.000	0.032	0.161	0.200	0.097	0.076
57.53	0.017	0.000	0.032	0.160	0.199	0.096	0.075
58.51	0.017	0.000	0.032	0.160	0.198	0.096	0.075
59.50	0.017	0.000	0.032	0.159	0.197	0.095	0.075
60.49	0.017	0.000	0.031	0.158	0.196	0.095	0.074
61.48	0.016	0.000	0.031	0.157	0.195	0.094	0.074
62.46	0.016	0.000	0.031	0.156	0.194	0.094	0.073

63.45	0.016	0.000	0.031	0.155	0.193	0.093	0.073
64.44	0.016	0.000	0.031	0.155	0.192	0.093	0.073
65.42	0.015	0.000	0.031	0.154	0.191	0.092	0.072
66.41	0.015	0.000	0.030	0.153	0.190	0.092	0.072
67.40	0.015	0.000	0.030	0.152	0.189	0.091	0.071
68.39	0.015	0.000	0.030	0.151	0.188	0.091	0.071
69.38	0.014	0.000	0.030	0.150	0.187	0.090	0.071
70.36	0.014	0.000	0.030	0.150	0.186	0.090	0.070
71.35	0.014	0.000	0.030	0.149	0.185	0.089	0.070
72.34	0.014	0.000	0.029	0.148	0.184	0.089	0.069
73.33	0.014	0.000	0.029	0.147	0.182	0.088	0.069
74.31	0.013	0.000	0.029	0.146	0.181	0.088	0.069
75.30	0.013	0.000	0.029	0.146	0.180	0.087	0.068
76.29	0.013	0.000	0.029	0.145	0.179	0.087	0.068
77.28	0.013	0.000	0.029	0.144	0.178	0.086	0.067
78.26	0.013	0.000	0.028	0.143	0.177	0.086	0.067
79.25	0.013	0.000	0.028	0.142	0.176	0.085	0.067
80.24	0.012	0.000	0.028	0.141	0.175	0.085	0.066
81.23	0.012	0.000	0.028	0.141	0.174	0.084	0.066
82.21	0.012	0.000	0.028	0.140	0.173	0.084	0.066
83.20	0.012	0.000	0.028	0.139	0.172	0.083	0.065
84.19	0.012	0.000	0.027	0.138	0.171	0.083	0.065
85.17	0.012	0.000	0.027	0.137	0.170	0.082	0.064
86.16	0.012	0.000	0.027	0.136	0.169	0.082	0.064
87.15	0.011	0.000	0.027	0.136	0.168	0.081	0.064
88.14	0.011	0.000	0.027	0.135	0.167	0.081	0.063
89.12	0.011	0.000	0.027	0.134	0.166	0.080	0.063
90.11	0.011	0.000	0.026	0.133	0.165	0.080	0.062
91.10	0.011	0.000	0.026	0.132	0.164	0.079	0.062
92.09	0.011	0.000	0.026	0.131	0.163	0.079	0.062
93.08	0.011	0.000	0.026	0.131	0.162	0.078	0.061
94.06	0.011	0.000	0.026	0.130	0.161	0.078	0.061
95.05	0.011	0.000	0.026	0.129	0.160	0.077	0.060
96.04	0.010	0.000	0.025	0.128	0.159	0.077	0.060
97.03	0.010	0.000	0.025	0.127	0.158	0.076	0.060
98.01	0.010	0.000	0.025	0.127	0.157	0.076	0.059

Quantiles of HORIZONTAL UHRS AFTER LOGIC TREE (Return Period = 5,000 years)

Freq	Period	5 percent	15 percent	84 percent	95 percent	MEAN	MEDIAN
0.25	4.000	0.000	0.005	0.027	0.033	0.016	0.012
1.24	0.808	0.000	0.027	0.185	0.232	0.106	0.078
2.23	0.449	0.000	0.041	0.269	0.338	0.155	0.115
3.21	0.311	0.000	0.050	0.321	0.403	0.186	0.138
4.20	0.238	0.000	0.056	0.357	0.447	0.207	0.154
5.19	0.193	0.000	0.061	0.389	0.488	0.225	0.168
6.18	0.162	0.000	0.063	0.405	0.508	0.234	0.174
7.16	0.140	0.000	0.064	0.412	0.516	0.238	0.177
8.15	0.123	0.000	0.063	0.410	0.514	0.237	0.176
9.14	0.109	0.000	0.063	0.408	0.512	0.236	0.175
10.12	0.099	0.000	0.063	0.406	0.508	0.234	0.174
11.11	0.090	0.000	0.062	0.396	0.497	0.229	0.171
12.10	0.083	0.000	0.062	0.387	0.485	0.225	0.168
13.09	0.076	0.000	0.061	0.378	0.472	0.219	0.165
14.08	0.071	0.000	0.061	0.369	0.462	0.215	0.162
15.06	0.066	0.000	0.060	0.361	0.452	0.211	0.159

16.05	0.062	0.000	0.059	0.354	0.442	0.206	0.156
17.04	0.059	0.000	0.058	0.346	0.432	0.202	0.153
18.03	0.055	0.000	0.058	0.338	0.422	0.198	0.150
19.01	0.053	0.000	0.057	0.330	0.412	0.193	0.147
20.00	0.050	0.000	0.056	0.322	0.402	0.189	0.144
20.99	0.048	0.000	0.056	0.316	0.394	0.186	0.142
21.98	0.046	0.000	0.055	0.311	0.387	0.183	0.140
22.96	0.044	0.000	0.055	0.305	0.380	0.180	0.138
23.95	0.042	0.000	0.054	0.299	0.373	0.177	0.136
24.94	0.040	0.000	0.054	0.294	0.366	0.174	0.134
25.93	0.039	0.000	0.054	0.290	0.361	0.172	0.132
26.91	0.037	0.000	0.053	0.287	0.357	0.170	0.131
27.90	0.036	0.000	0.053	0.283	0.352	0.168	0.129
28.89	0.035	0.000	0.052	0.279	0.348	0.166	0.128
29.88	0.033	0.000	0.052	0.276	0.343	0.164	0.127
30.86	0.032	0.000	0.051	0.272	0.338	0.162	0.125
31.85	0.031	0.000	0.051	0.269	0.334	0.160	0.124
32.84	0.030	0.000	0.051	0.265	0.329	0.158	0.122
33.83	0.030	0.000	0.050	0.262	0.325	0.156	0.121
34.81	0.029	0.000	0.050	0.260	0.323	0.155	0.120
35.80	0.028	0.000	0.050	0.258	0.320	0.154	0.119
36.79	0.027	0.000	0.049	0.255	0.317	0.152	0.118
37.77	0.026	0.000	0.049	0.253	0.314	0.151	0.117
38.76	0.026	0.000	0.049	0.251	0.311	0.150	0.116
39.75	0.025	0.000	0.048	0.248	0.308	0.148	0.115
40.74	0.025	0.000	0.048	0.246	0.306	0.147	0.114
41.73	0.024	0.000	0.048	0.244	0.303	0.146	0.114
42.71	0.023	0.000	0.047	0.242	0.300	0.144	0.113
43.70	0.023	0.000	0.047	0.239	0.297	0.143	0.112
44.69	0.022	0.000	0.047	0.237	0.294	0.142	0.111
45.68	0.022	0.000	0.046	0.235	0.291	0.141	0.110
46.66	0.021	0.000	0.046	0.233	0.288	0.139	0.109
47.65	0.021	0.000	0.046	0.230	0.286	0.138	0.108
48.64	0.021	0.000	0.045	0.228	0.283	0.137	0.107
49.62	0.020	0.000	0.045	0.226	0.280	0.135	0.106
50.61	0.020	0.000	0.045	0.224	0.278	0.134	0.105
51.60	0.019	0.000	0.044	0.223	0.277	0.134	0.105
52.59	0.019	0.000	0.044	0.222	0.275	0.133	0.104
53.58	0.019	0.000	0.044	0.221	0.274	0.132	0.104
54.56	0.018	0.000	0.044	0.220	0.273	0.132	0.103
55.55	0.018	0.000	0.043	0.219	0.271	0.131	0.103
56.54	0.018	0.000	0.043	0.218	0.270	0.130	0.102
57.53	0.017	0.000	0.043	0.217	0.268	0.130	0.102
58.51	0.017	0.000	0.043	0.215	0.267	0.129	0.101
59.50	0.017	0.000	0.043	0.214	0.266	0.128	0.101
60.49	0.017	0.000	0.042	0.213	0.264	0.128	0.100
61.48	0.016	0.000	0.042	0.212	0.263	0.127	0.099
62.46	0.016	0.000	0.042	0.211	0.262	0.126	0.099
63.45	0.016	0.000	0.042	0.210	0.260	0.126	0.098
64.44	0.016	0.000	0.041	0.209	0.259	0.125	0.098
65.42	0.015	0.000	0.041	0.208	0.258	0.124	0.097
66.41	0.015	0.000	0.041	0.207	0.256	0.124	0.097
67.40	0.015	0.000	0.041	0.206	0.255	0.123	0.096
68.39	0.015	0.000	0.041	0.204	0.253	0.122	0.096
69.38	0.014	0.000	0.040	0.203	0.252	0.122	0.095
70.36	0.014	0.000	0.040	0.202	0.251	0.121	0.095
71.35	0.014	0.000	0.040	0.201	0.249	0.120	0.094
72.34	0.014	0.000	0.040	0.200	0.248	0.120	0.094
73.33	0.014	0.000	0.039	0.199	0.247	0.119	0.093
74.31	0.013	0.000	0.039	0.198	0.245	0.118	0.093
75.30	0.013	0.000	0.039	0.197	0.244	0.118	0.092

76.29	0.013	0.000	0.039	0.196	0.243	0.117	0.092
77.28	0.013	0.000	0.039	0.195	0.241	0.117	0.091
78.26	0.013	0.000	0.038	0.193	0.240	0.116	0.091
79.25	0.013	0.000	0.038	0.192	0.239	0.115	0.090
80.24	0.012	0.000	0.038	0.191	0.237	0.115	0.090
81.23	0.012	0.000	0.038	0.190	0.236	0.114	0.089
82.21	0.012	0.000	0.037	0.189	0.234	0.113	0.088
83.20	0.012	0.000	0.037	0.188	0.233	0.113	0.088
84.19	0.012	0.000	0.037	0.187	0.232	0.112	0.087
85.17	0.012	0.000	0.037	0.186	0.230	0.111	0.087
86.16	0.012	0.000	0.036	0.185	0.229	0.111	0.086
87.15	0.011	0.000	0.036	0.184	0.228	0.110	0.086
88.14	0.011	0.000	0.036	0.182	0.226	0.109	0.085
89.12	0.011	0.000	0.036	0.181	0.225	0.109	0.085
90.11	0.011	0.000	0.036	0.180	0.224	0.108	0.084
91.10	0.011	0.000	0.035	0.179	0.222	0.107	0.084
92.09	0.011	0.000	0.035	0.178	0.221	0.107	0.083
93.08	0.011	0.000	0.035	0.177	0.219	0.106	0.083
94.06	0.011	0.000	0.035	0.176	0.218	0.105	0.082
95.05	0.011	0.000	0.034	0.175	0.217	0.105	0.082
96.04	0.010	0.000	0.034	0.174	0.215	0.104	0.081
97.03	0.010	0.000	0.034	0.173	0.214	0.103	0.081
98.01	0.010	0.000	0.034	0.172	0.213	0.103	0.080

Quantiles of HORIZONTAL UHRS AFTER LOGIC TREE (Return Period = 10,000 years)

Freq	Period	5 percent	15 percent	84 percent	95 percent	MEAN	MEDIAN
0.25	4.000	0.000	0.007	0.035	0.044	0.021	0.016
1.24	0.808	0.000	0.036	0.246	0.309	0.141	0.104
2.23	0.449	0.000	0.055	0.362	0.454	0.208	0.154
3.21	0.311	0.000	0.067	0.433	0.543	0.250	0.185
4.20	0.238	0.000	0.075	0.481	0.602	0.278	0.207
5.19	0.193	0.000	0.081	0.523	0.655	0.302	0.225
6.18	0.162	0.000	0.084	0.543	0.680	0.313	0.233
7.16	0.140	0.000	0.085	0.550	0.689	0.317	0.236
8.15	0.123	0.000	0.084	0.547	0.685	0.315	0.234
9.14	0.109	0.000	0.083	0.543	0.680	0.313	0.232
10.12	0.099	0.000	0.083	0.537	0.673	0.310	0.230
11.11	0.090	0.000	0.082	0.524	0.656	0.303	0.226
12.10	0.083	0.000	0.081	0.511	0.640	0.296	0.221
13.09	0.076	0.000	0.080	0.497	0.622	0.289	0.217
14.08	0.071	0.000	0.079	0.486	0.608	0.283	0.213
15.06	0.066	0.000	0.079	0.476	0.594	0.277	0.209
16.05	0.062	0.000	0.078	0.465	0.581	0.271	0.205
17.04	0.059	0.000	0.077	0.455	0.568	0.265	0.201
18.03	0.055	0.000	0.076	0.444	0.555	0.260	0.197
19.01	0.053	0.000	0.075	0.434	0.541	0.254	0.193
20.00	0.050	0.000	0.074	0.424	0.528	0.248	0.189
20.99	0.048	0.000	0.073	0.416	0.519	0.244	0.186
21.98	0.046	0.000	0.072	0.409	0.509	0.240	0.184
22.96	0.044	0.000	0.072	0.402	0.500	0.237	0.181
23.95	0.042	0.000	0.071	0.394	0.491	0.233	0.179
24.94	0.040	0.000	0.071	0.387	0.482	0.229	0.176
25.93	0.039	0.000	0.070	0.382	0.476	0.226	0.174
26.91	0.037	0.000	0.070	0.377	0.470	0.223	0.172
27.90	0.036	0.000	0.069	0.373	0.464	0.221	0.170

28.89	0.035	0.000	0.069	0.368	0.458	0.218	0.169
29.88	0.033	0.000	0.068	0.364	0.452	0.216	0.167
30.86	0.032	0.000	0.068	0.359	0.447	0.213	0.165
31.85	0.031	0.000	0.067	0.354	0.441	0.211	0.163
32.84	0.030	0.000	0.066	0.350	0.435	0.208	0.161
33.83	0.030	0.000	0.066	0.346	0.430	0.206	0.160
34.81	0.029	0.000	0.066	0.343	0.426	0.204	0.159
35.80	0.028	0.000	0.065	0.340	0.423	0.202	0.157
36.79	0.027	0.000	0.065	0.337	0.419	0.201	0.156
37.77	0.026	0.000	0.064	0.334	0.415	0.199	0.155
38.76	0.026	0.000	0.064	0.331	0.411	0.197	0.154
39.75	0.025	0.000	0.063	0.328	0.408	0.196	0.152
40.74	0.025	0.000	0.063	0.325	0.404	0.194	0.151
41.73	0.024	0.000	0.063	0.322	0.400	0.192	0.150
42.71	0.023	0.000	0.062	0.319	0.397	0.191	0.149
43.70	0.023	0.000	0.062	0.316	0.393	0.189	0.147
44.69	0.022	0.000	0.061	0.314	0.389	0.187	0.146
45.68	0.022	0.000	0.061	0.311	0.385	0.186	0.145
46.66	0.021	0.000	0.060	0.308	0.382	0.184	0.144
47.65	0.021	0.000	0.060	0.305	0.378	0.182	0.142
48.64	0.021	0.000	0.060	0.302	0.374	0.181	0.141
49.62	0.020	0.000	0.059	0.299	0.371	0.179	0.140
50.61	0.020	0.000	0.059	0.297	0.368	0.178	0.139
51.60	0.019	0.000	0.059	0.295	0.366	0.177	0.138
52.59	0.019	0.000	0.058	0.294	0.365	0.176	0.138
53.58	0.019	0.000	0.058	0.292	0.363	0.175	0.137
54.56	0.018	0.000	0.058	0.291	0.361	0.174	0.136
55.55	0.018	0.000	0.057	0.289	0.359	0.173	0.136
56.54	0.018	0.000	0.057	0.288	0.357	0.172	0.135
57.53	0.017	0.000	0.057	0.287	0.356	0.172	0.134
58.51	0.017	0.000	0.056	0.285	0.354	0.171	0.134
59.50	0.017	0.000	0.056	0.284	0.352	0.170	0.133
60.49	0.017	0.000	0.056	0.282	0.350	0.169	0.132
61.48	0.016	0.000	0.056	0.281	0.348	0.168	0.131
62.46	0.016	0.000	0.055	0.279	0.347	0.167	0.131
63.45	0.016	0.000	0.055	0.278	0.345	0.166	0.130
64.44	0.016	0.000	0.055	0.276	0.343	0.166	0.129
65.42	0.015	0.000	0.054	0.275	0.341	0.165	0.129
66.41	0.015	0.000	0.054	0.274	0.339	0.164	0.128
67.40	0.015	0.000	0.054	0.272	0.338	0.163	0.127
68.39	0.015	0.000	0.054	0.271	0.336	0.162	0.127
69.38	0.014	0.000	0.053	0.269	0.334	0.161	0.126
70.36	0.014	0.000	0.053	0.268	0.332	0.160	0.125
71.35	0.014	0.000	0.053	0.266	0.330	0.159	0.125
72.34	0.014	0.000	0.052	0.265	0.329	0.159	0.124
73.33	0.014	0.000	0.052	0.263	0.327	0.158	0.123
74.31	0.013	0.000	0.052	0.262	0.325	0.157	0.123
75.30	0.013	0.000	0.051	0.261	0.323	0.156	0.122
76.29	0.013	0.000	0.051	0.259	0.322	0.155	0.121
77.28	0.013	0.000	0.051	0.258	0.320	0.154	0.121
78.26	0.013	0.000	0.051	0.256	0.318	0.153	0.120
79.25	0.013	0.000	0.050	0.255	0.316	0.152	0.119
80.24	0.012	0.000	0.050	0.253	0.314	0.152	0.118
81.23	0.012	0.000	0.050	0.252	0.313	0.151	0.118
82.21	0.012	0.000	0.049	0.250	0.311	0.150	0.117
83.20	0.012	0.000	0.049	0.249	0.309	0.149	0.116
84.19	0.012	0.000	0.049	0.248	0.307	0.148	0.116
85.17	0.012	0.000	0.048	0.246	0.305	0.147	0.115
86.16	0.012	0.000	0.048	0.245	0.304	0.146	0.114
87.15	0.011	0.000	0.048	0.243	0.302	0.145	0.114
88.14	0.011	0.000	0.048	0.242	0.300	0.145	0.113

89.12	0.011	0.000	0.047	0.240	0.298	0.144	0.112
90.11	0.011	0.000	0.047	0.239	0.296	0.143	0.112
91.10	0.011	0.000	0.047	0.237	0.295	0.142	0.111
92.09	0.011	0.000	0.046	0.236	0.293	0.141	0.110
93.08	0.011	0.000	0.046	0.235	0.291	0.140	0.110
94.06	0.011	0.000	0.046	0.233	0.289	0.139	0.109
95.05	0.011	0.000	0.046	0.232	0.287	0.139	0.108
96.04	0.010	0.000	0.045	0.230	0.286	0.138	0.107
97.03	0.010	0.000	0.045	0.229	0.284	0.137	0.107
98.01	0.010	0.000	0.045	0.227	0.282	0.136	0.106

Elastic Design Spectra (EDS)

ERS TSF TM (Vs30 = 655 m/s)

Period [SEC]	PGA#1=0.020	PGA#2=0.023	PGA#3=0.035	PGA#4=0.050	PGA#5=0.074	PGA#6=0.100	PGA#7=0.131
0.00	0.020	0.023	0.035	0.050	0.074	0.100	0.131
0.01	0.022	0.025	0.039	0.055	0.081	0.110	0.144
0.02	0.024	0.028	0.042	0.060	0.089	0.120	0.157
0.03	0.026	0.030	0.046	0.065	0.096	0.130	0.170
0.04	0.028	0.032	0.049	0.070	0.104	0.140	0.183
0.05	0.030	0.035	0.053	0.075	0.111	0.150	0.197
0.06	0.032	0.037	0.056	0.080	0.118	0.160	0.210
0.07	0.034	0.039	0.060	0.085	0.126	0.170	0.223
0.08	0.036	0.041	0.063	0.090	0.133	0.180	0.236
0.09	0.038	0.044	0.067	0.095	0.141	0.190	0.249
0.10	0.040	0.046	0.070	0.100	0.148	0.200	0.262
0.11	0.042	0.048	0.074	0.105	0.155	0.210	0.275
0.12	0.044	0.051	0.077	0.110	0.163	0.220	0.288
0.13	0.046	0.053	0.081	0.115	0.170	0.230	0.301
0.14	0.048	0.055	0.084	0.120	0.178	0.240	0.314
0.15	0.050	0.057	0.088	0.125	0.185	0.250	0.328
0.40	0.050	0.057	0.088	0.125	0.185	0.250	0.328
0.45	0.044	0.051	0.077	0.110	0.163	0.221	0.289
0.51	0.039	0.045	0.069	0.099	0.146	0.197	0.259
0.56	0.036	0.041	0.062	0.089	0.132	0.179	0.234
0.61	0.033	0.037	0.057	0.082	0.121	0.163	0.214
0.67	0.030	0.034	0.052	0.075	0.111	0.150	0.196
0.72	0.028	0.032	0.049	0.069	0.103	0.139	0.182
0.77	0.026	0.030	0.045	0.065	0.096	0.129	0.169
0.83	0.024	0.028	0.042	0.060	0.090	0.121	0.158
0.88	0.023	0.026	0.040	0.057	0.084	0.114	0.149
0.93	0.021	0.025	0.038	0.054	0.079	0.107	0.140
0.99	0.020	0.023	0.035	0.051	0.075	0.101	0.133
1.04	0.019	0.022	0.034	0.048	0.071	0.096	0.126
1.09	0.018	0.021	0.032	0.046	0.068	0.091	0.120
1.15	0.017	0.020	0.031	0.044	0.065	0.087	0.114
1.20	0.017	0.019	0.029	0.042	0.062	0.083	0.109
1.25	0.016	0.018	0.028	0.040	0.059	0.080	0.105
1.31	0.015	0.018	0.027	0.038	0.057	0.077	0.100
1.36	0.015	0.017	0.026	0.037	0.054	0.074	0.096
1.41	0.014	0.016	0.025	0.035	0.052	0.071	0.093
1.47	0.014	0.016	0.024	0.034	0.050	0.068	0.089
1.52	0.013	0.015	0.023	0.033	0.049	0.066	0.086
1.57	0.013	0.015	0.022	0.032	0.047	0.064	0.083
1.63	0.012	0.014	0.022	0.031	0.045	0.061	0.081
1.68	0.012	0.014	0.021	0.030	0.044	0.060	0.078
1.73	0.012	0.013	0.020	0.029	0.043	0.058	0.076
1.79	0.011	0.013	0.020	0.028	0.041	0.056	0.073
1.84	0.011	0.012	0.019	0.027	0.040	0.054	0.071
1.89	0.011	0.012	0.018	0.026	0.039	0.053	0.069
1.95	0.010	0.012	0.018	0.026	0.038	0.051	0.067
2.00	0.010	0.011	0.018	0.025	0.037	0.050	0.066
2.05	0.010	0.011	0.017	0.024	0.035	0.048	0.062
2.10	0.009	0.010	0.016	0.023	0.034	0.045	0.059
2.15	0.009	0.010	0.015	0.022	0.032	0.043	0.057
2.20	0.008	0.010	0.014	0.021	0.031	0.041	0.054
2.25	0.008	0.009	0.014	0.020	0.029	0.040	0.052
2.30	0.008	0.009	0.013	0.019	0.028	0.038	0.050
2.35	0.007	0.008	0.013	0.018	0.027	0.036	0.047
2.40	0.007	0.008	0.012	0.017	0.026	0.035	0.045
2.45	0.007	0.008	0.012	0.017	0.025	0.033	0.044
2.50	0.006	0.007	0.011	0.016	0.024	0.032	0.042
2.55	0.006	0.007	0.011	0.015	0.023	0.031	0.040
2.60	0.006	0.007	0.010	0.015	0.022	0.030	0.039

2.65	0.006	0.007	0.010	0.014	0.021	0.028	0.037
2.70	0.005	0.006	0.010	0.014	0.020	0.027	0.036
2.75	0.005	0.006	0.009	0.013	0.020	0.026	0.035
2.80	0.005	0.006	0.009	0.013	0.019	0.026	0.033
2.85	0.005	0.006	0.009	0.012	0.018	0.025	0.032
2.90	0.005	0.005	0.008	0.012	0.018	0.024	0.031
2.95	0.005	0.005	0.008	0.011	0.017	0.023	0.030
3.00	0.004	0.005	0.008	0.011	0.016	0.022	0.029
3.05	0.004	0.005	0.008	0.011	0.016	0.021	0.028
3.10	0.004	0.005	0.007	0.010	0.015	0.021	0.027
3.15	0.004	0.005	0.007	0.010	0.015	0.020	0.026
3.20	0.004	0.004	0.007	0.010	0.014	0.020	0.026
3.25	0.004	0.004	0.007	0.009	0.014	0.019	0.025
3.30	0.004	0.004	0.006	0.009	0.014	0.018	0.024
3.35	0.004	0.004	0.006	0.009	0.013	0.018	0.023
3.40	0.003	0.004	0.006	0.009	0.013	0.017	0.023
3.45	0.003	0.004	0.006	0.008	0.012	0.017	0.022
3.50	0.003	0.004	0.006	0.008	0.012	0.016	0.021
3.55	0.003	0.004	0.006	0.008	0.012	0.016	0.021
3.60	0.003	0.004	0.005	0.008	0.011	0.015	0.020
3.65	0.003	0.003	0.005	0.008	0.011	0.015	0.020
3.70	0.003	0.003	0.005	0.007	0.011	0.015	0.019
3.75	0.003	0.003	0.005	0.007	0.011	0.014	0.019
3.80	0.003	0.003	0.005	0.007	0.010	0.014	0.018
3.85	0.003	0.003	0.005	0.007	0.010	0.013	0.018
3.90	0.003	0.003	0.005	0.007	0.010	0.013	0.017
3.95	0.003	0.003	0.004	0.006	0.009	0.013	0.017
4.00	0.003	0.003	0.004	0.006	0.009	0.013	0.016

The contribution to the PGA and spectral acceleration
from three scenarios. (see Fig. 11.2)

CONTRIBUTION TO Sa FROM EACH SCENARIO

HORIZONTAL Sa (Scenario #1)

Freq [Hz]	Period [SEC]	Sa [g]
0.30	3.358	0.003
0.50	2.018	0.006
0.69	1.442	0.009
0.89	1.122	0.012
1.09	0.918	0.015
1.29	0.777	0.018
1.48	0.674	0.021
1.68	0.594	0.023
1.88	0.532	0.026
2.08	0.481	0.028
2.28	0.439	0.030
2.47	0.404	0.032
2.67	0.374	0.033
2.87	0.349	0.034
3.07	0.326	0.035

3.26	0.306	0.037
3.46	0.289	0.037
3.66	0.273	0.038
3.86	0.259	0.039
4.06	0.247	0.040
4.25	0.235	0.040
4.45	0.225	0.041
4.85	0.206	0.042
5.24	0.191	0.043
5.64	0.177	0.043
6.03	0.166	0.044
6.43	0.156	0.044
7.02	0.142	0.044
7.62	0.131	0.044
8.41	0.119	0.043
9.20	0.109	0.043
10.19	0.098	0.043
11.37	0.088	0.042
12.96	0.077	0.042
14.94	0.067	0.041
17.70	0.056	0.040
21.66	0.046	0.038
27.79	0.036	0.036
38.67	0.026	0.033
63.20	0.016	0.028

HORIZONTAL Sa (Scenario #2)

Freq [Hz]	Period [SEC]	Sa [g]
0.30	3.358	0.003
0.50	2.018	0.008
0.69	1.442	0.014
0.89	1.122	0.021
1.09	0.918	0.030
1.29	0.777	0.038
1.48	0.674	0.048
1.68	0.594	0.058
1.88	0.532	0.068
2.08	0.481	0.078
2.28	0.439	0.087
2.47	0.404	0.096
2.67	0.374	0.105
2.87	0.349	0.114
3.07	0.326	0.123
3.26	0.306	0.132
3.46	0.289	0.139
3.66	0.273	0.146
3.86	0.259	0.153
4.06	0.247	0.160
4.25	0.235	0.166
4.45	0.225	0.172
4.85	0.206	0.185
5.24	0.191	0.195
5.64	0.177	0.202
6.03	0.166	0.208
6.43	0.156	0.215
7.02	0.142	0.219
7.62	0.131	0.219

8.41	0.119	0.219
9.20	0.109	0.219
10.19	0.098	0.218
11.37	0.088	0.215
12.96	0.077	0.210
14.94	0.067	0.204
17.70	0.056	0.196
21.66	0.046	0.188
27.79	0.036	0.184
38.67	0.026	0.176
63.20	0.016	0.152

HORIZONTAL Sa (Scenario #3)

Freq [Hz]	Period [SEC]	Sa [g]
0.30	3.358	0.004
0.50	2.018	0.009
0.69	1.442	0.014
0.89	1.122	0.019
1.09	0.918	0.025
1.29	0.777	0.030
1.48	0.674	0.035
1.68	0.594	0.040
1.88	0.532	0.045
2.08	0.481	0.049
2.28	0.439	0.053
2.47	0.404	0.057
2.67	0.374	0.060
2.87	0.349	0.062
3.07	0.326	0.065
3.26	0.306	0.068
3.46	0.289	0.070
3.66	0.273	0.072
3.86	0.259	0.074
4.06	0.247	0.076
4.25	0.235	0.078
4.45	0.225	0.080
4.85	0.206	0.083
5.24	0.191	0.085
5.64	0.177	0.086
6.03	0.166	0.087
6.43	0.156	0.088
7.02	0.142	0.088
7.62	0.131	0.088
8.41	0.119	0.087
9.20	0.109	0.086
10.19	0.098	0.085
11.37	0.088	0.083
12.96	0.077	0.082
14.94	0.067	0.079
17.70	0.056	0.077
21.66	0.046	0.074
27.79	0.036	0.070
38.67	0.026	0.065
63.20	0.016	0.056

Appendix D

The Account of Site Effect in Terms of PGA

Any ground motion prediction equation (GMPE) is specific to a soil or rock type on which the PSHA is to be made. These ground types are known as the site classes (International *Building Code*, 2000; *NEHRP Provisions*, 2001, Table D1; Eurocode 8, EN 1998-1 2004, Table D2), and are classified as hard rock, soft rock, firm soil and soft soil. The site classes are defined by their shear velocities (Table D1). The knowledge of the site class is important since the soil tends to amplify long-period ground motion vibration and de-amplify short-period ground motion.

Table D1. NEHRP Site Classes. Site class definitions are published in 2000 International Building Code, International Code Council, Inc. on page 350, Table 1615.1.1 Site Class Definitions.

Site Class	Soil Profile Name	Average Properties in Top 100 feet (as per 2000 IBC section 1615.1.5) Soil Shear Wave Velocity, V_s	
		Feet/Second	Meters/Second
A	Hard rock	$V_{s30} > 5000$	$V_{s30} > 1524$
B	Rock	$2500 < V_{s30} \leq 5000$	$762 < V_{s30} \leq 1524$
C	Very dense soil and soft rock	$1200 < V_{s30} \leq 2500$	$366 < V_{s30} \leq 762$
D	Stiff soil profile	$600 < V_{s30} \leq 1200$	$183 < V_{s30} \leq 366$
E	Soft soil profile	$V_{s30} \leq 600$	$V_{s30} \leq 183$
F	• Soil requiring site-specific evaluations • Soils vulnerable to potential failure or collapse under seismic loading, e.g. liquefiable soils, quick and highly sensitive clays, collapsible weakly cemented soils. • Peats and/or highly organic clays. • Very high plasticity clays. • Very thick soft/medium stiff clays – 36 m or thicker layer		

Table D2. Eurocode 8. Site Classes. Site class definitions are published in 2000 International Building Code, International Code Council, Inc. on page 350, Table 1615 1.1 Site Class Definition.

Ground type	Description of stratigraphic profile	Parameters		
		$V_{s30}(m/s)$	N_{SPT} (blows/30cm)	c_u (kPa)
A	Rock or other rock-like geological formation, including at most 5 m of weaker material at the surface.	>800	-	-
B	Deposits of very dense sand, gravel, or very stiff clay, at least several tens of meters in thickness, characterized by a gradual increase of mechanical properties with depth.	360-800	>50	>250
C	Deep deposits of dense or medium-dense sand, gravel or stiff clay with a thickness of several tens to many hundreds of meters.	180-360	15-50	70-250
D	Deposits of loose-to-medium cohesionless soil (with or without some soft cohesive layers), or of predominantly soft-to-firm cohesive soil.	<180	<15	<70
E	A soil profile consisting of a surface alluvium layer with v_s values of type C or D and thickness varying between about 5 m and 20 m, underlain by stiffer material with $v_s > 800$ m/s.			
S ₁	Deposits consisting, or containing a layer at least 10 m thick, of soft clays/silts with a high plasticity index ($Pl > 40$) and high water content.	<100 (indicative)		10-20
S ₂	Deposits of liquefiable soils, of sensitive clays, or any other soil profile not included in types A-E, or S ₁			

Following Atkinson and Boore (2006), the current ground-motion prediction equations (GMPEs) provide values of PGA for the reference velocity $V_{30} = V_{REF} = 760$ m/sec. The account for V_{30} , different from the reference V_{REF} can be done by multiplication of the reference $PGA(V_{REF})$ by a correction factor C_f .

The correction factor C_f , has two components, linear and nonlinear. For $PGA \leq 0.06$ g,

$$C_f = \exp[b_{LIN} \cdot \ln\left(\frac{V_{30}}{V_{REF}}\right) + b_{NL} \cdot \ln\left(\frac{60}{100}\right)]. \quad (d.1)$$

For $PGA > 0.06 g$, the same correction is of the form

$$C_f = \exp[b_{LN} \cdot \ln\left(\frac{V_{30}}{V_{REF}}\right) + b_{NL} \cdot \ln(10 \cdot PGA)], \quad (d.2)$$

where PGA denotes $PGA \equiv PGA(V_{REF})$, expressed in units of g , predicted for $V_{REF} = V_{30} = 760$ m/sec, or equivalently relative to the reference condition of NEHRP B/C boundary. The coefficients $b_{LIN} = -0.361$ and b_{NL} value is determined by the current value of PGA for reference velocity $V_{REF} = 760$ m/sec. For details, see the paper by Atkinson and Boore (2006).

Therefore, the PGA predicted for the site with any value of V_{30} , and denoted as $PGA(V_{30})$, is of the form

$$PGA(V_{30}) = C_f \cdot PGA(V_{ref}). \quad (d.3)$$

References

- Boore, D.M. Joyner, W.B. and T.E. Fumal (1997). Equations for estimating horizontal response spectra and peak acceleration for Western North American Earthquakes: A summary of recent work. *Seismol. Res. Lett.*, 68, 128-153.
- Boore, D.M. (2005). Erratum. Equations for estimating horizontal response spectra and peak acceleration for Western North American Earthquakes: A summary of recent work. *Seismol. Res. Lett.*, 6, 368-369.
- Building Seismic Safety Council (BSSC), 2001. *2000 Edition, NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures, FEMA-368, Part 1 (Provisions)*: Developed for the Federal Emergency Management Agency, Washington, D.C.

Appendix E

Results of De-aggregation after Logic Tree

Return Period = 10,000 [y]

DISTANCE-MAGNITUDE CONTRIBUTION TO SEISMIC HAZARD [PER-CENT] (1.0 Hz)

DISTANCE [KM]	MAGNITUDE RANGE						
	4.0-4.5	4.5-5.0	5.0-5.5	5.5-6.0	6.0-6.5	6.5-7.0	> 7.0
0 - 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25 - 50	0.0	0.0	1.1	4.5	14.3	19.8	3.1
50 - 100	0.0	0.0	0.1	0.4	3.1	9.1	1.9
100 - 200	0.0	0.0	0.0	0.1	1.8	11.6	3.4
200 - 300	0.0	0.0	0.0	0.0	0.5	6.2	2.3
> 300	0.0	0.0	0.0	0.0	0.5	11.0	5.2

MAGNITUDE and DISTANCE of CONTROLLING EARTHQUAKE

CONTROLLING MAGNITUDE = 6.66
CONTROLLING DISTANCE = 92.21 [KM]

MAGNITUDE and DISTANCE of CONTROLLING EQ-e FOR DISTANCE > 100 KM
THE PURPOSE OF CALCULATIONS IS TO IDENTIFY A DISTANT, LARGE EVENT
THAT MAY CONTROL LOW-FREQUENCY CONTENT OF SPECTRUM

CONTROLLING MAGNITUDE = 6.84
CONTROLLING DISTANCE = 245.71 [KM]

DISTANCE-MAGNITUDE CONTRIBUTION TO SEISMIC HAZARD [PER-CENT] (2.5.0 Hz)

DISTANCE [KM]	MAGNITUDE RANGE						
	4.0-4.5	4.5-5.0	5.0-5.5	5.5-6.0	6.0-6.5	6.5-7.0	> 7.0
0 - 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25 - 50	0.0	0.8	8.6	11.1	19.9	19.9	2.8
50 - 100	0.0	0.0	0.5	0.6	3.2	7.2	1.5
100 - 200	0.0	0.0	0.1	0.2	2.2	8.1	2.1
200 - 300	0.0	0.0	0.0	0.1	0.7	3.8	1.2
> 300	0.0	0.0	0.0	0.0	0.4	3.6	1.4

MAGNITUDE and DISTANCE of CONTROLLING EARTHQUAKE

CONTROLLING MAGNITUDE = 6.39
CONTROLLING DISTANCE = 62.25 [KM]

MAGNITUDE and DISTANCE of CONTROLLING EQ-e FOR DISTANCE > 100 KM

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THE PURPOSE OF CALCULATIONS IS TO IDENTIFY A DISTANT, LARGE EVENT
THAT MAY CONTROL LOW-FREQUENCY CONTENT OF SPECTRUM

CONTROLLING MAGNITUDE = 6.76
CONTROLLING DISTANCE = 211.80 [KM]

DISTANCE-MAGNITUDE CONTRIBUTION TO SEISMIC HAZARD [PER-CENT] (5.0 Hz)

MAGNITUDE RANGE							
DISTANCE [KM]	4.0-4.5	4.5-5.0	5.0-5.5	5.5-6.0	6.0-6.5	6.5-7.0	> 7.0
0 - 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25 - 50	0.2	3.3	16.3	14.7	21.7	19.3	2.6
50 - 100	0.0	0.0	0.5	0.6	2.4	5.0	1.1
100 - 200	0.0	0.0	0.2	0.3	2.1	5.2	1.3
200 - 300	0.0	0.0	0.0	0.0	0.4	1.5	0.5
> 300	0.0	0.0	0.0	0.0	0.0	0.3	0.1

MAGNITUDE and DISTANCE of CONTROLLING EARTHQUAKE

CONTROLLING MAGNITUDE = 6.15
CONTROLLING DISTANCE = 48.04 [KM]

MAGNITUDE and DISTANCE of CONTROLLING EQ-e FOR DISTANCE > 100 KM
THE PURPOSE OF CALCULATIONS IS TO IDENTIFY A DISTANT, LARGE EVENT
THAT MAY CONTROL LOW-FREQUENCY CONTENT OF SPECTRUM

CONTROLLING MAGNITUDE = 6.67
CONTROLLING DISTANCE = 172.70 [KM]

DISTANCE-MAGNITUDE CONTRIBUTION TO SEISMIC HAZARD [PER-CENT] (10.0 Hz)

MAGNITUDE RANGE							
DISTANCE [KM]	4.0-4.5	4.5-5.0	5.0-5.5	5.5-6.0	6.0-6.5	6.5-7.0	> 7.0
0 - 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25 - 50	1.0	6.0	18.9	15.0	20.2	17.6	2.4
50 - 100	0.0	0.1	0.6	0.7	2.3	4.2	0.9
100 - 200	0.0	0.1	0.7	0.5	2.1	4.3	1.2
200 - 300	0.0	0.0	0.0	0.0	0.2	0.7	0.3
> 300	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MAGNITUDE and DISTANCE of CONTROLLING EARTHQUAKE

CONTROLLING MAGNITUDE = 6.03
CONTROLLING DISTANCE = 46.13 [KM]

MAGNITUDE and DISTANCE of CONTROLLING EQ-e FOR DISTANCE > 100 KM
THE PURPOSE OF CALCULATIONS IS TO IDENTIFY A DISTANT, LARGE EVENT
THAT MAY CONTROL LOW-FREQUENCY CONTENT OF SPECTRUM

CONTROLLING MAGNITUDE = 6.53
CONTROLLING DISTANCE = 159.92 [KM]

DISTANCE-MAGNITUDE CONTRIBUTION TO SEISMIC HAZARD [PER-CENT] (PGA)

=====							
	MAGNITUDE RANGE						
DISTANCE [KM]	4.0-4.5	4.5-5.0	5.0-5.5	5.5-6.0	6.0-6.5	6.5-7.0	> 7.0
0 - 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25 - 50	0.5	4.0	16.3	16.1	24.0	21.3	2.9
50 - 100	0.0	0.0	0.3	0.5	2.2	5.0	1.2
100 - 200	0.0	0.0	0.2	0.1	0.8	2.7	1.0
200 - 300	0.0	0.0	0.0	0.0	0.0	0.3	0.2
> 300	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MAGNITUDE and DISTANCE of CONTROLLING EARTHQUAKE

=====

CONTROLLING MAGNITUDE = 6.13
CONTROLLING DISTANCE = 43.33 [KM]

MAGNITUDE and DISTANCE of CONTROLLING EQ-e FOR DISTANCE > 100 KM
THE PURPOSE OF CALCULATIONS IS TO IDENTIFY A DISTANT, LARGE EVENT
THAT MAY CONTROL LOW-FREQUENCY CONTENT OF SPECTRUM

=====

CONTROLLING MAGNITUDE = 6.71
CONTROLLING DISTANCE = 160.28 [KM]

Appendix F

Development of Time Histories for the TSF TM (by Dr A. Cichowicz)

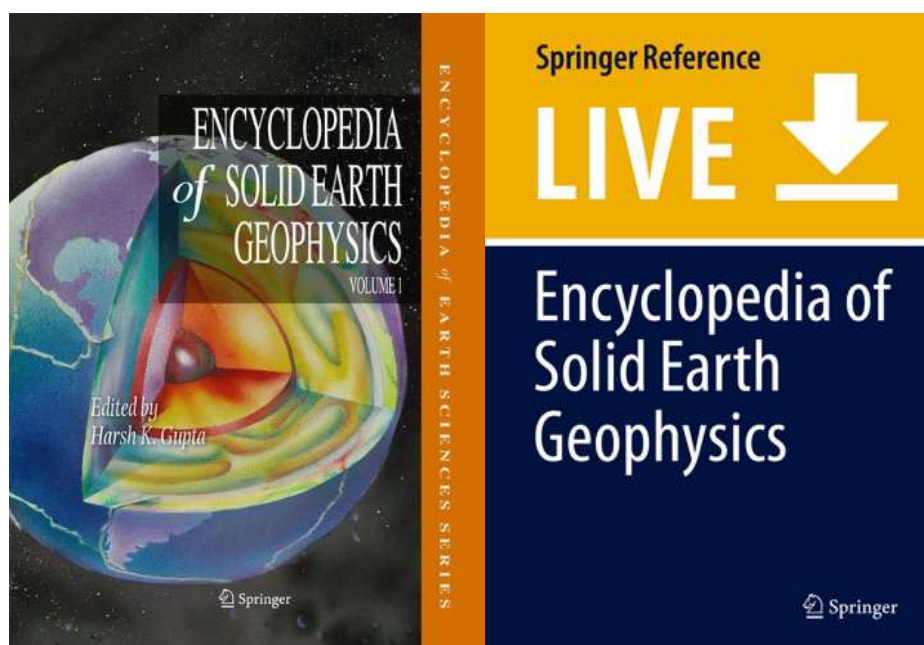
(see attached file)

Appendix G

“Introduction to Probabilistic Seismic Hazard Analysis”

An extended version of contribution by A. Kijko, Encyclopaedia of Solid Earth Geophysics, 2nd Edition, Harsh Gupta (Ed.), Springer, 2020

Rev 2021-07-21



Seismic Hazard

Encyclopaedia of Solid Earth Geophysics
2nd Edition, Harsh Gupta (Ed.), Springer, 2020
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SEISMIC HAZARD

Definitions

Seismic hazard. Any physical phenomenon associated with an earthquake (e.g. ground motion, ground failure, liquefaction, and tsunami) and its effects on land, man-made structures, and socioeconomic systems have the potential to produce a loss. These terms are also used without regard to a loss to indicate the probable level of ground shaking occurring at a given point within a certain period of time.

Seismic hazard analysis. Quantification of the ground motion expected at a particular site or selection of sites.

Deterministic seismic hazard analysis. Quantification of a single or relatively small number of individual earthquake scenarios.

Probabilistic seismic hazard analysis. Quantification of the rate (or probability) that a specified level of ground motion will be exceeded at least once at a site or in a region given all possible earthquakes during the specified exposure time.

Ground motion model (also known as ground motion prediction equation). A mathematical equation that provides a means of predicting the level of ground shaking and its associated uncertainty at any given site or location, based on earthquake magnitude, source-to-site distance, local soil conditions, and focal mechanism.

1. INTRODUCTION

Estimating the expected ground motion at a particular site is crucial in designing vital structures, such as nuclear power plants, bridges, dams, and ordinary structures, such as houses and commercial buildings. The assessment of future earthquake ground motion parameters is called seismic hazard assessment or seismic hazard analysis. Seismologists and earthquake engineers distinguish between seismic hazard and seismic risk assessments, although the two phrases have the same meaning in everyday usage. Seismic hazard is used to characterise the severity of the ground motion at a site regardless of the consequences. In contrast, risk refers exclusively to the results to humans and infrastructure from the hazard occurrence. Therefore, even a strong earthquake could have negligible risk potential if it occurred in sparsely populated and undeveloped areas. In contrast, a relatively weak seismic event in a highly developed and densely populated location poses a high risk owing to the possible loss of life and extensive infrastructure damage.

Seismic hazard analysis can be performed *deterministically* when a particular earthquake scenario is considered or *probabilistically* when the likelihood or frequency of specified earthquake size and location is evaluated.

The process of scenario-based *deterministic* seismic hazard analysis (DSHA) involves an initial assessment of the maximum possible earthquake magnitude m_{max} for each of the seismic sources, such as active faults or seismic source zones (SSHAC, 1997; 2007; Campbell, 2005). A maximum earthquake magnitude for a particular seismic source is often referred to as the maximum credible earthquake (MCE). An area with a radius of up to 450 km around the site of interest can be investigated. Assuming that each of these earthquakes will occur at the minimum possible distance from the site, the ground motion is calculated using appropriate attenuation equations, known as the ground motion model (GMM). However, this straightforward and intuitive procedure is overshadowed by the complexity and uncertainty in selecting the appropriate earthquake scenario. This creates the need for an alternative, *probabilistic* methodology that is free from choosing an earthquake occurrence scenario. Probabilistic seismic hazard analysis (PSHA) quantifies the rate (or probability) of exceeding various ground motion levels at a site (or a region) from all earthquakes of all possible magnitudes and all significant distances from the site/sites of interest (Field, 1995; Thenhaus and Campbell, 2003; McGuire, 2004). Deterministic earthquake scenarios, therefore, are special cases of the probabilistic approach. Depending on the project's scope, DSHA and PSHA could be complementary, i.e. providing additional insights into the seismic hazard (McGuire, 2004). The current study discusses only PSHA.

In principle, any natural hazard caused by seismic activity can be described and quantified by the formalism of PSHA. As the damage caused by ground shaking often results in the most significant economic losses, this presentation of the basic concepts of PSHA is illustrated by quantifying the likelihood of ground shaking generated by earthquakes.

The classical (Cornell, 1968; Cornell, 1971; Merz and Cornell, 1973; McGuire, 1976) procedure, often known as the Cornell-McGuire or Esteva-Cornell procedure for PSHA, includes four steps (Reiter, 1990; Kramer, 1996) (Figure 1).

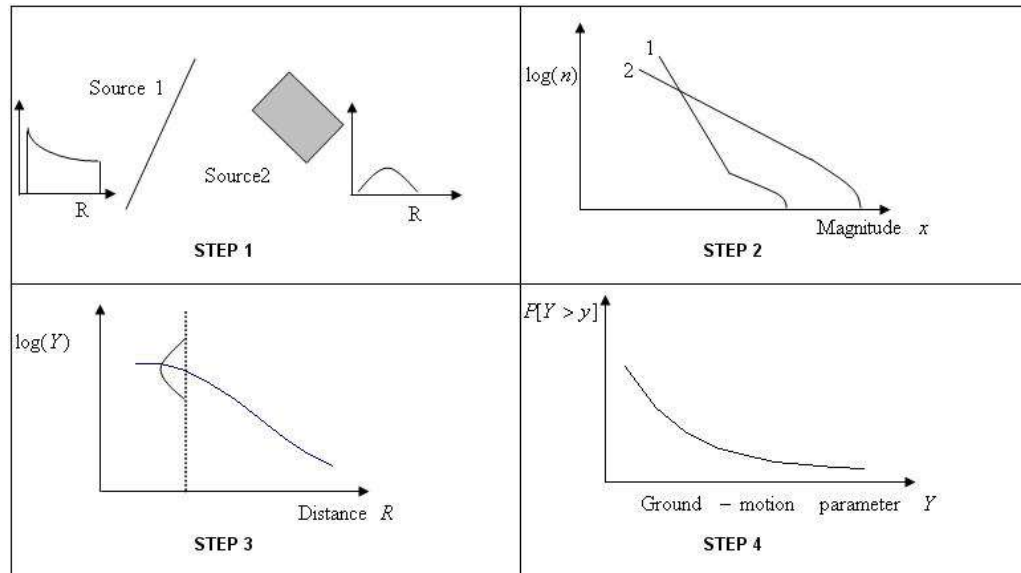


Figure 1. Four steps of PSHA (modified from Reiter, 1990).

Step 1. The first step of PSHA is to identify and parameterise the *seismic sources* (also known as *source zones*, *seismogenic sources*, or *seismic zones*) that can affect the site of interest. These can be represented as area, fault, or point sources. Area sources are often used when a specific fault cannot be identified. In classic PSHA, uniform distribution of seismicity is assigned to each earthquake source, implying that earthquakes are equally likely to occur at any point within the source zone. Combining earthquake occurrence distributions with the source geometry results in earthquakes' space, time, and magnitude distributions. Seismic source models can be interpreted as a list of potential scenarios, each with an associated magnitude, location, and seismic activity rate (Field, 1995).

Step 2. The next step is the specification of the temporal and magnitude distributions of seismicity for each source. The classical Cornell approach assumes that earthquake occurrence in time is random and follows the Poisson process. This implies that earthquake occurrences in time are statistically independent and that they occur at a constant rate. Statistical independence means that the occurrence of future earthquakes does not depend on the occurrence of past earthquakes. The model of earthquake magnitude recurrence used most often is the Gutenberg-Richter frequency-magnitude relation (Gutenberg and Richter, 1944)

$$\log(n) = a - bm, \quad (1)$$

where n is the number of earthquakes with a magnitude of m , and a and b are parameters. It is assumed that earthquake magnitude m belongs to the domain $< m_{min}, m_{max} >$, m_{min} is the level of completeness of the earthquake catalogue and m_{max} is the upper limit of the earthquake magnitude for a given seismic source. Parameter a is the measure of the level of seismicity, whereas parameter b describes the ratio between the number of small and large events. The Gutenberg-Richter is either a cumulative relationship, if n is the number of events with magnitude equal or larger than m or density law, i.e. n is the number of earthquakes in a specific, small magnitude interval around m . Under the above assumptions, the seismicity of each seismic source is described by four parameters, i.e. the (annual) rate of seismicity λ , which is equal to the parameter of the Poisson distribution, the lower and upper limits of earthquake magnitude m_{min} and m_{max} and the b -value of the Gutenberg-Richter relation.

Step 3. The parameters of interest in PSHA include peak ground acceleration, peak ground velocity, peak ground displacement, spectral acceleration, macroseismic intensity, strong ground motion duration, and the like. Most ground motion models available today are empirical and depend on the earthquake magnitude, source-to-site distance, type of faulting, and local site conditions (Douglas, 2011). Therefore, the third step, i.e. choosing an appropriate ground motion model, is crucial, as, quite often, it is the largest contributor to the uncertainty in the estimated PSHA (Cotton *et al.*, 2006).

Step 4. In the fourth step, the ultimate result of PSHA is calculated in terms of a *seismic hazard curve*, i.e. the annual probability of exceeding a specified ground motion parameter at least once. An alternative definition of the hazard curve is the frequency of exceedance vs ground motion amplitude (McGuire, 2004). This calculation integrates the uncertainties in the earthquake location, earthquake magnitude, and ground motion model into the probability that the ground motion parameter of interest will be exceeded at the specified site during the specified time interval.

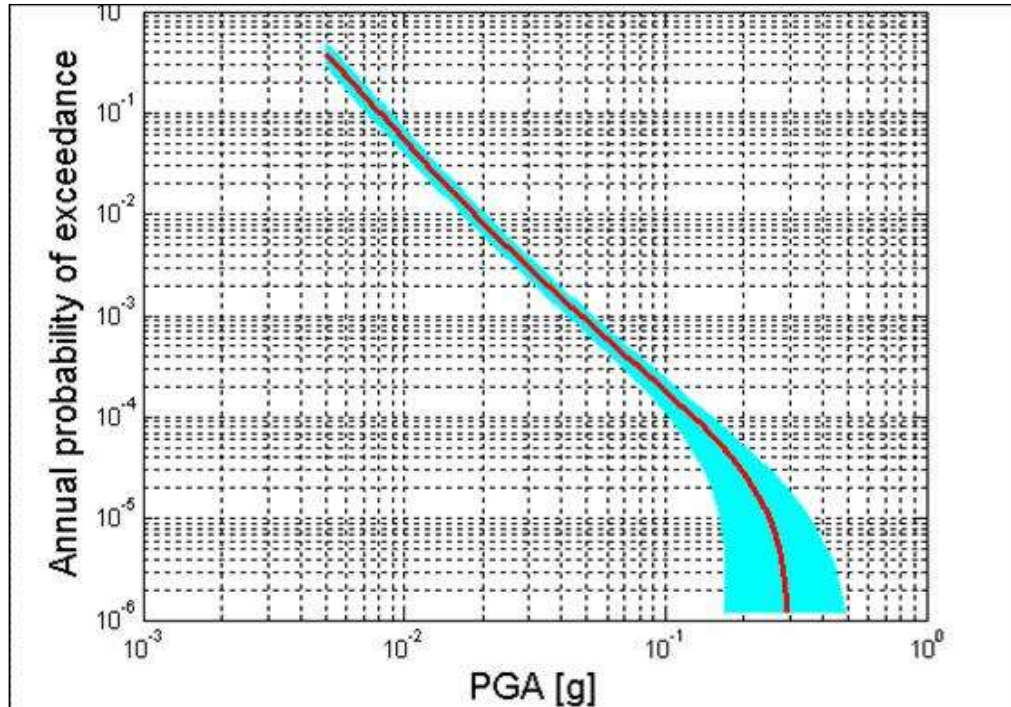


Figure 2. Example of a peak ground acceleration (PGA) seismic hazard curve and its confidence intervals.

The following section provides the mathematical framework of the classic PSHA procedure, including its deaggregation. The most common modifications of the procedure will be discussed in Section 3.

2. CORNELL PSHA METHODOLOGY

The computation of a seismic hazard curve is relatively simple (Kramer, 1996). Let us assume that seismic hazard is described by ground motion parameter Y . The probability of exceeding a specified value y , $P[Y \geq y]$, is calculated for an earthquake of particular magnitude located at a possible source and then multiplied by the probability that that specific earthquake will occur. The computations are repeated and summed for the entire range of possible magnitudes and earthquake locations. The resulting probability $P[Y \geq y]$ is calculated by utilising the Total Probability Theorem (Benjamin and Cornell, 1970), which is:

$$P[Y \geq y] = \sum P[Y \geq y|E_i] \cdot P[E_i] \quad (2)$$

where

$$P[Y \geq y|E_i] = \int \cdots \int P[Y \geq y|x_1, x_2, x_3 \cdots] \times f_i(x_1)f_i(x_2|x_1)f_i(x_3|x_1, x_2) \cdots dx_3 dx_2 dx_1, \quad (3)$$

$P[Y \geq y|E_i]$ denotes the probability of ground motion parameter $Y \geq y$ at the site of interest when an earthquake occurs within seismic source i . The variables x_i ($i = 1, 2, \dots$) are uncertainty parameters that influence Y . In the classic approach (Cornell, 1968) and later extended to accommodate ground motion uncertainty (Cornell, 1971), ground motion parameters are earthquake magnitude M and earthquake distance R . Functions $f(\cdot)$ are probability density functions (PDFs) of parameters x_i . Assuming that $x_1 \equiv M$ and $x_2 \equiv R$, the probability of exceedance (3) takes the form:

$$P[Y \geq y|E_i] = \int_{m_0}^{m_{max}} \int_{R|M} P[Y \geq y|m, r] f_M(m) f_{R|M}(r|m) dr dm, \quad (4)$$

where $P[Y \geq y|m, r]$ denotes the conditional probability that the chosen ground motion level y is exceeded for a given magnitude and distance; $f_M(m)$ is the probability density function (PDF) of earthquake magnitude and $f_{R|M}(r|m)$ is the conditional PDF of the distance from the earthquake for a given magnitude. The $f_{R|M}(r|m)$ arises in specific instances, such as, e.g. a fault rupture represents a seismic source. As the earthquake magnitude depends on the fault rupture length, the distance to the fracture and the resulting magnitude are correlated. In equation (4), the minimum magnitude m_0 is chosen based on the minimum magnitude that will cause damage or loss. In most PSHAs, the m_0 is set at values from about 4.0 to 5.0 since magnitudes smaller than that seldom cause significant damage (Kramer 1996; McGuire, 2004; Bommer and Crowley, 2017).

The standard choice for the probability $P[Y \geq y|m, r]$ is a normal, complementary, cumulative distribution function (CDF), based on the assumption that the ground motion parameter y is a log-normal random variable, $\ln(y) = g(m, r) + \varepsilon$, where ε is a random error. The mean value of $\ln(y)$ and its standard deviation are known and are defined as $\overline{\ln(y)}$ and $\sigma_{\ln(y)}$, respectively. In most engineering applications of PSHA, it is assumed that earthquake magnitudes follow the Gutenberg–Richter relation (1), which implies that $f_M(m)$ is a negative exponential distribution, shifted from zero to level of completeness m_{min} , and truncated from the top by m_{max}

$$f_M(m) = \frac{\beta \exp[-\beta(m-m_{min})]}{1 - \exp[-\beta(m_{max}-m_{min})]}. \quad (5)$$

In equation (5), $\beta = b \ln(10)$ where b is the parameter of the Gutenberg–Richter frequency-magnitude relation (1). It should be noted that the truncation of the classic Gutenberg–Richter frequency-magnitude relation is obligatory to ensure that the seismic energy released by the seismogenic process is finite.

If n_s seismic sources $\{E_i, i = 1, \dots, n_s\}$ can be distinguished in the vicinity of the relevant site, each with an annual average rate of earthquake occurrence λ_i , the total average annual rate of events with a site ground motion level y or more takes the form

$$\lambda(y) = \sum_{i=1}^{n_s} \lambda_i P[Y \geq y | E_i], \quad (6)$$

After assuming that in every seismic source earthquake occurrences in time follow a Poissonian distribution, the probability that y , a specified level of ground motion at a given site, will be exceeded at least once within any time interval t is

$$P[Y > y; t] = 1 - \exp[-\lambda(y)t]. \quad (7)$$

For $t = 1$ year, the plot $P[Y > y; t]$ vs ground motion parameter y is the *hazard curve* — the ultimate product of PSHA (Figure 2). For small probabilities, less than 0.05,

$$P[Y > y; t = 1] = 1 - \exp[-\lambda] \cong 1 - \left(1 - \lambda + \frac{1}{2}\lambda^2 - \dots\right) \cong \lambda, \quad (8)$$

which means that the probability (7) is approximately equal to $\lambda(y)$. This shows that PSHA can be characterised interchangeably by the annual probability (7) or by the seismicity rate (6). Often, practitioners prefer to describe seismic hazard in terms of frequency rather than probability. Frequencies have a clear physical meaning, and, following equation (6), they are additive. Therefore, frequencies facilitate assessing the individual hazard contribution from each seismic source/area and support the optimal design decision and choice of alternative sites for structure location.

Cornell's procedure for PSHA is based on the assumption that the earthquakes in the catalogue are independent events. The presence of clusters of seismicity, or the presence of foreshocks and aftershocks, violates this assumption. Therefore, before the computation of PSHA, these dependent events are removed from the catalogue. However, eliminating dependent events is one of the most controversial practices in the current PSHA. Most of the procedures used for such removal are based on empirical, space-time-magnitude distributions (e.g. Molchan and Dmitrieva, 1992; Teng and Baker, 2019 and references therein).

2.1. Estimation of Seismic Source Parameters

Following the classic Cornell PSHA procedure, each seismic source is described by four parameters:

- level of completeness of the seismic data, m_{min}
- the annual rate of seismic activity λ , corresponding to the magnitude m_{min}
- b -value of the Gutenberg-Richter frequency-magnitude relation (1)
- the upper limit of earthquake magnitude m_{max}

2.1.1. Estimation of m_{min} . The level of completeness of the seismic event catalogue, m_{min} can be estimated in at least two different ways (Schorlemmer and Woessner, 2008).

The first approach is based on information provided by the seismic event catalogue, where m_{min} is defined by the deviation point from an empirical or assumed earthquake magnitude distribution model. In most instances, the model is based on the Gutenberg-Richter relation (1). The first procedure in this category was probably proposed by Stepp (1972). More recent techniques of the same type were developed by, e.g. Weimer and Wyss (2000) and Amorese (2007). Occasionally, m_{min} is estimated from a comparison of the day-to-night ratio of events (Rydelek and Sacks, 1989). Despite being used widely, this method of evaluating m_{min} , based on information provided entirely by the seismic event catalogue, has several weak points. By definition, the estimated levels of m_{min} represent only the average values over space and time. However, most procedures in this category require the specification of a model of earthquake occurrence, such as a Poissonian distribution in time and the Gutenberg-Richter frequency-magnitude relation.

The second approach used for the estimation of the m_{min} utilises information on seismic stations' detection capabilities and signal-to-noise ratio (e.g. Albarello *et al.*, 2001; Schorlemmer and Woessner, 2008). These procedures are free from assumptions that seismic events are statistically independent and form a stationary process. The choice of the most appropriate method for estimating m_{min} depends on several factors, such as knowledge of the history and development of the seismic network, data collection, and processing. A review of recent attempts and approaches to assessing the magnitude of completeness for earthquake catalogues is provided e.g. by Mignan and Woessner (2012), Mignan (2012), and Godano (2017).

2.1.2. Estimation of the rate of seismic activity λ and the b -value of Gutenberg-Richter. The accepted approach to estimating the seismic source recurrence parameters λ and b is the maximum likelihood procedure (Weichert, 1980; Kijko and Sellevoll, 1989; 1992; Kijko and Smit, 2012; McGuire, 2004). If successive earthquakes are independent in time, the number of earthquakes with a magnitude equal to or exceeding a level of completeness m_{min} follows the Poisson distribution, with the parameter equal to the annual rate of seismic activity λ . The maximum likelihood estimator of λ is equal to n/t , where n is the number of events within the time interval t (Benjamin and Cornell, 1970).

For specified m_{max} , the maximum likelihood estimator of the b -value of the Gutenberg-Richter equation can be obtained from the recursive solution of the equation

$$1/\beta = \bar{m} - m_{min} + \frac{(m_{max} - m_{min}) \cdot \exp [(-\beta(m_{max} - m_{min}))]}{1 - \exp [(-\beta(m_{max} - m_{min}))]}, \quad (9)$$

where $\bar{m}$ is the sample mean of earthquake magnitude (Page, 1968). If the range of earthquake magnitudes $< m_{max} - m_{min} >$ exceeds two magnitude units, the solution of equation (9) can be approximated by the well-known Aki-Utsu estimator (Aki, 1965; Utsu, 1965)

$$\beta = 1/(\bar{m} - m_{min}) \quad (10)$$

In most instances, estimating λ and the b -value by the above simple formulas cannot be performed owing to the incompleteness of seismic event catalogues. The most general seismic event catalogue contains three types of data: prehistoric (palaeo-) events, the incomplete most significant historical events that occurred over a few hundred years, and instrumental data recorded during the last 100 years. Often, the completeness of instrumental data varies with time (Figure 3).

The optimal procedure to apply such type of information is the one that combines and utilises all three types of data. Besides, such a procedure should accommodate information of highly uncertain sizes (magnitudes/focal intensities) of prehistoric and historical earthquakes and take into consideration unavoidable uncertainties associated with the applied earthquake occurrence models (Smit *et al.*, 2019). The procedure developed by Smit *et al.* (2019) extends the well-known approach developed by Weichert (1980), which does not accommodate the presence of the macroseismic part of the catalogue.

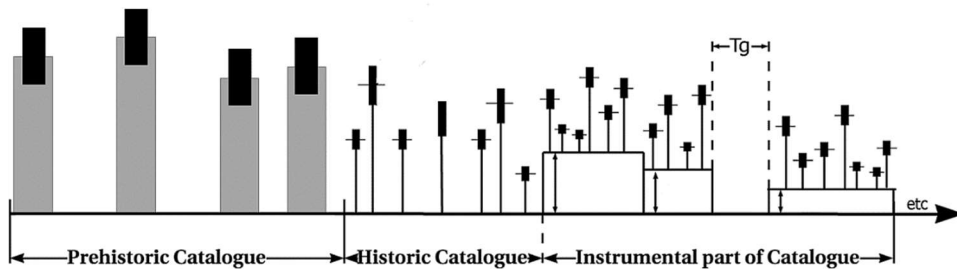


Figure 3. Illustration of a typical seismic event catalogue. Prehistoric data suffer from uncertainty related to the time of occurrence and the event size. The historic part of the catalogue contains only the largest events, the size of which is also highly uncertain. The third part of the catalogue includes complete data with different levels of completeness. T_g denotes gaps in the catalogue where records are absent or the seismic networks were out of operation.

2.1.3. Estimation of m_{max} . The maximum magnitude m_{max} is defined as the upper limit of magnitude for a given seismic source. The magnitude of the largest possible earthquake or maximum credible earthquake is often synonymous with the upper limit of earthquake magnitude. This definition of maximum magnitude

is also used by earthquake engineers (EERI Committee, 1984), and complies with the meaning of this parameter, as used by, e.g. the Working Group on California Earthquake Probabilities (WGCEP, 1995; 2008), Stein and Hanks (1998), and Field *et al.* (1999).

This terminology assumes a sharp cut-off earthquake magnitude distribution at a maximum magnitude m_{max} . It should be noted that an alternative, "soft", cut-off maximum earthquake magnitude is also used (Main and Burton, 1984; Kagan, 1991). The latter formalism is based on the assumption that the seismic moments of seismic events follow the Gamma distribution. One of the distribution parameters is called the maximum seismic moment, and the corresponding value of earthquake magnitude is called the "soft" maximum magnitude. Beyond the value of this maximum magnitude, the distribution decays much faster than the classic Gutenberg-Richter relation. However, this means that earthquakes with magnitudes larger than such a "soft" maximum magnitude are not excluded. Although this model has been used by Kagan (1994, 1997), Main (1996), Main *et al.* (1999), Sornette and Sornette (1999), the classic PSHA considers only models that have a sharp cut-off earthquake magnitude.

As a rule, m_{max} plays an essential role in PSHA, particularly in assessing long return periods (McGuire, 2004). At present, there is no generally accepted method for estimating m_{max} . It is estimated by combining two types of information (Wheeler, 2009): the area's seismicity and the seismic source's geological, geophysical, and structural information. Utilising the seismological information focuses on the maximum observed earthquake magnitude within a seismic source and the statistical analysis of the available seismic event catalogue. The geological and geophysical information is used to identify distinctive tectonic features, which control the value of m_{max} .

The current evaluations of m_{max} are divided between deterministic and probabilistic procedures, based on the nature of the tools applied (Wheeler, 2009).

Deterministic procedures. The deterministic approach is based on the empirical relationships between magnitude and various tectonic and fault parameters, such as the fault rupture length, rupture dimension, or slip rate. Relationships differ for different seismic areas and different types of faults (Wells and Coppersmith, 1994; Anderson *et al.*, 2017; Stirling and Anderson, 2018; references therein). Despite empirical relationships between magnitudes and fault rupture parameters being used extensively in PSHA (particularly for assessing the maximum possible magnitude generated by fault-type seismic sources), the weak point of the approach is its requirement to specify the highly uncertain length of the future rupture. An alternative approach to the determination of earthquake recurrence on singular faults with a segment-specific slip rate is provided by the so-called cascade model, where segment rupture is defined by the individual cascade-characteristic rupture dimension (Cramer *et al.*, 2000).

Another deterministic procedure with strong intuitive appeal is based on records of the most significant historic or prehistoric earthquakes (McCalpin, 2009). This approach is particularly applicable to areas of low seismicity, where large events have long return periods. In the absence of any tectonic and geological indications, it is assumed that the maximum possible earthquake magnitude is equal to the largest magnitude observed m_{max}^{obs} , plus an increment. Typically, the increment varies from $\frac{1}{4}$ to one magnitude unit. The procedure is used often for areas with several small seismic sources, each having its own m_{max}^{obs} (Wheeler, 2009).

Another deterministic procedure for m_{max} evaluation, particularly for area-type seismic sources, is based on the extrapolation of the Gutenberg-Richter frequency-magnitude relation. The best-known extrapolation procedures are probably those by Frohlich (1998) and the "probabilistic" extrapolation procedure applied by Nuttli (1981). The Nuttli approach is based on the truncated frequency-magnitude Gutenberg-Richter relation at the specified value of the annual probability of exceedance (e.g. 0.001). However, currently, the procedures based on extrapolation of the Gutenberg-Richter relation are used rather seldom, and they are replaced by techniques based on the physical parameters of fault rupture.

An alternative procedure for the estimation of m_{max} . Jin and Aki (1988) developed a remarkably linear relationship between the logarithm of coda Q_0 and the largest observed magnitude for earthquakes in China. It was found that if in a specific region Q_0 were 1 000, the largest observed magnitude in the past 400 years in that region would be approximately 4. In contrast, if Q_0 in another area were, say, 100, the magnitude would be around 8. Consequently, the authors postulate that if the largest earthquake magnitude observed during the last 400 years were the maximum possible magnitude m_{max} , the established relation would give a spatial mapping of m_{max} .

Ward (1997) developed a procedure for estimating m_{max} by simulating the earthquake rupture process. Although the computer simulations by Ward are impressive, it should be noted that his quantitative assessments are all based on the particular rupture model, postulated parameters of the strength, and assumed configuration of the faults.

The value of m_{max} can also be estimated from tectonic and geological features, such as the strain rate or the rate of seismic-moment release (Papastamatiou, 1980; Anderson and Luco, 1983; WGCEP, 1995, 2008; Stein and Hanks, 1998; Field *et al.*, 1999). Similar approaches have also been applied in evaluating the maximum possible magnitude of anthropogenic seismicity, particularly generated by fluid injection or deep mining (e.g. McGarr, 1984, 2014; Shapiro *et al.*, 2017). However, in most instances, the uncertainty of m_{max} as determined by any deterministic procedure is large, often reaching a value of one unit on the Richter scale.

Probabilistic procedures. The first probabilistic procedure for maximum regional magnitude was developed in the late 1960s and is based on the formalism of the extreme values of random variables. A breakthrough in the seismological applications of extreme-value statistics was made by Epstein and Lomnitz (1966). They proved that the Gumbel I distribution of extremes could be derived directly from the assumptions that a Poisson process describes the occurrence of seismic events in time and that magnitudes follow the Gutenberg-Richter frequency-magnitude relation. Statistical tools required for the estimation of the end-point of distribution functions (e.g. Tate, 1959; Robson and Whitlock, 1964; Cooke, 1979) have only been used recently for the estimation of the maximum earthquake magnitude (Dargahi-Noubary, 1983; Gupta and Deshpande, 1994; Pisarenko, 1991; Pisarenko *et al.*, 1996; Kijko, 2004 and references therein).

The statistical tools available for the estimation of m_{max} varies significantly. The selection of the most suitable procedure depends on the assumptions of the statistical distribution model and/or the information available on past seismicity. Some methods can be applied in extreme cases when no information is available on the nature of the earthquake magnitude distribution. Some of the procedures can also be used when the earthquake catalogue is incomplete, i.e. when only a few of the largest magnitudes are known. Two estimators are presented here. The first estimator is straightforward to apply, whereas the second requires more computational effort but provides more accurate results (Kijko and Graham, 1998). It is assumed that both the analytical form and the parameters of the distribution functions of earthquake magnitude are known. This knowledge could be uncertain but must be available.

Based on the distribution of the largest among n observations (Benjamin and Cornell, 1970), and on the condition that the largest observed magnitude m_{max}^{obs} is equal to the largest magnitude to be expected, the "simple" estimate of m_{max} is of the form (Pisarenko *et al.*, 1996)

$$\hat{m}_{max} = m_{max}^{obs} + \frac{1}{nf_M(m_{max}^{obs})}, \quad (11)$$

where $f_M(m_{max}^{obs})$ is the PDF of the earthquake magnitude. If applied to the Gutenberg-Richter frequency-magnitude relation with PDF (6), it takes the simple form

$$\hat{m}_{max} = m_{max}^{obs} + \frac{1 - \exp(-\beta(m_{max}^{obs} - m_{min}))}{n\beta \exp(-\beta(m_{max}^{obs} - m_{min}))}. \quad (12)$$

The approximate variance of the estimator (12) is of the form

$$VAR(\hat{m}_{max}) = \sigma_M^2 + \frac{1}{n^2} \left[\frac{1 - \exp(-\beta(m_{max}^{obs} - m_{min}))}{\beta \exp(-\beta(m_{max}^{obs} - m_{min}))} \right]^2, \quad (13)$$

where σ_M represents epistemic uncertainty and denotes the standard error in the determination of the largest observed magnitude m_{max}^{obs} . The second part of the variance represents the aleatory uncertainty of m_{max} .

The second ("advanced") procedure often used for the assessment of m_{max} is based on the formalism derived by Cooke (1979)

$$\hat{m}_{max} = m_{max}^{obs} + \int_{m_{min}}^{m_{max}^{obs}} [F_M(m)]^n dm, \quad (14)$$

where $F_M(m)$ denotes the CDF of random variable m . If applied to the Gutenberg-Richter frequency-magnitude relation (1), the respective CDF is (Page, 1968)

$$F_M(m) = \begin{cases} 0 & m < m_{min} \\ \frac{1 - \exp(-\beta(m - m_{min}))}{1 - \exp(-\beta(m_{max} - m_{min}))} & m_{min} \leq m \leq m_{max}, \\ 1 & m \geq m_{max} \end{cases} \quad (15)$$

and the m_{max} estimator (14) takes the form

$$\hat{m}_{max} = m_{max}^{obs} + \frac{E_1(n_2) - E_1(n_1)}{\beta e^{-n_2}}, \quad (16)$$

where $n_1 = \frac{n}{(1 - \exp[-\beta(m_{max}^{obs} - m_{min})])}$, $n_2 = n_1 \exp[-\beta(m_{max}^{obs} - m_{min})]$, and E_1 denotes an exponential integral function. The variance of the estimator (16) has two components, epistemic and aleatory, and is of the form

$$VAR(\hat{m}_{max}) = \sigma_M^2 + \left[\frac{E_1(n_2) - E_1(n_1)}{\beta \exp(-n_2)} \right]^2, \quad (17)$$

Both above estimators of m_{max} by their nature, are general and have several attractive properties. They apply to a broad range of magnitude distributions. They can also be used when the exact number of earthquakes n is not known. In such an instance, the number of earthquakes can be replaced by λt . Such a replacement is equivalent to the assumption that the number of earthquakes occurring in unit time conforms to a Poisson distribution with parameter λ , where t is the span of the seismic event catalogue. Furthermore, it is essential to note that both estimators provide a value of $\hat{m}_{max}$ that is never less than the largest magnitude already observed.

Alternative procedures, appropriate when the empirical magnitude distribution deviates from the Gutenberg-Richter relation, are discussed, e.g. by Kijko (2004) and Beirlant *et al.* (2017). These procedures

assume no specific form of the magnitude distribution, and they are applicable when only a few of the largest magnitudes are known (Kijko and Singh, 2011; Vermeulen and Kijko, 2017).

Despite these statistical procedures based on the mathematical formalism of extreme values providing powerful tools for the evaluation of m_{max} , they have a significant weak point; namely, most of the catalogue of tectonic origin events are too short, and the information is insufficient to provide reliable estimations of m_{max} . Therefore, the Bayesian extension of statistical procedures (Cornell, 1994) allows the inclusion of alternative and independent information, such as local geological conditions, tectonic environment, geophysical data, palaeo-seismicity, and similarity with another seismic area. Therefore they are superior to the procedures based only on the seismicity of the area. However, as the original procedure by Cornell (1994) has a mathematical flaw, it should be used with particular caution (Kijko, 2012).

Finally, the recent trend in m_{max} assessment must be mentioned. As most of the current techniques provide quite uncertain point estimates of m_{max} , several researchers suggest using instead the assessment of the confidence level of the (random) maximum magnitude in future time interval T . Such quantile assessments are more robust and stable and are known as T -maximum (Pisarenko and Rodkin, 2010), or m_T (Zöller and Holschneider, 2016). However, many engineering applications require knowledge of the point estimates of m_{max} . For this reason, in many engineering applications, the formalism of the quantile assessments T -maximum cannot be used.

2.2. Numerical Computation of PSHA

Except for several particular instances (Bender, 1984), the hazard curve (7) cannot be computed analytically. For the most realistic distributions, the integrations can only be evaluated numerically (i.e. Frankel *et al.*, 1996; Kramer, 1996; Wesson and Perkins, 2001). The common practice is to divide the possible ranges of magnitude and distance into n_M and n_R intervals. The average annual rate (4) is then estimated as

$$\lambda(Y > y) \cong \sum_{i=1}^{n_S} \sum_{j=1}^{n_M} \sum_{k=1}^{n_R} \lambda_i P[Y > y | m_j, r_k] f_{M_j}(m_j) f_{R_k}(r_k) \Delta m \Delta r, \quad (18)$$

where $m_j = m_{min} + (j - 0.5)(m_{max} - m_{min})/n_M$, $r_k = r_{min} + (k - 0.5)(r_{max} - r_{min})/n_R$, $\Delta m = (m_{max} - m_{min})/n_M$, and $\Delta r = (r_{max} - r_{min})/n_R$.

Applying the procedure to a grid of points will result in a map of PSHA, on which the contours of the expected ground motion parameter during the specified time interval can be mapped.

An example of applying the above formalism is shown in Figure 4.

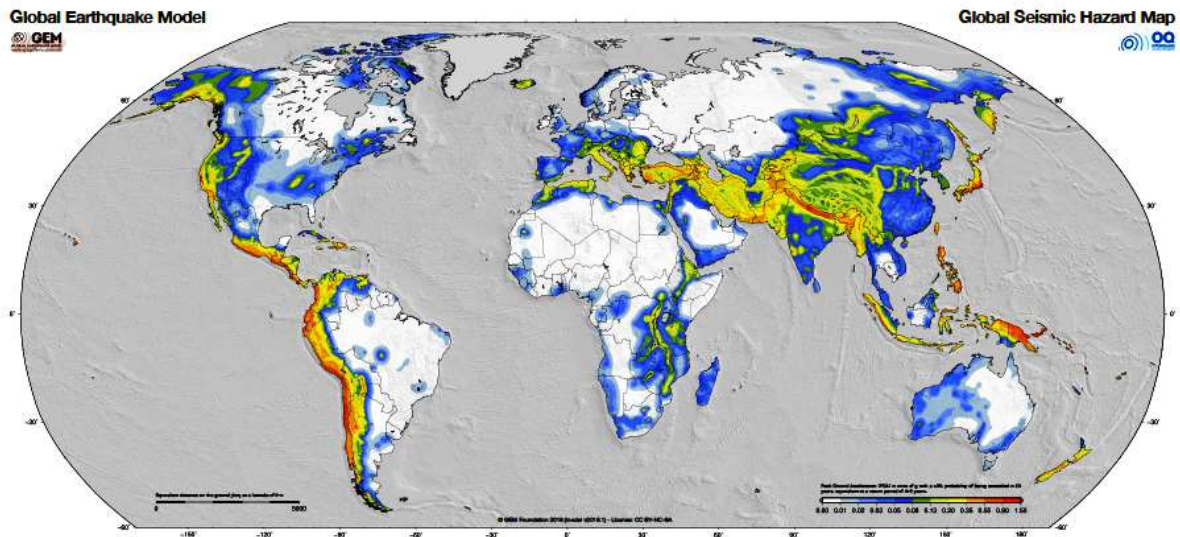


Figure 4. Example of the product of PSHA. Map of seismic hazard of the world. Peak ground acceleration is expected at 10% probability of exceedance at least once in 50 years. The Global Earthquake Model Project, <https://www.globalquakemodel.org>, (Pagani et al., 2018).

This figure shows the worldwide distribution of seismic hazard, expressed in terms of the PGA, with a 10% probability of being exceeded at least once in 50 years. The PGA was computed to reference shear wave velocity V_{s30} of 760–800 m/s. The maps were compiled by the Global Earthquake Model (GEM) project (Pagani et al., 2018).

2.3. Deaggregation of Seismic Hazard

By definition, the PSHA aggregates ground motion contributions from earthquake magnitudes and distances of significance to a site of engineering interest. It has to be noted that the PSHA results are not representative of a single earthquake. However, an integral part of the design procedure of any critical structure is analysing the most relevant earthquake acceleration time series, which are generated by earthquakes at specific magnitudes and distances. Such earthquakes are called "controlling earthquakes" and they are used to determine the shapes of the response spectral acceleration or PGA at the site.

Controlling earthquakes are characterised by mean magnitudes and distances derived from so-called deaggregation analysis (e.g. McGuire, 1995, 2004). During the deaggregation procedure, the results of PSHA are separated to determine the dominant magnitudes and the distances that contribute to the hazard curve at a specified (or reference) probability. Controlling earthquakes are calculated for different structural frequency vibrations, typically for the fundamental frequency of a structure. In the process of deaggregation,

the hazard for a reference probability of exceedance of specified ground motion is portioned into magnitude and distance bins. The relative contribution to the hazard for each bin is calculated. The most significant relative contribution bins identify earthquakes that contribute the most to the total seismic hazard.

3. MODIFICATION OF CORNELL PSHA PROCEDURE AND ALTERNATIVE MODELS

3.1. Source-Free PSHA Procedures

The concept of seismic sources is the core element of the Cornell-McGuire PSHA procedure. Seismic sources or specific faults often cannot be identified and mapped, and the causes of seismicity are not understood. In such instances, the delineation of seismic sources is highly subjective and is a matter of expert opinion. Besides, seismicity within the seismic sources is often not distributed uniformly, as is required by the classical Cornell procedure. The difficulties experienced in dealing with seismic sources have stimulated an alternative technique to PSHA that is free from the delineation of seismic sources.

One of the first attempts to develop an alternative to the Cornell procedure was made by Veneziano *et al.* (1984). This procedure does not require the specification of seismic sources, is non-parametric and, as input, requires only information about past seismicity. The empirical distribution of the specified seismic hazard parameter is calculated by using the observed earthquake magnitudes, epicentral distances, and assumed ground motion model. An annual rate of exceedance is obtained by normalising this distribution for the duration of the seismic event catalogue.

Another non-parametric PSHA procedure that is also source-free was developed by Woo (1996), and seismicity distributions are approximated by data-based kernel functions. Molina *et al.* (2001) compared the Cornell and kernel-based procedures and found that the former yields a lower hazard. Jackson and Kagan (1999) also used the kernel-based approach, where non-parametric earthquake forecasting is achieved by computing the annual rate of seismic activity. Again, the procedure is based exclusively on the seismic event catalogue.

By their nature, the non-parametric procedures function well in areas of high seismic activity and when the record of past seismicity is considered complete. However, the non-parametric approach has significant weak points. Its primary disadvantage is poor reliability in estimating small probabilities for areas of low seismicity. The procedure is not recommended for the area where the seismic event catalogues are highly incomplete. Also, in its present form, the method cannot use any additional geophysical or geological information to supplement the pure seismological data. Therefore, a procedure that accommodates the incompleteness of the seismic event catalogues and, at the same time, does not require the specification of seismic sources would be an ideal tool for analysing and assessing the seismic hazard.

Such a procedure, which can be classified as a *parametric-historic* procedure for PSHA (McGuire, 1993), has been used successfully in several parts of the world. Shepherd *et al.* (1993) used it for mapping the seismic hazard in El Salvador. Besides, the procedure has been applied in selected areas of the world by the Global Seismic Hazard Assessment Program (GSHAP, Giardini, 1999). The technique was used by Frankel *et al.* (1996, 2002) for seismic hazard mapping in the United States. In a series of papers, Frankel and his colleagues modified and substantially extended the original procedure. Their final approach is parametric and based on the assumption that earthquakes within a specified grid size are Poissonian in time and that the earthquake magnitudes follow the Gutenberg-Richter relation truncated from the top by the maximum possible earthquake magnitude m_{max} . In some instances, during the computation process of seismic hazard, the Gutenberg-Richter frequency-magnitude relation is extended by accounting for tectonic faults and characteristic earthquakes. A Gaussian-type kernel function smoothes the final maps of seismic hazard. The intuitive and straightforward parametric-historic approach by Frankel (1996, 2002) combines the best of the deductive and non-parametric historical procedures, and in many instances, it is free from the disadvantages characteristic for each of them. The rigorous mathematical foundations of the parametric-historic PSHA formalism were given by Kijko and Graham (1999).

Another approach to assessing seismic hazard is based on the Monte Carlo simulations of long-term seismic catalogues (Ebel and Kafka, 1999; Shumilina *et al.*, 2000; Assatourians and Atkinson, 2013). Despite this approach having several advantages and being easy to apply, its role in PSHA is highly underestimated. The Monte-Carlo-based procedure allows easy incorporation of alternative earthquake space-time-size occurrence models, such as Markovian, non-Poissonian, and non-Gutenberg-Richter frequency-magnitude relation. Also, it will enable the assessment of uncertainties associated with the input data, model parameters, and the applied models (Musson, 2000). The potential disadvantage of the Monte-Carlo-based procedure is the requirement for extensive computation power. However, this is not a real hindrance, given that computer platforms today are both fast and accurate.

3.2. Alternative Earthquake Recurrence Models

3.2.1. Time-dependent models

In addition to the classic assumption that earthquake occurrence in time follows a Poisson process, occasionally, alternative approaches are used. These procedures attempt to assess the temporal or spatio-temporal dependence of seismicity. Time-dependent earthquake occurrence models specify the distribution of the time to the next earthquake, where this distribution depends on the magnitude of the most recent earthquake. To incorporate the memory of past events, non-Poissonian distributions or Markov chains are applied. In this approach, the seismogenic zones that recently produced strong earthquakes become less hazardous than those that did not rupture in recent history.

Clearly, such models can result in a more realistic PSHA, but most of them are still only research tools and have not yet reached the level of development required by routine engineering applications. Excellent reviews of such procedures are presented by Anagnos and Kiremidjian (1988), Cornell and Winterstein (1988), and Cornell and Toro (1992). Other, more recent, reviews of this topic are, e.g. by Muir-Wood (1993), Boschi *et al.* (1996), and Polidoro (2014).

The time-dependent occurrence of large earthquakes on segments of active faults is discussed extensively by Rhoades *et al.* (1994), Ogata (1999), and by Faenza *et al.* (2007). Also, Kramer (1996) provides an overview of many aspects of non-Poissonian models. Several time-dependent models play an important role in PSHA. The best-known that have both firm physical and empirical bases are the two models by Shimazaki and Nakata (1980). These two earthquake occurrence models, namely a *time-predictable* and a *slip-predictable* model, are based on the correlation of seismic activity with earthquake-related coastal uplift in Japan.

The time-predictable model states that earthquakes occur when the accumulated stress on a fault reaches a critical level. However, the stress drops and magnitudes of subsequent earthquakes vary among seismic cycles. Therefore, assuming a constant fault-slip rate, the time to the next earthquake can be estimated from the slip of the previous quake. The slip-predictable model is based on the assumption that irrespective of the initial stress on the fault, an earthquake occurrence always causes a reduction in stress to the same level. Therefore, the fault-slip in the next earthquake can be estimated from the time since the previous earthquake (Shimazaki and Nakata, 1980; Scholz, 1990; Thenhaus and Campbell, 2003).

The second group of time-dependent models is based less firmly on the physical considerations of earthquake occurrence. Ogata (1999), after Utsu (1984), considers five models, namely log-normal, Gamma, Weibull, doubly exponential, and exponential, which result in the stationary Poisson process. These models attempt to describe intervals between consecutive events by specified statistical distributions. After applying these models to several prehistoric (paleo)-earthquake data sets, Ogata (1999) concluded that none of the distributions was consistently the best and that the quality of the fit depended strongly on the data. From several attempts to describe time intervals between consecutive events using statistical distributions, at least two play a significant role in the current practice of PSHA, namely the log-normal (Nishenko and Buland, 1987) and the Brownian passage time (BPT) renewal model by Matthews *et al.* (2002).

Employing a log-normal model was justified by the discovery that normalised intervals between the consecutive large earthquakes in the Circum-Pacific region follow a log-normal distribution, with an almost constant standard deviation (Nishenko and Buland, 1987). The finite value of the intrinsic standard deviation is essential, as it controls the degree of aperiodicity in the occurrence of *characteristic*

earthquakes, making accurate earthquake prediction impossible (Scholz, 1990). Following this discovery, the log-normal model became a key component of time-dependent PSHA procedures (WGCEP, 2007).

More often applied nowadays than the log-normal model is the Brownian passage time (BPT) distribution, also known as the inverse Gaussian distribution (Matthews *et al.*, 2002). This model is described by two parameters, μ and σ , which, respectively, represent the mean time interval between the consecutive earthquakes and the standard deviation. The aperiodicity of earthquake occurrence, as described by the BPT model, is controlled by the variation coefficient $\alpha = \sigma/\mu$. For a small α , the aperiodicity of earthquake occurrence is small, and the shape of the distribution is almost symmetrical. For a large α , the shape of the distribution is similar to the log-normal model, i.e. skewed to the right and peaked at a smaller value than the mean. The straightforward control of aperiodicity of earthquake occurrence by parameter α makes the BPT model extremely attractive. It has been used to model earthquake occurrence in many parts of the world, including the WGCEP (2008).

Takahasi *et al.* (2004) introduced another type of renewal process describing time dependence between seismic events. Their model utilizes the Erlang distribution, i.e. the Gamma distribution with integer shape parameter (Johnson *et al.*, 1994). The model can be expressed in a single analytical form. The significant advantage of this model over the classic homogeneous Poisson model is that it provides the probability of the likelihood that more than one earthquake would occur in the specified time interval as a function of the time elapsed since the last event.

Several comparisons between time-dependent and time-independent earthquake occurrence models have been made (Cornell and Winterstein, 1986; Kramer, 1996; Peruzza *et al.*, 2008). They show that the simple, time-independent (Poissonian) model is suitable for most engineering applications. The exception to this rule is when the seismic hazard is dominated by a single seismic source with a significant component of characteristic earthquakes when the time interval from the occurrence of the last earthquake exceeds the mean time interval between consecutive events. However, in many instances, the information on strong seismic events provided by current databases is insufficient to distinguish between different models. Therefore, using non-Poissonian models is only justified if sufficient data are available. The time-dependent models can result in a more realistic PSHA, but many of them have not yet reached the level of development required by routine engineering applications.

3.2.2. Spatio-temporal models

Often, before the main shocks, a sequence of foreshocks and, after the main event, a series of aftershocks is observed. The fore- and aftershock sequences cannot be described by the homogenous Poisson process, as their rate depends on time, the magnitude of the main event, and its location. Some areas are notorious for the generation of earthquake swarms. Frequently, individual tectonic faults interact with each other, with such seismic activity leading to earthquakes being clustered in both time and space.

The best-known spatiotemporal model of earthquake occurrence is ETAS (Epidemic Type Aftershock Sequence), developed by Ogata (1988) and its mutations (Console *et al.*, 2007; Zhuang *et al.*, 2011). The core assumption of the ETAS model is that each earthquake, independently of its size, triggers aftershocks (offsprings). The probability distributions of location and magnitude of the triggered event are dependent on the size and location of the triggering event. The rate of aftershock occurrence decays with time according to an inverse power law known as the modified Omori law. The magnitudes of all earthquakes, including background events and their offsprings, are treated as independent random variables following the same probability distribution (Polidoro, 2014). An alternative spatial-temporal model is where each mainshock and its aftershocks are treated as spatially and temporally independent clusters (Boyd, 2012). However, the mathematical formulation does not have a closed-form, which restricts the usage of the model. An elegant, straightforward, and statistically consistent incorporation of foreshocks and aftershocks into standard PSHA is done by Iervolino *et al.* (2014). The proposed formalism provides a remedy to one of the most controversial current practices of PSHA, known as declustering (i.e. removal) of "dependent" events from the seismic event catalogue.

3.2.3. Alternative frequency-magnitude models

In the classical Cornell procedure, it is assumed that earthquake magnitudes follow the Gutenberg-Richter relation truncated from the top by a seismic source characteristic, the maximum possible earthquake magnitude m_{max} . The PDF of this distribution is given by equation (5).

In numerous instances, the Gutenberg-Richter relation describes magnitude distributions within seismic source zones sufficiently well. However, in some cases, it appears not to apply. In such cases, the earthquake magnitude distribution (5) must be modified. In some places, particularly in areas known for prehistoric (paleo)-earthquakes, seismic belts, and significant faults, the Gutenberg-Richter relation underestimates the occurrence of large magnitude events. The continuity of the distribution (5) breaks down. The distribution is adequate only for events up to a magnitude of 6.0–7.0. Stronger events tend to occur within a relatively narrow range of magnitudes (7.5–8.0) but with a frequency higher than predicted by the Gutenberg-Richter relation (5). These events are known as *characteristic earthquakes* (Youngs and Coppersmith, 1985, Figure 5). However, it must be noted that the characteristic earthquakes model is not free from controversy. Parsons and Geist (2009) and Kagan and Geller (2012) believe that the Gutenberg-Richter frequency-magnitude distribution satisfies the earthquake occurrence characteristics equally well, as does the earthquake characteristic model. The discrepancy between the two models would disappear if a sufficiently long record of seismicity were available.

Several alternative frequency-magnitude relations are used in PSHA. The best known is probably the relation by Merz and Cornell (1973), which accounts for a possible curvature in the log-frequency-

magnitude relation (1) by the inclusion of a quadratic term of magnitude. Departure from the linearity of the magnitude distribution (1) is built into the model by Lomnitz-Adler and Lomnitz (1979).

The model is based on fundamental physical considerations of strain accumulation and release at plate boundaries. Despite that m_{max} is absent in the model, it provides estimates of the occurrence of large events that are more realistic than are those predicted by the Gutenberg-Richter relation (1).

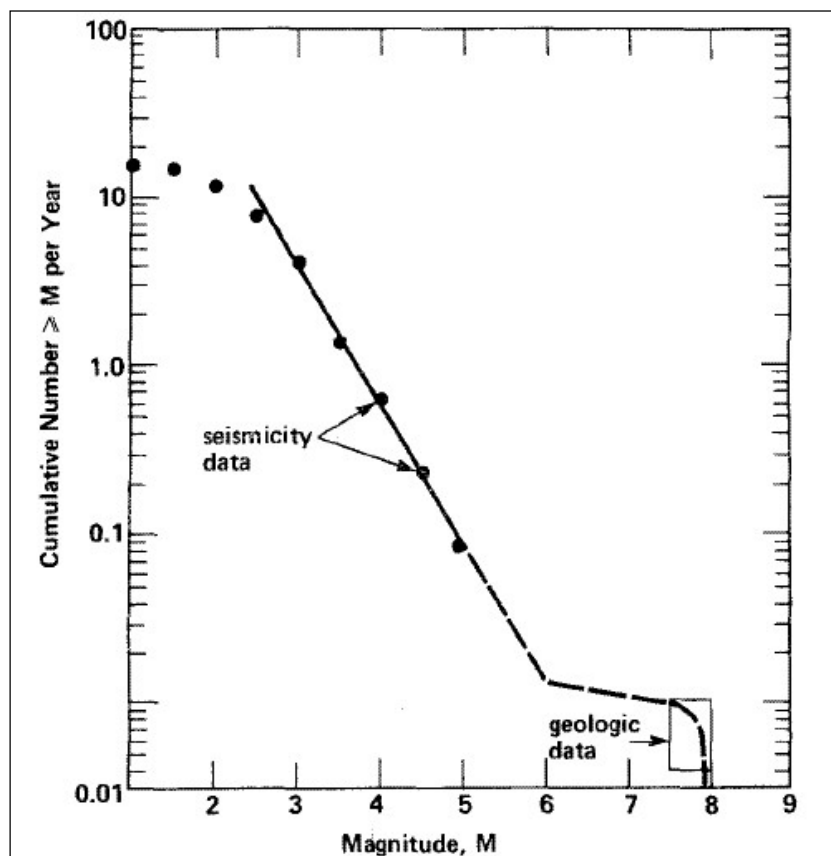


Figure 5. Gutenberg-Richter characteristic earthquake magnitude distribution. The model combines the Gutenberg-Richter frequency-magnitude relation with a uniform distribution of characteristic earthquakes. The model predicts higher rates of exceedance at magnitudes near the characteristic earthquake magnitude. (After Youngs and Coppersmith, 1985).

When a seismic hazard is caused by seismicity of anthropogenic origin, an alternative distribution to the Gutenberg-Richter model (1) is often required. For example, the magnitude distributions of tremors generated by mining activity are multimodal and change their shape in time (Gibowicz and Kijko, 1994). Often, the only possible method that could lead to a satisfactory PSHA for mining or fracking areas is the

replacement of the analytical, parametric frequency-magnitude distribution by its model-free, non-parametric counterpart (Kijko *et al.*, 2001).

Two additional modifications of the recurrence models are introduced regularly; one is when earthquake magnitudes are uncertain and the other when the seismic occurrence process comprises temporal trends, cycles, short-term oscillations, and purely random fluctuations. The effect of error in earthquake magnitude determination (particularly significant for historical events) can be minimised by the simple procedure of correcting the earthquake magnitudes in a catalogue (e.g. Rhoades, 1996; McGuire, 2004). The modelling of random fluctuations in earthquake occurrence is often done by introducing compound (mixed) distributions, in which the parameters of earthquake recurrence models are treated as random variables (Campbell, 1982; Kijko *et al.*, 2016).

4. GROUND MOTION MODELS

The seismic hazard assessment at a site requires knowledge of the prediction equation of the particular strong-motion parameter as a function of distance, earthquake magnitude, faulting mechanism and, often, the local site condition. Such an equation is known as the ground motion prediction equation (GMPE) or ground motion model (GMM). The most common form of the prediction equation is

$$\ln(y) = \text{const} + g_1(m) + g_2(r) + g_3(\text{faulting system}) + g_4(\text{soil}) + \varepsilon. \quad (19)$$

In equation (19), y is the amplitude of the designated ground motion parameter. This parameter can be the peak ground acceleration (PGA), spectral acceleration, displacement, the Modified Mercalli (MM) Intensity, seismic record duration, and the like. The functions $g_1(m)$ and $g_2(r)$ depends on earthquake magnitude and the shortest distance from the site to the earthquake source. The function $g_3(\cdot)$ represents the faulting mechanism; $g_4(\cdot)$ describes the site effect, and ε is the random error with zero mean and standard deviation $\sigma_{\ln(y)}$. Assuming that $\ln(y)$ has a normal distribution, regression of (19) provides the mean value of $\ln(y)$, the exponent of which corresponds to the median value of y , $\bar{y}$ (Benjamin and Cornell, 1970). As the log-normal distribution is skewed positively, the mean value of y , $\bar{y}$, exceeds the median value $\bar{y}$ by a factor of $\exp(-0.5\sigma_{\ln(y)}^2)$. This indicates that the seismic hazard for a particular site is higher when expressed in terms of $\bar{y}$ than the hazard for the same site expressed in terms of $\bar{y}$.

In general, the GMMs are built in three distinct ways: (a) empirically, by application of observed ground motion characteristics; (b) by stochastic methods, which are based on the physical properties of the earthquake source and seismic wave travel path; and (c) by the hybrid empirical method.

The empirical methods are applied in areas of high seismicity, in the presence of dense instrumental networks, where a significant number of ground motion records are available. An example of such empirical GMMs are those developed as part of the Next Generation Attenuation Phase 2 (NGA-West2) project (Bozorgnia *et al.*, 2014; Gregor *et al.*, 2014) managed by the Pacific Earthquake Engineering Research Center (PEER). The stochastic methods are used mainly in areas of low seismicity, where only a limited number of observations is available (e.g. Boore, 2003). Like the stochastic method, the hybrid empirical is used to develop GMM for areas with little ground motion records; however, the technique used is different. In the hybrid empirical method, the ground motion in the target area is predicted from empirical GMM in the host region with the help of adjustment factors between the two regions. These factors consider the differences in earthquake source, wave propagation, and site response characteristics between the two regions (Pezeshk *et al.*, 2018). This approach has been used virtually in all active seismic areas of the world. A comprehensive list of the application of the hybrid empirical technique is provided by Campbell (2014).

The ground motion models remain an essential component of PSHA, as its uncertainty is a major contributor to the uncertainty of the PSHA (Bender, 1984; SSHAC, 1997). An excellent discussion of all aspects of the estimation, application, and role of GMMs in PSHA is provided by McGuire (2004).

5. UNCERTAINTIES IN PSHA

Contemporary PSHA distinguishes between two types of uncertainty, namely aleatory and epistemic.

5.1. Aleatory Uncertainty.

Aleatory uncertainty derives from the randomness in nature and is inherent to any random phenomenon. It represents unique details of an earthquake, such as its source, path, and site, and cannot be known before the earthquake's occurrence. It is sometimes referred to as "randomness", "stochastic uncertainty", or "inherent variability" (SSHAC 1997). Typical examples of aleatory uncertainties are the number of future earthquakes in a specified area, parameters of future earthquakes as origin times, epicentre coordinates, depths and their magnitudes, size of the fault rupture, and associated stress drop. Additionally, the uncertainty of ground motion parameters, such as PGA, displacement, or seismic record duration at the given site is aleatory by their nature. The aleatory uncertainties are characteristic of the current model and cannot be reduced by incorporating additional data. Aleatory uncertainties are included in the PSHA through integration over these uncertainties and are represented by the hazard curve.

5.2. Epistemic Uncertainty

Epistemic uncertainty is the uncertainty deriving from insufficient knowledge about the model or its parameters. In the past, epistemic uncertainty was known as statistical or professional uncertainty (McGuire 2004). Examples of epistemic uncertainties are the boundaries of seismic sources, distributions of seismic source parameters (e.g. annual rate of seismic activity λ , b -value, and m_{max}), or median value of the ground

motion parameter, given the source properties. The model (in the broad sense of its meaning, as, e.g. a particular statistical distribution) can be inexact and, therefore, predicts values that differ from the observed values by a fixed but unknown amount. When uncertainties are associated with the numerical values of the parameters, they are also epistemic by nature. Epistemic uncertainty can be reduced by incorporating additional information or data. The epistemic distributions of model parameters can be updated using Bayes' formalism. Epistemic uncertainties are included in the PSHA through the use of alternative hypotheses — different sets of parameters with different numerical values, different models, or through a *logic tree*.

The primary benefit of the separation of uncertainties into aleatory and epistemic is potential guidance in preparing input for PSHA and interpreting the results. However, the division of uncertainties into aleatory and epistemic is model dependent and, to a large extent, arbitrary, indefinite, and often confusing (SSHAC, 1997; 2007; Toro *et al.*, 1997; Anderson *et al.*, 2000).

6. LOGIC TREE

The mathematical formalism of PSHA computation (equations (7) and (9)) integrates over all the random (aleatory) uncertainties of a particular seismic hazard model. In many instances, however, because of the lack of information on the factors controlling the mechanism of the earthquake generation and wave propagation processes, the best choices for the elements of the seismic hazard model are not clear. The uncertainty could originate from the selection of alternative seismic sources and earthquake generation mechanisms, rupture type and directivity, competitive earthquake recurrence models and their parameters, the particular site and its topography, the settings of the recording instruments, and the chosen ground motion model. The standard approach to the explicit treatment of alternative hypotheses, models, and parameters uses the *logic tree* (Coppersmith and Youngs, 1989). Although not without controversy, the logic tree formalism provides a convenient tool for the quantitative treatment of any alternatives. Each node of the logic tree (Figure 6) represents uncertain assumptions, models, or parameters, and the branches extending from each node are the discrete uncertainty alternatives (McGuire, 2004).

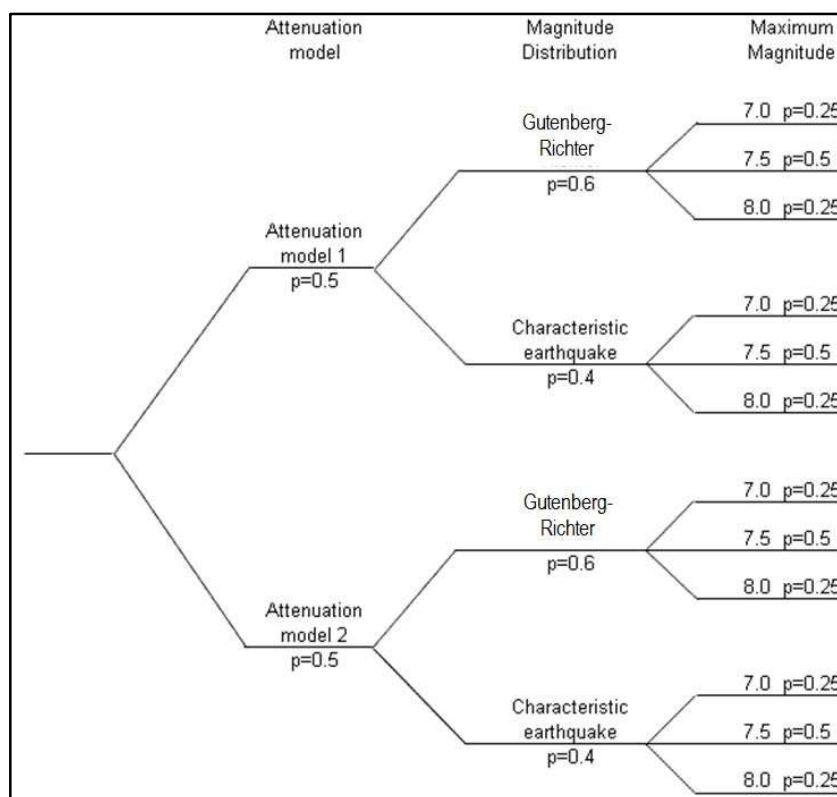


Figure 6. Example of a logic tree. The alternative hypothesis accounts for uncertainty in the ground motion attenuation relation, magnitude distribution model, and the assigned maximum magnitude m_{max} .

In logic tree analysis, each branch is weighted according to its probability of being correct. As a result, each end branch represents a hazard curve with an assigned weight, where the sum of weights of all the hazard curves is equal to 1.0. The derived hazard curves are used to compute the final (e.g. mean) hazard curve and its confidence intervals.

These alternative hypotheses account for uncertainty in the ground motion attenuation model, the magnitude distribution model, and the assigned maximum magnitude m_{max} . Figure 6 shows an example of a logic tree (Kramer, 1996).

It must be noted that the choice of the structure of the logic tree and its respective weights is critical and, often, extremely subjective. Delavaud *et al.* (2012) developed a strategy to select the best GMM that allows assessing the weights of individual GMMs in a way that is more objective. In this strategy, two independent

sources of information are combined, namely expert opinion and empirical data. The applied technique can be extended and used to assess the adequate GMMs and the weights of other logic tree branches.

7. CONTROVERSY

Although the PSHA procedure was formulated more than fifty years ago, controversy still surrounds it. Among others, the disagreements are related to the (1) requirement for declustering of the seismic event catalogue, (2) absence of the upper limit of ground motion parameters, (3) division of uncertainties between aleatory and epistemic, (4) correctness of the characteristic earthquakes model, and (5) accounting for epistemic uncertainty by application of the logic tree formalism.

De-clustering, i.e. the removal of earthquakes that occur in clusters, such as foreshocks, aftershocks, and swarms, from the seismic catalogue (to create a record of "independent" events), is probably the most controversial factor in current PSHA practice. Marzocchi and Taroni (2014) noted that the de-clustering procedure is based on a wrong assumption, namely that for a specific site, *"...keeping the largest events, we also keep the largest ground motion..."*. Also, the procedure violates the fundamental rule of experimental physics, i.e. prescribing how to handle any empirical data. The law taught to first-year students of physics is to *"never twist data to suit theory; instead, design such theory, which suits the data"*. However, de-clustering does the exact opposite. De-clustering affects the estimation of the earthquake occurrence parameters (the magnitude activity rate and the *b*-value) and, thereby, it affects (usually underestimates) the actual hazard and risk. Boyd (2012) and Iervolino *et al.* (2014) show that in terms of the annual rate of exceedance of PGA, de-clustering leads to a 30% underestimation of the actual hazard. Öncel and Alptekin (1999) show that the de-clustering procedure doubles the return period for large seismic events. Teng and Baker (2019) show that the choice of de-clustering method significantly impacts the de-clustered catalogue and the hazard assessment. For instance, the de-clustering procedure by Gardner and Knopoff (1974) removes 80% of earthquakes and fails to reflect the changes in background rates that have occurred in the past few years.

Cornell and Winterstein (1986) contend that, in most instances, the correct seismic hazard analysis can be performed without de-clustering. They have shown that the classic, time-independent (Poissonian) model is applicable even when the temporal clustering of earthquake occurrence is close to 30%. Also, de-clustering can be avoided by the replacement of the Poisson model (as well as the exponential Gutenberg-Richter frequency-magnitude relation) with their compounded (mixed) counterparts (Campbell, 1982; Kijko *et al.*, 2016). Yeo and Cornell (2009) and Boyd (2012) presented a detailed account of the contribution of aftershocks to seismic hazard. However, the most elegant account of aftershocks in PSHA was developed by Iervolino *et al.* (2014).

Further criticism of the current PSHA procedure concerns the absence of the upper limit of the ground motion parameter in the hazard curve. The core of the classic Cornell's PSHA is the assumption that the logarithm of the ground motion parameter is distributed normally. As the domain of the normal distribution is unlimited from the right side, it results in a nonzero probability of unrealistically high values for the ground motion parameter, e.g., $PGA \approx 20g$. Such a value of PGA was obtained from a PSHA for a nuclear-waste repository at Yucca Mountain, Nevada, USA (Stepp *et al.*, 2001; Corradini, 2003). A similar problem was encountered during a PSHA in Switzerland (Project PEGASOS, Abrahamson *et al.*, 2002). Several solutions have been suggested; however, none of these is physically justifiable. The absence of the upper bound of the earthquake-generated ground motion parameter has been identified as the "missing piece" in the current seismic hazard formalism (Bommer *et al.*, 2004; Strasser *et al.*, 2009). However, the problem of estimating the site-characteristic upper limit of PGA has been solved by Pavlenko (2017), who contends that as a maxima of acceleration time series, PGA should follow an extreme value distribution and not the normal distribution. Based on extensive statistical tests of PGA data (K-NET and KiK-net), Pavlenko has demonstrated that the distribution of $\ln(PGA)$ converges to the generalised extreme value (GEV) distribution (Beirlant *et al.*, 2004) with upper bounded support. Replacing the normal distribution in equations (4) and (5) by the GEV distribution allows for assessing the upper bound value of PGA. Therefore, the GEV distribution provides a physically justifiable model, describing the scatter of the logarithm of PGA significantly better than the currently used normal distribution. Its application provides the required upper bound of the seismic hazard curve.

Furthermore, criticism surrounds the portioning of uncertainties into aleatory and epistemic in the current PSHA procedure. As noted in Section 5, the division between aleatory and epistemic uncertainty remains an unresolved issue.

Other criticism is directed at the ergodic assumptions that underlie the formalism of the PSHA procedure. The ergodic process is a random process in which the distribution of a random variable in space is the same as the distribution of that variable at a single point when sampled as a function of time (Anderson and Brune, 1999). It has been shown that the major contribution to PSHA uncertainty derives from the uncertainty of the ground motion model. The uncertainty of the ground motion parameter y is characterised by its standard deviation, $\sigma_{\ln(y)}$ which is calculated as the misfit between the observed and the predicted ground motions at several seismic stations for a small number of recorded earthquakes. Therefore, $\sigma_{\ln(y)}$ mainly characterises the spatial and not the temporal uncertainty of ground motion at a single point. This fact violates the ergodic assumption of the PSHA procedure. According to Anderson and Brune (1999), such violation leads to an overestimation of seismic hazard, mainly when the exposure times are longer than the earthquake return times. Besides, Anderson *et al.* (2000) show that high-frequency PGAs observed at short distances do not increase as fast as most ground-motion models predict. Therefore, using the current ground-motion models, especially at short distances, results in an overestimation of the seismic hazard. The

comprehensive discussion of the problem and its solution is provided in a recent paper by Abrahamson *et al.*, 2019)

A similar view has been expressed by Wang and Zhou (2007) and Wang (2009). They contend, among other things, that the ground motion variability is not treated correctly in the Cornell-McGuire-based PSHA procedure. By definition, the ground motion variability is implicitly or explicitly dependent on earthquake magnitude and distance. However, the current PSHA procedure treats it as an independent random variable. The incorrect treatment of ground motion variability results in the variability in earthquake magnitudes and distance being counted twice. These authors conclude that the current PSHA is not consistent with modern earthquake science, is mathematically invalid, can lead to unrealistic hazard estimates, and causes confusion. Similar reservations have been expressed in a series of papers by Klügel (see, e.g. Klügel, 2007 and references therein).

Castanos and Lomnitz (2002) and Mulargia *et al.* (2017) have voiced equally strong criticism about the current PSHA procedure. The main target of their criticism is the logic tree, the critical component of PSHA. They describe the application of the logic tree formalism as a misunderstanding in probability and statistics, as it is fundamentally wrong to admit “expert opinion as evidence on the same level as hard earthquake data.”

Therefore, the science of seismic hazard assessment is subject to much debate, particularly in the realms where instrumental records of strong earthquakes are missing. Currently, PSHA represents the best effort to quantify an issue that is not enough to provide definitive results. As indicated by numerous PSHA applications, considerably more time and data will be needed before these issues can be resolved.

Further reading. Several excellent studies are available that describe all aspects of modern PSHA. Bommer and Abrahamson (2006) and McGuire (2008) trace the intriguing historical development of PSHA. Hanks and Cornell (1999) and Field (1996) present an entertaining and unconventional summary of the issues related to PSHA, including its misinterpretation. Reiter (1990) describes both the deterministic and the probabilistic seismic hazard procedures from several viewpoints, including a regulatory perspective. Seismic hazard from the geologist’s point of view is described in a book by Yeats *et al.* (1997). Kramer (1996) provides an elegant, coherent, and understandable description of the mathematical aspects of both DSHA and PSHA. Anderson *et al.* (2000) and Thenhaus and Campbell (2003) present excellent overviews covering theoretical, methodological, and procedural issues of modern PSHA. Finally, the most comprehensive treatment to date of all aspects of PSHA, including the treatment of aleatory and epistemic uncertainties, is provided by the SSHAC (1997) report and, in book form, by McGuire (2004). The information presented here benefited from all the sources quoted above, particularly the excellent book by Kramer (1996).

8. SUMMARY

The term seismic hazard refers to any physical phenomenon associated with an earthquake (e.g. ground motion, ground failure, liquefaction, and tsunami) and its effect on the land, infrastructure, and socioeconomic systems that, potentially, could produce a loss. Without regard to any loss, the term is also used to indicate the possible level of ground shaking occurring at a given point within a certain period of time. Seismic hazard analysis involves the quantification of the expected ground motion at particular sites. Seismic hazard analysis can be performed deterministically when a particular earthquake scenario is considered or probabilistically when the likelihood of a specified level of ground motion is evaluated. In principle, any natural hazard caused by seismic activity can be described and quantified in terms of the probabilistic methodology. Classical probabilistic seismic hazard analysis (PSHA) includes four steps, which are (1) identification and parameterisation of the seismic sources, (2) specification of temporal and magnitude distributions of earthquake occurrence, (3) calculation of ground motion prediction equations and their uncertainty, and (4) integration of uncertainties in the earthquake location, earthquake magnitude, and ground motion prediction equations into the hazard curve.

An integral part of PSHA is the assessment of uncertainties. Contemporary PSHA distinguishes between two types of uncertainty, namely aleatory and epistemic. Aleatory uncertainties stem from the randomness in nature and the probabilistic uncertainty inherent in any random phenomenon. Aleatory uncertainties are characteristic of the currently used model and cannot be reduced by incorporating additional data. Epistemic uncertainties derive from insufficient knowledge about the model or its parameters. Epistemic uncertainties can be reduced by incorporating additional information or data. Aleatory uncertainties are included in the PSHA by integrating these uncertainties, and the hazard curve represents them. In contrast, epistemic uncertainties are included through alternative models, different sets of parameters with different numerical values, or a logic tree.

The PSHA procedure, as known in its current form, is not without controversy. The controversy arises from issues, such as (1) the absence of the upper limit of the ground motion parameter, (2) division of uncertainties between aleatory and epistemic, and (3) the methodology itself, particularly the application of the logic tree formalism.

Andrzej Kijko

Bibliography

- Abrahamson, N.M., Kuehn, M.W., Landwehr, N., 2019. Probabilistic Seismic Hazard Analysis in California Using Nonergodic Ground-Motion Models. Bull. Seism. Soc. Am., 109: 1235-1249.
- Abrahamson, N.A., Birkhauser, P., Koller, M., Mayer-Rosa, D., Smit, P., Sprecher, C., Tinic, S. and Graf, R., 2002. PEGASOS — A Comprehensive Probabilistic Seismic Hazard Assessment for Nuclear Power Plants in Switzerland. In Proceedings of the 12th European Conference on Earthquake Engineering, London, UK. Paper No. 633.
- Aki, K., 1965. Maximum Likelihood Estimate of b in the Formula $\log N = a - bM$ and its Confidence Limits. Bull. Earthquake Res. Inst., Univ. Tokyo, 43: 237-239.
- Albarelo, D., Camassi, R., and Rebez, A., 2001. Detection of Space and Time Heterogeneity in the Completeness of a Seismic Catalogue by a Statistical Approach: An Application to the Italian Area. Bull. Seism. Soc. Am., 91: 1694–1703.
- Amorese, D., 2007. Applying a Change Point Method on Frequency-Magnitude Distribution. Bull. Seism. Soc. Am., 97: 1742-1749.
- Anagnos, T., and Kiremidjian, A. S., 1988. A Review of Earthquake Occurrence Models for Seismic Hazard Analysis. Probabilist Eng Mech, 3: 3–11.
- Anderson, J. G., and Brune, J. N., 1999. Probabilistic Seismic Hazard Analysis Without the Ergodic Assumptions, Seism. Res. Lett., 70: 19-28.
- Anderson, J. G., Brune, J. N., Anooshehpour R., and Ni, S.D., 2000. New Ground Motion Data and Concepts in Seismic Hazard Analysis. Current Science, Special Section: Seismology, 79: 1278-1290.
- Anderson, J. G., and Luco, J. E., 1983. Consequences of Slip Rate Constraints on Earthquake Occurrence Relation. Bull. Seism. Soc. Am., 73: 471-496.
- Anderson, J.G., Biasi, G. P., and Wesnousky, S.G., 2017. Fault-Scaling Relationships Depend on the Average Fault-Slip Rate. Bull. Seism. Soc. Am., 107: 2561-2577.
- Assatourians, K., and Atkinson, G.M. 2013. EqHaz: An Open-Source Probabilistic Seismic-Hazard Code Based on the Monte Carlo Simulation Approach. Seismol. Res. Lett. 84: 516–524. doi: 10.1785/0220120102.
- Beirlant, J., Goegebeur, Y., Teugels, J. and Segers, J., 2004. Statistics of Extremes: Theory and Applications. Wiley, UK.
- Beirlant, J., Kijko, A., Reynkens, T. and Einmahl, J.H., 2017. Estimating the maximum possible earthquake magnitude using extreme value methodology: the Groningen case. Nat Hazards, 10.1007/s11069-017-3162-2.
- Bender, B., 1984. Incorporation Acceleration Variability into Seismic Hazard Analysis. Bull. Seism. Soc. Am., 74: 1451-1462.
- Benjamin, J. R., and Cornell, C. A., 1970. Probability, Statistics, and Decision for Civil Engineers. New York: McGraw-Hill.
- Bommer, J. J., Abrahamson, N. A., Strasser, F. O., Pecker, A., Bard, P. Y., Bugnum, H., Cotton, F., Fäh, D., Sabette, F., Scherbaum F., and Studer, J., 2004. The Challenge of Defining Upper Bounds on Earthquake Ground Motions. Seism. Res. Lett., 75: 82–95.
- Bommer, J. J., and Abrahamson N. A., 2006. Why Do Modern Probabilistic Seismic-Hazard Analyses Often Lead to Increased Hazard Estimates? Bull. Seism. Soc. Am., 96: 1976–1977.

- Bommer, J.J., and Crowley, H., 2017. The purpose and definition of the minimum magnitude limit in PSHA calculations. Seism. Res. Lett., 88: 1097–1106.
- Boore, D.M., 2003. Prediction of ground motion using the stochastic method, Pure Appl. Geophys. 160: 635–676.
- Boschi, E., Giardini, D., Pantosti, D., Valensise, G., Arrowsmith, R., Basham, P., Bergmann, R., Crone, A.J., Hull, A., McGuire, R.K., Schwartz, D., Sieh, K., Ward, S. N., and Yeats, R. S., 1996. New Trends in Active Faulting Studies for Seismic Hazard Assessment. Ann. Di Geofisica, 39: 1301–1304.
- Boyd, O.S., 2012. Including foreshocks and aftershocks in time-independent probabilistic seismic-hazard analyses, Bull. Seismol. Soc. Am. 102: 909–917.
- Bozorgnia, Y., Abrahamson, N.A. Atik, L. A., Ancheta, T.D., Atkinson, G. M., Baker, J.W., Baltay, A., Boore, D. M., Campbell, K. W., Chiou, B.S.J., and Darragh, R., 2014. NGA-West2 Research Project, Earthq. Spectra 30: 973–987.
- Campbell, K. W., 1982. Bayesian Analysis of Extreme Earthquake Occurrences. Part I. Probabilistic Hazard Model. Bull. Seism. Soc. Am., 72: 1689–1705.
- Campbell, K. W., 2003. Engineering Models of Strong Ground Motion. Chapter 5. In Chen W. F., and Scawthorn, C. (eds), Earthquake Engineering Handbook. Boca Raton, FL: CRC Press pp. 5-1–5-74.
- Campbell, K., 2005. Overview of Seismic Hazard Approaches with Emphasis on the Management of Uncertainties. 2nd ICTP Workshop on Earthquake Engineering for Nuclear Facilities: Uncertainties in Seismic Hazard. Trieste, Italy. pp. 14–25 February 2005.
- Campbell, K.W., 2014. An Evaluation of Eastern North America Ground Motion Models Developed Using the Hybrid Empirical Method. Bull. Seismol. Soc. Am. 104: 347–359.
- Castanos, H., and Lomnitz, C., 2002. PSHA: Is it Science? Opinion Paper. Eng Geol, 66: 315–317.
- Console R., Murru M., Catalli F. and Falcone G., 2007. Real-time Forecasts Through an Earthquake Clustering Model Constrained by the Rate-and-State Constitutive Law: Comparison with a Purely Stochastic ETAS Model. Seism. Res. Lett., 78: 49–56.
- Cotton, F., Scherbaum, F., Bommer, J.J., and Bungum, H., 2006. Criteria for Selecting And Adjusting Ground-Motion Models for Specific Target Applications: Applications to Central Europe and Rock Sites. J. Seismol. 10: 137–156.
- Cooke, P., 1979. Statistical Inference for Bounds of Random Variables. Biometrika, 66: 367–374.
- Coppersmith, K.J., and Youngs, R.R., 1989. Issues Regarding Earthquake Source Characterization and Seismic Hazard Analysis with Passive Margins and Stable Continental Interiors. In Gregersen, S., Basham, P.W. (eds), Earthquakes at North Atlantic Passive Margins: Neotectonic and Postglacial Rebound. Dordrecht: Kluwer Academic Publishers, pp. 601–631.
- Cornell, C. A., 1968. Engineering Seismic Risk Analysis. Bull. Seism. Soc. Am., 58: 1583–1606.
- Cornell, C. A., 1971. Bayesian Statistical Decision Theory and Reliability-Based Design. In Freudenthal, A. M. (ed.), Proceedings of the International Conference on Structural Safety and Reliability, April 9–11, 1969. Smithsonian Institute: Washington D.C., pp. 47–66
- Cornell, C. A., 1994. Statistical Analysis of Maximum Magnitudes. In Johnston, A.C., Coppersmith, K.J., Kanter, L.R., and Cornell, C A. (eds), The Earthquakes of Stable Continental Regions — Vol. 1. Assessment of Large Earthquake Potential. California, Electric Power Research Institute, Palo Alto, pp. 5-1–5-27.

- Cornell, C. A., and Winterstein, S. R., 1988. Temporal and Magnitude Dependence in Earthquake Recurrence Models. Bull. Seism. Soc. Am., 78: 1522-1537.
- Corradini, M. L., 2003. Letter from Chairman of the US Nuclear Waste Technical Review Board to the Director of the Office of Civilian Radioactive Waste Management; available at <http://www.nwtrb.gov/corr/mlc010.pdf>.
- Cornell, C.A., and Toro, G. 1992. Seismic Hazard Assessment. In Hunter R. L., Mann C. J. (eds), International Association for Mathematical Geology Studies. Mathematical Geology, No. 4, Techniques for Determining Probabilities of Geologic Events and Processes. Oxford: Oxford University Press, pp. 147-166.
- Cramer C.H, Petersen M.D., Cao, T., Topozada, T.R, and Reichle M., 2000. A Time-Dependent Probabilistic Seismic Hazard Model for California. Bull. Seismol. Soc. Am., 90: 1–21.
- Dargahi-Noubary, G.R., 1983. A Procedure for Estimation of the Upper Bound for Earthquake Magnitudes. Phys. Earth Planet. Interiors, 33: 91-93.
- Delavaud, E., Cotton, F., Akkar, S. Scherbaum, F., Danciu, L., Beauval, C., Drouet, S., Douglas, J., Sandikkaya, A.B.M., Segou, M., Faccioli, E., Theodoulidis, N., 2012. Toward a Ground-Motion Logic Tree for Probabilistic Seismic Hazard Assessment in Europe. J. Seismol., 16: 451–473.
- Douglas, J., 2011. Ground-Motion Prediction Equations 1964–2010, BRGM/RP-59356-FR
- Ebel, J. E. and Kafka, A.L. 1999. A Monte Carlo Approach to Seismic Hazard Analysis. Bull. Seismol. Soc. Am. 89: 854–866.
- EERI Committee on Seismic Risk, (H. C. Shah, Chairman), 1984. Glossary of Terms for Probabilistic Seismic Risk and Hazard Analysis, Earthquake Spectra, 1: 33-36
- Epstein, B., and Lomnitz, C., 1966. A Model for the Occurrence of Large Earthquakes. Nature, 211: 954-956.
- Faenza, L., Hainzl, S., Scherbaum, F., and Beauval, C., 2007. Statistical Analysis of Time-Dependent Earthquake Occurrence and its Impact on Hazard in the Low Seismicity Region Lower Rhine Embayment. Geophys. J. Int., 171: 797-806.
- Field, D.H., 1995. Probabilistic Seismic Hazard Analysis. A Primer. (http://www.relm.org/tutorial_materials).
- Field, D. H., Jackson, D. D., and Dolan, J. F., 1999. A Mutually Consistent Seismic-Hazard Source Model for Southern California. Bull. Seism. Soc. Am., 89: 559-578.
- Frankel, A.D., Mueller, C.S., Barnhard, T.P., Perkins, D.M., Leyendecker, E.V., Dickman, N.C., Hanson, S. L., and Hopper, M. G., 1996. National Seismic Hazard Maps. U.S. Geol. Surv. Open-file Report, 96: pp.1-532.
- Frankel, A.D., Petersen, M.D., Mueller, C.S., Haller, K., Wheeler, R.L., Leyendecker, E.V., Wesson, R.L., Harmsen, S.C., Cramer, C.H., Perkins, D.M., and Rukstales, K.S., 2002. Documentation for the 2002 Update of the National Seismic Hazard Maps. U.S. Geol. Surv. Open-File Report, 02: pp.1-42.
- Frohlich, C., 1998. Does Maximum Earthquake Size Depend on Focal Depth? Bull. Seism. Soc. Am., 88: 329-336.
- Giardini, D., 1999. The Global Seismic Hazard Assessment Program (GSHAP) 1992–1999. Ann. Geofis., 42: 957-1230.
- Gardner, J., and L. Knopoff (1974). Is the sequence of earthquakes in southern California, with aftershocks removed, Poissonian? Bull. Seismol. Soc. Am. 64: 1363–1367.
- Gibowicz, S. J., and Kijko, A., 1994. An Introduction to Mining Seismology. San Diego: Academic Press.

- Godano, C. (2017). A New Method for the Estimation of the Completeness Magnitude. Phys Earth Planet In. 263: 7-11.
- Gregor, N., Abrahamson, N.A. Atkinson, G.M., Boore, D.M., Bozorgnia, Y., Campbell, K.W., Chiou, B.S.J., Idriss, I.M., Kanai, R., Seyhan, E., and Silva, W., 2014. Comparison of NGA-West2 GMPEs, Earthq. Spectra 30: 1179–1197.
- Gupta, I. D., and Deshpande, V. C., 1994. Application of Log-Pearson Type-3 Distribution for Evaluation of Design Earthquake Magnitude. Jour. Inst. Engineers (India), Civil Div., 75: 129-134.
- Gutenberg, B., and Richter, C. F., 1944. Frequency of Earthquakes in California. Bull. Seism. Soc. Am., 34: 185–188.
- Hanks, T. C., and Cornell, C. A., 1999. Probabilistic Seismic Hazard Analysis: A Beginners Guide (available from T.C. Hanks at thanks@usgs.gov).
- Iervolino I., Giorgio M. and Polidoro B., 2014. Sequence-Based Probabilistic Seismic Hazard Analysis. Bull. Seism. Soc. Am., 104: 1006–1012.
- Jackson, D.D., and Kagan, Y.Y., 1999. Testable Earthquake Forecasts for 1999. Seism. Res. Lett., 70: 393-403.
- Jin, A., and Aki, K., 1988. Spatial and Temporal Correlation Between Coda Q and Seismicity in China. Bull. Seism. Soc. Am., 78: 741-769.
- Johnson, N. L., Kotz, S. and Balakrishnan, N. (1994). Continuous univariate distributions. Volume 1. Second Edition, John Wiley & Sons, Inc., New York.
- Kagan, Y. Y., 1991. Seismic moment distribution. Geophys. J. Int., 106: 123-134
- Kagan, Y. Y., 1994. Observational Evidence of Earthquakes as a Nonlinear Dynamical Process. Physica D, 77: 160-192.
- Kagan, Y. Y., 1997. Seismic Moment-Frequency Relation for Shallow Earthquakes: Regional Comparison. J. Geophys. Res., 102: 2835-2852.
- Kagan, Y.Y. and Geller, R.J., 2012. Characteristic Earthquake Model, 1884-2011, R.I.P. Seism. Res. Lett., 83: 951-954.
- Kijko, A., 2004. Estimation of the Maximum Earthquake Magnitude m_{max} . Pure Appl. Geophys., 161: 1655–1681.
- Kijko, A., 2012. On Bayesian procedure for maximum earthquake magnitude estimation. *Research in Geophysics*, 2, Number 1. <http://www.pagepress.org/journals/index.php/rg> [Research in Geophysics [eISSN 2038-9663]. PAGEPress, Pavia, Italy.
- Kijko, A., and Sellevoll, M. A., 1989. Estimation of Earthquake Hazard Parameters From Incomplete Data Files, Part I, Utilization of Extreme and Complete Catalogues with Different Threshold Magnitudes. Bull. Seism. Soc. Am., 79: 645-654.
- Kijko, A., and Sellevoll, M. A., 1992. Estimation of Earthquake Hazard Parameters From Incomplete Data Files, Part II, Incorporation of Magnitude Heterogeneity. Bull. Seism. Soc. Am., 82: 120-134.
- Kijko, A., and Graham, G., 1998. "Parametric-Historic" Procedure for Probabilistic Seismic Hazard Analysis. Part I: Assessment of Maximum Regional Magnitude m_{max} . Pure Appl. Geophys., 152: 413-442.
- Kijko, A., and Graham, G., 1999. "Parametric-Historic" Procedure for Probabilistic Seismic Hazard Analysis. Part II: Assessment of Seismic Hazard at the Specified Site. Pure Appl. Geophys., 154: 1-22.
- Kijko, A., Lasocki, S., and Graham, G., 2001. Nonparametric Seismic Hazard Analysis in Mines. Pure Appl. Geophys., 158: 1655–1675.

- Kijko, A., and Singh, M., 2011. Statistical Tools for Maximum Possible Earthquake Magnitude Estimation. Acta Geophysica 59: 674-700.
- Kijko, A., and Smit, A., 2012. Extension of the Aki-Utsu b -value Estimator for Incomplete Catalogues. Bull. Seismol. Soc. Am. 102: 1283–1287.
- Kijko, A., Smit, A. and Sellevoll, M.A., 2016. Estimation of Earthquake Hazard Parameters from Incomplete Data Files. Part III. Incorporation of Uncertainty of Earthquake-Occurrence Model. Bull. Seismol. Soc. Am 106: 1210-1222.
- Klügel, J.-U., 2007. Error Inflation in Probabilistic Seismic Hazard Analysis. Engineering Geology, 90: 186–192.
- Kramer, S. L., 1996. Geotechnical Earthquake Engineering. Englewood Cliffs, N.J. Prentice-Hill
- Lomnitz-Adler, J., and Lomnitz, C., 1979. A Modified Form of the Gutenberg-Richter Magnitude-Frequency Relation. Bull. Seism. Soc. Am., 69: 1209-1214.
- Main, I. G., 1996. Statistical Physics, Seismogenesis and Seismic Hazard. Rev. Geophys., 34: 433-462
- Main, I. G, Irving, D., Musson, R., and Reading, A., 1999. Constraints on the Frequency-Magnitude Relation and Maximum Magnitudes in the UK from Observed Seismicity and Glacio-Isostatic Recovery Rates. Geophys. J. Int., 137: 535-550.
- Main, I. G., and Burton, P. W., 1984. Information Theory and the Earthquake Frequency-Magnitude Distribution. Bull. Seism. Soc. Am., 74: 1409-1426
- Marzocchi, W., and Taroni, M. (2014). Thoughts on Declustering in Probabilistic Seismic-Hazard Analysis. Bull. Seismol. Soc. Am. 104, doi: 10.1785/0120130300
- Matthews M. V., Ellsworth, W.L., and Rosenberg, P.A., 2002. A Brownian Model for Recurrent Earthquakes. Bull. Seismol. Soc. Am., 92: 2233–2250.
- McCalpin, J.P., 2009. Paleoseismology, (ed.), 2nd Edition. New York: Academic Press.
- McGarr, A., 1984. Some Applications of Seismic Source Mechanism Studies to Assessing Underground Hazard, In Rockbursts and Seismicity in Mines, (eds Gay, N. C., and Wainwright, E. H.) (Symp. Ser. No. 6, 199-208. S. Afric. Inst. Min. Metal., Johannesburg, 1984)
- McGarr, A., 2014. Maximum Magnitude Earthquakes Induced by Fluid Injection. J. Geophys. Res. Solid Earth, 119, doi:10.1002/2013JB010597.
- McGuire, R. K., 1976. FORTRAN Computer Program for Seismic Risk Analysis, U.S. Geol. Surv. Open-file Report 76: pp.1-67.
- McGuire, R. K., 1993. Computation of Seismic Hazard. Ann. Di Geofisica, 36: 181-200
- McGuire, R. K., 1995. Probabilistic Seismic Hazard Analysis and Design Earthquakes: Closing the Loop. Bull. Seism. Soc. Am., 85: 1275–1284.
- McGuire, R. K., 2004. Seismic Hazard and Risk Analysis. Oakland: Earthquake Engineering Research Institute, MNO-10.
- McGuire, R. K., 2008. Review. Probabilistic Seismic Hazard Analysis: Early History. Earthquake Eng Struct. Dyn., 37: 329–338.
- Merz, H.A., and Cornell, C.A., 1973. Seismic Risk Based on Quadratic Magnitude Frequency Low. Bull. Seism. Soc. Am., 63: 1999-2006.
- Mignan, A., 2012. Functional Shape of the Earthquake Frequency-Magnitude Distribution and Completeness Magnitude. J. Geophys. Res. 117, no. B08302, doi: 10.1029/2012JB009347.
- Mignan, A., and Woessner, J., 2012. Estimating the Magnitude of Completeness for Earthquake Catalogues, Community Online Resource for Statistical Seismicity Analysis, doi: 10.5078/corssa-00180805.

- Molchan, G., and Dmitrieva, O., 1992. Aftershock Identification: Methods and New Approaches. Geophys. J. Int., 109: 501–516.
- Molina S., Lindholm, C. D., and Bungum, H., 2001. Probabilistic Seismic Hazard Analysis: Zoning Free Versus Zoning Methodology. Bolletino di Geofisica Teorica ed Applicata, 42: 19-39
- Muir-Wood, R., 1993. From Global Seismotectonics to Global Seismic Hazard. Ann. Di Geofisica, 36: 153-168.
- Mulargia, F., Stark, P.B., and Geller, R.J. (2017). Why is Probabilistic Seismic Hazard Analysis (PSHA) still used? Physics of the Earth and Planetary Interiors, 264: 63–75.
- Musson, R.M.W. 2000. The Use of Monte Carlo simulations for Seismic Hazard Assessment in the U.K. Ann. Geofisc., 43: 1–9.
- Nishenko, S.P., and Buland, R., 1987. A Generic Recurrence Interval Distribution for Earthquake Forecasting. Bull. Seism. Soc. Am., 77: 1382–1399.
- Nuttli, O. W., 1981. On the Problem of Maximum Magnitude of Earthquakes. U.S. Geol. Surv. Open-file Report 81: pp.1-13.
- Ogata, Y., 1988. Statistical Models for Earthquake Occurrences And Residual Analysis For Point Processes. J. Am. Stat. Assoc., 83: 9–27.
- Ogata, Y., 1999. Estimating the Hazard of Rupture Using Uncertain Occurrence Times of Paleoequakes. J. Geophys. Res., 104: 995-18014.
- Öncel, A.O., and Alptekin, Ö., 1999. Effect of Aftershocks on Earthquake Hazard Estimation: An Example from the North Anatolian Fault Zone. Natural Hazards 19: 1–11.
- Pagani, M., Garcia-Pelaez, J., Gee, R., Johnson, K., Poggi, V., Styron, R., Weatherill, G., Simionato, M., Viganò, D., Danciu, L., and Monelli, D. 2018. Global Earthquake Model (GEM) Seismic Hazard Map (version 2018.1 — December 2018). DOI: 10.13117/GEM-GLOBAL-SEISMIC-HAZARD-MAP-2018.1.
- Page, R., 1968. Aftershocks and Microaftershocks. Bull. Seism. Soc. Am., 58: 1131-1168.
- Papastamatiou, D., 1980. Incorporation of Crustal Deformation to Seismic Hazard Analysis. Bull. Seism. Soc. Am., 70: 1321-1335.
- Parsons, T. and Geist, E.L., 2009. Is There a Basis for Preferring Characteristic Earthquakes over a Gutenberg–Richter Distribution in Probabilistic Earthquake Forecasting? Bull. Seism. Soc. Am., 99: 2012-2019.
- Pavlenko, V. A, (2017). Estimation of the Upper Bound of Seismic Hazard Curve by using the Generalized Extreme Value Distribution. Nat Hazards 89: 19–33. doi: 10.1007/s11069-017-2950-z.
- Peruzza L., Pace B., and Cavallini F., 2008. Error Propagation in Time-Dependent Probability of Occurrence for Characteristic Earthquakes in Italy. J. Seismol., 14: 119–141.
- Pezeshk, S., Zandieh, A., Campbell, K.W. and Tavakoli B., (2018). Ground-Motion Prediction Equations for Central and Eastern North America Using the Hybrid Empirical Method and NGA-West2 Empirical Ground-Motion Models. Bull Seism. Soc. Am, 108: 2278–2304.
- Pisarenko VF. (1991), Statistical Evaluation of Maximum Possible Magnitude, Izvestiya, Earth Physics 27, 757–763.
- Pisarenko, V. F., Lyubushin, A. A., Lysenko, V. B., and Golubieva, T. V., 1996. Statistical Estimation of Seismic Hazard Parameters: Maximum Possible Magnitude and Related Parameters. Bull. Seism. Soc. Am., 86: 691-700.
- Pisarenko, V.F., and Rodkin, M., 2010. Heavy-Tailed Distributions in Disaster Analysis. Dordrecht: Springer.

- Polidoro, B., 2014. Some Seismic-Cluster-Based Models for Risk Analysis of Structures. PhD Thesis. University of Naples, Federico II, Department of Structures for Engineering and Architecture. pp. 109.
- Reiter, L., 1990. Earthquake Hazard Analysis: Issues and Insights. New York: Columbia University Press.
- Rhoades, D.A., 1996. Estimation of the Gutenberg-Richter Relation Allowing for Individual Earthquake Magnitude Uncertainties. Tectonophysics, 258: 71-83.
- Rhoades, D., Van Dissen, R. J., and Dowrick, D. J., 1994. On the Handling of Uncertainties in Estimating the Hazard Rupture on a Fault. J. Geophys. Res., 99: 13,701-13,712
- Robson, D. S., and Whitlock, J. H., 1964. Estimation of a Truncation Point. Biometrika, 51: 33-39.
- Rydelek, P. A., and Sacks, I. S., 1989. Testing the Completeness of Earthquake Catalogues and the Hypothesis of Self-Similarity. Nature, 337: 249-251.
- Scholz, C. H., 1990. The Mechanics of Earthquakes and Faulting. Cambridge: Cambridge University Press.
- Schorlemmer, D., and Woessner J., 2008. Probability of Detecting an Earthquake. Bull. Seism. Soc. Am., 98: 2103-2117.
- Shapiro, S.A., Dinske, C., and Krueger O.S., 2017. Maximum Magnitudes of Earthquakes Induced by Fluid Injections and Productions: Controlling Parameters, Estimations and Case Study Examples. Society of Exploration Geophysicists, SEG Technical Program Expanded Abstracts 2017, 5356-5361.
- Shepherd, J.B, Tanner, J. G. and Prockter, L., 1993. Revised Estimates of the Levels of Ground Acceleration and Velocity with 10% Probability of Exceedance in any 50-year period for the Trinidad and Tobago Region. Caribbean Conference on Earthquakes, Volcanoes, Windstorms and Floods, 11-15 October, Trinidad.
- Shimazaki, K., and Nakata, T., 1980. Time-Predictable Recurrence Model for Large Earthquakes. Geophys. Res. Lett., 7: 279-282.
- Sornette, D., and Sornette, A. 1999. General Theory of the Modified Gutenberg-Richter Law for Large Seismic Moments. Bull. Seism. Soc. Am., 89: 1121-1130.
- SSHAC - Senior Seismic Hazard Committee, 1997. Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts. NUREG/CR-6372, UCR-ID-122160, Main Report 1. Prepared for Lawrence Livermore National Laboratory.
- SSHAC - Senior Seismic Hazard Analysis Committee, 2007, Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts, US Nuclear Regulatory Commission report NUREG/CR-6372, Washington DC, 280 pp.
- Stein, R. S., and Hanks, T. C., 1998. M6 Earthquakes in Southern California During the Twentieth Century: No Evidence for a Seismicity or Moment Deficit. Bull. Seism. Soc. Am., 88: 635-652
- Stepp, J. C., 1972. Analysis of Completeness of the Earthquake Sample in the Puget Sound Area and Its Effect on Statistical Estimates of Earthquake Hazard. In Proceedings of the International Conference on Microzonation, Seattle, U.S.A., 2, pp. 897-910.
- Stepp, J. C., Wong, I., Whitney, J., Quitemeyer, R., Abrahamson, N., Toro, G., Youngs, R., Coppersmith, K., Savy, J., Sullivan, T. and Yucca Mountain PSHA Project Members (2001). Probabilistic Seismic Hazard Analyses for Ground Motions and Fault Displacements at Yucca Mountain, Nevada. Earthquake Spectra 17: 113-151.
- Stirling, M.W. and Anderson, J.G., 2018. Magnitude as a Function of Rupture Length and Slip Rate for Recent Large New Zealand Earthquakes. Bull. Seism. Soc. Am., 108: 1623-1629.
- Shumilina, L.S., Gusev, A.A. and Pavlov, V.M., 2000. An Improved Technique for the Determination of Seismic Hazard. J. Earthq. Predict. Res. 8, 104-110.

- Strasser, F. O., Abrahamson, N. A., and Bommer, J. J. (2009). Sigma: Issues, Insights, and Challenges. Seismol. Res. Lett. 80: 40–56. doi: 10.1785/gssrl.80.1.40.
- Takahashi, Y., Der Kiureghian, A. and Ang, H-S A. 2004. Life-cycle cost analysis based on a renewal model of earthquake occurrences. Earthquake Engineering Structural Dynamics 33: 859-880.
- Tate, R. F., 1959. Unbiased Estimation: Function of Location and Scale Parameters. Ann. Math. Statist., 30: 331-366.
- Teng, G. and J.W. Baker (2019). Seismicity declustering and hazard analysis of the Oklahoma–Kansas Region. Bull. Seism. Soc. Am. 109, doi: 10.1785/0120190111.
- Thenhaus, P. C., and Campbell, K. W., 2003. Seismic Hazard Analysis. In W. F. Chen and C. Scawthorn, eds. Earthquake Engineering Handbook. Boca Raton, FL: CRC Press, pp. 8-1 – 8-50.
- Toro, G. R., Abrahamson, N. A. and Schneider, J. F., 1997. Model of Strong Ground Motions from Earthquakes in Central and Eastern North America: Best Estimates and Uncertainties. Seism. Res. Lett., 68: 41–57.
- Utsu, T., 1965. A Method for Determining the Value of b on the Formula $\log n = a - bM$ Showing the Magnitude-Frequency Relation for Earthquakes. Geophys. Bull. Hokkaido Univ., 13: 99-103, (In Japan.; Engl. Abstr.)
- Utsu, T., 1984. Estimation of Parameters for Recurrence Models of Earthquakes. Bull. Earthq. Res. Inst., Univ. Tokyo., 59: 53-66.
- Wang, Z., and Zhou, M., 2007. Comment on “Why do Modern Probabilistic Seismic-Hazard Analyses Often Lead to Increased Hazard Estimates?” by Julian J. Bommer and Norman A. Abrahamson. Bull. Seism. Soc. Am., 97: 2,212–2,214.
- Wang, Z., 2009. Comment on “Sigma: Issues, Insights, and Challenges” by F. O. Strasser, N. A. Abrahamson, and J. J. Bommer, Seism. Res. Lett., 80: 491-493.
- Ward, S. N., 1997. More on $M_{\max}$, Bull. Seism. Soc. Am., 87: 1199-1208.
- Weichert, D. H., 1980. Estimation of the Earthquake Recurrence Parameters for Unequal Observation Periods for Different Magnitudes. Bull. Seism. Soc. Am., 70: 1337-1346.
- Weimer, S., and Wyss, M., 2000. Minimum Magnitude of Completeness in Earthquake Catalogues: Examples from Alaska, the Western United States, and Japan. Bull. Seism. Soc. Am., 90: 859–869.
- Wells, D. L., and Coppersmith, K. J., 1994. New Empirical Relationships Among Magnitude, Rupture Length, Rupture Width, Rupture Area, and Surface Displacement. Bull. Seism. Soc. Am., 84: 974-1002.
- Wesson, R. L., and Perkins D. M., 2001. Spatial Correlation of Probabilistic Earthquake Ground Motion and Loss, Bull. Seism. Soc. Am., 91: 498–1515.
- WGCEP (Working Group on Central California Earthquake Probabilities), 1995. Seismic Hazard in Southern California: Probable Earthquakes, 1994 to 2024. Bull. Seism. Soc. Am., 85: 379-439
- WGCEP (Working Group on California Earthquake Probabilities), 2008. The Uniform California Earthquake Rupture Forecast, version 2 (UCERF 2), U.S. Geol. Surv. Open-File Report. 2007-1437, California Geological Survey Special Report 203, 104 pp. (<http://pubs.usgs.gov/of/2007/1437/>).
- Wheeler, R. L., 2009. Methods of $M_{\max}$ Estimation East of Rocky Mountains. USGS, Open-File Report 2009-1018.
- Woo, G., 1996. Kernel Estimation Methods for Seismic Hazard Area Source Modeling. Bull. Seism. Soc. Am., 86: 353-362.

- Veneziano, D., Cornell, C.A. and O'Hara, T., 1984. Historic Method for Seismic Hazard Analysis. Elect. Power Res. Inst., Report, NP-3438, Palo Alto.
- Vermeulen, P. and Kijko, A. (2017). More statistical tools for maximum possible earthquake magnitude estimation. Acta Geophys 65: 579-587.
- Youngs, R.R., and Coppersmith, K. J., 1985. Implications of Fault Slip Rates and Earthquake Recurrence Models to Probabilistic Seismic Hazard Estimates. Bull. Seism. Soc. Am., 75: 939-964.
- Yeats, R. S., Sieh, K., and Allen, C. R., 1997. The Geology of Earthquakes. New York: Oxford University Press.
- Yeo, G.L., and Cornell, C.A. 2009. A Probabilistic Framework for Quantification of Aftershock Ground-Motion Hazard in California: Methodology and Parametric Study, Earthq. Eng. Struct. Dynam., 38: 45–60.
- Zhuang, J., Werner, M.J., Hainzl, S., Harte, D., and Zhou, S., 2011. Basic Models of Seismicity: Spatiotemporal Models, Community Online Resource for Statistical Seismicity Analysis, doi: 10.5078/corssa-07487583. Available at <http://www.corssa.orgs>.
- Zöller, G., and Holschneider, M., 2016. The Maximum Possible and the Maximum Expected Earthquake Magnitude for Production-Induced Earthquakes at the Gas Field in Groningen, The Netherlands. Bull. Seism. Soc. Am., 106: 2917–2921.

Appendix H

Relevant Publications (separated file)

**Deterministic and Probabilistic
Seismic Hazard Analysis
for
Tailings Storage Facilities Tharisa Mine,
North West Province, South Africa**

Rev: 20 May 2023 (1.00)

Submitted to

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Source: <https://www.engineeringnews.co.za/article/chrome-ore-supply-deficit-ahead-tharisa-2018-01-30>

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Abbreviations, Definitions, and Acronyms

Acceleration	The rate of change of particle velocity per unit of time. Expressed as a fraction or percentage of the acceleration because of gravity (g), where $g = 9.81 \text{ m/s}^2$.
Acceleration Response Spectra (ARS)	Spectral acceleration is the movement experienced by a structure during an earthquake.
Aleatory uncertainty	The uncertainties forming part of the applied model used in the analysis are also known as 'stochastic' or 'random' uncertainties. Even when the model is perfectly correct, and the numerical values of its parameters are known without any errors, aleatory uncertainties (for a given model) are still present.
Annual probability of exceedance	The probability that a given level of seismic hazard (typically some measure of ground motion, e.g. seismic magnitude, PGA, or intensity) is exceeded
Anthropologic activity	Human activities that cause damage (either directly or indirectly) to the environment.
Area-specific mean seismic activity rate (λ)	The mean rate of seismicity for the entire selection area around the site for which the PSHA is performed.
Attenuation	A decrease in seismic signal amplitude as waves propagate outward from the seismic source. Attenuation is caused by the geometric spreading of seismic-wave energy and by the absorption and scattering of seismic energy in different Earth materials.
Attenuation law — ground-motion model (GMM)	A mathematical expression that relates a ground motion parameter, such as the peak ground acceleration, to an earthquake's source and propagation path parameters, such as magnitude, source-to-site distance, fault type, etc. Its coefficients are usually derived from the statistical analysis of earthquake records. It is a common engineering term also known as the ground motion prediction equation (GMPE).
b -value (b)	A coefficient in the frequency–magnitude relation, $\log n(m) = a - bm$, obtained by Gutenberg and Richter (1941, 1949), where m is the earthquake magnitude and $N(m)$ is the number of earthquakes with magnitude greater than or equal to m. Estimated b-values for most seismic sources fall between 0.6 and 1.5. Gutenberg, B., and Richter, C.F. (1944). Frequency of earthquakes in California, <i>Seismol. Soc. America Bull.</i> 34, 185–188.

	Gutenberg, B., and Richter, C.F. (1949). <i>Seismicity of the Earth</i> , Princetown, University Press.
Capable (active) fault	A mapped fault that is considered a possible site for a future earthquake with a magnitude greater than some specified threshold (e.g. 5.0 M_W).
Catalogue (seismic events)	A chronological listing of earthquakes. Early catalogues were purely descriptive, i.e. they gave the date of each earthquake and some description of its effects. Current catalogues are usually quantitative, i.e. earthquakes are listed as a set of numerical parameters describing origin time, hypocentre location, magnitude, focal mechanism, moment tensor, and others.
De-aggregation (of seismic hazard)	The procedure quantifies individual contributions to seismic hazard by earthquake based on size (magnitude) and distance.
Design earthquake	The postulated earthquake (specification of the ground motion at a site) is used to evaluate the maximum earthquake resistance of a particular structure above which the construction might be expected to fail.
DSHA	Deterministic Seismic Hazard Analysis.
EARS	Southern Africa and the East African Rift System
Earthquake	Ground shaking and radiated seismic energy caused by a sudden slip on a fault, volcanic or magmatic activity, or other sudden stress changes in the Earth.
EDL (Earthquake design level)	Level of vibration of ground motion parameter (e.g. PGA, MM intensity) corresponding to a specified return period.
ERS (Elastic response spectrum or spectra)	The specification of the required strength or capacity of the structure is plotted as a function of the natural period or frequency appropriate to earthquake response at the required level. Design spectra often comprise straight-line segments (Newmark and Hall, 1982; Eurocode 8) and/or simple curves. However, they can also be constructed from statistics of the response spectra of a suite of ground motions appropriate to the design earthquake(s). To be implemented, the requirements of a design spectrum are associated with allowable stress levels, ductility, displacement, or other measures of response.
Epicentre	The epicentre is the point on the surface of the Earth vertically above the hypocentre (or focus).
Epicentral distance (Δ)	Distance from the site to the epicentre of an earthquake.
Epistemic uncertainty	Uncertainties having its source in incomplete knowledge of the models, i.e. when wrong models are applied or/and the numerical values of their parameters are not known. As

	relevant information is collected, epistemic uncertainties can be reduced.
Fault	A fracture or fracture zone in the Earth along which the two sides have been displaced relative to one another and parallel to the fracture. The accumulated displacement could range from a fraction of a metre to many kilometres. The type of fault is specified according to the direction of the slip. Sudden movement along a fault produces earthquakes. Slow movement produces seismic creep.
Focal depth (h)	Focal depth is the vertical distance between the hypocentre and epicentre.
Frequency	The number of cycles of periodic motion (such as the ground shaking up and down or back and forth during an earthquake) per unit time — the reciprocal of the period. Hertz (Hz), the unit of frequency, is equal to the number of cycles per second.
g	gravity (9.81 m/sec ²)
GEM	Global Earthquake Model
Ground motion	The movement of the surface of the Earth because of a seismic event. Ground motion is produced by waves generated by a sudden slip on a fault or sudden pressure at the explosive source and travels through the Earth and along its surface.
Ground motion parameter	A parameter characterising ground motion, such as peak acceleration, peak velocity, the peak of response spectra and Fourier spectra.
GSHAP	Global Seismic Hazard Assessment Program
Hazard curve	Graphical representation of the annual probability of exceeding a specified ground motion parameter at least once in a specified time interval. An alternative definition of hazard curve is the frequency of exceedance vs ground motion amplitude (McGuire, 2004). McGuire, R.K. (2004). Seismic Hazard and Risk Analysis. Oakland: <i>Earthquake Engineering Research Institute</i> , MNO-10.
Heterogeneity	A critical parameter affecting seismic phenomena is the scale of heterogeneities compared with the seismic wavelengths. A medium is heterogeneous when its physical properties change along with the space coordinates. For example, an intrinsically isotropic medium with oriented heterogeneities could be a homogeneous anisotropic medium for a relatively large wavelength.
Hypocentre	The hypocentre is the point within the Earth where an earthquake rupture starts. The epicentre is the point directly

	above it at the surface of the Earth. Also commonly termed the focus.
Hypocentral distance (R)	Distance from the site to the hypocentre of an earthquake.
IBC	International Building Code
ICOLD	International Code for Large Dams
Induced earthquake	An earthquake that results from changes in crustal stress and/or strength because of human-made sources (e.g. underground mining and filling of a water reservoir) or natural sources (e.g. the fault slip of a major earthquake). Defined less rigorously, 'induced' is used interchangeably with 'triggered' and applies to any earthquake associated with stress change, large or small.
Local magnitude (M_L)	A magnitude scale was introduced by Richter (1935) for earthquakes in southern California. M_L was initially defined as the logarithm of the maximum amplitude of seismic waves on a seismogram written by the Wood–Anderson seismograph (Anderson and Wood, 1925) at a distance of 100 km from the epicentre. In practice, measurements are reduced to the standard distance of 100 km by a calibrating function established empirically. Because Wood–Anderson seismographs have been out of use since the 1970s, M_L is now computed with simulated Wood–Anderson records or by some more practical methods.
Ma	Mega-annum, equal to one million (10^6) years.
Magnitude (m_b , M_L , M_S , M_W)	In seismology, a quantity intended to measure the size of an earthquake that is independent of the place of observation. Richter magnitude or local magnitude (M_L) was initially defined in Richter (1935) as the logarithm of the maximum amplitude in micrometres of seismic waves in a seismogram written by a standard Wood–Anderson seismograph at a distance of 100 km from the epicentre. Empirical tables were constructed to reduce measurements to the standard distance of 100 km, and the zero of the scale was fixed arbitrarily to fit the smallest recorded earthquake. The concept was later extended to construct magnitude scales based on other data, resulting in many types of magnitudes, such as body-wave magnitude (m_b), surface-wave magnitude (M_S), and moment magnitude (M_W). In some instances, magnitudes are estimated from seismic intensity data, tsunami data, or the duration of coda waves. Richter, C.F. (1935). An instrumental earthquake magnitude scale. <i>Bull. Seismol. Soc. Am.</i> 25(1), 1–32.

Maximum regional earthquake Magnitude (m_{max}) and MCE	The upper limit of earthquake magnitude for a given seismogenic zone or an entire region. Often referred to as the maximum credible earthquake (MCE).
MCE	Maximum Credible Earthquake
MM intensity, also MMI	Modified Mercalli Intensity
Operating Basis Event (OBE)	Seismic event with a return period of 145 years, i.e. 50% probability of exceedance in 100 years. Also, an event with a return period of 475 years, i.e. 10% probability of exceedance in 50 years.
Oscillator	In earthquake engineering, an oscillator is an idealised mass-spring system used to model the response of a structure to earthquake ground motion. A seismograph is also an oscillator of this type.
Peak Ground Acceleration (PGA)	The maximum acceleration amplitude measured (or expected) of an earthquake.
Probabilistic Seismic Hazard Analysis (PSHA)	Information on earthquake sources in a given region combined with theoretical and empirical relations for earthquake magnitude, distance, and local site conditions to evaluate the probability of the ground motion parameter, such as the peak ground acceleration at a given site during a specified time interval.
Response spectrum	The structure's response to a specified acceleration time series of a set of single degrees of freedom oscillators, with chosen levels of viscous damping, as a function of the system's undamped natural period or undamped natural frequency. The response spectrum is used for the prediction of the earthquake response of buildings or other structures.
RIS/RTS	Reservoir-Induced Seismicity/Reservoir-Triggered Seismicity
SCR	Stable Continental Region
Seismic hazard	Any physical phenomena associated with an earthquake (e.g. ground motion, ground failure, liquefaction, and tsunami) and their effects on structures and socioeconomic systems. The term is also used to indicate the probable level of ground shaking occurring at a given point within a specific time.
Seismic wave	A general term for waves generated by seismic events or explosions. There are many types of seismic waves, of which the principal ones are body waves, surface waves, and coda waves.
Seismic zone	An area of seismic activity sharing a common cause.
Seismogenic	Capability to generate earthquakes.
Site-specific mean activity rate (λ)	The mean activity rate of the selected ground motion parameter experienced at the site.

SP	Seismogenic Province
SSZ	Seismogenic Source Zone
Strong ground motion	The ground motion having the potential to cause significant risk to the architectural or structural components or the contents of a structure. One common practical designation of strong ground motion is peak ground acceleration (PGA) of 0.05 <i>g</i> or larger.
TSF TM	Tailing Structures Facilities of Tharisa Mine
USGS	United States Geological Survey

Executive Summary

Epoch Resources (Pty) Ltd, Sect 19 Viscount Rd Office Parade, 8 Viscount Rd Gauteng Johannesburg, Gauteng, 2007 South Africa, requested Natural Hazard Assessment Consultancy (Pty) Ltd (email of 17 April 2023) to perform a desk study of seismic hazard for tailing facilities of the Tharisa Mine, North West Province, South Africa with coordinates 25°44'31.28" S, and 27°31'01.67" E.

The Tharisa Mine is a large-scale open-pit producer of platinum group metals (PGM)s and chrome concentrate. The mine is located on the southwestern limb of the Bushveld Complex, 35 km east of Rustenburg and 120 km northwest of Johannesburg in the North West Province of South Africa. The mining area contains over 70% of the world's platinum and chrome resources.

Deliverables for the seismic hazard analysis for the Tailing Structures Facilities of the Tharisa Mine (TSF TM) include:

1. Compilation of seismic events catalogue within at least 450 km from the site.
2. Analysis of seismicity data and evaluation of the seismic catalogue for completeness and accuracy.
3. Definition of seismotectonic sources. Sources can range from minor faults (linear) to large seismotectonic provinces.
4. Selection of the area-specific ground-motion model (GMM).
5. Assessment of earthquake recurrence parameters, such as the mean annual rate of seismic activity λ , the Gutenberg–Richter b -value, and the area-characteristic maximum possible magnitudes for the identified seismogenic sources.
6. Evaluation of the probabilistic seismic hazard for the TSF TM, with coordinates of 22°44'31.28" S and 27°31'01.67" E, using the classic Cornell–McGuire procedure (Cornell, 1968; McGuire, 1976, 1978, 2004). Probabilistic seismic hazard analysis (PSHA) assesses the probability that a specified level of ground motion will be exceeded at least once at the investigated site. The evaluation includes the construction of earthquake recurrence curves for the selected location for the return period and the probability of exceedance for the mean, median, 5%, 15%, 85%, and 95% percentiles of the horizontal component of peak ground acceleration (PGA).
7. Following the seismic regulations, e.g. Eurocode 8 (2004) and ICOLD (2016), two earthquakes (seismic) designing levels (EDLs) are considered, the Safety Evaluation Earthquake (SEE) and Maximum Credible Earthquake (MCE). Each design level indicates the level of seismic hazard and the risk for the investigated site based on different return periods. In ICOLD (2016), SEE is defined as the level of shaking for which damage could be accepted. The SEE replaces the terms Maximum Design Earthquake (MDE) used in the first edition of this bulletin and Design Basis Earthquake (DBE) used in ICOLD (2016). Following the most recent standards, estimating three earthquake

design levels is required for high-consequence failure tailing structures: for the return period of 2,475, 5,000 and 10,000 years (MCE). In addition, the report also provides the values of earthquake design level, as required by older regulations, i.e. for a return period of 145, 200, 475 and 1,000 years.

8. Application of logic tree formalism. Based on Deliverables 4 and 5, logic tree analysis captures epistemic uncertainty associated with the ground motion models (GMMs) and the maximum possible seismic event magnitude.
9. Horizontal and vertical components of the mean uniform hazard response spectra (UHRS) for return periods: 475, 1,000, 2,475, 5,000 and 10,000 years.
10. Following the requirements of current building regulations, plots of classic Newmark–Hall elastic response spectra (ERS) (Newmark and Hall, 1981) are replaced by spectra specified by Eurocode 8. The ERSs are calculated for 5% damping anchored at six earthquake design levels (EDLs) and corresponding to a return period of 145 years, 200, 475 years, 1,000 years, 2,475 years, 5,000 years, and 10,000 years.
11. De-aggregation of seismic hazard to quantify contributions to seismic hazard by seismic events of different sizes (magnitudes) and distances. The de-aggregation is computed for the return period of 10,000 years.
12. Assessment of PSHA in terms of earthquake magnitude.
13. Deterministic Seismic Hazard Analysis (DSHA).
14. An account of the site effect. The standard PSHA is performed for shear velocities averaged over the upper 30 m, equal to $V_{s30} = 760$ m/s. However, the report provides earthquake design levels corrected for the actual site characteristic $V_{s30} \cong 655$ m/s.
15. Selection of accelerograms matching uniform hazard response spectra (UHRS) based on the de-aggregation analysis.
16. Assessment of the Seismic (Structure Yield) Coefficient k_y according to the procedure by Bray and Travasarou (2007; 2011).
17. Report. A report (provided in PDF format) describes the various assumptions, deliverables, and results.

Section 2 introduces the tectonic setting and seismicity surrounding the TSF TM. Both regional and local seismotectonic models, as well as local seismicity, are discussed.

Section 3 focuses on the applied seismic event catalogue and estimation of seismic recurrence parameters. Due to a lack of detailed information on the regional tectonic setting, provision was made for the subsequent uncertainty in estimating the seismic recurrence parameters required for the PSHA. The report addresses uncertainty by accounting for the incompleteness of seismic event catalogues, uncertainty of earthquake magnitude determination, regional ground-motion models, and ambiguity in the applied occurrence models. The technique developed by Kijko and Sellevoll (1989; 1992) and Kijko *et al.* (2016) is used to estimate the seismic recurrence parameters, namely the mean seismic activity rate λ , the Gutenberg–Richter b -value

and area-characteristic, maximum possible earthquake magnitude m_{max} . An in-depth discussion of PSHA and the required mathematical formalism are available in Kijko (2020), Appendix G.

Section 4 focuses on selecting the appropriate ground motion model (GMM) relevant to the area of interest, applying logic tree formalism and accounting for any potential uncertainty. Alternative equations were used since no reliable ground motion model is available for the investigated area. Three GMMs applicable to the investigated site and the surrounding areas are:

- ChY-2014 (Chiou and Youngs, 2014).
- ASB-2014 (Akkar *et al.*, 2014)
- Pez-2018 (Pezeshk *et al.*, 2018).

The two applied GMMs (ASB-2014 and Pez-2018) are based on seismic records recorded at Stable Continental Regions (SCR) and one GMM (CY-14), developed for Active Shallow Crustal Regions. According to the current knowledge, these three equations describe the seismicity of areas with a similar tectonic setting as Southern Africa (Poggi *et al.*, 2017).

Section 5 provides the vertical component of the PGA, and Section 6 describes the uncertainties associated with the PSHA performed for the TSF TM site. In addition, applying logic tree formalism evaluates seven earthquake design levels (EDLs) for return periods of 145, 200, 475, 1,000, 2,475, 5,000 and 10,000 years. The EDL for the return period of 10,000 years represents the required maximum credible earthquake (MCE).

Section 6 accounts for the uncertainty of the selected GMM, i.e. the product of applying the logic tree formalism.

Section 7 provides the PSHA regarding mean return periods and probabilities of being exceeded for the horizontal component of PGA.

Regulatory guidelines play a crucial role in the safe seismic design of engineering structures. Most countries follow the standards prescribed by the International Commission on Large Dams (ICOLD), and such facilities are under the control of state (central government) dam safety agencies (Chambers and Higman, 2011). Most current standards focus on water reservoirs, and there is a lack of guidance for tailings dams (Szymanski and Davies, 2004; Chambers and Higman, 2011). The implementation of the standards depends on professional judgement, critical assumptions, and specifications. They can vary significantly for similar dams in different locations. The choices of adequate earthquake design levels (EDLs) for tailings dams differ between mining companies (Appendix H).

This report provides seven PGA earthquake design levels based on the seismic activity observed within a radius of 500 km from the TSF TM site. The estimated EDL for the investigated site, after correction for the site effect ($V_{s30} \cong 655$ m/s), for the horizontal component of the mean hazard curve are:

- EDL₁ (Return period 145 years) = 0.020 ± 0.011 g
- EDL₂ (Return period 200 years) = 0.023 ± 0.013 g
- EDL₃ (Return period 475 years) = 0.035 ± 0.033 g
- EDL₄ (Return Period 1,000 years) = 0.050 ± 0.022 g
- EDL₅ (Return Period 2,475 years) = 0.074 ± 0.029 g
- EDL₆ (Return Period 5,000 years) = 0.100 ± 0.035 g
- EDL₇ (Return Period 10,000 years) = 0.131 ± 0.042 g (MCE).

The four EDL values, computed for return periods of 145, 200, 475 and 1,000 years, are provided for reference and comparison purposes. It should be noted that the above-estimated EDLs expressed in terms of PGA are not the only indicators of seismic hazard for an investigated site. For example, high PGA at high frequencies does not threaten engineering structures. The uniform hazard response spectra (UHRS), Section 8, show the expected ground motion frequency distribution.

The seismic hazard curve, e.g., the annual probability of exceedance of the peak ground acceleration for the investigated site of the TSF of Tharisa Mine and its quantiles (after accounting for site effect), are shown in Figure A1.

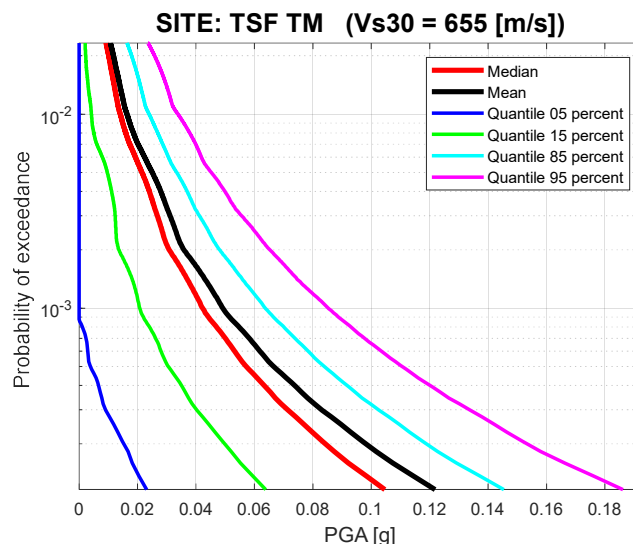


Figure A.1 The seismic hazard curve and its quantiles for the investigated site of the TSF TM (after accounting for site effect).

The UHRS and the Eurocode 8 elastic response spectra (ERS) are shown in Figs A.2 - A.3 and Section 8.

The uniform hazard response spectra (UHRS) show the expected ground motion frequency distribution. The UHRS calculated for the investigated site and the Eurocode 8 elastic response spectra (ERS) for return periods of 145, 200, 475, 1,000, 2,475, 5,000, and 10,000 years are shown in Figs A.2 - A.3 and Section 8.

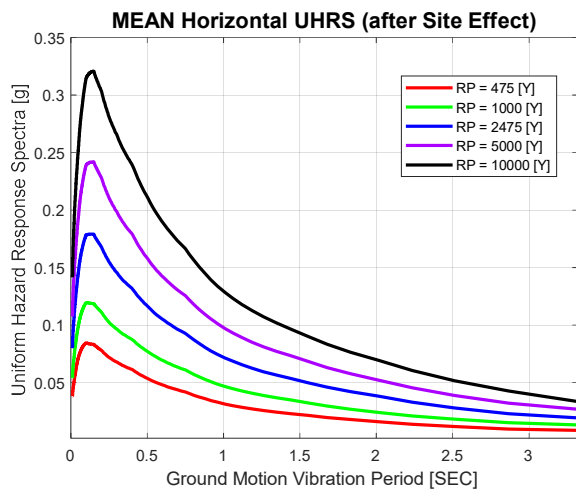


Figure A.2 The horizontal component of uniform hazard response spectra (UHRS) calculated for the investigated site for return periods 475, 1,000, 2,475, 5,000 and 10,000 years (after the logic tree and after site effect).

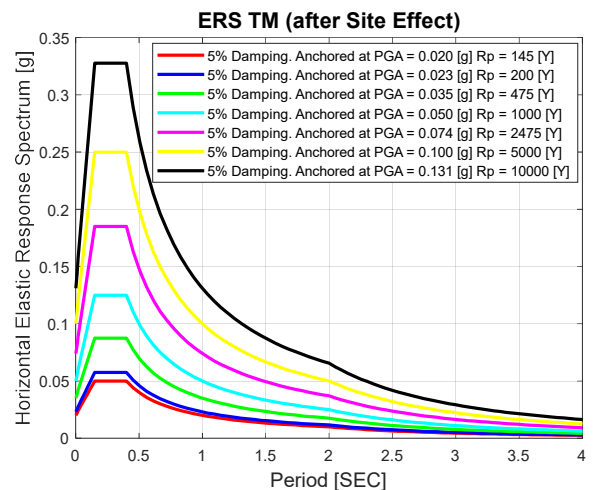


Figure A.3 The horizontal component of the elastic response spectra (ERS) anchored at seven earthquake design levels: 145, 200, 475, 1,000, 2,475, 5,000 and 10,000 years (after the logic tree and after site effect).

Based on the available information, the applied PSHA methodology and the classification procedure by Shedlock *et al.* (2000), the seismic hazard for the investigated site is rated as low.

Results of the de-aggregation of PSHA for the investigated site of the TSF TM are summarised in Section 9, Table 9-1 and Figures 9.1(a-e). Based on Table 9-1 and Figure 9.1(a-e), for the reference return period of 10,000 years, the low-frequency ground vibration (1.0 - 2.5 Hz) is controlled by two sets of events: occurring at distances 60 - 90 km with magnitudes 6.4 - 6.7 and occurring at distances of 210 - 250 km with magnitudes ~ 6.8. The high-frequency ground vibration, which, as a rule, is not imposing a significant threat to the structure, is controlled by events with magnitudes of 6.0 - 6.1 at distances 40 - 50 km and events with magnitudes of 6.5 - 6.7 at distances of 160 - 170 km. The most significant contribution to seismic hazard for the TSF TM in terms of PGA comes from close earthquakes with magnitudes ~ 6.1 which occurred at about 40 - 50 km. The most important contribution (regarding PGA) from distant earthquakes comes from potential events with magnitudes ~ 6.7, which occurred at about 160 km.

Results of the seismic hazard assessment, expressed in terms of magnitude, are provided in Section 10. The estimated maximum possible (M_w) magnitude for background seismicity is $m_{max} = 6.94 \pm 0.69$. The largest possible seismic event ($M_w 6.90 \pm 0.65$) one can expect to occur in seismogenic Zone #3.

Assessment of the maximum possible earthquake magnitudes provides the necessary information required to evaluate the stability of mine structures and can be used to assess liquefaction potential. However, seismic hazard is controlled by the level of ground shaking (e.g., PGA) experienced at the structure site, not by seismic event magnitude. Strong events far away are not an imposing seismic threat to the structure.

Deterministic seismic hazard analysis (DSHA) involves developing a particular seismic scenario, according to which expected damages (losses) could be estimated. It provides a framework for evaluating the worst-case damages (Reiter, 1990). The report investigates the three hypothetical scenarios, an effect of the largest possible seismic events occurring at the three locations: seismic event closes to Zone #5, which is capable of producing an earthquake of magnitude ~ 6.2 (Scenario #1); an event of magnitude ~ 5.5 occurred in the closes area to the gold mining Zone #8, (Scenario #2) and a diffuse event, of magnitude ~ 6.1 , occurring at a distance of 43 km (Scenario #3). The features of Scenario #3 come from the application of the de-aggregation procedure. Hypothetically, the second scenario can generate the largest PGA and spectral acceleration at the investigated site ($PGA = 0.11g$ and $Sa(1.0 \text{ Hz}) = 0.026g$). However, because of the low likelihood of such an event, perhaps the most significant effect on the TSF TM has an earthquake described by Scenario #3, capable of generating $PGA \cong 0.04g$ and $Sa(1.0 \text{ Hz}) \cong 0.02g$. All PGA and spectral acceleration assessments are calculated with an account of site effect.

Finally, Section 12 assesses the seismic (structure yield) coefficient k_y for TSFs of Tharisa Mine. The k_y coefficient is calculated for the tailing dam displacement within the 5 to 30 cm range.

In conclusion, the primary sources of uncertainty in the PSHA for the TSF TM site are the incomplete and uncertain earthquake event catalogue, the lack of a reliable regional ground-motion model, and the ambiguity of the seismotectonic model (the seismic capability of tectonic faults). The investigated site's seismic hazard is low, following the classification by Shedlock *et al.* (2000). This classification evaluates the PSHA for the 10% probability of exceedance in 50 years (475 years return period). The uncertainty of the estimated seismic hazard could be reduced by including detailed seismotectonic and geological information at and around the examined site.

Table of Contents

	Abbreviations, Definitions & Acronyms	1
	Executive Summary	8
	Table of Contents	14
	List of Appendices	15
	List of Figures	15
	List of Tables	19
1	Terms of Reference	21
2	Tectonic Setting and Seismicity of the TSF TM	24
	2.1 Regional Seismotectonic Models	24
	2.2 Local Seismotectonic Model	33
	2.3 Anthropogenic Seismicity	41
3	Seismic Event Catalogue and Estimation of Seismic Recurrence Parameters	46
4	Ground Motion Models (GMMs)	49
5	Vertical Component of Peak Ground Acceleration	51
6	An Account of Uncertainties: Logic Tree Approach	53
7	Probabilistic Seismic Hazard - Results	54
	7.1 Earthquake Design Levels	54
	7.2 Seismic Hazard Curve and Its Uncertainty	56
8	Response Spectra	57
	8.1 Uniform Hazard Response Spectra (UHRS)	57
	8.2 Elastic Response Spectrum (ERS)	61
9	De-aggregation	62
	9.1 Applied Procedure	63
	9.2 Results	65
10	PSHA, in Terms of Earthquake Magnitude	69
	10.1 Assessment of the Annual Probability of Exceedance and Return Periods	69
11	Deterministic Seismic Hazard Analysis (DSHA)	73
12	Assessment of the Seismic (Structure Yield) Coefficient k_y	75
13	Conclusions	79
	References (Quoted and Some Additional Relevant Publications)	81

List of Appendices

Appendix A	Seismic Event Catalogue. Seismic Events Located within a radius of 500 km from the investigated site of the TSF TM	2
Appendix B	Seismic Sources and their Recurrence Parameters	310
Appendix C	Results of the PSHA. It contains the relevant details of the computations, input data, estimated seismic hazard characteristics and their uncertainties	317
Appendix D	An account of Site Effect in Terms of PGA	353
Appendix E	De-aggregation - Results	357
Appendix F	Development of Time Histories for the TSF TM (by Dr Artur Cichowicz)	360
Appendix G	“Introduction to Probabilistic Seismic Hazard Analysis” (Extended version of contribution by A. Kijko, Encyclopaedia of Solid Earth Geophysics, Harsh Gupta (Ed.), Springer, 2020	361
Appendix H	Some Relevant Literature	400

List of Figures

Figure A.1	The seismic hazard curve and its quantiles for the investigated site of the TSF TM (after accounting for site effect).	11
Figure A.2	The horizontal component of uniform hazard response spectra (UHRS) calculated for the investigated site for return periods 475, 1,000, 2,475, 5,000 and 10,000 years (after the logic tree (after accounting for site effect)).	12
Figure A.3	The horizontal component of the elastic response spectra (ERS) anchored at seven earthquake design levels: 145, 200, 475, 1,000, 2,475, 5,000 and 10,000 years after the logic tree (after accounting for site effect).	13
Figure 2.1	Seismotectonic provinces and significant earthquakes of the African continent. Focal mechanisms are from Harvard-CMT solutions. (Source: http://www.globalcmt.org/ , after Meghraoui <i>et al.</i> , 2016).	25
Figure 2.2	Seismotectonic source zones of eastern and southern Africa (after Midzi <i>et al.</i> , 1999).	25
Figure 2.3	Seismotectonic source model for Sub-Saharan Africa (after Durrheim <i>et al.</i> , 2015).	26

Figure 2.4	Seismotectonic source model for East African Rift (after Poggi <i>et al.</i> , 2017).	26
Figure 2.5	Tectonic provinces and earthquake distribution map for southern Africa for the period 1620 to 2006. The provinces are modified from the South African Seismic Experiment Project (Malephane, 2007). The regions are defined as a) Kheis thrust belt, b) Cape fold belt, c) Zimbabwe Craton, d) Limpopo Mobile Belt, e) Kaapvaal Craton, and f) Namaqua–Natal Mobile Belt. The numbers in red denote regional clusters of seismicity. Region 1 is the Okavango rift in northern Botswana; Region 2 is the Mozambique rift-grabens; region 3 represents the mines of South Africa; Region 4 is the Koffiefontein cluster, which, together with Region 5 in southern Lesotho, forms the Senqu Seismic Belt; Region 6 is the Ceres–Tulbagh region (source Malephane, 2007).	27
Figure 2.6	The basement geology of southern Africa shows major structural units of the region. (After Manzunzu <i>et al.</i> , 2019).	28
Figure 2.7	Major faults within the study area, with active faults marked in yellow. The red dots show the location of known seismic events with magnitudes equal to and stronger than 4.0 (Manzunzu <i>et al.</i> , 2019).	28
Figure 2.8	Location of large earthquakes in Sub-Saharan Africa. (After Midzi and Manzunzu, 2014). Earthquakes are numbered according to the list in Table 2-1).	30
Figure 2.9	Isoseismal map for the Rukwa earthquake (13 December 1910). Source: Midzi and Manzunzu, (2014).	32
Figure 2.10	Fault scarp showing displacement from the Machaze earthquake (22 February 2006). (Fenton and Bommer, 2006).	32
Figure 2.11	Seismogenic provinces, after Du Plessis (1996).	34
Figure 2.12	Distribution of seismic events from 1620 to 2008, clusters of tectonic and anthropogenic origin seismicity. Seismic stations are shown by triangles. (After Singh <i>et al.</i> , 2009).	35
Figure 2.13	Areal source zones, as identified by Midzi <i>et al.</i> (2016).	36
Figure 2.14	Damage observed at Tulbagh after the Ceres earthquake. Source: Pule <i>et al.</i> (2015). Adapted from Fernandez (1974).	37
Figure 2.15	The sum of the log of seismic energy released in the Johannesburg area by seismic events with local magnitudes 2.5 and stronger during the period 2000/01/01 – 2010/12/31 (Source: Kijko <i>et al.</i> , 2012).	40
Figure 2.16	The collapse of six storeys apartment block was caused by the 1976 mining-related seismic event (Source: Council for Geoscience, Pretoria, photographer unknown).	43
Figure 2.17	The Far West Rand event of 7 March 1992 of m_b magnitude 4.9. (Source: http:// earthquaketrack.com . The last time visited was on 7 November 2021).	43

Figure 2.18	Damage caused by the seismic events of a) the 2005 Stilfontein seismic event of M_W 5.3 to the A-block of the Bal-Eaton flats, and b) the 2014 Orkney seismic event of M_W 5.5. (Photographs courtesy of Ian Saunders, CGS, Pretoria.)	44
Figure 2.19	Distribution of all known seismic events equal to or larger than magnitude M_L 2.5 within the investigated area within a radius of 500 km from the TSF TM.	45
Figure 3.1	Bimodal distribution of seismicity. The low-energy component represents anthropogenic-induced seismicity from mining. The second high-energy component describes seismicity generated by tectonic stresses, which can be triggered by mining. The tectonic branch of the graph can represent an earthquake of pure tectonic origin (after Gibowicz and Kijko, 1994). The strength of seismic events is expressed in seismic energy, the convention often used by the mining industry.	47
Figure 3.2	Bimodal distribution of seismicity observed in an Australian mine (after Woodward and Tierney, 2017).	47
Figure 5.1	The expected ratio of peak vertical to peak horizontal ground acceleration is determined by equations (14) and (15) in Abrahamson and Litehiser (1989).	52
Figure 6.1	The schematic illustration of the logic tree applied in this study. The image is limited to the applied GMMs and the maximum possible earthquake magnitude m_{max} . The figure also shows the assigned weights. The weights assigned to the uncertain activity rates are the same as the weights allocated to maximum magnitudes m_{max} .	53
Figure 7.1	Annual probability of peak ground acceleration (PGA) exceedance for the VDM Tailings Storage Facilities. The 5%, 15%, 50% (median), 84%, and 95% quantiles of the horizontal PGA after applying the logic tree (a) before the account of site effect and (b) after the account of site effect.	56
Figure 7.2	Mean return period (years) of the horizontal PGA at the VDM Tailings Storage Facilities after applying logic tree formalism. The return period is defined as the reciprocal of the mean activity rate λ . (a) before the account of site effect and (b) after the account of site effect.	56
Figure 8.1(a)	Mean horizontal UHRS for return periods 475, 1,000, 2,475, 5,000 and 10,000 years as a structural vibration period after applying logic tree formalism — linear axes.	58
Figure 8.1(b)	Mean horizontal UHRS for return periods 475, 1,000, 2,475, 5,000 and 10,000 years as a structural vibration frequency after applying logic tree formalism — log-log axes.	58
Figure 8.2(a)	Mean vertical uniform hazard response spectra (UHRS) for return periods 475, 1,000, 2,475, 5,000 and 10,000 years as a structural vibration period after applying logic tree formalism — linear axes.	58

Figure 8.2(b)	Vertical uniform hazard (acceleration) response spectra (UHRS) for return periods 475, 1,000, 2,475, 5,000 and 10,000 years as a function of structural vibration frequency after application of logic tree formalism. Log-log axes.	58
Figure 8.3	Quantiles 5%, 15%, 84% and 95% of the mean UHRS for return period 475 years (a) linear axes, (b) log-log axes.	59
Figure 8.4	Quantiles 5%, 15%, 84% and 95% of the mean UHRS for return period 1,000 years (a) linear axes, (b) log-log axes.	59
Figure 8.5	Quantiles 5%, 15%, 84% and 95% of the mean UHRS for a return period 2,475 years (a) linear axes, (b) log-log axes.	60
Figure 8.6	Quantiles 5%, 15%, 84% and 95% of the mean UHRS for return period 5,000 years (a) linear axes, (b) log-log axes.	60
Figure 8.7	Quantiles 5%, 15%, 84% and 95% of the mean UHRS for a return period 10,000 years (a) linear axes, (b) log-log axes.	61
Figure 8.8	Horizontal Eurocode 8 (Type 1) elastic response spectra anchored at five earthquake design levels calculated for return periods of 145, 200, 475, 1,000, 2,475, 5,000, and 10,000 years after applying logic tree formalism.	62
Figure 9.1(a)	De-aggregation of seismic hazard expressed in $S_a = 1.0$ Hz for annual reference probability 1/10,000 after logic tree.	66
Figure 9.1(b)	De-aggregation of seismic hazard expressed in $S_a = 2.5$ Hz for annual reference probability 1/10,000 after logic tree.	66
Figure 9.1(c)	De-aggregation of seismic hazard expressed in $S_a = 5.0$ Hz for annual reference probability 1/10,000 after logic tree.	67
Figure 9.1(d)	De-aggregation of seismic hazard expressed in $S_a = 10.0$ Hz for annual reference probability 1/10,000 after logic tree.	67
Figure 9.1(e)	De-aggregation of seismic hazard expressed in PGA for annual reference probability 1/10,000 after logic tree.	67
Figure 9.2	Annual probability of exceedance versus S_a for frequencies 1.0, 2.5, 5.0, 10.0 Hz. (After logic tree).	68
Figure 10.1	Annual probability of exceeding the specified seismic event magnitude value for the area 500 km from the TSF TM site. The red curve shows the mean probability, while the two blue curves indicate the mean probability plus or minus the standard deviation.	71
Figure 10.2	Mean return periods for seismic events magnitude occurring within the area of 500 km from the TSF TM site.	71
Figure 10.3	Probability of exceedance of specified value of seismic event magnitude within the time interval 145, 475 and 2,475 years for the area within 500 km from the TSF TM site.	71
Figure 11.1	DSHA. Illustration of the hypothetical $m_{max} = 6.2$ earthquake occurrence at the distance of 70 km from the TSF TM site (Scenario #1), $m_{max} \cong 5.5$, a mine-related event occurred at Zone #8, at the closes distance (~ 16 km) to the TSF TM site (Scenario #2) and the background	74

	seismicity earthquake of magnitude $m_{max} \cong 6.1$ at the distance to the investigated site, i.e. ~ 43 km. The features of Scenario #3 seismic event come from applying the de-aggregation procedure.	
Figure 11.2	The contribution to the PGA and spectral acceleration from three scenarios.	75

List of Tables

Table 2-1	Some earthquakes with $M \geq 6$ in Sub-Saharan Africa (modified after Midzi and Manzunzu, 2014).	29
Table 3-1	Division of the anthropogenic (mining) and tectonic origin events catalogue used for PSHA of the TSF TM site. (m_c = level of completeness; SE = standard error (assumed uncertainty in earthquake magnitude determination)).	46
Table 7-1	Mean earthquake design levels for the TSF TM site, calculated for return periods 145, 200, 475, 1,000, 2,475, 5,000 and 10,000 years (MCE) for $V_{s30} = 655$ m/s.	55
Table 9-1	Results of de-aggregation of PSHA for the TSF TM site after the logic tree for the annual reference probability 1/10,000. (a) The mean magnitude and distance of controlling earthquakes for S_a 1.0, 2.5, 5.0, 10.0 Hz and PGA, and (b) the mean magnitude and distance of controlling earthquakes for the spectral acceleration of 1.0, 2.5, 5.0, 10.0 Hz at distances exceeding 100 km.	66
Table 10-1	Estimated earthquake magnitude recurrence parameters for the site of TSF TM.	70
Table 10-2	Estimated seismic hazard results for the area surrounding the site of the TSF TM in terms of activity rate (events/year), return periods (years) and the probability of exceedance for a specified magnitude for 1, 200, 1,000 and 2,475 years.	72
Table 11-1	DSHA. Estimated PGAs and $S_a(1.0$ Hz) at the TSF TM site generated by the three hypothetical earthquake occurrence scenarios (after accounting of site effect).	75
Table 12-1	The estimated seismic coefficient k_y for TSF TM, confidence level 16%, DSHA Scenario #2 ($R = 16$ km, $m_{max} = 5.5$). The calculations are performed for the average shear wave velocity of the sliding mass $V_S = 180$ m/s, $H = 45$ m, $T_S = 1.0$ sec, $S_a(1.5T_S) = 0.014$ g.	78
Table 12-2	The estimated seismic coefficient k_y for TSF TM, confidence level 16%, DSHA Scenario #3 ($R = 43$ km, $m_{max} = 6.1$). The calculations are performed for the average shear wave velocity of the sliding mass $V_S = 180$ m/s, $H = 45$ m, $T_S = 1.0$ sec, $S_a(1.5T_S) = 0.014$ g.	78

Table D1	NEHRP Site Classes. Site class definitions are published in 2000 International Building Code, International Code Council, Inc. Table 1615 1.1 Site Class Definitions.	354
Table D2	Eurocode 8. Site Classes. Site class definitions are published in 2000 International Building Code, International Code Council, Inc. Table 1615 1.1 Site Class Definition.	355

1 Terms of Reference

Epoch Resources (Pty) Ltd, Sect 19 Viscount Rd Office Parade, 8 Viscount Rd Gauteng Johannesburg, Gauteng, 2007 South Africa, requested Natural Hazard Assessment Consultancy (Pty) Ltd (email of 17 April 2023) to perform a desk study of seismic hazard for tailing facilities of the Tharisa Mine, North West Province, South Africa with coordinates 25°44'31.28" S, and 27°31'01.67" E.

The Tharisa Mine is a large-scale open-pit producer of platinum group metals (PGM)s and chrome concentrate. The mine is located on the southwestern limb of the Bushveld Complex, 35 km east of Rustenburg and 120 km northwest of Johannesburg in the North West Province of South Africa. The mining area contains over 70% of the world's platinum and chrome resources.

This desktop study covers deterministic (DSHA) and probabilistic seismic hazard analysis (PSHA) (Reiter, 1990; Kramer, 1996). The report describes the tectonic setting and seismicity near the TSF TM site. It provides seismic hazards in terms of PGA, ERS, and de-aggregation. The seismic hazards are also described in terms of the regulatory earthquake design levels.

In general, the hazardous effects of seismic events, which include induced and triggered seismic events and earthquakes of tectonic origin, can be divided into three categories:

- effects resulting directly from a certain level of ground shaking;
- effects at the site of the event resulting from physical surface faulting or deformations;
- effects triggered or activated by a certain level of ground shakings, such as the generation of a subsequent tsunami or landslide.

The PSHA was compiled using the conventional Cornell–McGuire procedure (Cornell, 1968; McGuire, 1976, 1978, 2004). The integration across the uncertainty in the GMM forms a central part of the methodology. A typical PSHA, adjusted for the deliverables of this project, consists of the following steps:

1. Compilation of seismic events catalogue and selection of mine-related seismic events and natural (tectonic origin) earthquakes within a radius of at least 450 km from the site.
2. Analysis of seismicity data and evaluation of the catalogue for completeness and accuracy. This includes assessing the earthquake effects using several GMMs relevant to the area of interest. Each GMM relates to a ground motion parameter, such as PGA, and spectral acceleration, as a function of distance and earthquake magnitude. The definition of seismotectonic sources could range from linear (faults) to large seismotectonic (aerial) provinces.

3. Estimation of the earthquake effects at the investigated site, using GMMs relevant to the area of interest.
4. Assessment of the earthquake recurrences parameters, i.e. the mean annual rate of seismic activity λ , the Gutenberg–Richter b -value, and the area-characteristic maximum possible magnitudes for the identified seismogenic sources. The earthquake recurrence parameters should be defined for each source. An earthquake probability distribution or earthquake recurrence relationship describes each source. A recurrence relationship indicates the possibility of an earthquake of a given size occurring anywhere inside the source during a specified time span.
5. Probabilistic seismic hazard analysis at the specified site. The effects of all earthquakes of different magnitudes occurring at various locations in various earthquake sources at different probabilities are integrated into the hazard curve showing the probability of exceeding different levels of ground motion at the site during a specified time. Such assessment should include the construction of earthquake recurrence curves for the return period and the probability of exceedance for the mean, median, 5%, 15%, 85%, and 95% percentiles of the horizontal component of the PGA. The assessment of the PSHA for the LDM-TSF site is performed by application of the classic Cornell–McGuire procedure (Cornell, 1968; McGuire, 1976, 1978, 2004).
6. Interpretation of hazard estimates according to acceptable regulatory guidelines. Following the seismic regulations, e.g. Eurocode 8 (2004) and ICOLD (2016a), two earthquake designing levels (EDLs) are considered, namely Safety Evaluation Earthquake (SEE) and Maximum Credible Earthquake (MCE). Each design level indicates the seismic hazard level for the investigated site for a specified return period. In ICOLD (2016), SEE is defined as the level of shaking for which damage could be accepted. The SEE replaces the terms Maximum Design Earthquake (MDE) used in the first edition of this bulletin and Design Basis Earthquake (DBE) used in ICOLD (2016). Following the most recent standards (Appendix G), estimating three earthquake design levels is required for high-consequence failure dams and associated structures: for return periods 2,475, 5,000 and 10,000 years (MCE). In addition, the report also provides the values of earthquake design level (EDL), as required by older regulations, i.e. for a return period of 145, 200, 475 and 1,000 years. For TSF TM, the MCE is calculated for a return period of 10,000 years. The report also provides the value earthquake (seismic) design level, as required by older regulations, calculated for a return period of 475 years (known as OBE).
7. Application of logic tree formalism. Based on the results of seismic hazard, logic tree analysis is performed to capture epistemic uncertainty associated with applying different ground-motion models and uncertainty of the maximum possible magnitudes of the tectonic origin earthquakes.

8. Horizontal and vertical components of mean uniform hazard response spectra (UHRS) for return periods: 475, 1,000, 2,475, 5,000 and 10,000 years.
9. Following the requirements of current building regulations, plots of classic Newmark–Hall elastic response spectra (ERS) (Newmark and Hall, 1981) are replaced by spectra specified by Eurocode 8. The ERSs are calculated for damping of 5% anchored at seven earthquake design levels corresponding to a return period of 145, 200, 475 years, 1,000 years, 2,475 years, 5,000 years, and 10,000 years.
10. De-aggregation of seismic hazard to quantify contributions to seismic hazard by events of different sizes (magnitudes) and distances.
11. Assessment of PSHA in terms of earthquake magnitude and deterministic seismic hazard analysis (DSHA).
12. An account of the site effect. Calculations of EDLs are performed for the actual value of velocity V_{s30} , equal to ~ 655 m/s.
13. Calculation of the structure yield coefficient k_y . The primary question in calculating k_y is estimating the dynamic strength of the critical strata within the slope. The yield coefficient is used to assess the possibility of sliding the structure's surface due to seismic displacement.
14. Selection of accelerograms matching uniform hazard response spectra (UHRS) based on the de-aggregation analysis.

The report introduces the tectonic setting and seismicity for the area surrounding the TSF TM in Section 2. It includes a description of regional and local seismotectonic models and anthropogenic seismicity. Section 3 focuses on estimating seismic recurrence parameters, with Section 4 detailing the applied GMMs. Section 5 provides the vertical component of the PGA, and Section 6 describes the uncertainties associated with the PSHA performed for the TSF TM site. The results of the PSHA in terms of mean return periods and probabilities of exceedance of the horizontal component of PGA are given in Section 7. Sections 8 and 9, respectively, provide the UHRS, ERS and results of de-aggregation. The de-aggregation procedure separates the seismic hazard contributions of earthquakes based on their size (magnitude) and distance. It identifies so-called ‘controlling earthquakes’, i.e. events that most likely will cause damage to infrastructures. Sections 10 and 11 present PSHA in terms of earthquake magnitude and DSHA. Section 12 provides an assessment of the seismic coefficient k_y for the tailing dam displacement within the 5 to 30 cm range.

Finally, Section 13 gives the concluding remarks, with the respective Appendices supplied in text format.

2. Tectonic Setting and Seismicity of TSF TM

2.1 Regional Seismotectonic Models

The African Plate, on which TSF TM is situated, includes southern Africa and the EARS, ending in the Indian Ocean. The continental and oceanic lithosphere plate boundaries, including the African plate boundary, are thousands of kilometres wide. They cover roughly 15% of the total surface area of the Earth (Gordon and Stein, 1992). The African Plate is considered one of the most tectonically stable areas. The Central Indian Ridge bounds the plate to the east, the Southwest Indian Ridge to the south, the Mid-Atlantic Ridge (west), the Hellenic arc and the Mediterranean subduction zone (north), and the Gulf of Aden/Afar triple junction in the northeast (Sutton and Berg, 1958).

The first step in seismic hazard analysis focuses on generating a data-driven seismotectonic model that divides the investigated region into areas of similar seismic potential. Such regions are called seismogenic source zones.

Following Meghraoui *et al.* (2016) and based on geological and geophysical characteristics, the African continent can be divided into six seismotectonic provinces (Figure 2.1):

1. Western-Central Africa's "stable" tectonic zones and related islands
2. Northwest African fold-and-thrust belt (the Atlas Mountains to Sahara Platform)
3. Northeast African tectonic zones of Libya, Egypt, and North Sudan
4. Central African fault systems of Angola, RD Congo, and Cameroon to Chad
5. East African Rift (from Malawi to Ethiopia, including Madagascar)
6. Southern African shield, including Mozambique, Namibia, southern parts of Angola, and the Cape Fold Belt.

The TSF TM site is located in seismotectonic province #6 (Fig. 2.1), which covers the southern regions of Africa (Figure 2.2), such as Mozambique, Namibia, and South Africa. The province is known for several large earthquakes, of which the most prominent is the recent Machaze earthquake of M_w 7.0 that occurred on 22 February 2006 in Mozambique. In most cases, the delineation of provinces is based on seismicity patterns (e.g. Hlatywayo, 1995, 1997; Midzi *et al.*, 1999; Durrheim *et al.*, 2015; Poggi *et al.*, 2017).

One of the first attempts to create a seismotectonic model for the investigated area is shown in Figure 2.3 (Midzi *et al.*, 1999). The authors have studied an area of approximately $50^\circ \times 25^\circ$, accounting only for regional structures. The detailed structures and individual faults are treated as broad fault zones and are

included in area sources. Twenty-one area source zones were defined, along with significant rift segments. Because the zonation suggested by Midzi *et al.* (1999) is too broad and accounts merely for regional structures, it was not used in our study.

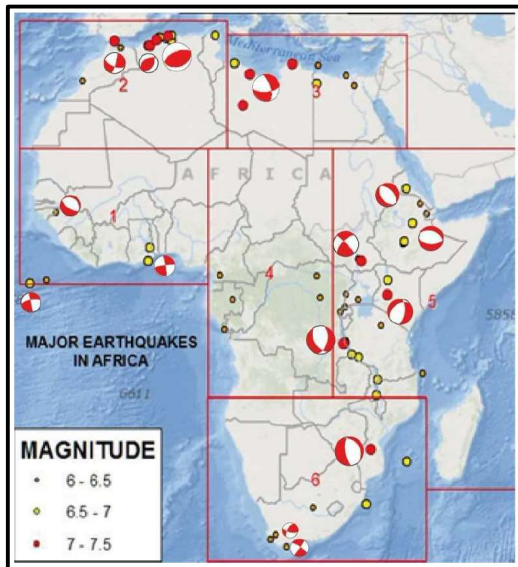


Figure 2.1 Seismotectonic provinces and significant earthquakes of the African continent. Focal mechanisms are from Harvard-CMT solutions. The investigated site is located in seismotectonic Province#6. (Source: <http://www.globalcmt.org/>, after Meghraoui *et al.*, 2016).

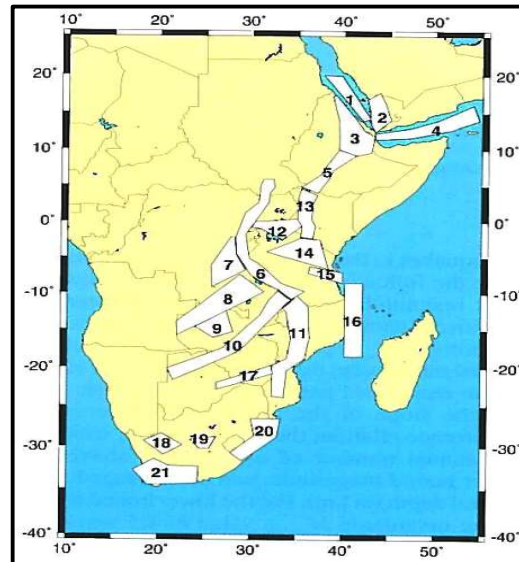


Figure 2.2 Seismotectonic source zones of Eastern and Southern Africa. (After Midzi *et al.*, 1999).

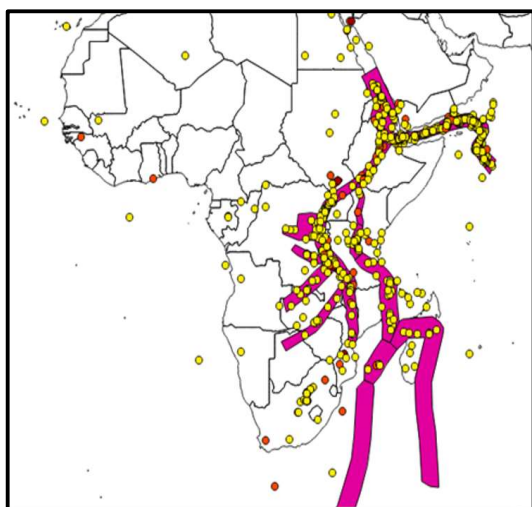


Figure 2.3 Seismotectonic source model for Sub-Saharan Africa (after Durrheim *et al.*, 2015).

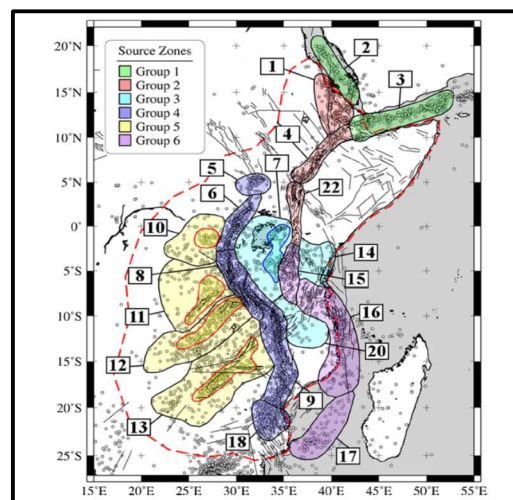


Figure 2.4 Seismotectonic source model for East African Rift (after Poggi *et al.*, 2017).

A comprehensive study of the seismicity of southern Africa, covering the investigated area, is provided by Malephane (2007). According to Malephane (2007), the southern African region is divided into several regional tectonic provinces (Figure 2.5):

- Zimbabwe Craton
- Limpopo Mobile Belt
- Kheis Thrust Belt
- Kaapvaal Craton (including the Bushveld Complex)
- Namaqua–Natal Mobile Belt
- Cape Fold Belt

Recent studies on the spatial distribution of seismicity in southern Africa have indicated two stable blocks and the Senqu Seismic Belt. This belt is a discrete zone of seismicity observed in the eastern highlands of South Africa (Hartnady, 2002), as seen in Figure 2.5 (Malephane, 2007). The Senqu Belt is seismically active and stretches from the Koffiefontein Seismic Cluster into southern Lesotho and the southern part of Mozambique, across the southeastern margin of the Kaapvaal Craton. It includes the southern boundary of the Kaapvaal province, the Namaqua–Natal province, Karoo Basin. It ends in the Cape Fold Basin (Brandt, 2000). The relatively aseismic block within the wide Nubia and Somalia plate boundary zone has been identified as a potential Trans-Gariep microplate (Hartnady, 1998).

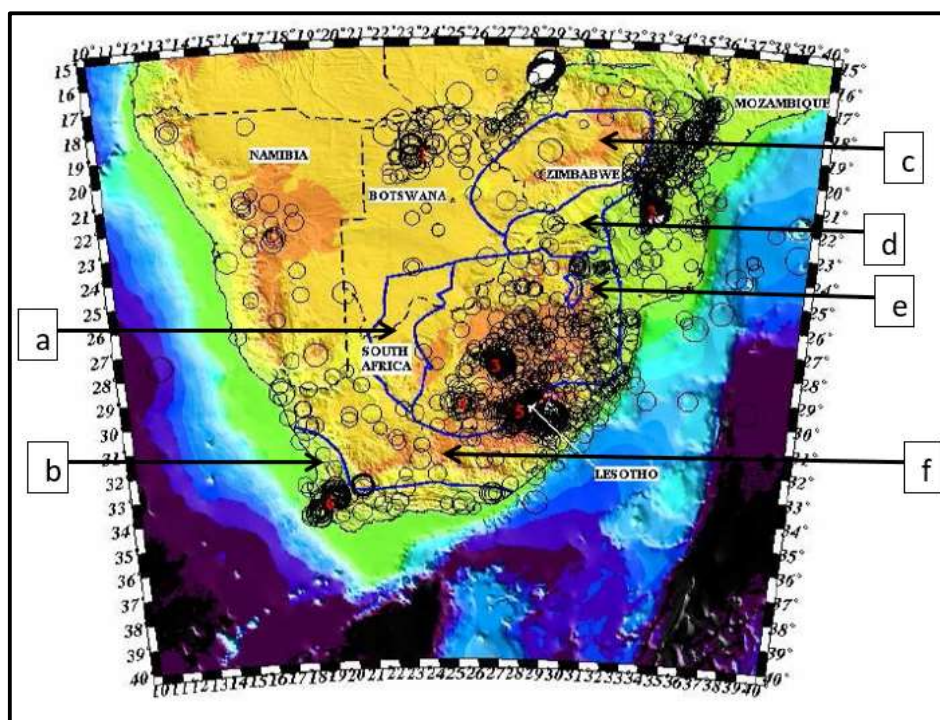


Figure 2.5 Tectonic provinces and earthquake distribution map for southern Africa from 1620 to 2006. The provinces are modified from the South African Seismic Experiment Project (Malephane, 2007). The regions are defined as a) Kheis Thrust Belt, b) Cape Fold Belt, c) Zimbabwe Craton, d) Limpopo Mobile Belt, e) Kaapvaal Craton, and f) Namaqua-Natal Mobile Belt. The numbers in red denote regional clusters of seismicity. Region 1 is the Okavango rift in northern Botswana; Region 2 is the Mozambique rift-grabens. Region 3 represents the mines of South Africa. Region 4 is the Koffiefontein Cluster, which, together with Region 5 in southern Lesotho, forms the Senqu Seismic Belt. Region 6 is the Ceres-Tulbagh Region. (Source: Malephane, 2007).

The most comprehensive (and controversial) seismotectonic model of southern Africa is presented in a recent study by Manzunzu *et al.* (2019). The following paragraph describing the geology and seismotectonic of southern Africa is quoted from Manzunzu *et al.* (2019):

*"The basement geology of southern Africa is dominated by Archean cratons and Mobile belts (Figure 1, Figure 2.7 below). The three major cratons are the Kaapvaal, Zimbabwe and the Congo. Of these, the Kaapvaal Craton is the oldest, formed between 2.7 and 3.7 Ga and covering an area of about 1.2 million km² (Johnston *et al.*, 1994; Adams and Nyblade, 2011). The Kaapvaal Craton collided with the Zimbabwe Craton along the Limpopo Mobile Belt during the late Archean, which caused dominant foliation in the Zimbabwe Craton (de Wit and Ransome, 1992). The southern margin of the Kaapvaal Craton is bound by the Neoproterozoic Namaqua-Natal Belt, whilst the north-western margin is bound by the Proterozoic Damara-Lufilia domain (Johnston *et al.*, 1994). The Namaqua sector of the Namaqua-Natal Belt is separated on its north-eastern boundary from the Kaapvaal Craton by the Paleoproterozoic Kheis Mobile*

belt (Adams and Nyblade, 2011), which was described as a thin-skinned region with east-verging thrust belt characteristics (Cornell et al., 2011). The Namaqua Mobile belt extends north-west into Namibia, where it forms a 'triple junction' with the Damara and Kaoko Mobile belts. The Damara belt itself appears to be part of a westward extension of the East African Rift System (EARS) through the Zambezi valley and the Okavango Delta, both of which are associated with some of the major earthquakes in the region. Along the eastern edge of the Kaapvaal Craton is the Pongola rift, which is believed to have reactivated in the late Proterozoic as a compressional zone (Johnston et al., 1994). Another prominent structure on the sub-continent is the Cape Fold Belt, which is a dominant structural domain along the southern coast and is assumed to have been caused by late Palaeozoic compression associated with the assemblage of Pangea (Hälbich, 1983). According to Tucholka et al. (1981), the belt extends southwards offshore as far as the Agulhas Bank along the strike-slip margin of south-eastern Africa (Figure 1). Along the eastern part of the Cape Fold Belt is a large duplex structure formed along the southern margin of Gondwana (Booth et al., 2004). This duplex structure, formed during the Late Palaeozoic, contains typical patterns of numerous and north-verging thrust faults and associated folds."

A figure illustrating the basement geology of the study area, similar to Figure 2.6, can be found in a study by Fairhead and Stuart (1982).

The study by Manzunzu et al. (2019) also provides a map of major tectonic faults of the investigated area, as shown in Figure 2.7. Although the study by Manzunzu et al. (2019) is quite comprehensive, it is still too controversial and uncertain to be applied to our investigation.

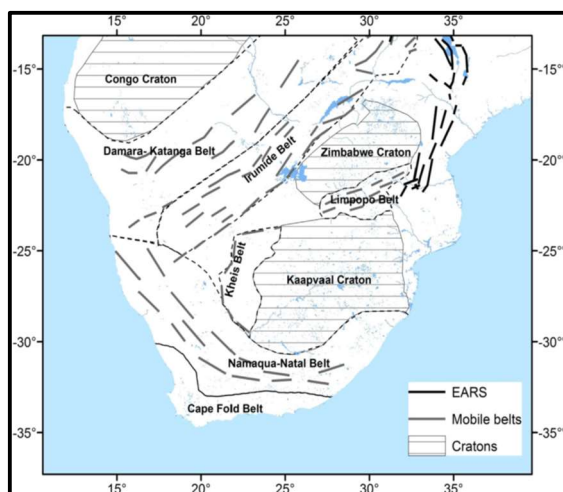


Figure 2.6 Basement geology of southern Africa showing the major structural units of the region. (After Manzunzu et al., 2019).

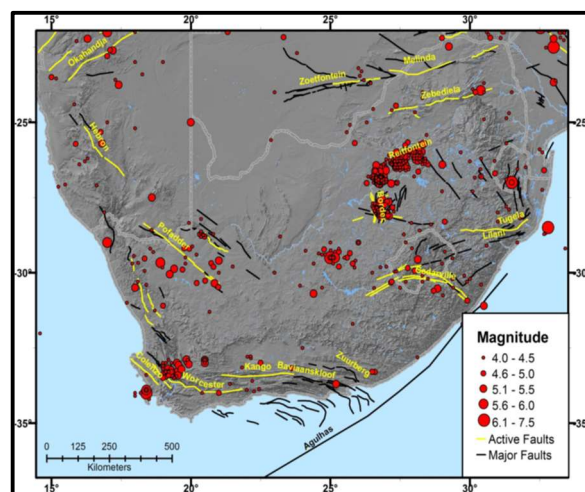


Figure 2.7 Major faults within the study area with active faults marked in yellow. The red dots show the location of known seismic events with magnitudes equal to and stronger than 4.0. (After Manzunzu et al., 2019).

The Western Rift Valley has been subjected to several strong earthquakes and volcanic eruptions in recent historical times (Table 2.1). In the period 2002 to 2008, three large earthquakes occurred with magnitudes equal to larger than 6, of which one took place in the Lake Tanganyika region (M_S 6.8) and two others in the Lake Kivu Basin (M_W 6.0 and M_W 6.2). The Virunga volcano group, located at the northern edge of Lake Kivu, consists of eight major volcanoes, namely Muhavura, Gahinga, Sabinyo, Visoke, Karisimbi Miken, Nyiragongo, and Nyamuragira (Mavonga, 2010). The largest known earthquakes that occurred in the area are the Rukwa (Kasanga), Tanzania, moment magnitude M_W 7.3, an earthquake of 13 December 1910 and the Machaze earthquake in Mozambique on 22 February 2006, with magnitude M_W 7.0. The locations of the events are listed in Table 2-1 and shown in Figure 2.8.

Table 2-1 Some earthquakes with $M \geq 6$ in Sub-Saharan Africa (Modified and extended. After Midzi and Manzunzu, 2014).

	Date	Epicentral location		Magnitude	Earthquake location and effects
		Latitude	Longitude		
1	25/08/1906	7.020	40.090	6.8 (M_S)	Langano, Ethiopia. Felt as far as Addis Ababa.
2	13/12/1910	-8.000	31.000	7.3 (M_S)	Rukwa, Lake Tanganyika. It caused damage in southern Tanzania.
3	09/07/1912	3.000	33.000	6.8 (M_S)	Kitgum, Aswa shear zone, northern Uganda. Partial destruction of buildings.
4	08/05/1915	-26.000	38.000	6.8 (M_S)	The Mozambique Channel.
5	23/09/1915	16.000	38.500	6.8 (M_S)	Coast of Eritrea. Slight damage in Asmara.
6	08/07/1919	-9.000	32.500	6.8 (M_S)	Western Tanzania.
7	06/01/1928	0.200	36.200	6.9 (M_S)	Subukia, Kenya.
8	31/12/1932	-28.500	32.800	6.7 (M_S)	Coast of Natal (now KwaZulu-Natal), South Africa. Felt throughout KwaZulu-Natal and several bordering provinces in South Africa.
9	22/06/1939	5.200	-0.100	6.5 (M_S)	Ghana. Caused the death of 16 people.
10	09/10/1942	-11.000	35.000	6.8 (M_S)	Lake Nyasa.
11	18/03/1945	0.000	32.000	6.0 (M_S)	Masaka, Uganda. Five people were killed, and buildings were destroyed.
12	01/06/1961	10.540	39.890	6.6 (M_S)	Karakore, Ethiopia. 160 people were killed. The towns of Majete and Kara Kore were destroyed.
13	20/03/1966	0.810	29.900	6.0 (M_S)	Toro, Uganda. One hundred fifty people were killed, and over 1 300 people were injured. Damage worth \$1 million.
14	29/03/1969	11.910	41.300	6.3 (M_S)	Serdo, Ethiopia. 40 people were killed and 160 injured. The town of Serdo was destroyed.
15	29/09/1969	-33.280	19.210	6.3 (M_S)	Ceres, South Africa. 12 people were killed, and damage to structures worth \$20 million.

16	10/03/1989	-13.696	34.445	6.1 (M_S)	Salima, Malawi. Eight people were killed.
17	20/08/1989	11.767	41.960	6.5 (M_S)	Dobi, Ethiopia. Three people were killed. Several bridges were damaged.
18	20/05/1990	5.071	32.159	7.2 (M_W)	Mongola, southern Sudan. 31 people were killed, and some buildings in the Juba area were damaged. Also, some damage in Uganda and quake felt in Kenya.
19	24/05/1990	5.359	31.866	7.1 (M_W)	Mongola, southern Sudan. Some buildings were damaged in the Juba area. Felt in the Kapenguria area and in Nakuru, Kenya. Also felt in Uganda.
20	05/02/1994	0.592	30.027	6.2 (M_W)	Kismoro, Uganda. Nine people were killed.
21	24/10/2002	-1.951	29.050	6.3 (M_W)	Kapili, Lake Kivu, Rwanda. Two people were killed, the walls of buildings in nearby towns cracked, and some were destroyed.
22	05/12/2005	-6.241	29.681	6.8 (M_W)	Lake Tanganyika, Tanzania. Six people were killed.
23	22/02/2006	-21.311	33.549	7.0 (M_W)	Machaze, Mozambique. Four people were killed.
23	03/04/2017	-22.678	25.156	6.5 (M_W)	Central Botswana. Approximately 36 people were injured.

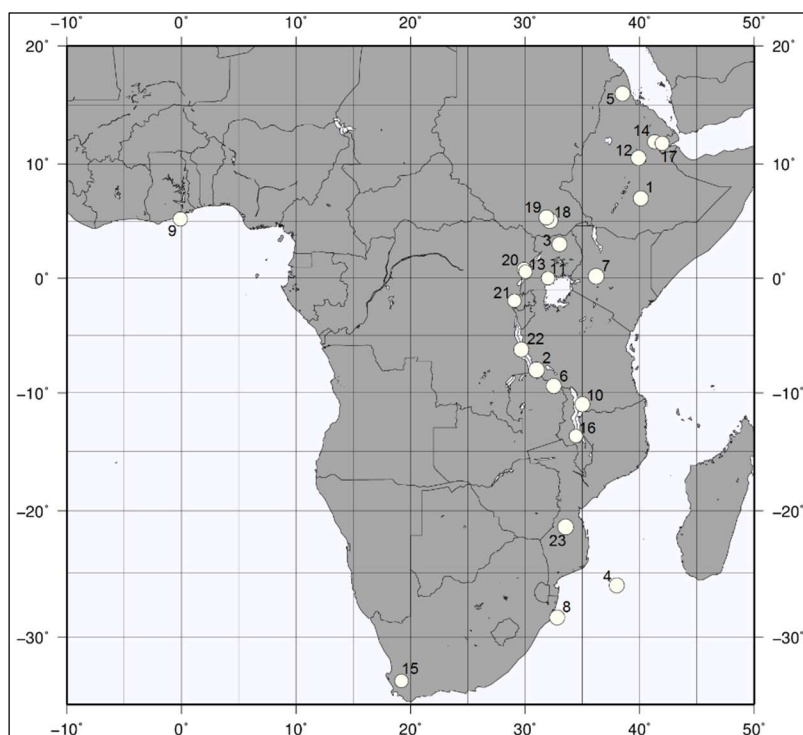


Figure 2.8 Location of large earthquakes in Sub-Saharan Africa (after Midzi and Manzunzu, 2014). Earthquakes are numbered according to the list in Table 2-1.

The Rukwa earthquake of 13 December 1910, which occurred ca. 200 km to the northwest of Lake Malawi, is the largest known earthquake in Africa (Ambraseys and Adams, 1991; Hodge *et al.*, 2015). The earthquake caused extensive damage, including building collapses, landslides, and water waves in lakes Tanganyika and Malawi (Midzi and Manzunzu, 2014). The seismic waves were felt in all neighbouring countries and were recorded by several European seismic stations. An isoseismal map showing the extent of the intensities felt for this earthquake is shown in Figure 2.9 (Midzi and Manzunzu, 2014). A lack of a local seismic network prevents the determination of the exact epicentre of the event. However, there are some indications that the Kanda fault system was responsible for the Rukwa earthquake. This fault system is located between lakes Rukwa and Tanganyika (Vittori *et al.*, 1997; Delvaux *et al.*, 2012, 2017; Fagereng, 2013).

The second-largest earthquake in the area occurred in Machaze, Mozambique, on 22 February 2006, with a moment magnitude of M_W 7.0. Fenton and Bommer (2006) provide a detailed description of the earthquake and its effects. The event occurred in a previously unknown fault and was felt throughout Mozambique and neighbouring countries, such as Swaziland, Malawi, Zimbabwe, and South Africa. The event created a surface rupture 15 km long and an average displacement of 1–1.5 m (Fig. 2.10). Liquefaction was observed up to 22 km from the epicentre, which is ascribed to the site effect, i.e. an area that experiences regular flooding. Although considered a powerful event, the epicentre was sparsely populated; consequently, few fatalities occurred, and minor damage was observed. However, the earthquake caused great alarm amongst the population of the port city of Beira, located ca. 220 km northeast of the epicentre of Machaze. The Modified Mercalli (MM) intensity in the city reached level VI. Beira reported two deaths, one from a heart attack and one from a person jumping from the upper story. However, no evidence of physical damage to infrastructure could be found.

On 3 April 2017, a powerful earthquake of moment magnitude 6.5 occurred in the Central District of Botswana. The earthquake was felt in neighbouring South Africa, Zimbabwe, and Swaziland. It is the second-strongest earthquake recorded in Botswana, after the 6.7 magnitude earthquake in Maun, in 1952.

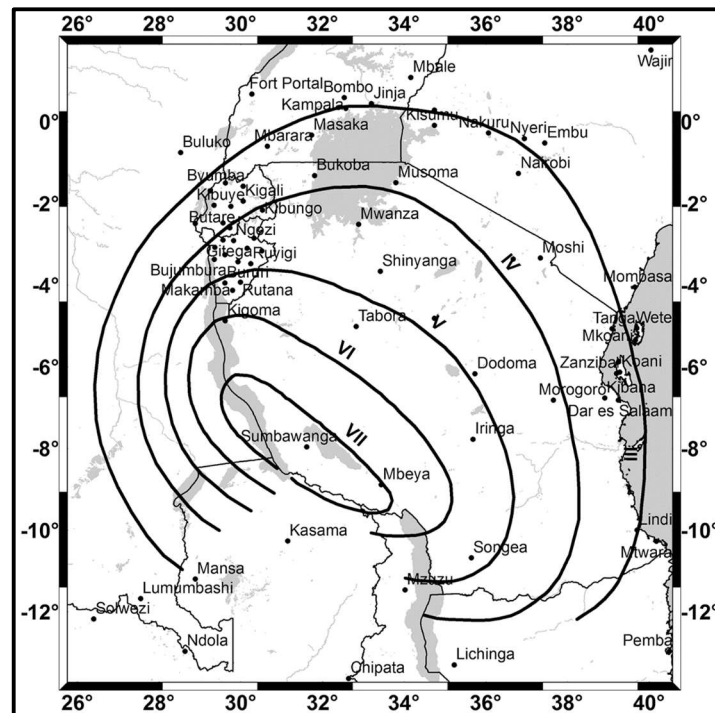


Figure 2.9 Isoseismal map for the Rukwa earthquake of 13 December 1910. (Source: Midzi and Manzunzu, 2014).



Figure 2.10 Fault scarp showing displacement after the Machaze earthquake on 22 February 2006 (Fenton and Bommer, 2006).

2.2 Local Seismotectonic Model

Most of the listed attempts to create a seismogenic model described in Section 2.1 cover large areas of eastern and southern Africa, with South Africa forming only a small part of the investigated area. One of the first attempts to identify a seismogenic model for South Africa, Lesotho, Namibia, and Swaziland was published by Shapira *et al.* (1989). The authors delineated all the seismogenic zones following historical seismicity patterns from 1620 to 1950 and instrumentally located events up to 1985.

Significantly more advanced attempts to create a seismogenic model for the countries of South Africa, Lesotho, Namibia, and Swaziland were made independently by Du Plessis (1996), Partridge (1995), and Hartnady (1996). Although the three models were developed separately, they are in good agreement. The Du Plessis (1996) model (Figure 2.11) is the preferred model in PSHA, providing more details, especially on the seismic clusters. The four significant regions displaying enhanced diffuse seismicity in this model are:

- A. **The Namibia Zone** covers the area of Namibia from the coast inland to 18°E.
- B. **The Karoo/Namaqualand Zone** extends from approximately 25°E between 30°S and 32°S (200 km wide) in a mainly north-easterly direction towards Namibia, with its southern boundary at 31.5°S on the west coast of South Africa.
- C. **The Free State/Lesotho/Natal Zone**, located between 29°S and 31°S (ca. 200 km wide), extends from Koffiefontein in the west eastwards to the coast. It is almost coincident with the Cedarville province of Hartnady (1996) and similar to the southern part of the Senqu Seismic Belt of Hartnady (2002).
- D. **The Northern Natal/Swaziland/Mpumalanga and Northern Province Low Field Zone** extends northwards from 28°S between longitudes 30°E and 32°E (ca. 200 km wide) and is mainly coincident with the Mpumalanga province of Hartnady (1996).

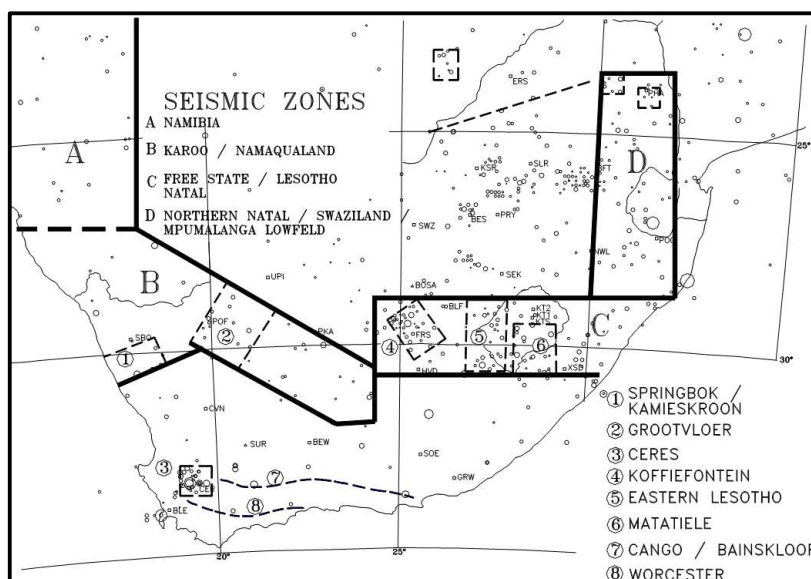


Figure 2.11 Seismogenic provinces, after Du Plessis (1996).

Since introducing the Du Plessis (1996) model, the earthquake catalogue and the diffuse regional seismicity have been updated. However, no significant deviation from the original seismogenic model regarding the delineation of active (capable) faults or potential 'new' seismic event clusters is observed.

Singh et al. (2009) and Singh et al. (2011) describe a comprehensive seismogenic model for South Africa. According to Singh *et al.* (2009), the most prominent seismogenic sources and seismic clusters are:

- **Historical earthquakes in the Cape Town area.** Earthquakes in this cluster were compiled from diaries, journals, and newspaper articles written between 1620 and 1902. The location is given as Cape Town because this is where the effects were felt. However, the actual epicentre could be up to 100 km away (Brandt *et al.*, 2005). No seismic activity has been recorded in Cape Town since instrumental recording began in 1972.
- **Ceres Cluster.** The 1969 Ceres–Tulbagh earthquake ($M_L 6.3$) occurred near the western termination of the Ceres–Kango–Baviaanskloof–Coega fault system, an east–west-striking major line of Mesozoic faulting traversing the southern Cape Fold Belt between Ceres in the west and Port Elizabeth (recently renamed Gqeberha) in the east. Current research on this fault system has shown that a moment magnitude $M_W 7.0$ earthquake could have occurred some 10,000 years ago east of Oudtshoorn in the Baviaanskloof.
- **Koffiefontein Cluster.** An earthquake of local magnitude 6.2 occurred in Koffiefontein in 1912. A study of paleo seismicity suggests that an earthquake with a moment magnitude ~ 8 could have

occurred here some 50,000 years ago. Many thermal springs in this area support the theory that the site is experiencing active crustal deformation.

- **Lesotho Cluster.** The seismicity is of natural origin toward the west and south of Lesotho. The seismicity rate towards the north of Lesotho increased significantly after the impoundment of the Katse Dam.
- **Witwatersrand Basin Cluster.** Most seismic events in this region originate in the Witwatersrand Basin's gold-mining districts and are anthropogenic. The clusters can be expanded into the basin's Welkom, Klerksdorp, Carletonville, West Rand, Central Rand, East Rand, and Evander goldfields. Seismicity in these areas differs because of tectonic faults and differences in mining activities.

The seismogenic zones, sources, and seismic clusters identified by Singh *et al.* (2009) are shown in Figure 2.12.

The updated Singh *et al.* (2011) model is broader in scope and includes seismotectonic systems, neotectonic domains, and seismogenic structures.

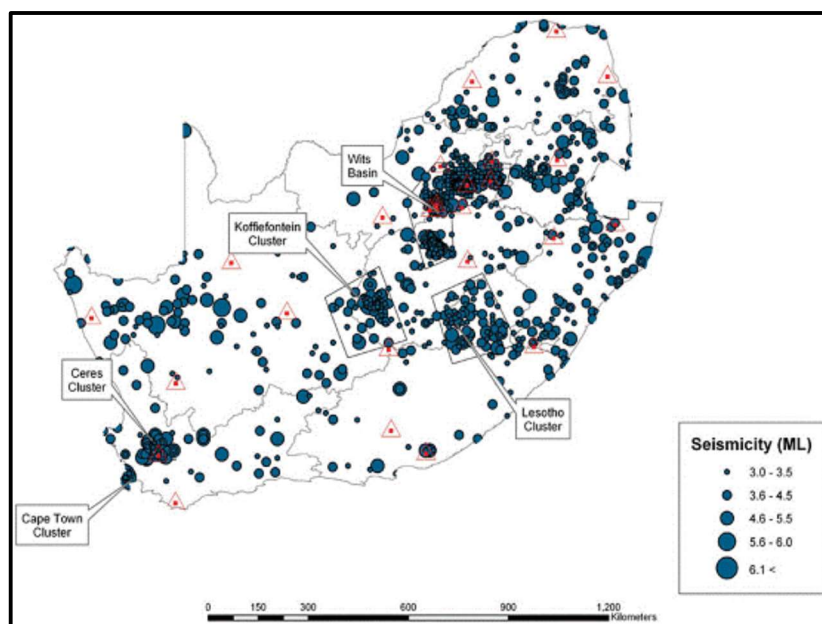


Figure 2.12 Distribution of seismic events from 1620 to 2008 and seismicity clusters of tectonic and anthropogenic origin. The seismic stations are shown by triangles (after Singh *et al.*, 2009).

The most recent and perhaps the most comprehensive seismotectonic model of South Africa is provided by Midzi *et al.* (2016), Figure 2.13.

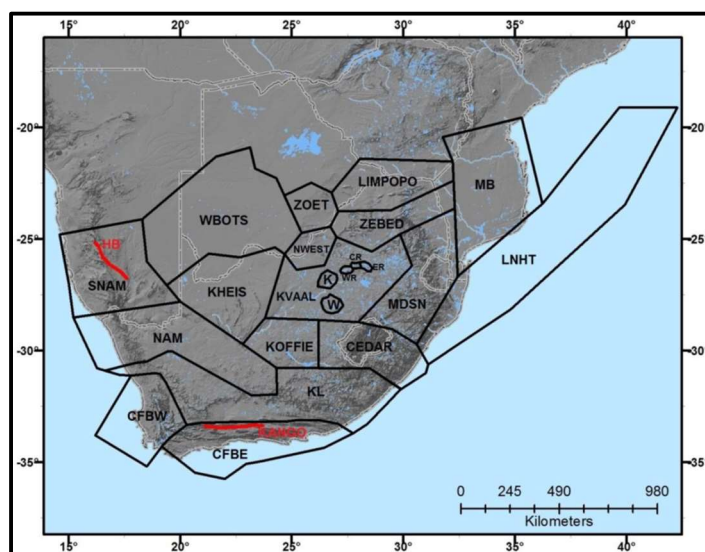


Figure 2.13 Areal source zones identified by Midzi *et al.* (2016).

Midzi *et al.* (2016) identified 22 areal source zones. Below, we are providing a summary of the major seismotectonic characteristics of Midzi's recognised zones.

- **CFBE (Cape Fold Belt East).** The zone corresponds to the eastern part of the Cape Fold Belt, including a folded Paleozoic sedimentary rock belt. Relatively low levels of seismicity characterise the area. The style of faulting is predominantly normal.
- **CFBW (Cape Fold Belt West).** The zone is characterised by tectonic structures oriented in a NE to SW direction. The largest observed earthquake in the area is the moment magnitude ca. 6.2, which occurred on 29 September 1969, Ceres-Tulbagh. It is the most significant event recorded in the contemporary history of South Africa. The event was felt widely over the Western Cape. Several buildings in the area suffered damage, varying from the almost destruction of old and poorly built structures to large cracks appearing in better-constructed ones. Twelve people were killed, and many more were injured (Fig. 2.14). This event led to an insured loss of US\$7.4 million (approximately R75 million at today's exchange rates), but the uninsured loss was estimated to be roughly 3.5 times higher (AXCO, unpublished; Kijko *et al.*, 2015).



Figure 2.14 Damage observed at Tulbagh after the Ceres earthquake. Source: Pule *et al.* (2015). Adapted from Fernandez (1974).

- **KL (Karoo Low):** The Karoo Low seismic source zone is distinguished by normal faulting, sparse and low seismicity that is triggered by the Namaqua-Natal mobile belt and the southern Cape conductive belt. The maximum observed earthquake in the zone had a magnitude of 5.5.
- **NAM (Namaqualand Zone).** This zone overlaps the Namaqua-Natal belt and is based on the study by du Plessis (1996) and Singh *et al.* (2011). The zone's most significant known seismic events are magnitude ~5.0 earthquakes in 1976 and 1979. Also, the area is known for the so-called Augrabies seismic swarm observed.
- **KOFFIE (Koffiefontein).** Initially, the zone was delineated by du Plessis (1996). Its name comes from the cluster of events that occurred near Koffiefontein. The area hosted one of the largest earthquakes (M6.2) in South Africa in 1912.
- **CEDAR (Cedarville).** The area forms the eastern part of the Namaqua-Natal belt. Though very active, the site is characterised by minor to moderate magnitude events, with the largest observed earthquake, M5.5. Often, the zone is associated with the Cedarville fault and a significant cluster of events in Lesotho.
- **MDSN (Mpumalanga-Drakensberg-Swaziland-Natal).** The zone is considered by moderate, diffuse seismicity.
- **KVAAL (Kaapvaal Craton).** The mobile belts and tectonic structures around the Kaapvaal Craton confine the zone. The seismicity of the area has a diffuse character.

- **LIMPOPO (Limpopo Mobile Belt).** The zone is bounded by the Limpopo mobile belt and is described by moderate seismicity. The largest known earthquake within the zone had a magnitude of 5.2. However, geological investigations show some evidence of liquefaction along the Siloam fault, which can be associated with the large earthquake along the fault.
- **SNAM (Southern Namibia).** The zone is bounded to the south by the Namaqua mobile belt, which has a higher concentration of seismicity. The Damara mobile belt cuts off the northern boundary. The largest earthquake observed in the zone had a magnitude of 5.5.
- **WBOTS (South Western Botswana Region).** This zone is known for seismicity clusters, likely related to the region's mining activities. Little is known about the zone's geology, faulting and tectonics, except that in 2011 strong earthquake of magnitude 6.0 occurred within it. As typical for many South African areas, the event can not be associated with any known tectonic fault.
- **KHEIS (Kheis Mobile Belt).** The zone is within the Kheis mobile belt, with weak, diffuse seismicity.
- **LNHT (Lesotho – Natal – Hotspot – Track).** The zone is depicted by moderate to strong diffuse seismicity. The area's strongest known earthquake is the December 1932 St Lucia event, with a magnitude of 6.3 (Krige and Venter, 1933).
- **MB (Mozambique Belt).** This zone forms a southern extension of the East African rift system and is more active than any other region of South Africa. This is the zone where the largest southern African earthquake occurred. The so-called “Machaze Earthquake” of Mw 7.0 occurred on 22 February 2006 and was located in this zone. The name of the earthquake (the Machaze event) comes from the name of the fault associated with it (Fenton and Bommer, 2006).
- **ZEDED (Zebediela fault region):** Not much is known about this zone, especially its active faults. Perhaps a few moderate size earthquakes in the area can be associated with some faults; however, because earthquakes are located with significant uncertainty, one must be cautious regarding any judgment if the faults are active.
- **ZOET (Zoetfontein Fault Region).** This zone accommodates the Zoetfontein fault, the main fault in the region. The fault is demarcating the Witwatersrand gold and platinum mining regions. It has branches in the direction of NE-SW and NW-SE. It is believed that the eastern part of the fault is active and associated with several seismic events (tectonic origin earthquakes?; triggered by mining?; induced by mining?), which caused deaths and property damage. The delineation of the zone is based on mining boundaries and the spatial distribution of seismicity.

- **ERAND (East Rand Gold Mines).** The zone is delineated entirely by mining activity. Following Midzi *et al.* (2016), nearly 3,400 seismic events occurred within the area, of which about 12 with a moment magnitude greater than or equal to 4.0. The largest observed event had a moment magnitude of 4.9. Given the activity observed in this zone, earthquakes larger than 5.0 may occur in the future. Simple assessments show that mine-induced events in the area can reach a magnitude of 5.6.
- **WRAND (West Rand Gold Mines).** The zone is the most active of all mining areas in and around Johannesburg, with about 24,400 seismic events occurring between 1971 and 2014 (Midzi *et al.*, 2016). Similarly to the other two mine-related zones (CRAND and ERAND), the largest known event did not exceed magnitude 5.0.
- **CRAND (Central Rand).** This mine-related seismic zone occupies the Johannesburg CBD area. The zone's seismic activity is lower than in the East and Western regions. From 1971 to 2014 (when the mining activity in the region was already insignificant), about 1,800 seismic events were recorded. However, at least during the last 20 years, the area's seismicity increased (Fig. 2.15). In 2010, a team of experts for the Department of Water Affairs conducted a study on mine water management and acid mine drainage in the former Witwatersrand goldfields. After pumping from underground mine voids had stopped, the average monthly seismic events increased from 5.9 to 11.7 (Kijko *et al.*, 2012, Fig. 2.15). The cause of the seismicity escalation is the presence of acid water under the Witwatersrand Basin. Once a mine is closed, all associated operations of extracting mine water from the underground voids are also terminated. As a result, the underground mine voids are flooded, causing an increase in underground pressure. Besides, chemical and geochemical reactions between the mine rock strata, mine wastes and oxygen cause the water in underground mine voids to become acidic. The quantity, strength and impact of acid mine drainage depend on the amount and rate of oxidation of sulphides embedded in the rock's mineral composition. Factors such as the amount of water passing over or through the rock material also affect the rate of acid generation (Birch, 2013). Unlike uncontaminated water, the corrosive nature of the acid mine drainage lubricates the fractures and faults. High underground water pressures coupled with the lubrication of faults reduce clamping forces, causing the occurrence of seismic events (du Plessis *et al.*, 2015).

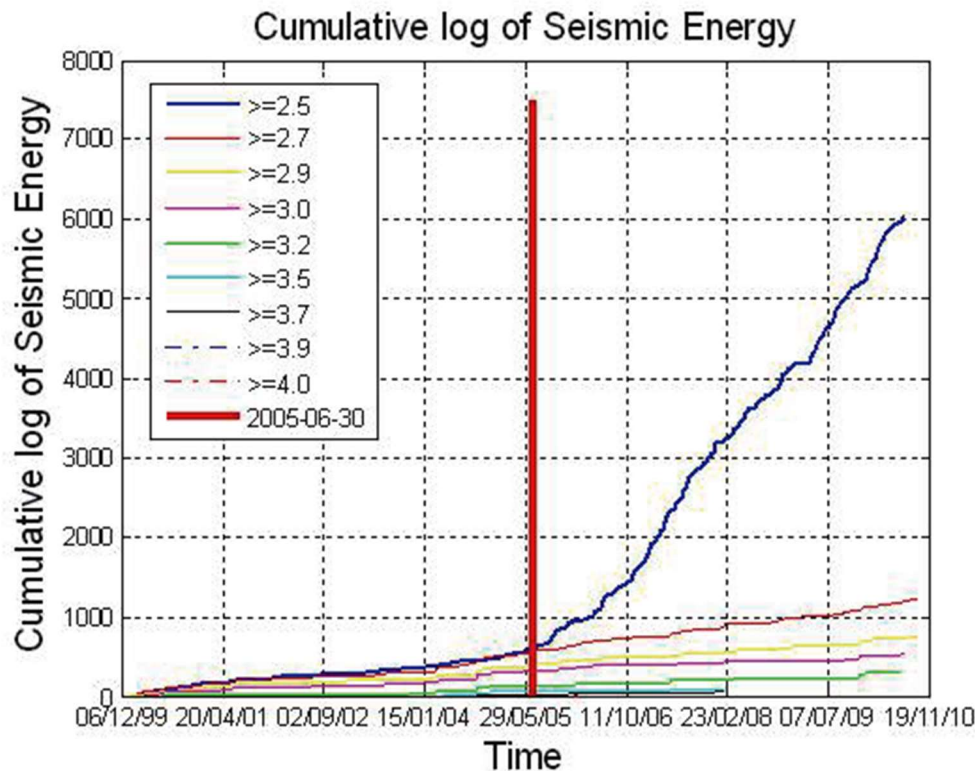


Figure 2.15 Sum of the log of seismic energy released in the Johannesburg area by seismic events with local magnitudes 2.5 and stronger during the period 2000/01/01 – 2010/12/31 (Source: Kijko *et al.*, 2012)

- **KOSH (Klerksdorp – Orkney – Stilfontein – Hartbeesfontein region).** This zone, delineated by mining activity, generated the most significant mining-related events recorded in South Africa. They are the 9 March 2005, a local magnitude 5.3, and the 5 August 2014 local magnitude 5.5 event. (Midzi *et al.*, 2015) and occurred in the KOSH area on 5 August 2014 with M_L 5.5 (Durrheim, 2015). More information about these events is provided in the next section.
- **WELKOM (Welkom Gold Mining Region).** The area could generate extreme events during the extensive gold mining activity, up to a local magnitude 5.2. Such a strong seismic event on 8 December 1976 caused the collapse of a six-storey apartment block. The event is associated with the reactivation of the Dagbreek fault, and it is a textbook example of the triggered event by mining activity.
- **NWEST (Platinum mines in the North West province).** So far, the seismicity generated by the platinum mines is relatively low. However, one should not be surprised if the extensive platinum

mining generates events exceeding magnitude 5.0. It is believed that seismicity in the region can be associated with three faults, Kango, Dreylingen and Hebron (Midzi *et al.*, 2016).

- **KANGO (Kango fault):** The Kango fault is one of the few places in South Africa where evidence of past seismicity comes from paleo investigations (Goedhart, 2007). The analysis of the paleo data suggests that, very likely, during the Pleistocene to Holocene time, three powerful earthquakes took place during the latest Pleistocene times. However, it is almost no evidence of the current activity of the fault.
- **DP (Dreylingen and Hebron faults).** The limited geological and paleo-seismic evidence shows that the Dreylingen and Hebron faults were active during the Quaternary times (White *et al.*, 2009). Such evidence is based on fault scarp observed along the faults displaced up to 65 m. The Hebron fault is a 4.0 to 9.6 m high fault scarp that can be traced for at least 40 km along the eastern Namib Desert. No connection can be made between the Hebron and the Dreylingen fault on the surface. However, because of the similarities between the two faults, they are often considered one fault source (Midzi *et al.*, 2016).

The listed above seismic sources are the most recent trial to define the major tectonic units contributing to seismic hazards in South Africa. It combines relevant geological, structural, tectonic, neotectonic, and seismological information.

Unfortunately, one must be very cautious with the applications and conclusions following the above (and similar) investigations. Despite many efforts to formalize the procedure of seismogenic sources delineation, it is not based on “hard science” and leaves room for vast uncertainties and non-unique interpretations. The limitation of the approach has many sources. One is that we often try to define something (seismogenic sources) that does not exist. The best example is a trial to determine the areal seismogenic sources east of the Rocky Mountains in the USA (Frankel *et al.*, 1996) or to try to develop an accurate seismic source model for the area surrounding nuclear power plants in Switzerland (PEGASOS Project, Wiemer, *et al.*, 2009).

Another limitation comes from significant uncertainties of seismic events location (Saunders *et al.*, 2016 a,b). This is especially relevant to African countries, where the instrumentally recorded seismicity is very short.

Although some of the above seismotectonic studies are relatively comprehensive, they are too broad and uncertain to be applied in this study. Therefore, in this report, the delineation of seismic zones is based entirely on the observed seismicity patterns.

2.3 Anthropogenic Seismicity

As a particular case of anthropogenic activity, mining can cause seismic events leading to severe damage to infrastructure and loss of human life. The mining industry very soon recognised this fact in South Africa. Not long after discovering gold in Johannesburg (1886), more and stronger seismic events were experienced as the mining dipped. Soon the problem of mine-related seismicity became so crucial that in 1910, the first two seismometers were installed, one in Johannesburg Union Observatory and another near Ophirton. Its installation aimed to monitor mining-related seismicity, trying to understand what is causing it and learn how to mitigate its damaging effects (Durrheim, 2018). Hundreds of seismometers are installed in virtually all mining areas, and seismic monitoring has become integral to mining activity.

The mining-related seismic events in South Africa are the world's largest.

Perhaps the first in South Africa mining-related event which caused significant damage occurred near Welkom on 8 December 1976. The local magnitude of the event was estimated as 5.2 (Durrheim, 2015). The event caused the collapse of a six-storey apartment block (Fig. 2.16). However, the adjacent near-identical buildings suffered only minor damage, indicating that the response of similar structures is very site-specific.

For an unknown reason, very little is known about the Far West Rand event of 7 March 1992 of body wave m_b magnitude 4.9. The event was located at the Western Deep Mine (Fig. 2.17), the deepest mine in the world. The event was not the strongest generated by mining activity. However, it caused significant damage in the vicinity of its epicentre and at far as Johannesburg and Pretoria. In Carletonville, the event caused extensive damage to at least 23 residential houses. About 120 window glasses were broken at the Carletonville Municipal Offices. In Blyvooruitzicht, about 80 homes have been damaged. The changing room building of Shaft N.5, West Driefontain Gold Mine, was severely damaged, with exterior and interior brick walls twisted and displaced almost an inch. Tiles had been dislodged at the baths and showers (Du Plessis, 1992; Fernandez *et al.*, 1992). The maximal MM intensity experienced in Johannesburg was V, causing extensive damage. On the 32nd floor of the Carlton Centre, a security officer reported that the building was “swaying to the count of ten.” On the same floor, another observer said he thought the building was collapsing momentarily. Several cycles of swaying were also felt on the 20th floor of the Braamfontein Hotel. Another report from this hotel said that they thought the street bridge across Jutta St. linking the hotel with the parkade was “coming away at each end”. These reports indicate that the area of Johannesburg CBD experienced long-period ground motion vibration, which, surprisingly, could travel so far.



Figure 2.16 The collapse of six storeys apartment block was caused by the 1976 mining-related seismic event (Source: Council for Geoscience, Pretoria, photographer unknown).

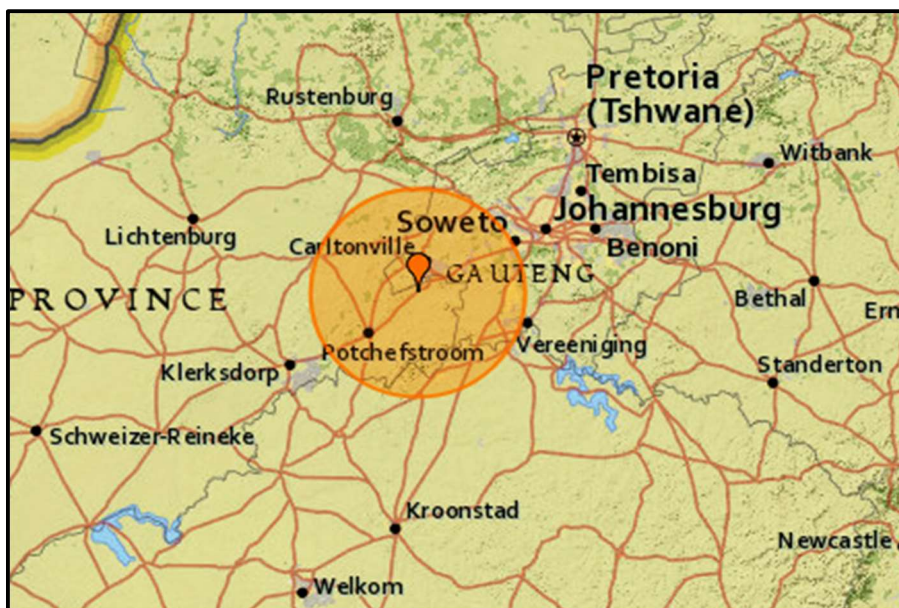


Figure 2.17 The Far West Rand event of 7 March 1992 of m_b magnitude 4.9. (Source: <http://earthquaketrack.com>. The last time visited was 7 November 2021).

A study of the most recent mining-related seismic events in South Africa shows that two of the strongest mining-related events in South Africa occurred on 9 March 2005 in Stilfontein (Fig. 2.18a) and on 5 August 2014 near Orkney (Fig. 2.18b). These events were located in the eastern North West Province gold mining region. The events had respective magnitudes of M_W 5.3 (Manzunzu *et al.*, 2017) and 5.5 (Midzi and Cole, 2014; Midzi *et al.*, 2015). In both cases, the seismic events caused damage to several buildings, and the Orkney event caused the loss of one life.



(a)



(b)

Figure 2.18 Damage caused by the seismic events of a) the 2005 Stilfontein seismic event of M_W 5.3 to the A-block of the Bal-Eaton flats, and b) the 2014 Orkney seismic event of M_W 5.5. (Photographs courtesy of Ian Saunders, CGS, Pretoria.)

The catalogues used in our report are based on the information provided by the Council for Geoscience, Pretoria, which incorporates information supplied by neighbouring countries and by the International Seismological Centre (ISC) <http://www.isc.ac.uk/> in the United Kingdom. However, the database of seismic events for the investigated area is highly incomplete, especially regarding historical events of tectonic origin. Large parts of the country are sparsely populated, and the detection capabilities of the seismic networks are far from uniform.

Identifying seismogenic sources is one of the essential components of seismic hazard analysis. Yet, reliable information about the seismotectonic environment of South Africa is almost non-existent. In principle, seismogenic sources are delineated in three different ways: (1) by definition of primary source faults on a geological-structural basis; (2) by drawing of seismogenic zones and assessing its earthquake occurrences parameters based on geometrical and kinematic elements, and (3) by an association of seismogenic zones with the information on the past (spatially distribution) seismicity (Pezzuza and Pace, 2002). The most advanced study of seismic hazards in Southern Africa, performed by Poggi *et al.* (2017), chose the third approach. Their study proposed a seismic source model based on the spatial distribution of seismic events. The model comprises areal zones representing uniform temporal and spatial earthquake occurrence patterns. The approach is often applied when seismicity cannot be linked to known seismotectonic structures. Also, it is used in areas of low seismicity. One of the weak points of such a procedure is that the low seismic activity leads to the highly subjective delineation of seismic zones.

The procedure suggested by Poggi *et al.* (2017) was implemented in a recent seismotectonic study in South Africa (Manzunzu *et al.*, 2019). Following Poggi *et al.* (2017), our project also identified the seismic sources around the TSF TM by utilising the spatial distribution of seismicity. However, two zones were also delineated around the two potentially active faults.

The list of seismic events occurring within a radius of 500 km from the TSF TM site is shown in Appendix A. All magnitudes are homogenised and expressed in terms of local magnitudes M_L , which in the applied magnitude range are very close to moment magnitudes M_W (Boore and Joyner, 1982; Heaton *et al.*, 1986).

Figure 2.19 shows the distribution of all known seismic events with magnitude M_W 2.5 and stronger, which occurred within 500 km of the TSF TM site. In this investigation, nine seismogenic zones were identified. Zone #4 and #5 are delineated around the two potentially active faults. It is unclear if the faults are capable, and their slip rate is also unknown. The delineation of the seven remaining zones is based on the distribution of tectonic and mining-related (anthropogenic) seismicity patterns. The mining-related seismicity is delineated by Zones # 6 - 9. The coordinates of the zones are given in Appendix B.

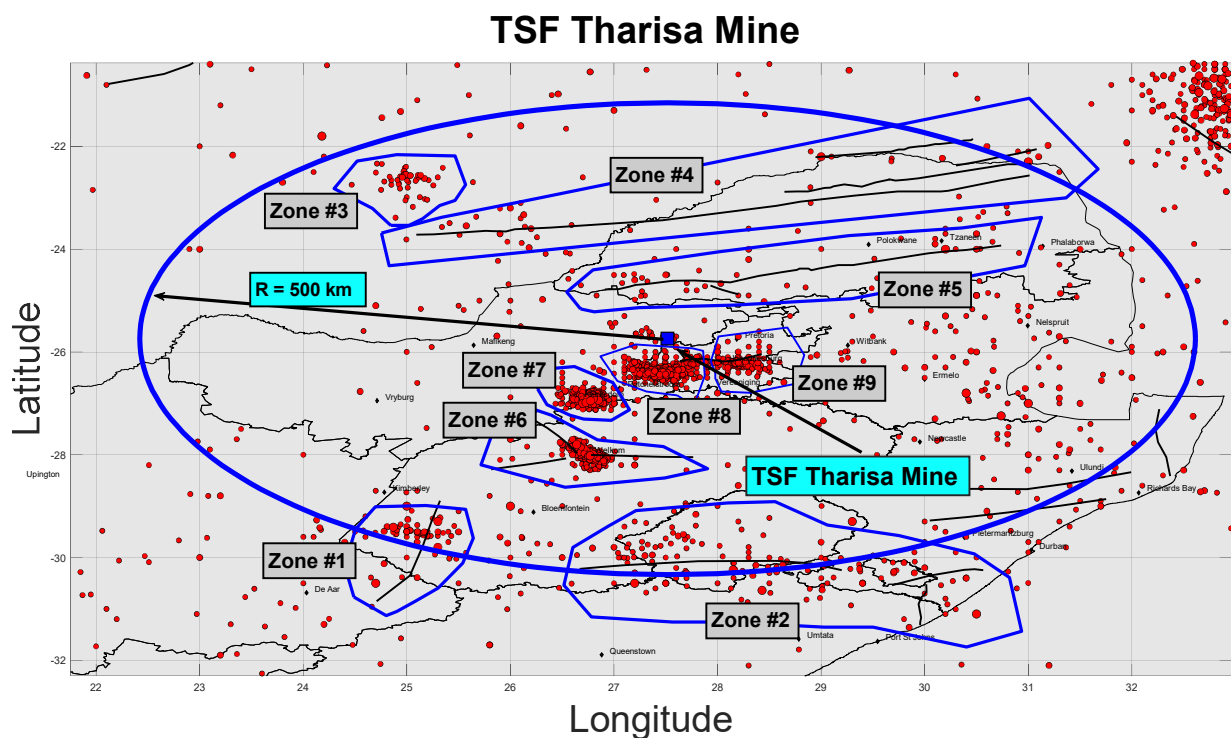


Figure 2.19 Distribution of known seismic events equal to or larger than the magnitude M_L 2.5 within the investigated area within a radius of 500 km from the TSF TM.

3. Seismic Event Catalogue and Estimation of Seismic Recurrence Parameters

The assessment of the seismic hazard parameters for the TSF TM mainly comes from the knowledge of past seismicity, which is highly incomplete and uncertain.

The catalogue of tectonic origin events spans ca. 123 years, from 1 January 1900 to 31 December 2022. Following a comprehensive completeness analysis, the catalogue was divided into four sub-complete sections (Table 3-1). The selected record of mining-related events spanned a period of ca. 12 years from 1 January 2010 to 31 December 2022 and was divided into two sub-complete parts. The first part is complete, starting from the magnitude M_L 3.0. The second part starts from 1 January 2020 and is complete for magnitudes equal to or exceeding $M_L = 2.5$. The assumed depth of the tectonic origin events is 10–12 km (Mangongolo *et al.*, 2017), and the depth of mining-related events is 2.5–3.0 km. A summary of the seismic event catalogues used in this study is presented in Table 3-1.

Table 3-1 Division of the anthropogenic (mining) and tectonic origin events catalogue used for PSHA of the TSF TM site. (m_C = level of completeness; SE = standard error (assumed uncertainty in earthquake magnitude determination)).

Type of catalogue	Time span of the catalogue	m_C (M_L)	SE	Depth	Seismic Zones
Complete #1 (Tectonic)	1900/01/01–1970/12/31	4.2	0.3	12 km	Zones #1 - 5
Complete #2 (Tectonic)	1971/01/01–2000/03/31	3.1	0.2	12 km	Zones #1 - 5
Complete #3 (Tectonic)	2000/04/01–2019/12/31	3.0	0.1	12 km	Zones #1 - 5
Complete #4 (Tectonic)	2000/01/01–2022/12/31	2.5	0.1	12 km	Zones #1 - 5
Mining Events #1	2010/01/01–2019/12/31	3.0	0.1	2.5/12 km	Zones #6 - 9
Mining Events #2	2020/01/01–2022/12/31	2.5	0.1	2.5/12 km	Zones #6 - 9

(*) Since seismic events within Zone #3 are primarily blasts, it was assumed their depth could not exceed 1.0 km.

The computation of seismic hazards based on mixtures of tectonic and anthropogenic origin seismicity events is not straightforward. The recorded seismic activity in the investigated TSF TM site has two components: tectonic and mining-related. Typically, this type of seismicity exhibits bimodal characteristics (Gibowicz and Kijko, 1994; Woodward and Tierney, 2017). The bimodal distribution of seismic events in mining areas is illustrated in Figures 3.1 and 3.2.

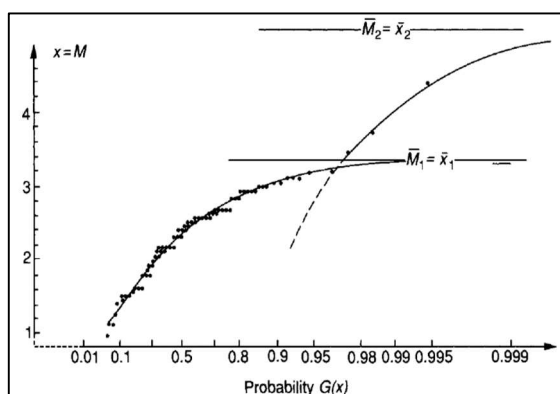


Figure 3.1 Bimodal distribution of seismicity. The strength of seismic events is expressed in seismic energy, the convention often used by the mining industry. The low-energy component represents anthropogenic-induced seismicity by mining. The high-energy branch of the plot describes seismicity generated by tectonic stresses triggered by mining. (After Gibowicz and Kijko, 1994).

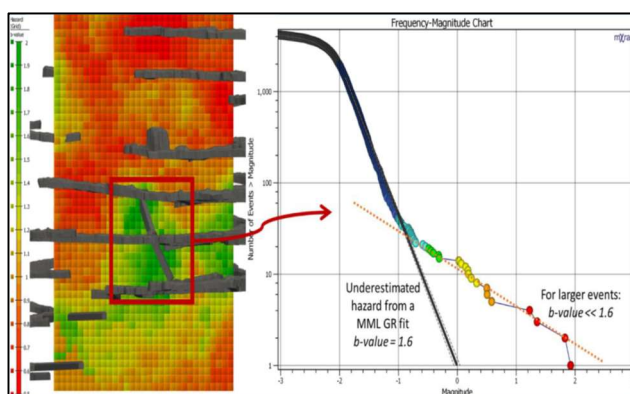


Figure 3.2 Bimodal distribution of seismicity observed in an Australian mine (after Woodward and Tierney, 2017).

Numerous studies have confirmed the bimodal character of mining-related seismicity. In particular, seismicity induced by underground mining (Gibowicz and Kijko, 1994; Gibowicz and Lasocki, 2001; Woodward and Tierney, 2017) is a well-known and long-studied phenomenon. Johnston and Einstein (1990) published a worldwide survey of mining-associated seismicity. According to geological conditions and pre-existing regional stress fields, anthropogenic seismicity in South Africa, Sweden, Poland, Czechoslovakia, Canada, and the United States. The seismicity had an evident bi-modal character and was divided into two classes (1) directly associated with mining activity and (2) occurring on pre-existing faults and discontinuities.

Computation of PSHA in the presence of a significant anthropogenic seismicity component requires a different approach from the standard Cornell–McGuire procedure. For details, see e.g. Gibowicz and Kijko (1994). For the current project, we assumed that the upper limit of the seismic event magnitude generated by mining activity is $5.5 M_L$. The most probable upper limit of tectonic events falls within the range of 6.8 – $7.5 M_L$ (Table 3-2).

In Zone #6 - #9, mining-related events occur, on average, at a depth of 2.5 - 3.0 km. Earthquakes of tectonic origin, Zones #1 - #5, occur on average at 10–12 km depth. However, given the highly sparse nature of the South African seismic network, the depths of the tectonic origin events in the investigated area are not documented well. In most cases, they are fixed based on knowledge of the typical depth of shallow crustal earthquakes and the thickness of the crust in the region. Assessment of earthquake depths can be improved by including depth-sensitive seismic waves, such as those reflected at the free surface. Such analysis has been performed by including *PmP* seismic waves and applying the WKBJ algorithm (Chapman *et al.*, 1988). The results indicated depths for tectonic origin events ranging from 3.4 to 12.1 km.

Available knowledge of the investigated TSF TM area does not provide reliable information on the potential movement of the identified tectonic faults during the recent geological past (Quaternary), especially for the last 35,000 years. Therefore, three values of the maximum possible tectonic origin earthquake magnitude m_{max} are considered 6.8, 7.0, and 7.5 (Sections 6 and 10). Logic tree formalism incorporates the maximum possible earthquake magnitude uncertainty into seismic hazard analysis. The other two hazard recurrence parameters, the Gutenberg–Richter *b*-value and the mean activity annual rate λ for each seismic source, have been estimated according to a procedure developed by Kijko *et al.* (2016). This approach accounts for incompleteness and uncertainty in seismic event catalogues. More information describing the seismic recurrence parameters λ and the Gutenberg–Richter *b*-value, as well as the procedure followed in estimating these parameters, is provided by Kijko *et al.* (2016) and in Appendix G.

The approach chosen for this project follows the recommendations in guides such as EPRI (1986) and IAEA (2016). These documents describe the computation of the seismic hazard map for the stable continental regions of the United States (Frankel *et al.*, 1996; 2002) or the PSHA of nuclear power plant sites in Switzerland (Project PEGASOS, Wiemer *et al.*, 2009).

For the current study, seismic events within the 500 km radius were selected. After delineating seven seismogenic zones, the remaining area (background seismicity) was divided into 25 km x 25 km blocks (Frankel *et al.*, 1996, 2002). For each point source, the parameters λ , *b*-value, for the assumed value of m_{max} were calculated. The estimated recurrence parameters for each point source are provided in Table 3-2. Appendix B provides the vertex coordinates for the nine zones, and Appendix C lists the estimated recurrence parameters per the 50 km x 50 km grid points.

Table 3-2 Input and recurrence parameters for the nine identified seismogenic zones around the Tharisa Tailings Storage Facilities. The seismic event catalogue of tectonic origin events used in the analysis spans ca. 123 years, from 1900/01/01 to 2022/12/31. Mining-related seismicity (Zones #6 - #9) is from 2010/01/01 to 2022/12/31. It was assumed that the maximum possible magnitude of seismic events of anthropogenic origin is M_L 5.5 with a depth of ca. 2.5 km. The maximum possible magnitude of tectonic origin events is within the range of M_L 6.8–7.5, and they occurred at a depth of 12 km.

Parameters	Zone									Background
	#1	#2	#3	#4	#5	#6	#7	#8	#9	
Reference magnitude	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.5
Average depth (km)										
Tectonic	12	12	12	12	12	12	12	12	12	12
Mining related						2.5	2.5	2.5	2.5	-
Mean seismic activity rate λ (events/year)	0.023	0.086	0.009	0.090	0.036	0.163	0.552	0.014	0.	23.1
Gutenberg–Richter b -value	0.90	0.98	0.82	0.74	0.97	1.23	1.24	0.92	1.56	1.21
Maximum possible magnitude $m_{\max}$ (M_W)										
Tectonic	6.69	5.98	6.90	6.0	6.16	7.0	7.0	7.0	7.0	7.0
Mining related	-	-	-	-	-	5.5	5.5	5.5	5.5	-

4. Ground-Motion Model (GMM)

The seismic hazard assessment at a site requires knowledge of the prediction equation of the particular strong-motion parameter as a function of distance, earthquake magnitude, faulting mechanism and, often, the local site condition. This equation is known as the ground motion prediction equation (GMPE) or ground motion model (GMM). The GMM-s predict the amplitude of the designated ground motion parameter. This parameter can be the peak ground acceleration (PGA), spectral acceleration, displacement, the Modified Mercalli (MM) Intensity, seismic record duration, etc. The PGA is the maximum acceleration of the ground shaking during an earthquake. Acceleration response spectra (ARS) are the movement experienced by a

structure during an earthquake. The acceleration is expressed in units of gravity, g , which is equal to 9.81 m/s^2 .

Reliable ground motion models are non-existent for the investigated area. Three attempts to establish the horizontal component of PGA attenuation for eastern and southern Africa have been published, namely: Jonathan (1996), Twesigomwe (1997), and most recently by Mavonga (2007; 2010). Jonathan's GMM is based on the random vibration theory (Frankel, 1995; Irikura, 1986) and is based on a few seismic records recorded by local seismic stations. Twesigomwe's equation is a modification of GMM by Krinitzky *et al.* (1988) by application of regional shear-wave velocity attenuation and conversion of magnitudes M_S into M_W (Shedlock, 1999). Comparing the two regional GMMs with the global equation by Joyner and Boore (1988) and Boore *et al.* (1993; 1994) shows relatively good agreement between regional attenuations and those used globally. The third GMM is by Mavonga (2007, 2010) based on the simulation of PGA generated by strong earthquakes, using records of 45 small events, and treated as a source of empirical Green's function. The seismic events were recorded on three hard-rock sites, Lwiro, Katale, and Kunene.

Unfortunately, all three locally available GMMs are derived only for PGA, not spectral acceleration, and they do not apply to short distances below 10 km. These GMMs are, therefore, not applicable to our study.

Three ground motion models were selected based on the recent comprehensive survey of seismic hazards in Southern Africa (Poggi *et al.*, 2017).

- CY- 2014 (Chiou and Youngs, 2014)
- ASB - 2014 (Akkar *et al.*, 2014)
- Pez - 2018 (Pezeshk *et al.*, 2018).

These three GMMs are assumed to describe the seismicity of areas with a similar tectonic setting to the area under investigation. For a detailed discussion on this subject, see, e.g., Poggi *et al.* (2017).

The CY-2014 GMM is an updated classical Chiou and Youngs' (2008) Next Generation Attenuation (NGA) ground motion model developed as part of the Pacific Earthquake Engineering Research Center's NGA-West-2. The numerous applications of the Chiou and Youngs (2008) model have been applicable for predicting strong ground motion from shallow crustal earthquakes in active shallow crustal regions (SCR). The CY-2014 model has used ground motion records of shallow crustal earthquakes from California, Japan, New Zealand, Taiwan, and Turkey. An update was done for PGA and peak spectral acceleration (PSA) at 0.3 and 1.0 sec periods. Like the previous model, the CY-2014 fulfils all criteria for a reliable GMM (Cotton *et al.*, 2006; Douglas *et al.*, 2013; Stewart *et al.*, 2013).

The second GMM applied in our study, ASB-2014 (Akkar *et al.*, 2014), was derived using pan-European databases. In his derivation, several new techniques were applied, namely: inclusion of a nonlinear site

amplification function that is a function of V_{s30} and reference peak ground acceleration on rock; extension of the magnitude range down to M_w 4.0; extension of the distance range of applicability out to 200 km; extension to shorter and longer periods, down to 0.01second and up to 4.0 s. Besides, compared with the previous pan-European GMMs, almost two times more records were used in determining its coefficients. These improvements lead to more robust GMMs than have previously been published for shallow crustal earthquakes in Europe and the Middle East.

The third GMM, or Pez-2018, is an updated, widely used version of the previous GMM by Pezeshk *et al.* (2011). The GMM was developed for Eastern North America, i.e., the stable continental region. The GMM Pez-2018 was selected for at least two reasons. First, it was created in a tectonic environment similar to southern Africa because it meets reliability conditions established by Cotton *et al.* (2006). Also, its previous version (Pezeshk *et al.*, 2011) was applied by Poggi *et al.* (2017) in their most advanced study of PSHA for Southern Africa. Like AB-2011, the Pez-2018 is derived by the application so-called hybrid-empirical method. The procedure employs stochastic simulations and adjustment of the corresponding GMM developed for West North America (WNA) to the seismotectonic environment typical to Eastern North America (ENA). For more details on the hybrid-empirical method, see, e.g. work by Campbell (2011).

It is important to note that choosing a reliable regional GMM is crucial; as a rule, the GMM is the primary source of uncertainty in any seismic hazard analysis. An account for this uncertainty is accommodated by applying the logic tree formalism. Refer to Section 6 for the details of the logic tree formalism.

5. Vertical Component of Peak Ground Acceleration

The amplitude of the vertical component depends on the seismic event magnitude and distance from the epicentre. A conservative estimate of the average ratio between the vertical and horizontal components of the PGA is roughly 2/3. However, seismic records of strong seismic events at short distances show values larger than 2/3.

Abrahamson and Litehiser (1989) derived a GMM considering horizontal and vertical components. This model is a hybrid like GMMs by Joyner and Boore (1981) and Campbell (1981).

Peak vertical accelerations of 585 strong ground-motion records from 76 earthquakes worldwide fit an attenuation model with a magnitude-dependent shape. The regression uses a two-step hybrid method of the Joyner and Boore (1981) and Campbell (1981) regression methods. The resulting vertical attenuation relation is

$$\log_{10} a_v(g) = -1.15 + 0.245M - 1.096 \log_{10}(r + e^{0.256M}) + 0.096F - 0.0011Er \quad (5.1)$$

where M is the magnitude, r is the distance in kilometres to the closest approach of the zone of energy release, F is a dummy variable that is 1 for reverse or reverse oblique events and 0 otherwise. E is a dummy variable that is 1 for interplate events and 0 for intraplate events. The standard error of $\log_{10}(a_V)$ is 0.296. Because the vertical-to-horizontal acceleration ratio is also required, the horizontal peak attenuation from the same suite of records was also obtained. The resulting horizontal attenuation relation is

$$\log_{10} a_H(g) = -0.62 + 0.177M - 0.982 \log_{10}(r + e^{0.284M}) + 0.132F - 0.0008Er \quad (5.2)$$

where a_H is the PGA of the largest of the two horizontal components. The standard error of $\log_{10}(a_H)$ is 0.277.

A simple conversion procedure could be employed to convert the above results from the horizontal to the vertical component of PGA (Fig. 5.1).

The correct vertical PGA to be used depends on the distance from the seismogenic rupture to the structure. This distance is subjective and depends on the requirements of the project. In the extreme, over-cautious case, the largest earthquake could be assumed to occur at a distance of approximately 10 km. The vertical and horizontal PGA ratio is ca. 1.0 (Abrahamson and Litehiser, 1989).

Similar relationships between vertical and horizontal components for the uniform hazard (acceleration) response spectra (UHRS) are discussed by McGuire *et al.* (2001) and provided in the document NUREG/CR-6728.

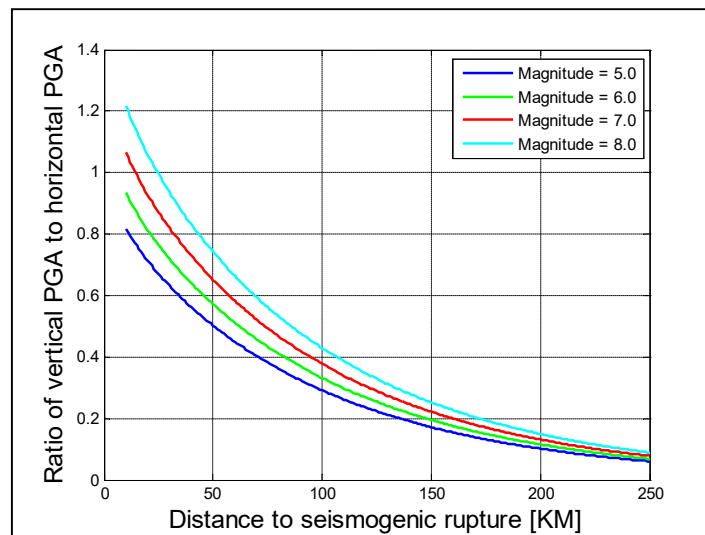


Figure 5.1 Expected ratio of peak vertical to peak horizontal ground acceleration, as determined by equations (14) and (15) in Abrahamson and Litehiser (1989).

6. Account for Uncertainties: Logic Tree Formalism

This section provides an interpretation of the uncertainties associated with the PSHA assessment performed for the examined site of the TSF TM. Developing any complex seismotectonic model requires several essential assumptions and allows a wide range of interpretations. Two types of uncertainty (variability) are included in typical PSHA. These are aleatory and epistemic (e.g. Budnitz *et al.*, 1997; Bernreuter *et al.*, 1989). Aleatory variability is uncertainty in the data used in an analysis that accounts for randomness associated with predicting a parameter from a specific model, assuming that the model is correct. For example, the standard deviation of the mean value of ground motion represents typical aleatory variability. Aleatory variability is included, by default, in the PSHA calculations by integration over GMM uncertainty, which is a central part of the applied methodology.

Epistemic uncertainty accounts for incomplete knowledge in the predictive models. Epistemic uncertainty is included in the PSHA by accounting for alternative hypotheses and models. For example, the alternative assumptions account for the epistemic uncertainty in earthquake source zonation, seismic potential, seismic source hazard parameters and GMMs.

The lack of reliable information about the seismic capability of tectonic faults in the vicinity of the examined site and the reliable regional ground motion model are the primary sources of uncertainty in this PSHA assessment. The uncertainty can significantly impact the estimated seismic hazard, leading to its significant underestimation/overestimation.

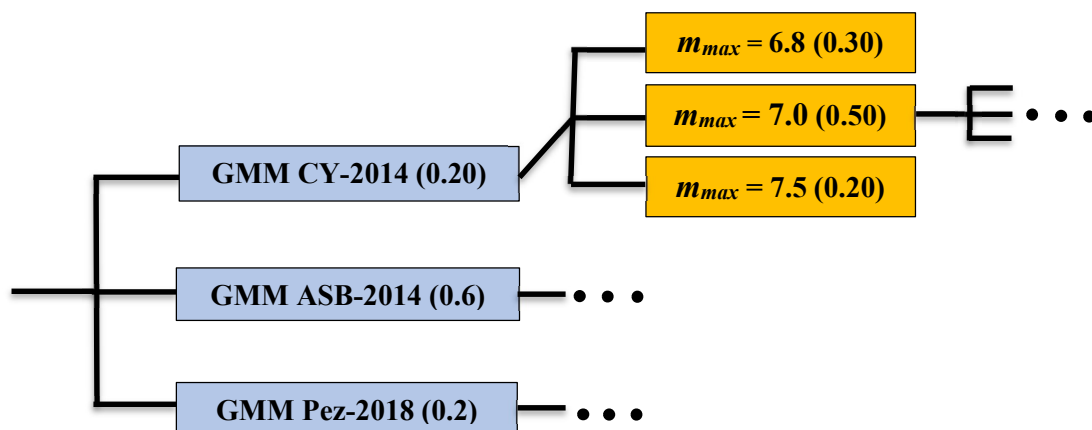


Figure 6.1 The schematic illustration of the logic tree applied in this study. The image is limited to the applied GMMs and the maximum possible (tectonic origin) earthquake magnitude m_{max} .

Based on similar studies (Poggi *et al.*, 2017), it was assumed that the weights of applied GMMs are equal to 0.20 for the ChY-2014 (Chiou and Youngs, 2014), 0.60 for the ASB-2014 (Akkar *et al.*, 2014), and 0.20 for the Pez-2018, (Pezeshk *et al.*, 2018). The weights assigned to the uncertainty of the three considered maximum possible magnitudes, 6.8, 7.0 and 7.5, are 0.30, 0.50 and 0.20 (Fig. 6.1).

7. Probabilistic Seismic Hazard Analysis— Results

All PSHA calculations were performed for the shear velocities averaged over the upper 30 m (V_{s30}), estimated as 655 m/s. Appendix D gives an account of how the local site condition was incorporated.

7.1. Earthquake Design Levels

Regulatory guidelines play a crucial role in the safe seismic design of engineering structures. These regulations guide the infrastructure designers regarding the strength and stability of facilities against extreme loads such as earthquakes. In most countries, the design standards for tailings dams are determined by ICOLD guidelines and are controlled by state (central government) dam safety agencies (Chambers and Higman, 2011). For instance, in the United States, tailings dam safety falls under the Federal Emergency Management Agency (FEMA). Most of the current standards are oriented toward water reservoirs; therefore, there is a lack of guidance for tailings dams (Szymanski and Davies, 2004; Chambers and Higman, 2011). Implementation of the standards depends mainly on professional judgement.

For this reason, critical assumptions and the required seismic hazard specifications could vary significantly for similar mine structures in different locations. Following the seismic regulations, e.g. ANCOLD (2017), Eurocode 8 (2004), ASCE 7-05 (2005), and ICOLD (2016, Bulletin 148), three designed seismic levels are typically considered: Operating Basis Earthquake (OBE), Safety Evaluation (SEE), and MCE. These design levels indicate the degree of seismic hazard and risk for the given site based on different return periods. Recent regulatory guidelines often do not require calculating the earthquake design level OBE.

In ICOLD (2016, Bulletin 148), the SEE is defined as the level of shaking for which damage can be expected but for which there should be no uncontrolled release of water from the reservoir. The term SEE replaces the terms Maximum Design Earthquake (MDE) used in the first edition of ICOLD (2016, Bulletin 148) and Design Basis Earthquake (DBE) used in ICOLD (2016, Bulletin 46), *Seismicity and Dam Design*. The 2016 revision of the bulletin defines the OBE as the level of shaking for which there should be no or insignificant damage to the dam and appurtenant structures.

One must consider that the choice and definition of respectable earthquake design levels depend on the practitioners' judgment and the applied code.

The requirements of acceptable EDLs for mining infrastructures differ for different mining companies. The commonly used Canadian Dam Safety Guidelines (CDA, 2007) for structures such as water and tailings dams in moderate to low seismic active regions require the earthquake design level SEE calculated for a return period of 5,000 years and the MCE with a return period of 10,000 years. Following, e.g. the Rio Tinto D5 Group Procedure, all operating tailing dams are classified as risk class III or IV, for which the minimum design earthquake return period is 5000 years. Similar standards are applied in Canada (Canadian Dam Association, 2007).

The most recent guidance regarding the tailings storage facilities (see Appendix G) and dam management standards requires knowledge of three earthquake design levels, calculated for the return period of 2,475, 5,000 and 10,000 years. However, this report provides values of seven earthquake design levels (EDLs) computed for a return period of 145, 200, 475, 1,000, 2,475 and 5,000 years. The MCE is calculated for the return period of 10,000 years. All calculations are performed for the actual value of $V_{s30} \cong 655$ m/s. One has to note that the effect of incorporation of site effect is minimal. It leads to an increase of seismic hazard characteristics of order of 5 %.

For seismicity within 500 km from the TSF TM site, the seven estimated EDLs (after applying formalism of the logic tree) are listed in Table 7-1.

Table 7-1 Mean earthquake design levels for the TSF TM site, calculated for return periods 145, 200, 475, 1,000, 2,475, 5,000 and 10,000 years (MCE) for $V_{s30} = 655$ m/s.

Site: TSF TM ($V_{s30} = 655$ m/s)		
Earthquake Design Level (the mean values)	Return Period	Estimated PGA
EDL ₁	145 years	$0.020 \pm 0.011 g$
EDL ₂	200 years	$0.023 \pm 0.013 g$
EDL ₃	475 years	$0.035 \pm 0.017 g$
EDL ₄	1,000 years	$0.050 \pm 0.022 g$
EDL ₅	2,475 years	$0.074 \pm 0.029 g$
EDL ₆	5,000 years	$0.100 \pm 0.035 g$
EDL ₇ (MCE)	10,000 years	$0.131 \pm 0.042 g$

The PSHA for the investigated site can be rated according to the classes defined in the Global Seismic Hazard Assessment Program (GSHAP) (Shedlock *et al.*, 2000). The GSHAP map shows seismic hazards based on a 10 % probability of exceedance within 50 years or a return period of 475 years. The map delineates the hazard such that PGA for the range $[0.0 g \text{ to } 0.08 g]$ is defined as a low hazard, $[0.08 g \text{ to } 0.24 g]$ is considered a moderate hazard, the content $[0.24 g \text{ to } 0.41 g]$ is regarded as high hazard, and very

high hazard is assigned for PGA values of $g > 0.41 g$. According to Shedlock *et al.* (2000) classifications, the TSF TM site is exposed to low seismic hazards.

It is important to note that the EDLs expressed in PGA are not the only indicators of seismic hazard in an investigated area. Moreover, they are often misunderstood. Equally important is the dominant frequency of ground vibrations.

7.2 Seismic Hazard Curve and Its Uncertainty

The ultimate goal of a PSHA is the seismic hazard curve. This curve represents the annual probability of exceeding a specified ground motion parameter at least once in a given time period. The seismic hazard curve is obtained by integrating earthquake recurrence parameters with the GMMs with the help of Cornell-McGuire formalism (McGuire, 2004). An alternative definition of the hazard curve is the frequency of exceedance vs ground motion amplitude (McGuire, 2004). An in-depth discussion of PSHA and its mathematical formalism is provided in Appendix G.

Figure 7.1 presents the mean, median and quantiles of the annual probability of exceedance of the horizontal PGA at the TSF TM site after applying logic tree formalism. The figure also shows 5%, 15%, 84%, and 95% quantiles. The tabulated values of the quantiles (including the median and mean) hazard curves are listed in Appendix C. The mean return period of the median value of horizontal PGA at the TSF TM site after applying logic tree formalism is shown in Figure 7.2. The tabulated values of the mean return period curve are provided in Appendix C.

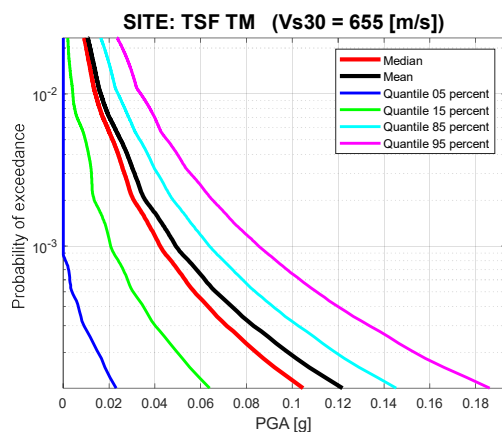


Figure 7.1 Annual probability of exceedance for the mean, median, and quantiles 5%, 15%, 84% and 95% of horizontal PGA at the TSF TM site.

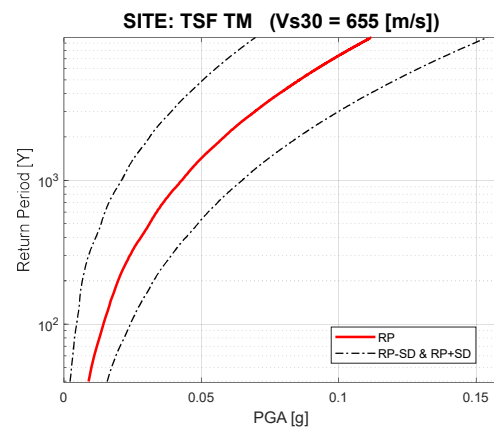


Figure 7.2 Mean return period (years) of the horizontal PGA at the TSF TM site after applying logic tree formalism. The return period is the reciprocal of the mean activity rate λ .

8. Response Spectra

An alternative way to view site-specific seismic hazards is the response spectra. During the decision-making phase, the response spectra analysis relates the structure to its dynamic performance. In this report, the following two spectra are presented:

- Uniform Hazard (acceleration) Response Spectra (UHRS)
- Elastic Response Spectra (ERS).

8.1 Uniform Hazard Response Spectra (UHRS)

The uniform hazard (acceleration) response spectrum (UHRS) represents the range of probabilistic ground motions across various shaking frequencies. The spectrum provides hazard values over frequencies based on a particular source zone and ground motion model. The spectrum reflects the hazard levels over all the frequencies. Such a plot is known as a Uniform Hazard Response Spectrum (or Uniform Response Spectrum or Uniform Hazard Spectrum).

The UHRS does not reflect the shape of the spectrum of any particular earthquake but provides a merger of contributions from all possible seismic events.

Following Figure 7.1, which depicts the annual probability of exceedance of the mean value of horizontal PGA, Figures 8.1-8.2 show respective horizontal and vertical UHRS for the examined site with an account of site effect after applying the logic tree. The mean horizontal UARS is shown in Fig 8.1(a)-(b). Vertical (mean) components of UHRS are shown in Figures 8.2(a)-(b). Each spectrum, horizontal and vertical, is shown in a linear and log-log scale. It helps to localize the spectrum's details (especially the pick values). All spectra are computed as a function of the structure vibration period and frequency for five return periods: 475, 1,000, 2,475, 5,000 and 10,000 years.

The conversion of the horizontal into the vertical component of the UHRS is done according to McGuire *et al.* (2001). The tabulated values of both horizontal and mean vertical components of the uniform acceleration response spectra are provided in Appendix C.

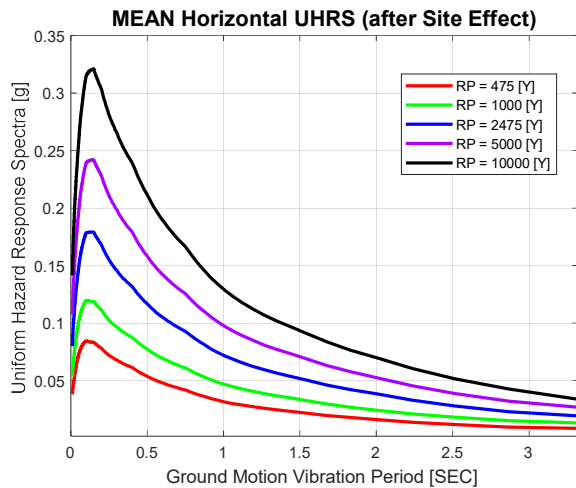


Figure 8.1(a) Mean horizontal UHRS for return periods 475, 1,000, 2,475, 5,000 and 10,000 years as a structural vibration period after applying logic tree formalism — linear axes.

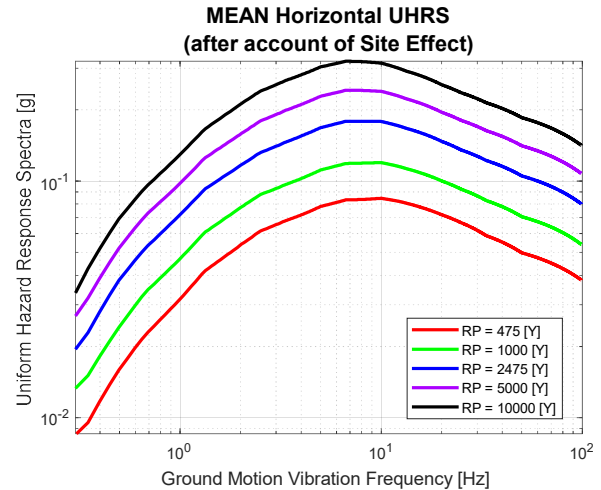


Figure 8.1(b) Mean horizontal UHRS for return periods 475, 1,000, 2,475, 5,000 and 10,000 years as a structural vibration frequency after applying logic tree formalism — log-log axes.

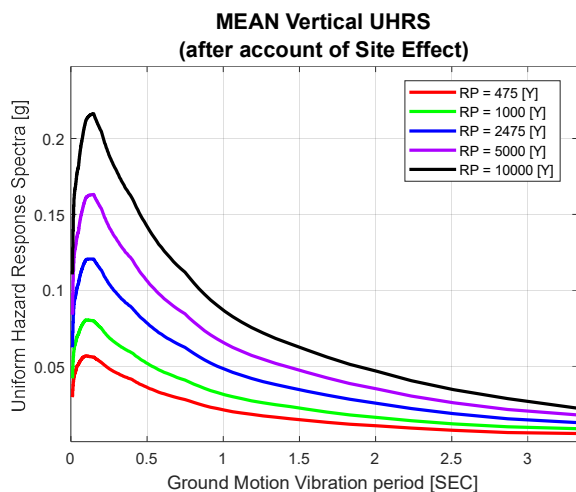


Figure 8.2(a) Mean vertical UHRS for return periods 475, 1,000, 2,475, 5,000 and 10,000 years as a structural vibration period after applying logic tree formalism — linear axes.

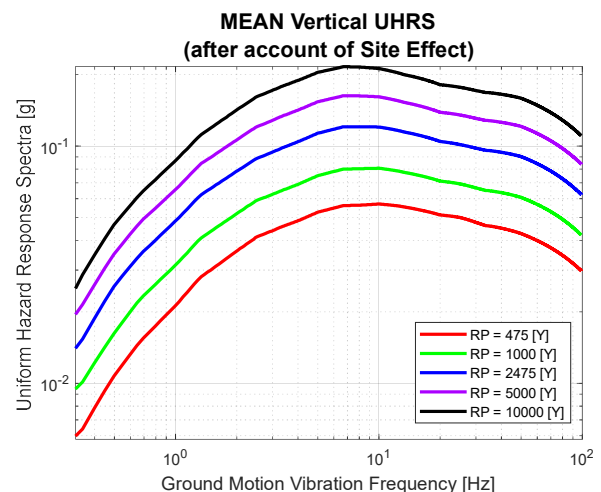


Figure 8.2(b) Mean vertical UHRS for return periods 475, 1,000, 2,475, 5,000 and 10,000 years as a structural vibration frequency after applying logic tree formalism — log-log axes.

The tabulated values of both the mean horizontal and vertical components of the uniform acceleration response spectra, after an account of site effect, are given in Appendix C. Finally, Figure 8.3 – 8.7 presents

the 5%, 15%, 84% and 95% quantiles of the mean UHRS-s for return periods 475, 1,000, 2,475, 5,000 and 10,000 years. The tabulated values of the spectra quantiles are provided in Appendix C.

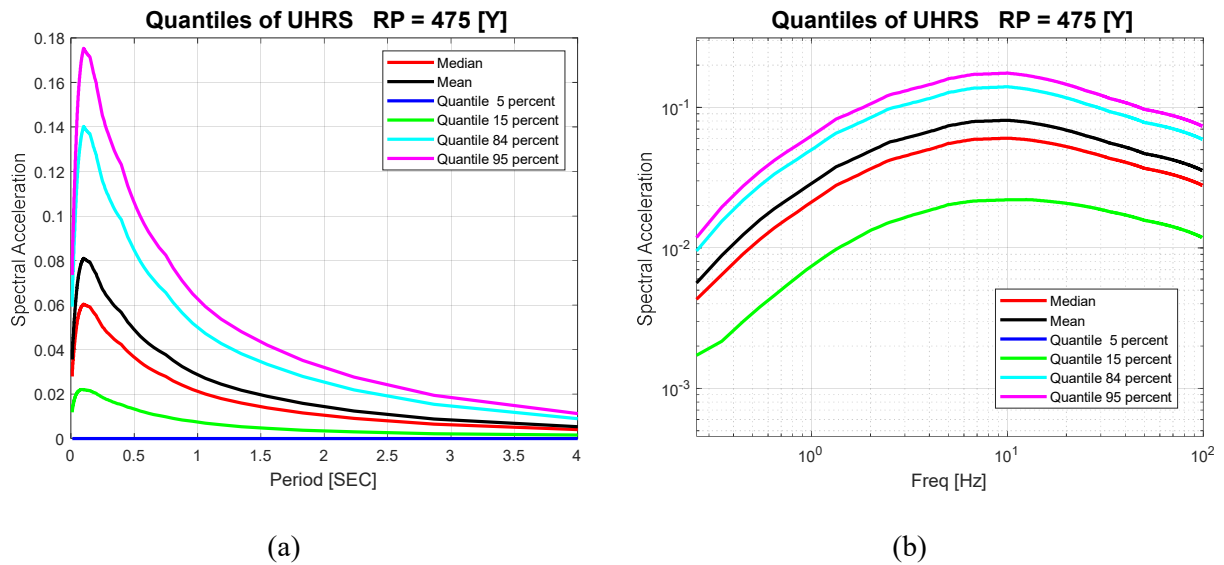


Figure 8.3 Quantiles 5%, 15%, 84% and 95% of the mean UHRS for a return period 475 years after an account of site effect (a) linear axes, (b) log-log axes.

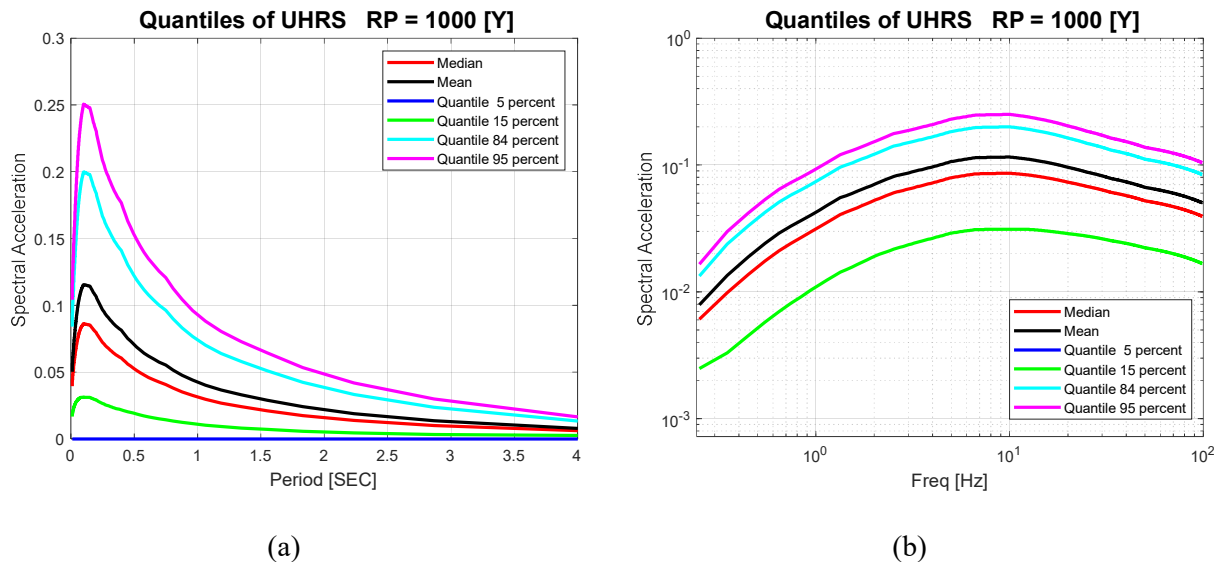
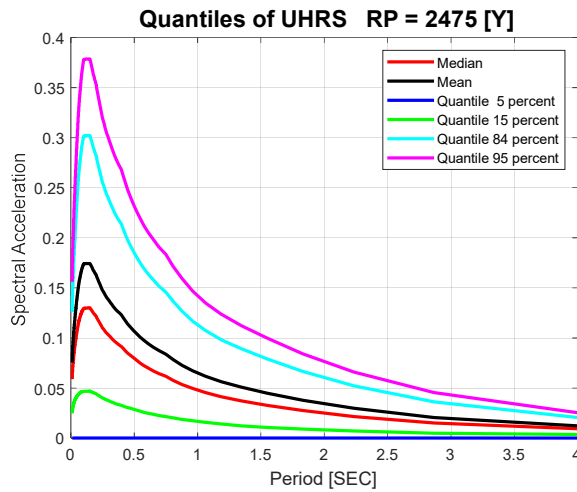
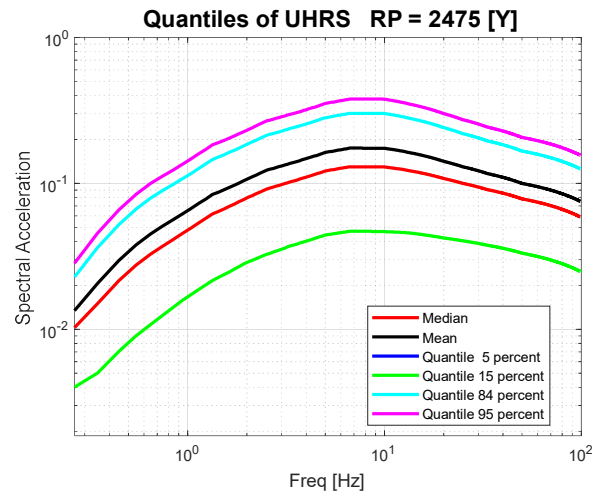


Figure 8.4 Quantiles 5%, 15%, 84% and 95% of the mean UHRS for a return period 1,000 years after an account of site effect (a) linear axes, (b) log-log axes.

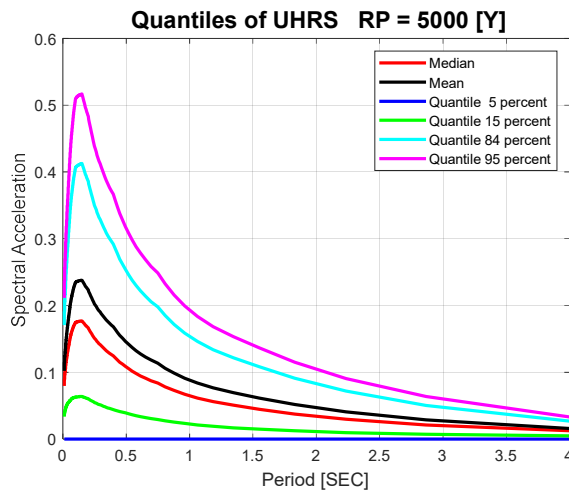


(a)

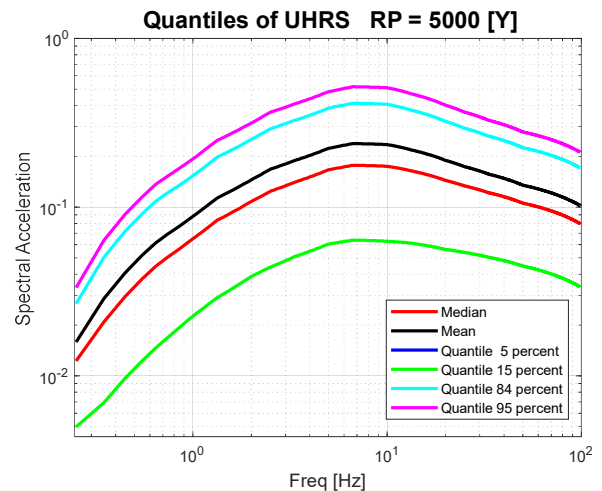


(b)

Figure 8.5 Quantiles 5%, 15%, 84% and 95% of the mean UHRS for a return period 2,475 years after an account of site effect (a) linear axes, (b) log-log axes.



(a)



(b)

Figure 8.6 Quantiles 5%, 15%, 84% and 95% of the mean UHRS for a return period 5,000 years after an account of site effect (a) linear axes, (b) log-log axes.

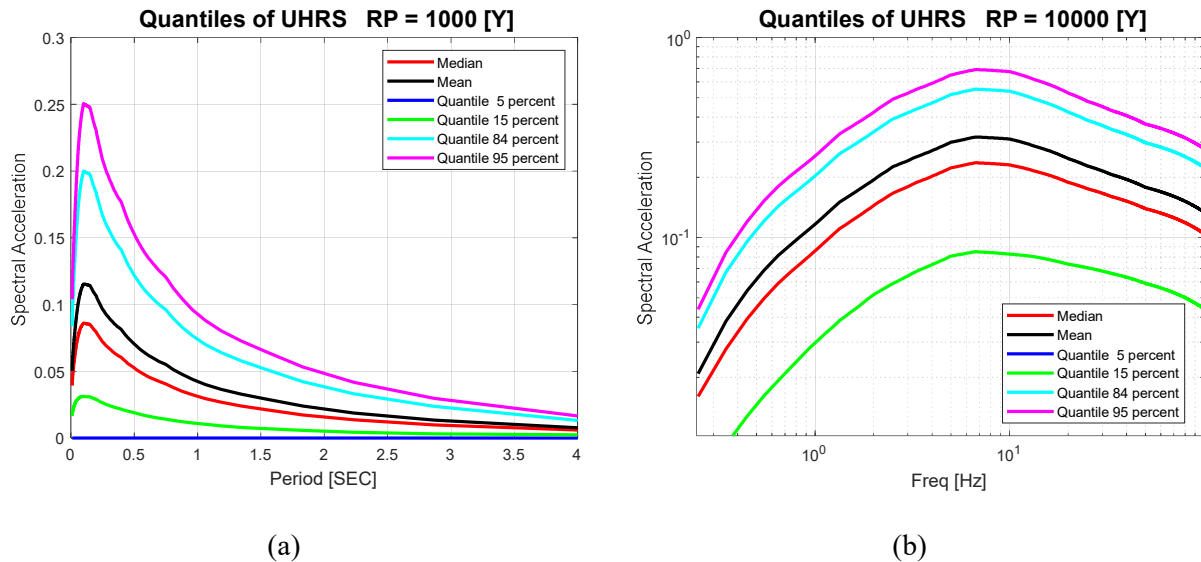


Figure 8.7 Quantiles 5%, 15%, 84% and 95% of the mean UHRS for a return period 10,000 years after an account of site effect (a) linear axes, (b) log-log axes.

8.2 Elastic Response Spectrum (ERS)

The elastic response spectra (ERS) provide a basis for computing design displacements and forces in systems expected to remain elastic during earth-shaking. These response spectra, which are easy to implement, can be used with limited data and often characterize ground motion and the demands placed on the designed structure. The ERS represents the peak dynamic response parameter in displacement, velocity, and acceleration for a single degree of freedom for elastic facilities. The response is presented as a function of the ground motion vibration period for viscous damping at 5% (Eurocode 8, 2004).

The Eurocode 8 spectra are calculated for seven EDLs PGA's values after a logic tree listed in Table 7-1. The spectra are shown in Figure 8.8. The tabulated values of the computed elastic response spectra are provided in Appendix C.

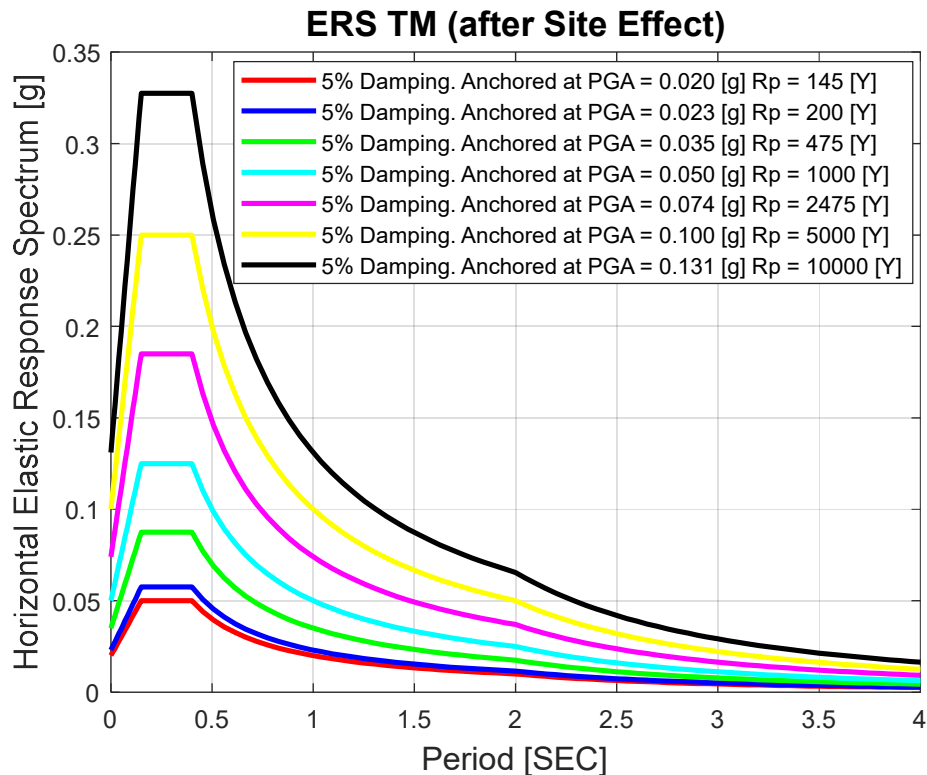


Figure 8.8 Horizontal Eurocode 8 (Type 1) elastic response spectra anchored at seven mean EDLs (calculated for return periods of 145, 200, 475, 1,000, 2,475, 5,000 and 10,000 years), resulting from applying the logic tree procedure.

9. De-aggregation of Seismic Hazard

Probabilistic seismic hazard analysis (PSHA), by definition, aggregates all the ground motion contributions from significant earthquake magnitudes and distances around the site of engineering interest. Therefore, the PSHA results are not representing a single earthquake or seismic event. However, analysis of the most relevant earthquake acceleration time series generated by earthquakes at specific magnitudes and distances forms an integral part of the designing procedure of any critical infrastructure. There could be several controlling earthquakes for an investigated site. These are called “controlling earthquakes” and determine the site's uniform spectral acceleration and PGA shapes. Controlling earthquakes are the mean magnitudes and distances obtained from de-aggregation analyses (McGuire, 1995; Frankel *et al.*, 1999; Bazurro and Cornell, 1999). Therefore, controlling earthquakes are earthquakes that determine spectral shapes formed by ground motions at the site.

Controlling earthquakes is calculated for different structural frequency vibrations, focusing on the fundamental frequency of the relevant structure. During the de-aggregation procedure, the results of PSHA are separated to determine the dominant magnitudes and distances that contribute the most to the hazard curve at the specified reference probability or return period. During de-aggregation, the hazard for a set (usually annual) reference probability of exceedance (or return period) and a selected ground motion frequency is split into magnitude and distance bins. Subsequently, the relative contribution to the hazard of each bin is calculated. The bins with the most significant contribution identify those earthquakes that contribute the most to the total seismic hazard for the site.

Following the respective regulations, requirements, and recommendations by NUREG Guide 1.165 (1997), our analysis of PSHA de-aggregation is performed for an annual reference probability of 1/10,000. The de-aggregation is computed for frequencies 1.0, 2.5, 5.0, 10.0 Hz and PGA. The same procedure was used for distances of 100 km and greater. Such calculations aimed to identify distant, strong seismic events that control the low-frequency content of a response spectrum. Details of the applied de-aggregation procedure are given in Appendix E.

9.1 Applied Procedure

This section summarises the NUREG GUIDE 1.165 (1997) de-aggregation procedure. It outlines the steps involved in determining the controlling earthquakes. According to the NUREG Guide 1.165, the de-aggregation process is defined by seven steps:

Step 1. Plot the Hazard Curves

- Determination of the PSHA at the site. The hazard assessment is performed by the procedure developed by Cornell (1968) and McGuire (1976; 1978, 2004).
- Computation of hazard assessment for S_a at 1.0, 2.5, 5.0 and 10.0 Hz.
- Plots of the resultant hazard curves.

Step 2. Assess the hazard curves at an Annual Reference Probability or, equivalently, Reference Return Period(s)

- The hazard curves are computed at 1.0, 2.5, 5.0 and 10.0 Hz for each specified reference probability/reference return period. This study performs the de-aggregation procedure for the annual reference probability of 1/5000. The corresponding acceleration values at a yearly probability of 1.0, 2.5, 5.0 and 10.0 Hz are collected for each frequency. These values were called $a_{1.0}$, $a_{2.0}$, $a_{5.0}$ and $a_{10.0}$.
- The average of the ground motion levels at 1.0-2.5 Hz and 5.0-10.0 Hz is calculated ($a_{1.0-2.5}$, $a_{5.0-10.0}$). These averages are denoted as $Sa_{1.0-2.5}$ and $Sa_{5.0-10.0}$.

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Step 3. De-aggregate the median seismic hazard into Magnitude and Distance Bins

- The median seismic hazard is de-aggregated for different magnitude- and distance bins. For a given frequency, including the average at 1.0-2.5 Hz and 5.0-10.0 Hz, a complete PSHA is computed. Each bin determines the hazard's contribution from all earthquakes.

Step 4. Find the annual Probability of Exceeding the Ground Motion Levels for each bin

- The median annual probability of exceeding the ground motion levels of SA at 1.0, 2.5, 5.0 and 10.0 Hz is determined for each bin from the median hazard curves. These values were denoted by H_{mdf} .
- Using the H_{mdf} values, the fractional contribution of each magnitude and distance bin to the total hazard for the average of 1.0 and 2.5 Hz, $P(m, d)_1$, is computed according to:

$$P(m, d)_1 = \frac{\sum_{f=1,2} H_{mdf} / 2}{\sum_m \sum_d (\sum_{f=1,2} H_{mdf})} \quad (9.1)$$

with $f = 1$ and $f = 2$ representing the ground motion level at 1 and 2.5 Hz, respectively.

- The fractional contribution of each magnitude and distance bin to the total hazard for the average of 5.0 and 10.0 Hz, $P(m, d)_2$ are computed according to Eq. (9.1), where $f = 1$ and $f = 2$, represent the ground motion level at 5.0 and 10.0 Hz, respectively.

Step 5. Assess the contribution to the hazard from earthquakes at distances > 100 km

- The review of the magnitude-distance distribution for the average of 1.0 and 2.5 Hz. It is done to determine whether the contribution to the hazard for distances of 100 km or larger is substantial.
- If $\sum_m \sum_{d \geq 100 \text{ km}} P(m, d)_1 \geq 0.05$, then the magnitude-distance distribution for distances greater than 100km is used to determine the controlling earthquake. This distribution, $P_{d>100}(m, d)_1$, is defined by:

$$P_{d>100}(m, d)_1 = \frac{P(m, d)_1}{\sum_m \sum_{d>100} P(m, d)_1} \quad (9.2)$$

- This calculation helped identify distant, strong seismic events that may control a response spectrum's low-frequency content.

Step 6. Find the Controlling Earthquake for SA of between 5.0 and 10.0 Hz

- Calculation of the mean magnitude and distance of the controlling earthquake associated with the ground motions for the average of 5.0 and 10.0 Hz using the entire magnitude-distance bins matrix.
- Calculation of the mean magnitude of the controlling earthquake uses the following relation:

$$M_c(5.0 - 10.0\text{Hz}) = \sum_m m \sum_m P(m, d)_2, \quad (9.3)$$

where m is the central magnitude value for each magnitude bin.

- Calculation of the distance of the controlling earthquake

$$\ln\{D_c(5.0 - 10.0\text{Hz})\} = \sum_d \ln(d) \sum_m P(m, d)_2, \quad (9.4)$$

where d is the bin distance.

Step 7. Find the Controlling Earthquake for SA between 1.0 and 2.5 Hz at distances greater than 100 km

- The mean magnitude and distance of the controlling earthquakes are calculated if the contribution to the hazard (Step 5) for distances of 100 km or bigger exceeds 5%

$$M_c(1.0 - 2.5\text{Hz}) = \sum_m m \sum_{d>100} P_{d>100}(m, d)_1, \quad (9.5)$$

where m is the central magnitude value for each magnitude-bin.

- The mean distance of the controlling earthquake, based on magnitude-distance bins greater than distances of 100 km, is determined according to the:

$$\ln\{D_c(1.0 - 2.5\text{Hz})\} = \sum_{d>100} \ln(d) \sum_m P_{d>100}(m, d)_2, \quad (9.6)$$

where d is the central distance to each bin.

9.2 Results

The de-aggregation of PSHA is performed in terms of the annual reference probability of 1/5000 for acceleration response spectra of 1.0, 2.5, 5.0, 10.0 Hz and PGA. Below are the summarized results. The graphs and details of the applied de-aggregation procedure (including information on controlling earthquakes) are provided in Appendix E.

After applying logic tree formalism, the PSHA de-aggregation results are provided in Figs 9.1 (a-d) and Table 9-1. The figures and table show the contribution to seismic hazard regarding S_a of 1.0, 2.5, 5.0, 10.0 Hz and PGA of earthquakes at different distances and magnitudes. The annual probability of exceedance versus PGA is shown in Fig. 7.1. Figure 9.2 provides values of the annual probability of exceedance versus spectral accelerations for frequencies 1.0, 2.5, 5.0 and 10.0 Hz.

Table 9-1 Results of de-aggregation of PSHA for the Tharisa Mine site after the logic tree for the annual reference probability 1/10,000. (a) The mean magnitude and distance of controlling earthquakes for S_a 1.0, 2.5, 5.0, 10.0 Hz and PGA, and (b) the mean magnitude and distance of controlling earthquakes for the spectral acceleration of 1.0, 2.5, 5.0, 10.0 Hz at distances exceeding 100 km.

Number	Annual Reference Probability	Controlling Parameters	Frequency (Hz)				
			1.0	2.5	5.0	10.0	PGA
(a)	1/10,000	Magnitude	6.7	6.4	6.2	6.0	6.1
		Distance [km]	92	62	48	46	43
(b)	1/10,000 (distance > 100 km)	Magnitude	6.8	6.8	6.7	6.5	6.7
		Distance [km]	246	212	173	160	160

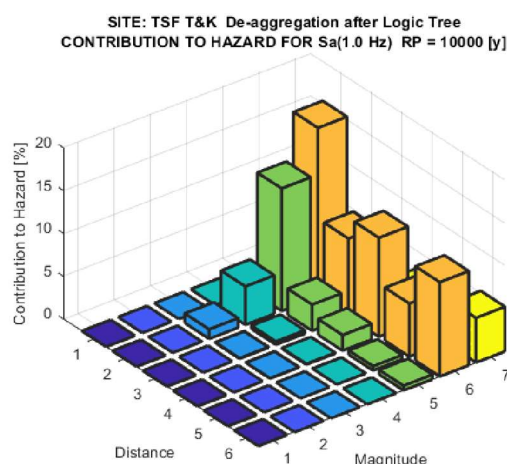


Figure 9.1(a) De-aggregation of seismic hazard expressed in $S_a = 1.0 \text{ Hz}$, for annual reference probability 1/10,000 after logic tree.

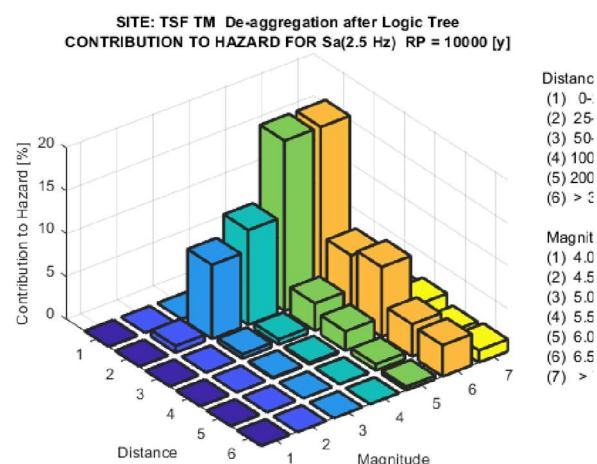


Figure 9.1(b) De-aggregation of seismic hazard expressed in $S_a = 2.5 \text{ Hz}$, for annual reference probability 1/10,000 after logic tree.

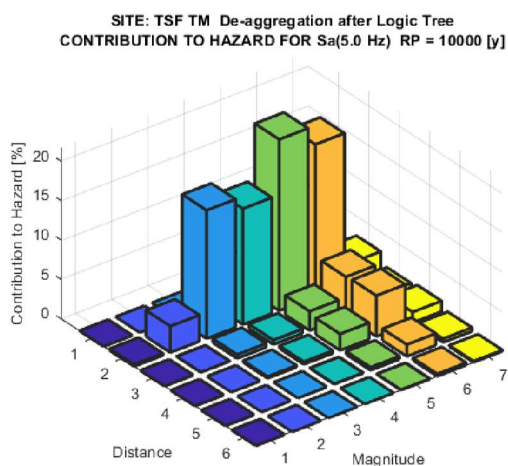


Figure 9.1(c) De-aggregation of seismic hazard expressed in $S_a = 5.0 \text{ Hz}$, for annual reference probability 1/10,000 after logic tree.

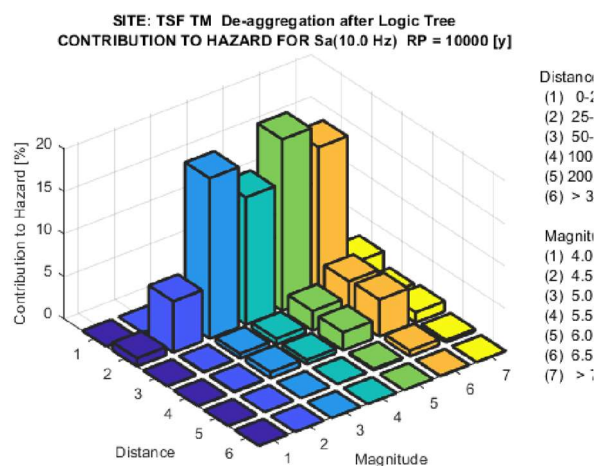


Figure 9.1(d) De-aggregation of seismic hazard expressed in $S_a = 10.0 \text{ Hz}$, for annual reference probability 1/10,000 after logic tree.

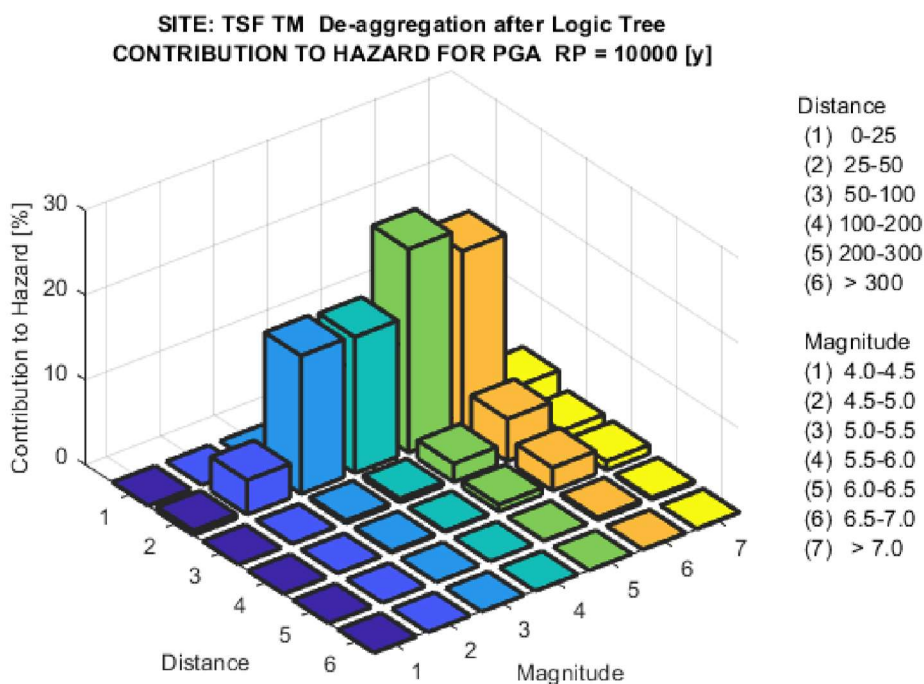


Figure 9.1(e) De-aggregation of seismic hazard expressed in PGA, for annual reference probability 1/10,000 after logic tree.

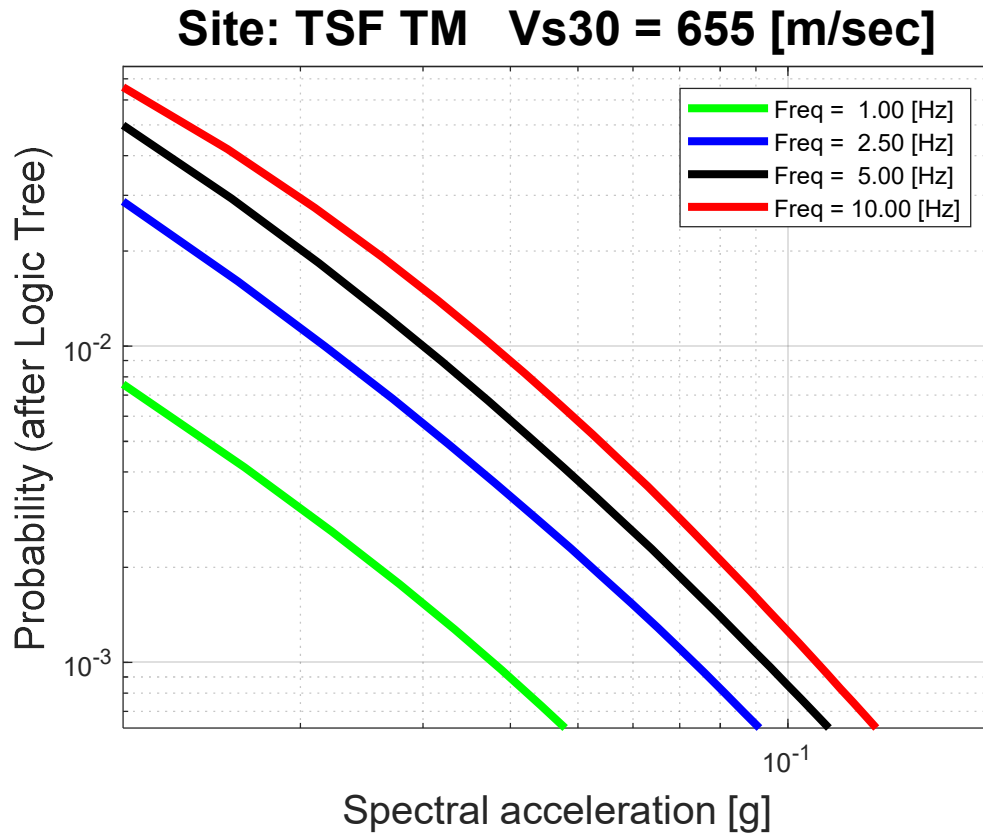


Figure 9.2 Annual exceedance probability versus S_a for frequencies 1.0, 2.5, 5.0, and 10.0 Hz. (After logic tree). The annual probability of exceedance versus PGA is shown in Figure 7.1.

Results of the de-aggregation of PSHA for the investigated site of the TSF TM are summarised in Section 9, Table 9-1 and Figures 9.1(a-e). Based on Table 9-1 and Figure 9.1(a-e), for the reference return period of 10,000 years, the low-frequency ground vibration (1.0 - 2.5 Hz) is controlled by two sets of events: occurring at distances 60 - 90 km with magnitudes 6.4 - 6.7 and occurring at distances of 210 - 250 km with magnitudes ~ 6.8 . The high-frequency ground vibration, which, as a rule, is not imposing a significant threat to the structure, is controlled by events with magnitudes of 6.0 - 6.1 at distances 40 - 50 km and events with magnitudes of 6.5 - 6.7 at distances of 160 - 170 km. The most significant contribution to seismic hazard for the TSF TM in terms of PGA comes from close earthquakes with magnitudes ~ 6.1 which occurred at about 40 - 50 km. The most important contribution (regarding PGA) from distant earthquakes comes from potential events with magnitudes ~ 6.7 , which occurred at about 160 km.

10. PSHA in Terms of Earthquake Magnitude

10.1 Assessment of the Annual Probability of Exceedance and Return Periods

It is assumed that earthquake magnitude m is a random value in the range of $m_{min} \leq m \leq m_{max}$ and is distributed according to the doubly truncated Gutenberg–Richter relation

$$\log N(m) = a - bm \quad (10.1)$$

where $N(m)$ is the number of earthquakes with magnitude m , and stronger, and a and b are parameters. The Gutenberg–Richter b -value gives the slope of the frequency–magnitude curve and defines the ratio between the number of large and small earthquake occurrences.

Acceptance of the classical frequency-magnitude Gutenberg-Richter relation (10.1) is equivalent to the assumption that the cumulative distribution function (CDF) of earthquake magnitude is of the form

$$F_M(m) = \frac{\exp(-\beta m_{min}) - \exp(-\beta m)}{\exp(-\beta m_{min}) - \exp(-\beta m_{max})} \quad (10.2)$$

where m_{min} is the minimum earthquake magnitude of engineering interest (in our case $m_{min} = 4.0$), m_{max} is the maximum possible regional characteristic earthquake magnitude, $\beta = b \ln(10)$ Where b is the parameter of the Gutenberg-Richter magnitude-frequency relation (10.1).

The earthquake magnitude recurrence curve $H(m)$, also known as the hazard curve in terms of earthquake magnitude, is defined as the probability of a given value of magnitude, m , being exceeded at least once during a specified time interval t . Such a probability can be written as

$$H(m|t) = \exp[-\lambda t(1 - F_M(m))]. \quad (10.3)$$

The mean seismic activity rate λ is the expected number of earthquakes of a given magnitude and stronger that will occur per unit of time (e.g. per year). The frequency-magnitude relation is doubly truncated: from below by m_{min} and from above, by m_{max}

Only tectonic origin events were used in the analysis, as only these events contribute to the seismic hazard at the selected site. Events at more considerable distances will not likely generate ground motion large enough to be of engineering concern.

The upper limit of magnitude for seven selected zones is provided in Table 3-1.

Estimated earthquake magnitude recurrence parameters for the diffuse seismicity for the area surrounding the TSF TM site are shown in Table 10-1. The magnitude hazard parameters β and λ are calculated simultaneously. The completeness of the applied seismic event catalogue and the uncertainties of earthquake magnitudes is shown in Table 3-1. The area characteristic maximum magnitude m_{max} the diffuse seismicity is estimated using the Kijko-Sellevoll procedure. The theory of the hazard parameters assessment procedure is given in Kijko and Sellevoll (1992), Kijko (2004), Kijko (2020) and Appendix G.

Table 10-1 Estimated earthquake magnitude recurrence parameters for the TSF TM site

Parameters	PSHA results
Minimum magnitude m_{min} (M_w)	2.5
Gutenberg-Richter b -value	1.21 ± 0.04
Beta (β)	2.78 ± 0.09
Mean annual activity rate $\lambda(m = 2.5)$	23.08 ± 2.99
COV(β, λ)	- 0.204
Area-characteristic maximum possible magnitude m_{max}	6.94 ± 0.65

The hazard curve, defined as the annual probability of exceedance at least once of the specified value of earthquake magnitude, is shown in Fig. 10.1. The mean return periods for earthquakes of magnitude 4.0 to 6.9 for the selected area are shown in Figure 10.2. The probability of exceedance of specified magnitude within time intervals of 200, 1,000 and 2,475 years are shown in Figure 10.3. By definition, an earthquake with a magnitude equal to $m_{max} = 6.94$ has no associated return period.

Tabulated values of the mean activity rate, return periods, and the probability of exceedance in 1, 200, 1,000 and 2,475 years for specified values of magnitude (Table 10-2) are provided below.

It must be noted that seismic hazard is determined by the level of ground motion (e.g. PGA) experienced at the site, not by seismic event magnitude. Strong seismic events far from the investigated site do not impose a seismic threat to the structure.

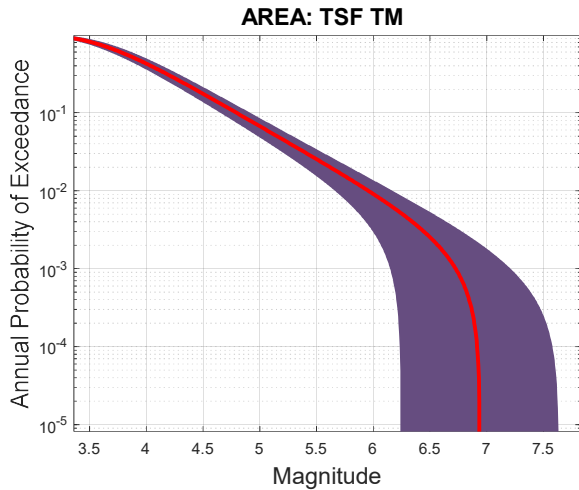


Figure 10.1 Annual probability of exceeding the specified value of seismic event magnitude for the area within 500 km from the TSF TM site. The red curve shows the mean probability, while the two blue curves indicate the mean probability plus or minus the standard deviation.

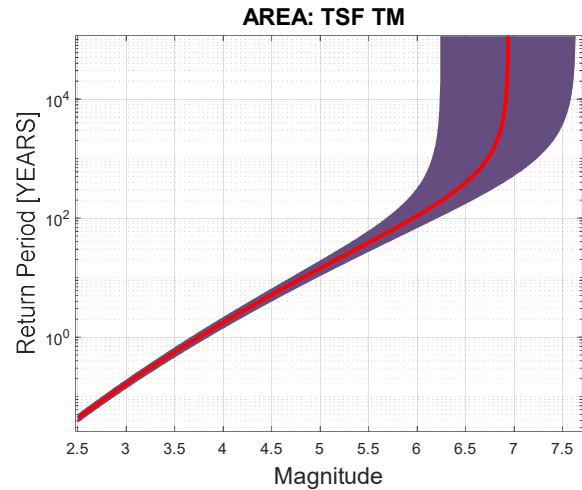


Figure 10.2 Mean return periods for seismic events magnitude occurring within 500 km from the TSF TM site.

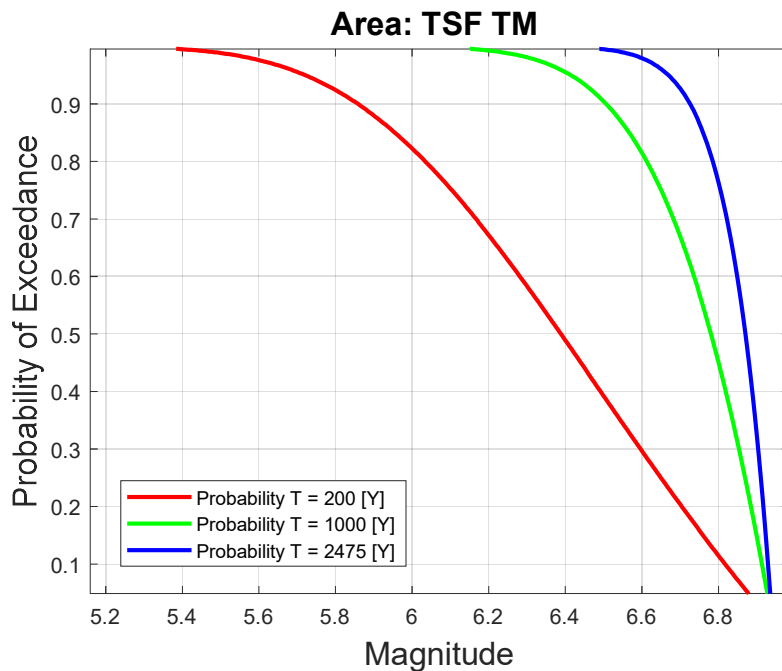


Figure 10.3 Probability of exceedance of specified magnitude within time intervals of 200, 1,000 and 2,475 years for the area 500 km from the TSF TM site.

Table 10-2 Estimated seismic hazard results for the area surrounding the site of the TSF TM in terms of activity rate (events/year), return periods (years) and the probability of exceedance for a specified magnitude for 1, 200, 1,000 and 2,475 years.

Mag	Lambda	RP	Prob (T=1y	200y	1,000y	2,475y
2.5	2.3085e+01	4.33e-02	1.00000	1.00000	1.00000	1.00000
2.6	1.7528e+01	5.71e-02	0.99999	1.00000	1.00000	1.00000
2.7	1.3370e+01	7.48e-02	0.99994	1.00000	1.00000	1.00000
2.8	1.0245e+01	9.76e-02	0.99964	1.00000	1.00000	1.00000
2.9	7.8839e+00	1.27e-01	0.99835	1.00000	1.00000	1.00000
3.0	6.0927e+00	1.64e-01	0.99427	1.00000	1.00000	1.00000
3.1	4.7276e+00	2.12e-01	0.98411	1.00000	1.00000	1.00000
3.2	3.6828e+00	2.72e-01	0.96365	1.00000	1.00000	1.00000
3.3	2.8798e+00	3.47e-01	0.92921	1.00000	1.00000	1.00000
3.4	2.2601e+00	4.42e-01	0.87926	1.00000	1.00000	1.00000
3.5	1.7801e+00	5.62e-01	0.81509	1.00000	1.00000	1.00000
3.6	1.4069e+00	7.11e-01	0.74035	1.00000	1.00000	1.00000
3.7	1.1156e+00	8.96e-01	0.65986	1.00000	1.00000	1.00000
3.8	8.8743e-01	1.13e+00	0.57840	1.00000	1.00000	1.00000
3.9	7.0811e-01	1.41e+00	0.49987	1.00000	1.00000	1.00000
4.0	5.6669e-01	1.76e+00	0.42701	1.00000	1.00000	1.00000
4.1	4.5481e-01	2.20e+00	0.36139	1.00000	1.00000	1.00000
4.2	3.6601e-01	2.73e+00	0.30364	1.00000	1.00000	1.00000
4.3	2.9530e-01	3.39e+00	0.25369	1.00000	1.00000	1.00000
4.4	2.3884e-01	4.19e+00	0.21107	1.00000	1.00000	1.00000
4.5	1.9362e-01	5.16e+00	0.17507	1.00000	1.00000	1.00000
4.6	1.5730e-01	6.36e+00	0.14489	1.00000	1.00000	1.00000
4.7	1.2804e-01	7.81e+00	0.11973	1.00000	1.00000	1.00000
4.8	1.0441e-01	9.58e+00	0.09884	1.00000	1.00000	1.00000
4.9	8.5274e-02	1.17e+01	0.08153	0.99999	1.00000	1.00000
5.0	6.9737e-02	1.43e+01	0.06722	0.99996	1.00000	1.00000
5.1	5.7091e-02	1.75e+01	0.05540	0.99982	1.00000	1.00000
5.2	4.6773e-02	2.14e+01	0.04563	0.99937	1.00000	1.00000
5.3	3.8333e-02	2.61e+01	0.03756	0.99810	1.00000	1.00000
5.4	3.1413e-02	3.18e+01	0.03090	0.99501	1.00000	1.00000
5.5	2.5727e-02	3.89e+01	0.02538	0.98845	1.00000	1.00000
5.6	2.1045e-02	4.75e+01	0.02081	0.97616	1.00000	1.00000
5.7	1.7180e-02	5.82e+01	0.01702	0.95551	0.99999	1.00000
5.8	1.3983e-02	7.15e+01	0.01388	0.92402	0.99996	1.00000
5.9	1.1333e-02	8.82e+01	0.01126	0.87993	0.99981	1.00000
6.0	9.1314e-03	1.10e+02	0.00909	0.82260	0.99927	1.00000
6.1	7.2996e-03	1.37e+02	0.00727	0.75269	0.99755	0.99999
6.2	5.7720e-03	1.73e+02	0.00575	0.67197	0.99276	0.99996
6.3	4.4957e-03	2.22e+02	0.00449	0.58305	0.98098	0.99979
6.4	3.4274e-03	2.92e+02	0.00342	0.48891	0.95520	0.99889
6.5	2.5315e-03	3.95e+02	0.00253	0.39253	0.90464	0.99494

6.6	1.7788e-03	5.62e+02	0.00178	0.29662	0.81487	0.97954
6.7	1.1453e-03	8.73e+02	0.00114	0.20343	0.66919	0.92645
6.8	6.1128e-04	1.64e+03	0.00061	0.11467	0.45113	0.76440
6.9	1.6027e-04	6.24e+03	0.00016	0.03151	0.14741	0.32418

11. Deterministic Seismic Hazard Analysis (DSHA)

Deterministic seismic hazard analysis (DSHA) involves developing a particular seismic scenario, according to which expected damages (losses) can be estimated. It provides a framework for the evaluation of the worst-case damages. However, it gives no information on the likelihood of such an event. Deterministic seismic hazard analysis requires potentially subjective assumptions regarding earthquake location and magnitude (Reiter, 1990; Kijko, 2020).

Our study of DSHA for the TSF TM includes the following investigations:

- Identification of seismic event/events capable of producing significant ground motion (e.g. PGA) at the investigated site.
- Assessment of the maximum possible earthquake magnitude m_{max} .
- An assessment of the worst-case scenario, i.e. occurrence of a seismic event with the maximum possible earthquake magnitude m_{max} at the shortest distance to the investigated site.
- Assessment of the effect of such a seismic event in terms of peak ground acceleration (PGA) and spectral acceleration (Sa) at the frequency of 1.0 Hz.

Our investigation provides values required values of ground motions (PGA and Sa at frequency 1.0 Hz) at the investigated TSF TM site generated by the three earthquake occurrence scenarios (Fig. 11.1):

- occurrence of $m_{max} = 6.2$ seismic events at Zone #5, at the closes distance (~ 70 km) to the investigated TSF TM site
- a hypothetical, mine-related seismic event with a $m_{max} \cong 5.5$, occurred at Zone #8, at the closes distance (~ 16 km) to the TSF TM site, and
- occurrence of the background seismicity earthquake of magnitude $m_{max} \cong 6.1$ at the close distance to the investigated site, i.e. ~ 43 km. The features of Scenario #3 seismic event come from applying the de-aggregation procedure.

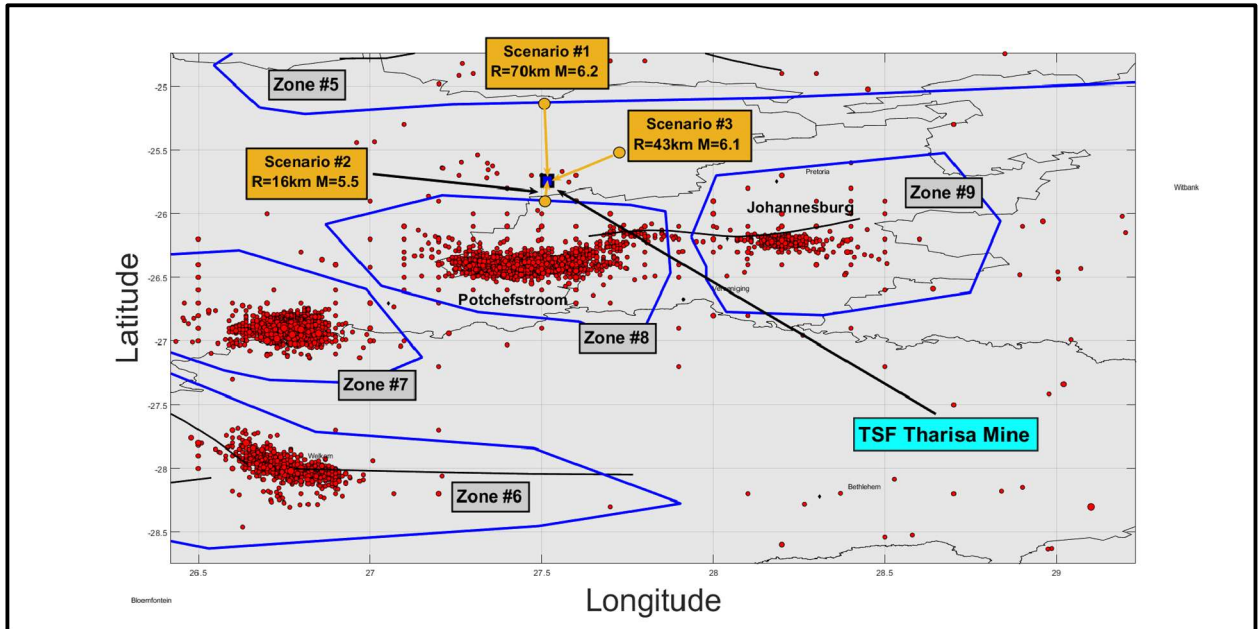


Figure 11.1 DSHA. Illustration of the hypothetical $m_{max}=6.2$ earthquake occurrence at the distance of 70 km from the TSF TM site (Scenario #1), $m_{max} \cong 5.5$, a mine-related event occurred at Zone #8, at the closes distance (~ 16 km) to the TSF TM site (Scenario #2) and the background seismicity earthquake of magnitude $m_{max} \cong 6.1$ at the distance to the investigated site, i.e. ~ 43 km. The features of Scenario #3 seismic event come from applying the de-aggregation procedure.

Fig 11.2 shows the three hypothetical scenarios' relative contribution to the PGA and spectral acceleration. The tabulated values of spectral acceleration from each of the scenarios are provided in Appendix C.

The estimated PGAs and $Sa(1.0 \text{ Hz})$ at the TSF TM site generated by the three hypothetical earthquake occurrence scenarios are shown in Table 11-1. All calculations are performed with an account of site effect.

All PGA and spectral acceleration assessments are calculated with an account of site effect. Following Table 11-1, the largest PGA ($\sim 0.110 \text{ g}$) and $Sa(1.0 \text{ Hz}) \cong 0.022 \text{ g}$ are predicted by a ~ 5.5 magnitude mine-related seismic event occurring at the closes distance to Zone #8. However, because of the low likelihood of such an event, perhaps the most significant effect on the TSF TM has an earthquake described by Scenario #3, capable of generating $PGA \cong 0.04\text{g}$ and $Sa(1.0 \text{ Hz}) \cong 0.02\text{g}$. Because PGA and $Sa(1.0 \text{ Hz})$ predicted by Scenario #3 are so low and do not impose a threat to the Tharisa tailing structures, it is not further discussed.

TSF TM DSHA - Contribution to Seismic Hazard from Different Scenarios

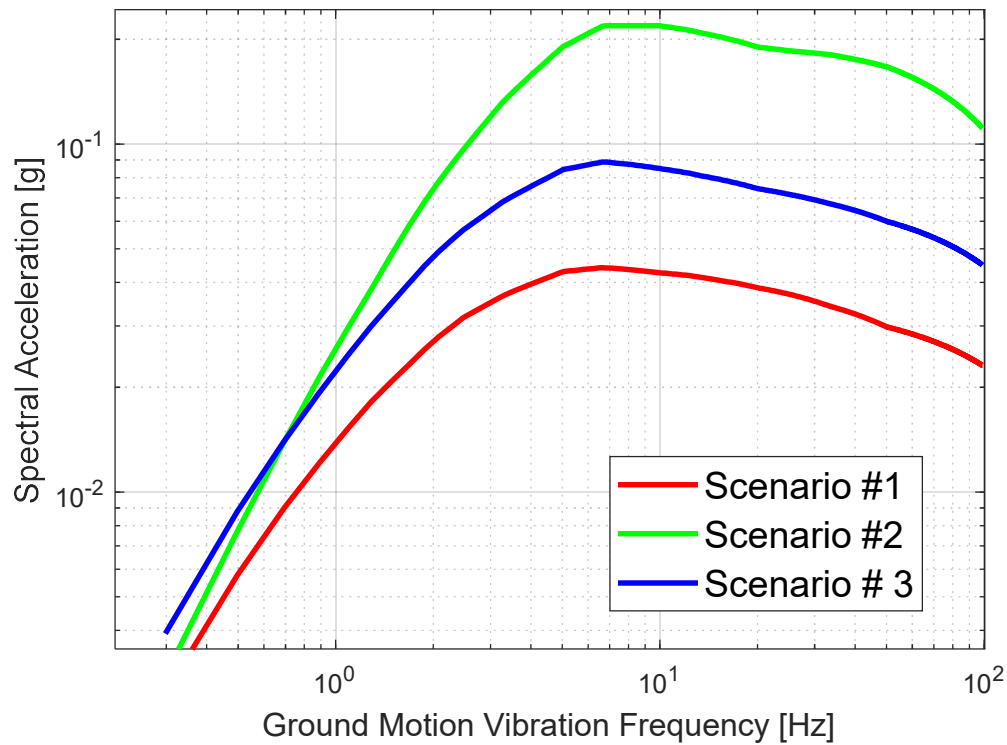


Figure 11.2 The contribution to the PGA and spectral acceleration from three scenarios.

Table 11-1 DSHA. Estimated PGAs and Sa(1.0 Hz) at the TSF TM site generated by the three hypothetical earthquake occurrence scenarios (after accounting of site effect).

Scenario	Magnitude	Hypocentral Distance [KM]	Max Predicted PGA [g]	SA(1.0 Hz) [g]
#1	6.2	$R_1 = 70$	0.023 ± 0.010	0.015 ± 0.002
#2	5.5	$R_2 = 16$	0.110 ± 0.058	0.026 ± 0.001
#3	6.1	$R_3 = 46$	0.044 ± 0.016	0.022 ± 0.002

12. Assessment of the Seismic (Structure Yield) Coefficient k_y

Simplified seismic slope displacement procedures are valuable tools in evaluating the seismic performance of earth dams, natural slopes, and tailing dams. In the past, earthquake-induced permanent displacements in earth and waste structures were typically calculated by applying the classic Newmark sliding block (Newmark, 1965) or the Seed (1979) pseudo-static slope stability procedures. Although these techniques are relatively easy to use, often, they do not provide a reliable assessment of the seismic performance of earth structures (Bray and Travararou, 2011).

The critical components deciding on the performance of the structure are:

- (1) earthquake ground motion,
- (2) dynamic resistance of the structure, and
- (3) dynamic response of the potential sliding mass.

From the above three critical components deciding about the behaviour of the structure, the earthquake-generated ground motion is the most important. The earth/TSF structure's yield coefficient (k_y) represents its overall dynamic resistance, which depends primarily on the dynamic strength of the material along the critical sliding surface, the structure's geometry and weight.

Most currently available simplified slope displacement estimation procedures are based on relatively small statistics of seismic records. The exception is the technique by Bray and Travararou (2007). The ground motion database used by Bray and Travararou (2007) includes 688 records of shallow crustal earthquakes in active plate margins (PEER Strong Motion Database <http://peer.berkeley.edu/smcat/index.html>). These records conform to the following criteria (Travararou, 2003):

- the magnitude range of the applied data is $5.5 \leq M_w \leq 7.6$,
- the distance range is limited by $R \leq 100$ km,
- they are applicable the sites B, C, or D, i.e., rock, soft rock/shallow stiff soil, or deep stiff soil, respectively (Eurocode 8), and
- the ground motion frequencies range from 0.25 to 10 Hz.

Average seismic displacement was estimated from the two horizontal components of each record, and the maximum of these values was assigned.

Therefore, the recommended and applied procedure in our study is based on the work of Bray and Travarasrou (2009), which is the extension of the probabilistic seismic slope displacement model developed by the same authors in 2007.

The Bray and Travarasrou (2007) seismic slope displacement paradigm allows us to estimate the potential seismic displacement (D_a) using two equations that provide: (1) the probability of negligible (“zero”) displacement (i.e., $D_a \leq 1.0$ cm) and (2) the reasonable amount of “nonzero” displacement. The first equation can be ignored because it does not affect the coefficient k_y for a median seismic displacement value larger than 5 cm (Bray and Travarasrou, 2009). Following Bray and Travarasrou (2011), the seismic coefficient k_y is of the form

$$k_y = \exp \left(\frac{-a + \sqrt{b}}{0.665} \right), \quad (12.1)$$

where

$$a = 2.83 - 0.566 \ln(S_a),$$

and

$$b = a^2 - 1.33 \left[\ln(D_a) - 1.10 - 3.04 \ln(S_a) + 0.224 (\ln(S_a(T_S)))^2 - 1.5 T_S - 0.278(M - 7) - \varepsilon \right],$$

where k_y is the seismic coefficient, T_S is the initial fundamental period of the sliding mass and S_a is the 5% damped elastic spectral acceleration of the site’s design ground motion at a period of $1.5T_S$ in the unit of the Earth acceleration g . When $T_S < 0.05$, then in the formula above, 1.10 should be replaced with 0.22 (Bray and Travarasrou, 2011). In most cases, the initial period of the potential sliding mass T_S is estimated from the formula $T_S = 4H/V_S$, where H is the height of the potential sliding mass and V_S is the average shear wave velocity of the sliding mass. If a higher than 50% confidence level is required, then the 16% exceedance level for the seismic displacement estimate is obtained with $\varepsilon \equiv$ standard deviation = 0.66. By default, the selection of a 16 % displacement level leads to an increase in the k_y value.

The estimated seismic coefficient k_y for the Tharisa tailing structures for the two DSHA scenarios (#2 and #3) are shown in Tables 12-1 and 12-2.

Table 12-1 shows the seismic coefficient k_y for TSF TM, computed for the confidence level 16%, DSHA, Scenario #2, $R = 16$ km, $m_{max} = 5.5$. The calculations are performed for the average shear wave velocity of the sliding mass $V_S = 180$ m/s, $H = 45$ m, $T_S = 1.0$ s, $S_a(1.5T_S) = 0.014 g$.

The estimation of the velocity V_S is based on the assumption that the bulking factor of the tailing dam material is 17 % (G. Vagis, personal communication, 17 May 2023) and from the relations provided by Chang and Heymann (2005). The spectral acceleration $S_a(1.5T_S)$ is shown in Fig. 11.2 and Appendix C.

Table 12-1 The estimated seismic coefficient k_y for TSF TM, confidence level 16%, DSHA Scenario #2, $R = 16$ km, $m_{max} = 5.5$). The calculations are performed for the average shear wave velocity of the sliding mass $V_S = 180$ m/s, $H = 45$ m, $T_S = 1.0$ s, $S_a(1.5T_S) = 0.014 g$.

Potential Seismic Displacement D_a [cm]	Seismic Coefficient k_y
5	0.005
10	0.003
15	0.003
20	0.002
25	0.002
30	0.001

The assessment of seismic coefficient k_y based on Scenario #3 illustrates in Table 12-2. As for the DSHA Scenario #2, seismic coefficient k_y for TSF TM was computed for the confidence level 16%, $R = 43$ km, $m_{max} = 6.1$ and $S_a(1.5T_S) = 0.014 g$ (Fig. 11.2, and Appendix C).

Table 12-2 The estimated seismic coefficient k_y for TSF TM, confidence level 16%, DSHA Scenario #3, $R = 43$ km, $m_{max} = 6.1$. The calculations are performed for the average shear wave velocity of the sliding mass $V_S = 180$ m/s, $H = 45$ m, $T_S = 1.0$ s, $S_a(1.5T_S) = 0.014 g$.

Potential Seismic Displacement D_a [cm]	Seismic Coefficient k_y
5	0.004
10	0.004
15	0.003
20	0.002

25	0.002
30	0.002

13. Conclusions

The PSHA for the Tharisa Mine Tailings Storage Facilities was performed using an adjustment of the Cornell–McGuire technique (Cornell, 1968; McGuire, 1976, 1978) for the bimodal nature of seismic events magnitude distribution. A PSHA requires knowledge of regional geology, tectonics, paleo, and historic and instrumentally recorded seismicity. Regional seismic source zones and ground motion models are readily available but are highly uncertain and lack local information. For this reason, the applied seismotectonic source model is mainly based on seismicity patterns.

The earthquake recurrence parameters b -value, the mean activity rate λ and area-characteristic, maximum possible earthquake magnitude m_{max} were calculated according to the methodology described by Kijko (2004) and Kijko *et al.* (2016). The recurrence parameters were calculated for each of the nine identified source zones and background seismicity for the area falling in the radius of 500 km of the TSF TM site.

In the computation of seismic hazard, three GMMs were applied: CY-2014, ASB-2014 and Pez-2018. These three GMMs were chosen since they are derived for areas with a similar tectonic setting as TSF TM. The uncertainty of GMM, the mean activity rates and the maximum possible earthquake magnitude was incorporated into the logic tree formalism. The logic tree allows the inclusion of alternative scenarios weighted according to their probability of being correct.

Following the international guidelines and regulations (ICOLD 1989, Bulletin 148, Revision 2016; IBC, 2012; Eurocode 8, 2004 and ASCE 7-05, 2005) and the most recent construction of the tailings dam standards (Appendix H), seven earthquake design levels for return periods of 145, 200, 475, 1,000, 2,475, 5,000 and 10,000 years are calculated. The results of PSHA are presented in terms of mean return periods, probabilities of exceedance for the horizontal component of PGA, the mean uniform hazard response spectra, their quantiles, the Eurocode 8 elastic response spectra and the de-aggregation. The results of de-aggregation allow the identification of seismic events that contributes the most to the overall hazard of the TSF TM site.

The mean uniform hazard response spectra (horizontal and vertical) are calculated for five return periods: 475, 1,000, 2,475, 5,000 and 10,000 years.

The elastic response spectra are calculated for damping 5% and are anchored at seven earthquake design levels corresponding to the return period of 145, 200, 475, 1,000, 2,475, 5,000 and 10,000 years.

Based on the available information, the applied PSHA methodology and the classification procedure by Shedlock *et al.* (2000), seismic hazard for the investigated area (i.e. for a return period of 475 years) is rated as low. Although deterministic seismic hazard characteristics are not associated with any return period, they are comparable with the same attributes estimated probabilistically.

The lack of a reliable regional ground motion model, tectonics, paleo, historic and instrumentally recorded seismicity, trustworthy information about seismogenic zones and seismic capability of tectonic faults near the investigated site are the major sources of uncertainty in this seismic hazard assessment. The incompleteness of information contributes to the ambiguities of the seismic hazard assessment indicators.

References (Quoted and Some Additional Relevant Publications)

- Adams, A., A. Nyblade (2011). Shear wave velocity structure of the southern African upper mantle with implications for the uplift of southern Africa. *Geophys. J. Int.*, **186**, 808–824.
- Abrahamson, N.A. and J.J. Litehiser (1989). Attenuation of vertical peak acceleration. *Bull. Seism. Soc. Am.*, **79**, 549–580.
- Akkar, S., M.A. Sandikkaya and J.J. Bommer (2014). Empirical ground-motion models for point- and extended-source crustal earthquake scenarios in Europe and the Middle East. *Bull. Earthquake Eng.* **12**, 359–387. doi: 10.1007/s10518-013-9461-4.
- Ambraseys N.N. and R.D. Adams (1991). Reappraisal of major African earthquakes, south of 200 N, 1900–1930. *Nat Hazards*, **4**, 389–419.
- American Society of Civil Engineers, ASCE 7-05 (2005). *Minimum design loads for buildings and other structures*. Standard SCE/SEI 7-05, American Society of Civil Engineers, Reston, VA.
- American Society of Civil Engineers, ASCE 7-10 (2006). *Minimum design loads for buildings and other structures*. ASCE Standard (no. 007-05), American Society of Civil Engineers, Reston, VA.
- Atkinson, G.M. and D.M. Boore (2006). Earthquake ground-motion prediction equations for eastern North America. *Bull. Seism. Soc. Am.*, **96**, 2181–2205.
- Atkinson, G.M. and D.M. Boore (2011). Modifications to existing ground-motion prediction equations in light of new data. *Bull. Seism. Soc. Am.*, **101**, 1121–1135.
- Australian National Committee on Large Dams ANCOLD (2017). *Guidelines for design of dams and appurtenant structures for earthquake* – Draft, March 2017.
- AXCO (unpublished). *Insurance Market Report on South Africa – Non-Life*, AXCO
- Baltay, A.S., Hanks, T.C. and N.A. Abrahamson. (2017). Uncertainty, variability, and earthquake physics in ground-motion prediction equations. *Bull. Seismol. Soc. Am.* **107**, doi: 10.1785/0120160164.
- Bazurro, P. and Cornell, C.A. (1999), Disaggregation of seismic hazard. *Bull. Seism. Soc. Am.*, **89**, 501–520.
- Bernreuter, D.L., Savy, J.B., Mensing, R.W. and Chen, J.C. (1989). *Seismic hazard characterization of 69 nuclear plant sites east of the Rocky Mountains*. Report NUREG/CR-5250, Vols 1–8, prepared by Lawrence Livermore National Laboratory for the U.S. Nuclear Regulatory Commission.
- Birch, D. (2013). Identifying instability in the rock mass caused by water ingress into abandoned mines. M.Sc. Dissertation, University of Pretoria.
- Boore, D.M. and Joyner, W.B. (1982). *Prediction of earthquake response spectra*. U.S. Geological Survey, 345 Middlefield Road, Menlo Park, CA 94025. Open-File Report 82-977.
- Boore, D.M., W.B. Joyner, and T.E. Fumal (1993). *Estimation of response spectra and peak accelerations from western North American earthquakes*. Open-File Report 93-509. US Geological Survey, 70 pp.

- Boore, D.M., Joyner, W.B. and Fumal, T.E. (1994). Estimation of response spectra and peak accelerations from western North American earthquakes. An interim report. Part 2. Open-File Report 94-127. US Geological Survey.
- Booth, P.W.K., G. Brunsdon, and R.W. Shone (2004). A duplex model for the Eastern Cape Fold belt? Evidence from the Palaeozoic Wittenberg and Bokkeveld groups (Cape Supergroup) near Steytlerville, South Africa. *Gondwana Res.* 7, 211–222.
- Brandt, M.B.C., M. Bejaichund, E.M. Kgaswane, E. Hattingh, and D.L. Roblin (2005). Seismic history of Southern Africa. Seismological Series 37, Council for Geoscience, 32 pp.
- Bray, J.D. and Th. Travasarou (2007). Simplified procedure for estimating earthquake-induced deviatoric slope displacements. *J. of Geotechnical and Geoenvironmental Engineering*, ASCE, V. 133, 381–392.
- Bray, J.D. and Th. Travasarou (2009). Pseudostatic Coefficient for Use in Simplified Seismic Slope Stability Evaluation. *J. of Geotechnical and Geoenvironmental Engineering*, ASCE, 135(9), 1336–1340.
- Bray, J.D. and Th. Travasarou (2011). Pseudostatic slope stability procedure. (2011). 5 ICEGE. Paper No Theme Lecture 1. Santiago, Chile.
- Budnitz, R.J., Apostolakis, G., Boore, D.M., Cluff, L.S., Coppersmith, K.J., Cornell, C.A. and Morris, P.A. (1997). Recommendations for probabilistic seismic hazard analysis: Guidance on uncertainty and use of experts. NUREG/CR-6372, UCR-ID-122160, Main Report 1. Prepared for Lawrence Livermore National Laboratory.
- Building Seismic Safety Council (2001a). NEHRP recommended provisions for seismic regulations for new buildings and other structures, 2000 edition, Part 1: Provisions (FEMA 368). Developed for the Federal Emergency Management Agency, Washington, D.C.
- Building Seismic Safety Council (2001b). NEHRP recommended provisions for seismic regulations for new buildings and other structures, 2000 edition, Part 2: Commentary (FEMA 369). Developed for the Federal Emergency Management Agency, Washington, D.C.
- Campbell, K.W. (1981). Near-source attenuation of peak horizontal acceleration. *Bull. Seism. Soc. Am.* 71, 2039–2070.
- Campbell, K. W. (2011). Ground motion simulation using the hybrid empirical method: Issues and insights. In: *Earthquake Data in Engineering Seismology*, 81-95. Springer.
- Chambers, D.M. and Higman, B. (2011). Long-term risks of tailings dam failure. Center for Science in Public Participation, Bozeman, Montana.
- (CDA, 2007). Canadian Dam Association. Technical Bulletin. Seismic Hazard Considerations for Dam Safety. Chambers, D.M. and Higman, B., (2011). Long term risks of tailings dam failure. Center for Science in Public Participation, Bozeman, Montana.
- Chapman, C.H., Jen-Yi, C. and Lyness, D.G. (1988). The WKBJ seismogram algorithm. In: Dornboos, D.J. (ed.), *Seismological algorithms*, Academic Press, London, pp. 47–74.

- Chang, H.P.N. and G. Heymann (2005). Shear wave velocity of gold tailings. *Journal of The South African Institution of Civil Engineering*, 47, 15–20, Paper 588.
- Chiou, B.S.-J., and Youngs, R.R. (2008). An NGA model for the average horizontal component of peak ground motion and response spectra. *Earthquake Spectra* 24, 173-216.
- Chiou, B.-S.J. and R.R. Youngs (2014). Update of the Chiou and Youngs NGA Ground Motion Model for Average Horizontal Component of Peak Ground Motion and Response Spectra, (2014). *Earthquake Spectra*, **30** (3):1117, doi.org/10.1193/072813EQS219M.
- Cichowicz, A. and A. Kijko (2006). *Origin, Intensity and Damage Potential of Tectonic and Mining Seismic Events*. Council for Geosciences, Report 2 March 2006, Appendix 4.2.
- Comahan, B., Luther, H.A. and Wilkes, J.O. (1969). *Applied Numerical Methods*. John Wiley and Sons, New York, 604 pp.
- Cornell, C. (1968). Engineering seismic risk analysis. *Bull. Seism. Soc. Am.*, **58**, 1583–1606.
- Cornell, D.H., van Schijndel, V., Ingolfsson, O., Scherstén, A., Karlsson, L., Wojtyla, J., and Karlsson, K., (2011). Evidence from Dwyka tillite cobbles of Archaean basement beneath the Kalahari sands of southern Africa. *Lithosphere*. **125**, 482–502.
- Cotton, F., F. Scherbaum, J.J. Bommer and H. Bungum (2006). Criteria for selecting and adjusting ground-motion models for specific target regions: Application to central Europe and rock sites. *Journal of Seismology*, **10**, 137-156. ISSN 1383-4649. doi: 10.1007/s10950-005-9006-7. URL <http://dx.doi.org/10.1007/s10950-005-9006-7>.
- Delvaux, D., Kervyn, F., Macheyeke, A.S. and Temu, E.B. (2012). Geodynamic significance of the TRM segment in the East African Rift (W-Tanzania): Active tectonics and paleostress in the Ufipa plateau and Rukwa basin. *J. Struct. Geol.*, 37, 161–180.
- Delvaux, D., Mulumba, J.L., Sebagenzi, M.N.S., Bondo, S.F., Kervyn, F. and Havenith, H.B. (2017). Seismic hazard assessment of the Kivu rift segment based on a new seismotectonic zonation model (western branch, East African Rift system). *J. African Earth Sci.*, **134**, 831-855.
- De Wit, M.J., and I.G.D. Ransome. (1992). *Inversion Tectonics of the Cape Fold Belt, Karoo and Cretaceous Basins of Southern Africa*. Balkema, Rotterdam, Netherlands.
- Douglas, J., F. Cotton, N.A. Abrahamson, S. Akkar, D.M. Boore and C. Di Alessandro (2013). Preselection ground motion prediction equations. Technical Report **22**, GEM Foundation, PEER - Pacific Earthquake Engineering Research Center, Mar 2013.
- Du Plessis, A. (1996). *Seismicity in South Africa and its relationship to the geology of the region*. Council for Geoscience, Report No. 1996-0019.
- Du Plessis, A. and L.M. Fernandez (1992). *Report on a visit to the Carletonville Area to Assess the Seismic Intensities that were Encountered due to An Earthquake that Occurred in the Area on 7 March 1992*, Council for Geoscience, 1992.
- Durrheim, R.J. (2015). *History of Geophysics in Southern Africa*. J.H. de Beer (ed.), South African Geophysical Association. (Revision 2018-06-06).

- Durrheim, R.J., G. Mavonga, M. Pagani, G. Weatherill, and A. Nyblade (2015). Mitigating Earthquake Risk in Sub-Saharan Africa: A pilot project to assess the utility of AfricaArray data and GEM products and tools. SAGA, 2015.
- Electric Power Research Institute EPRI (1986). Seismic hazard methodology for central and eastern United States. July. Report NP-4726, 1 Methodology, Section 4. Electric Power Research Institute, Palo Alto, CA.
- Eurocode 8 (2004). Design of Structures for Earthquake Resistance – Part 1: General rules, seismic actions and rules for buildings. EN 1998-1: 2004. (2004). Comité Européen de Normalisation, Brussels.
- Evans, D.M. (1969). Fluid pressure and fluid-induced seismicity guided by a continental earthquake. *Eos, Transaction, Amer. Geophys. Fault: Injection experiment of 2004/2005 at the German Union*, 50, 387–388.
- Fagereng, Å. (2013). Fault segmentation, deep rift earthquakes, and crustal rheology: Insights from the 2009 Rukwa–Malawi rift zone. *Tectonophysics*, 601, 216–225.
- Fairhead J.D. and Stuart, G.W. (1982). The Seismicity of the East African Rift System and Comparison with Other Continental Rifts In: Continental and Oceanic Rifts, Volume 8. Editor(s): G. Pálmason, 1982.
- Fenton, C.H. and J.J. Bommer, J.J. (2006). The Mw7 Machaze, Mozambique, earthquake of 23 February 2006. *Seismol. Res. Lett.*, 77, 426–439.
- Fernandez L.M., G. Graham and A. Du Plessis (1992). The Carletonville Earth Tremor of March 1992, *Council for Geoscience Report*.
- Frankel, A. (1995). Simulating strong motions of large earthquakes using recordings of small earthquakes. *Bull. Seism. Soc. Am.*, 85, 1144–1160.
- Frankel, A.D., Mueller, C.S., Barnhard, T.P., Perkins, D.M., Leyendecker, E.V., Dickman, N.C., Hanson, S.L. and Hopper, M.G. (1996). National Seismic Hazard Maps, June 1996. U.S. Geological Survey. Open-file Report 96-532.
- Frankel A., D. Perkins and S. Harmsen (1999). Deaggregation of probabilistic ground motions in the Central and Eastern United States. *Bull. Seism. Soc. Am.*, 89, 1–13.
- Frankel, A.D., Petersen, M.D., Mueller, C.S., Haller, K.M., Wheeler, R.L., Leyendecker, E.V., Wesson, R.L., Harmsen, S.C., Cramer, C.H., Perkins, D.M. and Rukstales, K.S. (2002). *Documentation for the 2002 update of the national seismic hazard maps*. US Geological Survey Open-File Report, 2(420), pp. 33.
- Foulgera G.R., M.P. Wilsona J.G. Gluyasa B.R. Juliana and R.J. Daviesb (2018). Global review of human-induced earthquakes. (2018). *Earth-Science Reviews*, 178, 438-514.
- Gibowicz, S. J., and A. Kijko (1994). *An Introduction to Mining Seismology*. San Diego: Academic Press.
- Gibowicz, S.J., and S. Lasocki (2001). Seismicity induced by mining: Ten years later. *Advances in Geophysics*, 44, 39–181.

- Goedhart, M.L. (2007). *Seismicity along the southern Cape Fold Belt, South Africa, association with geological structures, and early-Holocene reactivation of the Kango fault*. XVII INQUA Congress, 2007.
- Gordon, R.G. and Stein, S. (1992). Global tectonics and space geodesy. *Science*, 256, 333–342.
- Hälbich, I.W. (1983). A geodynamic model for the Cape Fold belt (CFB). Chapter In: Sönghe, A.P.G., Hälbich, I.W. (Eds.), *Geodynamics of the Cape Fold Belt: A Contribution to the National Geodynamics Programme*. Special Publication 12, vol 15. *Geological Society of South Africa*, Johannesburg, pp. 177–184.
- Hartnady C.J.H. (1996). *Seismotectonic provinces of Southern Africa: Critical review and new proposals*. Council for Geoscience. Report No. 1996-0029.
- Hartnady C.J.H. (1998). *A review of the earthquake history and seismotectonic interpretation of the Kingdom of Lesotho. Proceedings of Workshop: 'Review of the current state of knowledge of the seismotectonic setting of Lesotho and its significance in predicting seismic design parameters for the Katse and Mohale dams and further phases of the LHWP'*, Maseru, 25–30 May 1998.
- Hartnady, C.J.H. (2002). Earthquake hazard in Africa: Perspectives on the Nubia–Somalia boundary. *S. African J. Sci.*, 98, 425–428.
- Heaton, T., Tajima, F. and A. Mori (1986). Estimating ground motions using recorded accelerograms, *Surv. Geophys.* 8, 25–83.
- Hlatywayo, D.J. (1995). *Seismotectonic and seismic hazard estimates in Central Southern Africa*. Acta Univ. Uppsala. Comprehensive Summaries of Uppsala Dissertations from the Faculty of Science and Technology, vol. 160, Uppsala University.
- Hlatywayo, D.J. (1997). Seismic hazard in central southern Africa. *Geophys. J. Int.*, 130, 737–745.
- Hodge, M., J. Biggs, K. Goda, and W. Aspinall (2015). Assessing infrequent large earthquakes using geomorphology and geodesy: the Malawi Rift. *Natural Hazards*, 76, 1781–1806.
- International Atomic Energy Agency IAEA (2016). *Diffuse Seismicity in Seismic Hazard Assessment for Site Evaluation of Nuclear Installations*. Safety Reports Series No. 89, Vienna.
- International Building Code (2012). International Code Council, Inc (ICC), Third Printing, March 2000. U.S.A.
- International Commission on Large Dams. ICOLD (2016). Guidelines: Selecting seismic parameters for large dams. Bulletin 72, International Commission on Large Dams, Paris, France, 73 pp.
- International Commission on Large Dams, (ICOLD). Selecting seismic parameters for large dams. Guidelines., Bulletin 148, Revision 2016.
- International Seismological Centre, On-line Bulletin, <http://www.isc.ac.uk>, Internatl. Seis. Cent., Thatcham, United Kingdom, 2010.
- Irikura, K. (1986). Prediction of strong acceleration motions using empirical Green's function, *Proc. 7th Japan Conf. Earthquake Engineering*, 151–156.
- Johnston, J.C. and H.H. Einstein (1990). A survey of mining associated rockbursts. In: *Rockbursts and Seismicity in Mines* (ed. Fairhurst, C.) Balkema, Rotterdam 1990), pp. 121–128.

- Johnston, A.C., Coppersmith, K.J., Kanter, L.R., Cornell, C.A. (1994). *The Earthquakes of Stable Continental Regions*. Final Report (No. EPRI-TR-102261-V2). Electric Power Research Institute Report (EPRI), Palo Alto, CA.
- Jonathan, E. (1996). *Some aspects of seismicity in Zimbabwe and Eastern and Southern Africa*. M. Sc. Thesis. Institute of Solid Earth Physics, Bergen University, Bergen, Norway. 100 pp.
- Joyner, W. B. and Boore, D.M. (1981). Peak horizontal acceleration and velocity from strong-motion records, including records from the 1979 Imperial Valley, California, earthquake. *Bull. Seism. Soc. Am.*, 71, 2011–2038.
- Joyner, W.B., and Boore, D.B. (1988). Measurement, characterization, and prediction of strong ground motion. Proceedings of Earthquake Engineering & Soil Dynamics II. Geotechnical Division ASCE, 43–102.
- Kijko, A. (2004). Estimation of the maximum earthquake magnitude $m_{\max}$. *Pageoph*, **161**, 1655–1681.
- Kijko, A. (2020). Seismic Hazard. In *Encyclopaedia of Solid Earth Geophysics* Vol 1 (2nd Ed.). Edited by H.K. Gupta. Springer Nature, Switzerland.
https://link.springer.com/referenceworkentry/10.1007%2F978-3-030-10475-7_10-1.
- Kijko, A., and M.A. Sellevoll (1989). Estimation of earthquake hazard parameters from incomplete data files, Part I, Utilization of extreme and complete catalogues with different threshold magnitudes, *Bull. Seism. Soc. Am.*, **79**, 645–654.
- Kijko, A., and M.A. Sellevoll (1992). Estimation of earthquake hazard parameters from incomplete data files. Part II. Incorporation of magnitude heterogeneity. *Bull. Seism. Soc. Am.*, **82**, 120–134.
- Kijko, A. and M. Singh (2011). Statistical tools for maximum possible earthquake magnitude estimation. *Acta Geophysica*, **59**, 674–700.
- Kijko, A., A. Smit, N. van de Coolwijk and Z. Kilian (2012). *Methodology For Probable Maximum Loss Calculation and Potential Implications of Acid Mine Water For The South African General Insurance Industry* Actuarial Society of South Africa, Convention, 16-17 October 2012. Cape Town.
- Kijko, A. and Smit, A. (2012): Extension of the Aki-Utsu b-Value Estimator for Incomplete Catalogs. Bulletin of the Seismological Society of America. 102(3): 1283–1287, doi: 10.1785/0120110226.
- Kijko, A., Smit, A., and Sellevoll, M.A. (2016). Estimation of earthquake hazard parameters from incomplete data files. Part III. Incorporation of uncertainty of earthquake-occurrence model. *Bull. Seismol. Soc. Am.*, 106(3), 1210–1222.
- Krige, L.G. (1936). The Swaziland and Fauresmith earthquakes of January 1936, *Trans. Geol. Soc. S. Afr.* **39**, 429–440.
- Krige, L.J. and F.A. Venter (1933). The Zululand earthquake of the 31st December 1932. *Transactions of the Geological Society of South Africa*, **36**, 101–112.
- Külhánek O., and K. Meyer (1979). A proposal for a seismograph station network in Ngamiland, Botswana. *Technical Report*. Seismological Institute, Uppsala, Sweden.

- Krinitzky, E.L., Chang, F.K. and Nuttli, O.W. (1988). Magnitude-related earthquake ground motions. *Bulletin of the Association of Engineering Geologists*, 25(4), 399–423.
- Malephane, H.R. (2007). *Seismicity and Seismic Hazard of Lesotho*. PhD Thesis, University of Bergen, Norway. pp. 72.
- Mangongolo, A., Strasser, F.O., Saunders, I., Rathod, G.W. (2017) Depths of earthquakes in South Africa. *Seismol. Res. Lett.* 88 (4), 1078–1088., doi: <https://doi.org/10.1785/0220170046>.
- Manzunzu, B., Midzi, V., Mangongolo, A. and F. Essrich (2017). The aftershock sequence of the 5 August 2014 Orkney earthquake (ML 5.5), South Africa. *J. Seismol.* 21, 1323–1334.
- Manzunzu, B., Midzi, V., Mulabisana, T.F., Zulu, B., Pule, T., and Rathod, S.G.W. (2019). Seismotectonics of South Africa. *J. Afr. Earth Sci.* **149**, 271–279.
- Mavonga, T. (2007). An estimate of the attenuation relationship for the strong ground motion in the Kivu Province, Western Rift Valley of Africa. *Phys. Earth Planet. Interiors*, **162**, 13–21.
- Mavonga, T. (2010). *Seismic Hazard Assessment and Volcanogenic Seismicity for the Democratic Republic of Congo and Surrounding Areas, Western Rift Valley of Africa*, PhD Thesis, University of the Witwatersrand.
- Mavonga, T. and Durrheim, R.J. (2009). Seismic hazard in the DRC and Western Rift Valley of Africa. 11th SAGA Biennial Technical Meeting and Exhibition, Swaziland, 16-18 September 2009, 64-68.
- McGuire, R.K. (1976). Fortran Computer Program for Seismic Risk Analysis, US Geological Survey. Open-File Rep. 76-67.
- McGuire, R.K. (1978). FRISK: *Computer Program for Seismic Risk Analysis Using Faults as Earthquake Sources*, US Geological Survey. Open-File Rep. 78-1007.
- McGuire, R.K. (1995). Probabilistic seismic hazard analysis and design earthquakes: Closing the loop. *Bull. Seism. Soc. Am.* **85**, 1275–1284.
- McGuire, R.K. (2004). *Seismic Hazard and Risk Analysis*. Oakland: Earthquake Engineering Research Institute (EERI), MNO-10.
- McGuire, R.K., W.J. Silva, and C.J. Costantino (2001). *Technical basis for revision of regulatory guidance on design ground motions: Hazard- and risk-consistent ground motion spectra guidelines*. U.S. Nuclear Regulatory Commission NUREG/CR-6728.
- Meghraoui, M. (Coordinator) EOST IPG Strasbourg, P. Amponsah (GAEC, Accra), A. Ayadi, A. Ayele, and B. Ateba (2016). The Seismotectonic Map of Africa. Website: <http://eost.u-strasbg.fr/igcp601/index.html>, Database address: <http://sageoscience.maps.arcgis.com/>. Also, *Episodes*, **39**, 9–18.
- Newmark, N. M. (1965). Effects of earthquakes on dams and embankments. *Geotechnique*, **15**, 139-160.
- Midzi, V. and J. Cole (2014). *Report and recommendations for the magnitude 5.5 earthquake on 5 August 2014 in the Klerksdorp–Orkney region*. CGS Report No. 2014-0277.
- Midzi, V., Hlatywayo, D.J., Chapola, L.S., Kebede, F., Atakan, K., Lombe, D.K., Turyomurugyendo, G. and Tugume, F.A. (1999). Seismic hazard assessment in Eastern and Southern Africa. *Ann. Geophys.*, 42(6), 1067–1083.

- Midzi V., J.J. Bommer, F.O. Strasser, P. Albin, B.S. Zulu, K. Prasad, and N.S. Flint (2013). An Intensity Database for Earthquakes in South Africa from 1912 to 2011, *Journal of Seismology*, 17, 1183-1205.
- Midzi V., and Manzunzu, B. (2014). Large recorded earthquakes in sub-Saharan Africa. In: *Extreme Natural Hazards, Disaster Risks and Societal Implications*. (Eds.) Alik Ismail-Zadeh, Jaime Urrutia Fucugauchi, Andrzej Kijko, Kuniyoshi Takeuchi and Ilya Zaliapin. Cambridge University Press, 214–224.
- Midzi, V., B. Zulu, B. Manzunzu, T. Mulabisana, T. Pule, S. Myendeki and W. Gubela (2015). Macro seismic survey of the M_L 5.5, 2014 Orkney earthquake *J. Seismology*, DOI 10.1007/s10950-015-9491-2
- Midzi, V., Manzunzu, B., Mulabisana, T., Zulu, B.S., Pule, T., Myendeki, S. and Rathod, G.W. (2016). The Probabilistic Seismic Hazard Assessment of South Africa. Report 2016-0064. CGS, Pretoria, pp.76.
- Midzi V., Saunders I., Manzunzu B., Kwadiba M.T., Jele V., Mantsha R., Marimira K.T., Mulabisana T.F., Ntibinyane O., Pule T. and Rathod G.W. (2018). The 03 April 2017 Botswana M6.5 earthquake: preliminary results. *J. Afr. Earth Sci.*, **143**, 187–194.
- Newmark, N.M and Hall, W.J. (1982). Earthquake Spectra and Designs, *Earthquake Engineering Research Institute (EERI)*, Monograph Series.
- TSF TM Expansion Project (2020). Integrated Water Use License Application (IWULA) and Integrated Water and Waste Management Plan (IWWMP), Report. Version – Draft for Public Review 04 March 2020, Chemwes (Pty) Ltd, GCS Project Number 17-0026.
- Partridge, T.C. (1995). *A review of existing data on nontectonic and paleoseismicity*. Unpublished manuscript.
- Peruzza, L. and B. Pace (2002). Sensitivity analysis for seismic source characteristics to probabilistic seismic hazard assessment in central Apennines (Abruzzo area). *Bollettino di Geofisica teorica ed applicata*, **43**, 79-100.
- Pezeshk, S., Zandieh, A. and Tavakoli, B., (2011). "Hybrid Empirical Ground-Motion Prediction Equations for Eastern North America Using NGA Models and Updated Seismological Parameters, *Bull. Seism. Soc. Am.*, **101**, 1859-1870.
- Pezeshk, S., Zandieh, A., Campbell, K.W. and Tavakoli B., (2018). Ground-Motion Prediction Equations for Central and Eastern North America Using the Hybrid Empirical Method and NGA-West2 Empirical Ground-Motion Models. *Bull Seism. Soc. Am*, 108: 2278–2304.
- Poggi, V., Durrheim, R., Tuluka, G.M., Weatherill, G., Gee, R., Pagani, M., Nyblade, A. and Delvaux, D. (2017). Assessing seismic hazard of the East African Rift: A pilot study from GEM and AfricaArray. *Bull. Earthq. Eng.* 15, 4499–4529.
- Reiter, L. (1990). *Earthquake Hazard Analysis: Issues and Insights*. New York: Columbia University Press.
- Saunders, I., M.B.C. Brandt, J. Steyn, D.L. Roblin and A. Kijko (2008). The South African National Seismograph Network, *Seismological Research Letters*, **79** (2), 203–210.

- Saunders, I. (2016a). Seismicity of the Kwazulu - Natal Province of South Africa. Thesis: MAGISTER TECHNOLOGIAE (GEOLOGY), Department of Environmental Water and Earth Sciences, Faculty of Science, Tshwane University of Technology 2016.
- Saunders, I., A. Kijko and C.J.S. Fourie (2016b). Statistical evaluation of seismic event location accuracy by the South African National Seismograph Network over four decades, *South African Journal of Geology*, **199.1**, 291–304.
- Senior Seismic Hazard Analysis Committee SSHAC (2007). Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts. US Nuclear Regulatory Commission. Report NUREG/CR-6372, Washington DC, 280 pp.
- Shapira, A., Fernandez, L.M. and Du Plessis, A. (1989). Frequency-magnitude relationships of southern Africa seismicity. *Tectonophysics*, **167**, 261–271.
- Shedlock K.M. (1999). Seismic hazard map of North and Central America and the Caribbean. *Ann. Geofis.*, **42**, 977–997.
- Shedlock, K.M., Giardini, D., Grünthal, G. and Zhang, P. (2000). The GSHAP global seismic hazard map. *Seismol. Res. Lett.* **71**, 679–686.
- Seed, H.B. (1979). Considerations in the earthquake-resistant design of earth and rockfill dams. *Geotechnique*, **V. 29**, 215–226.
- Singh, M., and E. Hattingh (2009). Short communication: Collection of isoseismal maps for South Africa, *Nat. Hazards*, **50**, 403–408.
- Singh, M., Kijko, A and Durrheim, R. (2009). Seismotectonic models for South Africa. Synthesis of geoscientific information, problems, and way forward. *Seism. Res. Lett.* **80**, 70–80.
- Singh, M., Kijko, A. and Durrheim, R. (2011). First-order regional seismotectonic model for South Africa. *Natural Hazards*, **59**, 383–400.
- Stewart, J. P., J. Douglas, M.B. Javanbarg, C. Alessandro, Y. Bozorgnia, N. Abrahamson, D.M. Boore, K.W. Campbell, E. Delavaud, M. Erdik and P.J. Stafford (2013). GEM-peer task 3 Project: *Selection of a Global Set of Ground Motion Prediction Equations*. Technical Report **22**, GEM Foundation, PEER – Pacific Earthquake Engineering Research Center.
- Sutton, G. H., and Berg, E., (1958). Seismological studies of the Western Rift Valley of Africa, *Trans. Am. Geophys. Union*, **39**, 474–481.
- Szymanski, M.B., and Davies, M.P. (2004). Tailings Dams: Design Criteria and Safety Evaluations at Closure. *British Columbia Mine Reclamation Symposium*, 2004, Alberta, Canada.
- Tailings Storage Facility and Dam Management Standard (2021). GLENCORE. Group HSEC and Human Rights Standard. Version 4.0 ID. GRP-STD-HSEC-029-v1.0 Issued 24/09/2021.
- Travasarou Th. (2003). Optimal ground motion intensity measures for probabilistic assessment of seismic slope displacements. Ph.D. Dissertation, U.C. Berkeley, 2003.
- Twesigomwe, E. (1997). *Probabilistic seismic hazard assessment of Uganda*. PhD Thesis, Makerere University, Uganda.

- US Nuclear Regulatory Office Commission. NUREG (1997). Regulatory Guide 1.165. Identification and Characterization of Seismic Sources and Determination of Safe Shutdown Earthquake Ground Motion. US Nuclear Regulatory Office Commission. March 1997.
- White, S., Stollhofen, H., Stannistreet, I.G., Lorenz, V. (2009). Pleistocene to recent rejuvenation of the Hebron fault, SW Namibia. *Geol. Soc. Lond. Spec. Publ.* 316, 293–317.
- Wiemer, S., García-Fernández, M. and Burg, J-P. (2009). Development of a seismic source model for probabilistic seismic hazard assessment of nuclear power plant sites in Switzerland: The view from PEGASOS Expert Group 4 (EG1d). *Swiss J. Geosci.*
DOI 10.1007/s00015-009-1311-7. 1-21.
- Woodward, K.R, and Tierney, S.R. (2017). Seismic hazard estimation using databases with bimodal frequency–magnitude behaviour. *Underground Mining Technology, 2017* – M Hudyma and Y Potvin (Eds).
- Wright C., E.M. Kgaswane, M.T.O. Kwadiba, R.E. Simon, T.K. Nguuri and R. McRae-Samuel (2003). South African seismicity, April 1997 to April 1999, and regional variations in the crust and uppermost mantle of the Kaapvaal Craton. *In: A.G. Jones, R.W. Carlson and H. Grutter (Eds). A Tale of Two Cratons: The Slave-Kaapvaal Workshop. Lithos* 71, 369–392.
- Vittori, E., Delvaux, D. and Kervyn, F. (1997). Kanda fault: A major seismogenic element west of the Rukwa rift (Tanzania, East Africa). *J. Geodyn.* 24, 139–153.
- Zana, N. and H. Hamaguchi (1978). Some characteristics of aftershock sequences in the Western Rift Valley of Africa, *Tohoku Geophysical Journal (Science Report, Tohoku University, Serie 5), Geophysics*, 25, 55–72.
- Zana, N., Kamba, M., Katsongo, S. and Th. Janssen (1989). Recent seismic activity of the Kivu Province, Western Rift Valley of Africa. *Physics of the Earth and Planetary Interiors*, 58, 52–60.
- Zana, N., Horiuchi, S., Nakamura, E., Takagi, A. (1990). High-frequency earthquakes occurring outside the Western Rift Valley of Africa, *Tohoku Geophysical Journal (Science Report, Tohoku University, Serie 5), Geophysics*, 33, 69–82.
- Zana, N., Wafula, M., Lukaya, N., Batabolo, M. (2004). The Kabalo earthquake in D. R. Congo on September 11, 1992: Field observations and damages Quelques résultats de Recherches en Géophysique. Centre de Recherches et Pédagogie Appliquées, Institut Pédagogique National, Kinshasa, 77–89.