

Appendix E: Environmental Indices

Table E1: Summer Upwelling Index from NOAA PFEL

Year (AD)	Summer Upwelling Index
1946	-181
1947	-135
1948	-197
1949	-110
1950	-7
1951	40
1952	-77
1953	-132
1954	-175
1955	239
1956	-29
1957	-108
1958	-90
1959	90
1960	-68
1961	-164
1962	-25
1963	-81
1964	26
1965	271
1966	235
1967	345
1968	76
1969	203
1970	152
1971	-20
1972	73
1973	193
1974	148
1975	208
1976	48
1977	101
1978	30
1979	-72
1980	124
1981	-3
1982	-1
1983	-143
1984	-44
1985	-156
1986	-186
1987	-61
1988	-61
1989	-33
1990	-156

1991	160
1992	84
1993	27
1994	56
1995	-48
1996	202
1997	-108
1998	350
1999	389
2000	266
2001	550

Appendix E: Environmental Indices

Table E2: Pacific Decadal Oscillation Index from Mantua et al. 1997

Year (AD)	PDO Index
1900.08	0.04
1900.17	1.32
1900.25	0.49
1900.33	0.35
1900.42	0.77
1900.5	0.65
1900.58	0.95
1900.67	0.14
1900.75	-0.24
1900.83	0.23
1900.92	-0.44
1901	1.19
1901.08	0.79
1901.17	-0.12
1901.25	0.35
1901.33	0.61
1901.42	-0.42
1901.5	-0.05
1901.58	-0.6
1901.67	-1.2
1901.75	-0.33
1901.83	0.16
1901.92	-0.6
1902	-0.14
1902.08	0.82
1902.17	1.58
1902.25	0.48
1902.33	1.37
1902.42	1.09
1902.5	0.52
1902.58	1.58
1902.67	1.57
1902.75	0.44
1902.83	0.7
1902.92	0.16
1903	-1.1
1903.08	0.86
1903.17	-0.24
1903.25	-0.22
1903.33	-0.5
1903.42	0.43
1903.5	0.23
1903.58	0.4
1903.67	1.01
1903.75	-0.24

1903.83	0.18
1903.92	0.08
1904	-0.03
1904.08	0.63
1904.17	-0.91
1904.25	-0.71
1904.33	-0.07
1904.42	-0.22
1904.5	-1.53
1904.58	-1.58
1904.67	-0.64
1904.75	0.06
1904.83	0.43
1904.92	1.45
1905	0.06
1905.08	0.73
1905.17	0.91
1905.25	1.31
1905.33	1.59
1905.42	-0.07
1905.5	0.69
1905.58	0.85
1905.67	1.26
1905.75	-0.03
1905.83	-0.15
1905.92	1.11
1906	-0.5
1906.08	0.92
1906.17	1.18
1906.25	0.83
1906.33	0.74
1906.42	0.44
1906.5	1.24
1906.58	0.09
1906.67	-0.53
1906.75	-0.31
1906.83	0.08
1906.92	1.69
1907	-0.54
1907.08	-0.3
1907.17	-0.32
1907.25	-0.19
1907.33	-0.16
1907.42	0.16
1907.5	0.57
1907.58	0.63
1907.67	-0.96
1907.75	-0.23
1907.83	0.84

1907.92	0.66
1908	0.72
1908.08	1.36
1908.17	1.02
1908.25	0.67
1908.33	0.23
1908.42	0.23
1908.5	0.41
1908.58	0.6
1908.67	-1.04
1908.75	-0.16
1908.83	-0.41
1908.92	0.47
1909	1.16
1909.08	0.23
1909.17	1.01
1909.25	0.54
1909.33	0.24
1909.42	-0.39
1909.5	-0.64
1909.58	-0.39
1909.67	-0.68
1909.75	-0.89
1909.83	-0.02
1909.92	-0.4
1910	-0.01
1910.08	-0.25
1910.17	-0.7
1910.25	0.18
1910.33	-0.37
1910.42	-0.06
1910.5	-0.28
1910.58	0.03
1910.67	-0.06
1910.75	0.4
1910.83	-0.66
1910.92	0.02
1911	0.84
1911.08	-1.11
1911.17	0
1911.25	-0.78
1911.33	-0.73
1911.42	0.17
1911.5	0.02
1911.58	0.48
1911.67	0.43
1911.75	0.29
1911.83	0.2
1911.92	-0.86

1912	0.01
1912.08	-1.72
1912.17	-0.23
1912.25	-0.04
1912.33	-0.38
1912.42	-0.02
1912.5	0.77
1912.58	1.07
1912.67	-0.84
1912.75	0.94
1912.83	0.56
1912.92	0.74
1913	0.98
1913.08	-0.03
1913.17	0.34
1913.25	0.06
1913.33	-0.92
1913.42	0.66
1913.5	1.43
1913.58	1.06
1913.67	1.29
1913.75	0.73
1913.83	0.62
1913.92	0.75
1914	0.9
1914.08	0.34
1914.17	-0.29
1914.25	0.08
1914.33	1.2
1914.42	0.11
1914.5	0.11
1914.58	-0.21
1914.67	0.11
1914.75	-0.34
1914.83	-0.11
1914.92	0.03
1915	0.89
1915.08	-0.41
1915.17	0.14
1915.25	-1.22
1915.33	1.4
1915.42	0.32
1915.5	0.99
1915.58	1.07
1915.67	0.27
1915.75	-0.05
1915.83	-0.43
1915.92	-0.12
1916	0.17

1916.08	-0.64
1916.17	-0.19
1916.25	-0.11
1916.33	0.35
1916.42	0.42
1916.5	-0.82
1916.58	-0.78
1916.67	-0.73
1916.75	-0.77
1916.83	-0.22
1916.92	-0.68
1917	-1.94
1917.08	-0.79
1917.17	-0.84
1917.25	-0.71
1917.33	-0.34
1917.42	0.82
1917.5	-0.03
1917.58	0.1
1917.67	-0.22
1917.75	-0.4
1917.83	-1.75
1917.92	-0.34
1918	-0.6
1918.08	-1.13
1918.17	-0.66
1918.25	-1.15
1918.33	-0.32
1918.42	-0.33
1918.5	0.07
1918.58	0.98
1918.67	-0.31
1918.75	-0.59
1918.83	0.61
1918.92	0.34
1919	0.86
1919.08	-1.07
1919.17	1.31
1919.25	-0.5
1919.33	0.08
1919.42	0.17
1919.5	-0.71
1919.58	-0.47
1919.67	0.38
1919.75	0.06
1919.83	-0.42
1919.92	-0.8
1920	0.76
1920.08	-1.18

1920.17	0.06
1920.25	-0.78
1920.33	-1.29
1920.42	-0.97
1920.5	-1.3
1920.58	-0.9
1920.67	-2.21
1920.75	-1.28
1920.83	-1.06
1920.92	-0.26
1921	0.29
1921.08	-0.66
1921.17	-0.61
1921.25	-0.01
1921.33	-0.93
1921.42	-0.42
1921.5	0.4
1921.58	-0.58
1921.67	-0.69
1921.75	-0.78
1921.83	-0.23
1921.92	1.92
1922	1.42
1922.08	1.05
1922.17	-0.85
1922.25	0.08
1922.33	0.43
1922.42	-0.19
1922.5	-1.04
1922.58	-0.82
1922.67	-0.93
1922.75	-0.81
1922.83	0.84
1922.92	-0.6
1923	0.48
1923.08	0.75
1923.17	-0.04
1923.25	0.49
1923.33	0.99
1923.42	-0.2
1923.5	0.68
1923.58	1.16
1923.67	0.84
1923.75	-0.24
1923.83	1.1
1923.92	0.62
1924	-0.36
1924.08	1.29
1924.17	0.73

1924.25	1.13
1924.33	-0.02
1924.42	0.36
1924.5	0.75
1924.58	-0.55
1924.67	-0.67
1924.75	-0.48
1924.83	-1.25
1924.92	0.24
1925	0.11
1925.08	-0.05
1925.17	-0.14
1925.25	0.2
1925.33	0.86
1925.42	0.79
1925.5	-1.08
1925.58	-0.06
1925.67	-0.86
1925.75	0.52
1925.83	0.04
1925.92	0.88
1926	1.19
1926.08	0.3
1926.17	0.98
1926.25	-0.5
1926.33	2.1
1926.42	1.43
1926.5	2.03
1926.58	1.05
1926.67	1.64
1926.75	1.18
1926.83	1.65
1926.92	1
1927	1.06
1927.08	1.07
1927.17	1.73
1927.25	0.15
1927.33	-0.18
1927.42	0.3
1927.5	0.69
1927.58	-0.31
1927.67	-0.73
1927.75	-0.41
1927.83	-0.62
1927.92	-0.07
1928	0.07
1928.08	0.96
1928.17	0.79
1928.25	0.52

1928.33	0.81
1928.42	0.66
1928.5	0.15
1928.58	0.3
1928.67	-0.72
1928.75	-1.41
1928.83	-1.31
1928.92	0.14
1929	0.98
1929.08	0.97
1929.17	0.52
1929.25	0.5
1929.33	0.55
1929.42	1.07
1929.5	0.5
1929.58	-0.06
1929.67	-0.69
1929.75	0.45
1929.83	-0.21
1929.92	1.24
1930	-0.03
1930.08	0.97
1930.17	-1.06
1930.25	-0.43
1930.33	-0.7
1930.42	0.06
1930.5	0.58
1930.58	-0.45
1930.67	-0.53
1930.75	-0.2
1930.83	-0.38
1930.92	-0.31
1931	1.2
1931.08	0.08
1931.17	1.56
1931.25	1.13
1931.33	1.28
1931.42	1.66
1931.5	0.39
1931.58	1.49
1931.67	0.02
1931.75	-0.01
1931.83	-0.17
1931.92	0.34
1932	1.09
1932.08	-0.26
1932.17	-0.58
1932.25	0.51
1932.33	1.15

1932.42	0.64
1932.5	0.1
1932.58	-0.12
1932.67	-0.14
1932.75	-0.4
1932.83	-0.29
1932.92	-0.88
1933	0.02
1933.08	0.29
1933.17	0.02
1933.25	0.15
1933.33	-0.05
1933.42	-0.5
1933.5	-0.68
1933.58	-1.81
1933.67	-1.56
1933.75	-2.28
1933.83	-1.19
1933.92	0.55
1934	-1.1
1934.08	0.17
1934.17	0.68
1934.25	1.34
1934.33	1.63
1934.42	1.23
1934.5	0.51
1934.58	0.44
1934.67	1.54
1934.75	1.25
1934.83	2.1
1934.92	1.63
1935	1.67
1935.08	1.01
1935.17	0.79
1935.25	-0.11
1935.33	1.1
1935.42	0.99
1935.5	1.39
1935.58	0.68
1935.67	0.63
1935.75	0.98
1935.83	0.21
1935.92	0.13
1936	1.78
1936.08	1.79
1936.17	1.75
1936.25	1.36
1936.33	1.32
1936.42	1.83

1936.5	2.37
1936.58	2.57
1936.67	1.71
1936.75	0.04
1936.83	2.1
1936.92	2.65
1937	1.28
1937.08	0
1937.17	-0.49
1937.25	0.38
1937.33	0.2
1937.42	0.53
1937.5	1.75
1937.58	0.11
1937.67	-0.35
1937.75	0.63
1937.83	0.76
1937.92	-0.18
1938	0.55
1938.08	0.5
1938.17	0.02
1938.25	0.24
1938.33	0.27
1938.42	-0.25
1938.5	-0.2
1938.58	-0.21
1938.67	-0.45
1938.75	-0.01
1938.83	0.07
1938.92	0.48
1939	1.4
1939.08	1.36
1939.17	0.07
1939.25	-0.39
1939.33	0.45
1939.42	0.98
1939.5	1.04
1939.58	-0.21
1939.67	-0.74
1939.75	-1.1
1939.83	-1.31
1939.92	-0.88
1940	1.51
1940.08	2.03
1940.17	1.74
1940.25	1.89
1940.33	2.37
1940.42	2.32
1940.5	2.43

1940.58	2.12
1940.67	1.4
1940.75	1.1
1940.83	1.19
1940.92	0.68
1941	1.96
1941.08	2.14
1941.17	2.07
1941.25	2.41
1941.33	1.89
1941.42	2.25
1941.5	3.01
1941.58	2.33
1941.67	3.31
1941.75	1.99
1941.83	1.22
1941.92	0.4
1942	0.91
1942.08	1.01
1942.17	0.79
1942.25	0.29
1942.33	0.79
1942.42	0.84
1942.5	1.19
1942.58	0.12
1942.67	0.44
1942.75	0.68
1942.83	0.54
1942.92	-0.1
1943	-1
1943.08	-0.18
1943.17	0.02
1943.25	0.26
1943.33	1.08
1943.42	0.43
1943.5	0.68
1943.58	-0.36
1943.67	-0.9
1943.75	-0.49
1943.83	-0.04
1943.92	0.29
1944	0.58
1944.08	0.18
1944.17	0.17
1944.25	0.08
1944.33	0.72
1944.42	-0.35
1944.5	-0.98
1944.58	-0.4

1944.67	-0.51
1944.75	-0.56
1944.83	-0.4
1944.92	0.33
1945	0.2
1945.08	-1.02
1945.17	0.72
1945.25	-0.42
1945.33	-0.4
1945.42	-0.07
1945.5	0.56
1945.58	1.02
1945.67	0.18
1945.75	-0.27
1945.83	0.1
1945.92	-1.94
1946	-0.74
1946.08	-0.91
1946.17	-0.32
1946.25	-0.41
1946.33	-0.78
1946.42	0.5
1946.5	-0.86
1946.58	-0.84
1946.67	-0.36
1946.75	-0.22
1946.83	-0.36
1946.92	-1.48
1947	-0.96
1947.08	-0.73
1947.17	-0.29
1947.25	1.17
1947.33	0.7
1947.42	0.37
1947.5	1.36
1947.58	0.16
1947.67	0.3
1947.75	0.58
1947.83	0.85
1947.92	-0.14
1948	1.67
1948.08	-0.11
1948.17	-0.74
1948.25	-0.03
1948.33	-1.33
1948.42	-0.23
1948.5	0.08
1948.58	-0.92
1948.67	-1.56

1948.75	-1.74
1948.83	-1.32
1948.92	-0.89
1949	-1.7
1949.08	-2.01
1949.17	-3.6
1949.25	-1
1949.33	-0.53
1949.42	-1.07
1949.5	-0.7
1949.58	-0.56
1949.67	-1.3
1949.75	-0.93
1949.83	-1.41
1949.92	-0.83
1950	-0.8
1950.08	-2.13
1950.17	-2.91
1950.25	-1.13
1950.33	-1.2
1950.42	-2.23
1950.5	-1.77
1950.58	-2.93
1950.67	-0.7
1950.75	-2.14
1950.83	-1.36
1950.92	-2.46
1951	-0.76
1951.08	-1.54
1951.17	-1.06
1951.25	-1.9
1951.33	-0.36
1951.42	-0.25
1951.5	-1.09
1951.58	0.7
1951.67	-1.37
1951.75	-0.08
1951.83	-0.32
1951.92	-0.28
1952	-1.68
1952.08	-2.01
1952.17	-0.46
1952.25	-0.63
1952.33	-1.05
1952.42	-1
1952.5	-1.43
1952.58	-1.25
1952.67	-0.6
1952.75	-0.89

1952.83	-0.35
1952.92	-0.76
1953	0.04
1953.08	-0.57
1953.17	-0.07
1953.25	-1.12
1953.33	0.05
1953.42	0.43
1953.5	0.29
1953.58	0.74
1953.67	0.05
1953.75	-0.63
1953.83	-1.09
1953.92	-0.03
1954	0.07
1954.08	-1.32
1954.17	-1.61
1954.25	-0.52
1954.33	-1.33
1954.42	0.01
1954.5	0.97
1954.58	0.43
1954.67	0.08
1954.75	-0.94
1954.83	0.52
1954.92	0.72
1955	-0.5
1955.08	0.2
1955.17	-1.52
1955.25	-1.26
1955.33	-1.97
1955.42	-1.21
1955.5	-2.44
1955.58	-2.35
1955.67	-2.25
1955.75	-1.95
1955.83	-2.8
1955.92	-3.08
1956	-2.75
1956.08	-2.48
1956.17	-2.74
1956.25	-2.56
1956.33	-2.17
1956.42	-1.41
1956.5	-1.7
1956.58	-1.03
1956.67	-1.16
1956.75	-0.71
1956.83	-2.3

1956.92	-2.11
1957	-1.28
1957.08	-1.82
1957.17	-0.68
1957.25	0.03
1957.33	-0.58
1957.42	0.57
1957.5	1.76
1957.58	0.72
1957.67	0.51
1957.75	1.59
1957.83	1.5
1957.92	-0.32
1958	-0.55
1958.08	0.25
1958.17	0.62
1958.25	0.25
1958.33	1.06
1958.42	1.28
1958.5	1.33
1958.58	0.89
1958.67	1.06
1958.75	0.29
1958.83	0.01
1958.92	-0.18
1959	0.86
1959.08	0.69
1959.17	-0.43
1959.25	-0.95
1959.33	-0.02
1959.42	0.23
1959.5	0.44
1959.58	-0.5
1959.67	-0.62
1959.75	-0.85
1959.83	0.52
1959.92	1.11
1960	0.06
1960.08	0.3
1960.17	0.52
1960.25	-0.21
1960.33	0.09
1960.42	0.91
1960.5	0.64
1960.58	-0.27
1960.67	-0.38
1960.75	-0.94
1960.83	0.09
1960.92	-0.23

1961	0.17
1961.08	1.18
1961.17	0.43
1961.25	0.09
1961.33	0.34
1961.42	-0.06
1961.5	-0.61
1961.58	-1.22
1961.67	-1.13
1961.75	-2.01
1961.83	-2.28
1961.92	-1.85
1962	-2.69
1962.08	-1.29
1962.17	-1.15
1962.25	-1.42
1962.33	-0.8
1962.42	-1.22
1962.5	-1.62
1962.58	-1.46
1962.67	-0.48
1962.75	-1.58
1962.83	-1.55
1962.92	-0.37
1963	-0.96
1963.08	-0.33
1963.17	-0.16
1963.25	-0.54
1963.33	-0.41
1963.42	-0.65
1963.5	-0.88
1963.58	-1
1963.67	-1.03
1963.75	0.45
1963.83	-0.52
1963.92	-2.08
1964	-1.08
1964.08	0.01
1964.17	-0.21
1964.25	-0.87
1964.33	-1.03
1964.42	-1.91
1964.5	-0.32
1964.58	-0.51
1964.67	-1.03
1964.75	-0.68
1964.83	-0.37
1964.92	-0.8
1965	-1.52

1965.08	-1.24
1965.17	-1.16
1965.25	0.04
1965.33	0.62
1965.42	-0.66
1965.5	-0.8
1965.58	-0.47
1965.67	0.2
1965.75	0.59
1965.83	-0.36
1965.92	-0.59
1966	0.06
1966.08	-0.82
1966.17	-0.03
1966.25	-1.29
1966.33	0.06
1966.42	-0.53
1966.5	0.16
1966.58	0.26
1966.67	-0.35
1966.75	-0.33
1966.83	-1.17
1966.92	-1.15
1967	-0.32
1967.08	-0.2
1967.17	-0.18
1967.25	-1.2
1967.33	-0.89
1967.42	-1.24
1967.5	-1.16
1967.58	-0.89
1967.67	-1.24
1967.75	-0.72
1967.83	-0.64
1967.92	-0.05
1968	-0.4
1968.08	-0.95
1968.17	-0.4
1968.25	-0.31
1968.33	-1.03
1968.42	-0.53
1968.5	-0.35
1968.58	0.53
1968.67	0.19
1968.75	0.06
1968.83	-0.34
1968.92	-0.44
1969	-1.27
1969.08	-1.26

1969.17	-0.95
1969.25	-0.5
1969.33	-0.44
1969.42	-0.2
1969.5	0.89
1969.58	0.1
1969.67	-0.81
1969.75	-0.66
1969.83	1.12
1969.92	0.15
1970	1.38
1970.08	0.61
1970.17	0.43
1970.25	1.33
1970.33	0.43
1970.42	-0.49
1970.5	0.06
1970.58	-0.68
1970.67	-1.63
1970.75	-1.67
1970.83	-1.39
1970.92	-0.8
1971	-0.97
1971.08	-1.9
1971.17	-1.74
1971.25	-1.68
1971.33	-1.59
1971.42	-1.55
1971.5	-1.55
1971.58	-2.2
1971.67	-0.15
1971.75	0.21
1971.83	-0.22
1971.92	-1.25
1972	-1.87
1972.08	-1.99
1972.17	-1.83
1972.25	-2.09
1972.33	-1.65
1972.42	-1.57
1972.5	-1.87
1972.58	-0.83
1972.67	0.25
1972.75	0.17
1972.83	0.11
1972.92	0.57
1973	-0.33
1973.08	-0.46
1973.17	-0.61

1973.25	-0.5
1973.33	-0.69
1973.42	-0.76
1973.5	-0.97
1973.58	-0.57
1973.67	-1.14
1973.75	-0.51
1973.83	-0.87
1973.92	-1.81
1974	-0.76
1974.08	-1.22
1974.17	-1.65
1974.25	-0.9
1974.33	-0.52
1974.42	-0.28
1974.5	-0.31
1974.58	-0.08
1974.67	0.27
1974.75	0.44
1974.83	-0.1
1974.92	0.43
1975	-0.12
1975.08	-0.84
1975.17	-0.71
1975.25	-0.51
1975.33	-1.3
1975.42	-1.02
1975.5	-1.16
1975.58	-0.4
1975.67	-1.07
1975.75	-1.23
1975.83	-1.29
1975.92	-2.08
1976	-1.61
1976.08	-1.14
1976.17	-1.85
1976.25	-0.96
1976.33	-0.89
1976.42	-0.68
1976.5	-0.67
1976.58	0.61
1976.67	1.28
1976.75	0.82
1976.83	1.11
1976.92	1.25
1977	1.22
1977.08	1.65
1977.17	1.11
1977.25	0.72

1977.33	0.3
1977.42	0.31
1977.5	0.42
1977.58	0.19
1977.67	0.64
1977.75	-0.55
1977.83	-0.61
1977.92	-0.72
1978	-0.69
1978.08	0.34
1978.17	1.45
1978.25	1.34
1978.33	1.29
1978.42	0.9
1978.5	0.15
1978.58	-1.24
1978.67	-0.56
1978.75	-0.44
1978.83	0.1
1978.92	-0.07
1979	-0.43
1979.08	-0.58
1979.17	-1.33
1979.25	0.3
1979.33	0.89
1979.42	1.09
1979.5	0.17
1979.58	0.84
1979.67	0.52
1979.75	1
1979.83	1.06
1979.92	0.48
1980	-0.42
1980.08	-0.11
1980.17	1.32
1980.25	1.09
1980.33	1.49
1980.42	1.2
1980.5	-0.22
1980.58	0.23
1980.67	0.51
1980.75	0.1
1980.83	1.35
1980.92	0.37
1981	-0.1
1981.08	0.59
1981.17	1.46
1981.25	0.99
1981.33	1.45

1981.42	1.75
1981.5	1.69
1981.58	0.84
1981.67	0.18
1981.75	0.42
1981.83	0.18
1981.92	0.8
1982	0.67
1982.08	0.34
1982.17	0.2
1982.25	0.19
1982.33	-0.19
1982.42	-0.58
1982.5	-0.78
1982.58	0.58
1982.67	0.39
1982.75	0.84
1982.83	0.37
1982.92	-0.25
1983	0.26
1983.08	0.56
1983.17	1.14
1983.25	2.11
1983.33	1.87
1983.42	1.8
1983.5	2.36
1983.58	3.51
1983.67	1.85
1983.75	0.91
1983.83	0.96
1983.92	1.02
1984	1.69
1984.08	1.5
1984.17	1.21
1984.25	1.77
1984.33	1.52
1984.42	1.3
1984.5	0.18
1984.58	-0.18
1984.67	-0.03
1984.75	0.67
1984.83	0.58
1984.92	0.71
1985	0.82
1985.08	1.27
1985.17	0.94
1985.25	0.57
1985.33	0.19
1985.42	0

1985.5	0.18
1985.58	1.07
1985.67	0.81
1985.75	0.44
1985.83	0.29
1985.92	-0.75
1986	0.38
1986.08	1.12
1986.17	1.61
1986.25	2.18
1986.33	1.55
1986.42	1.16
1986.5	0.89
1986.58	1.38
1986.67	0.22
1986.75	0.22
1986.83	1
1986.92	1.77
1987	1.77
1987.08	1.88
1987.17	1.75
1987.25	2.1
1987.33	2.16
1987.42	1.85
1987.5	0.73
1987.58	2.01
1987.67	2.83
1987.75	2.44
1987.83	1.36
1987.92	1.47
1988	1.27
1988.08	0.93
1988.17	1.24
1988.25	1.42
1988.33	0.94
1988.42	1.2
1988.5	0.74
1988.58	0.64
1988.67	0.19
1988.75	-0.37
1988.83	-0.1
1988.92	-0.02
1989	-0.43
1989.08	-0.95
1989.17	-1.02
1989.25	-0.83
1989.33	-0.32
1989.42	0.47
1989.5	0.36

1989.58	0.83
1989.67	0.09
1989.75	0.05
1989.83	-0.12
1989.92	-0.5
1990	-0.21
1990.08	-0.3
1990.17	-0.65
1990.25	-0.62
1990.33	0.27
1990.42	0.44
1990.5	0.44
1990.58	0.27
1990.67	0.11
1990.75	0.38
1990.83	-0.69
1990.92	-1.69
1991	-2.23
1991.08	-2.02
1991.17	-1.19
1991.25	-0.74
1991.33	-1.01
1991.42	-0.51
1991.5	-1.47
1991.58	-0.1
1991.67	0.36
1991.75	0.65
1991.83	0.49
1991.92	0.42
1992	0.09
1992.08	0.05
1992.17	0.31
1992.25	0.67
1992.33	0.75
1992.42	1.54
1992.5	1.26
1992.58	1.9
1992.67	1.44
1992.75	0.83
1992.83	0.93
1992.92	0.93
1993	0.53
1993.08	0.05
1993.17	0.19
1993.25	0.76
1993.33	1.21
1993.42	2.13
1993.5	2.34
1993.58	2.35

1993.67	2.69
1993.75	1.56
1993.83	1.41
1993.92	1.24
1994	1.07
1994.08	1.21
1994.17	0.59
1994.25	0.8
1994.33	1.05
1994.42	1.23
1994.5	0.46
1994.58	0.06
1994.67	-0.79
1994.75	-1.36
1994.83	-1.32
1994.92	-1.96
1995	-1.79
1995.08	-0.49
1995.17	0.46
1995.25	0.75
1995.33	0.83
1995.42	1.46
1995.5	1.27
1995.58	1.71
1995.67	0.21
1995.75	1.16
1995.83	0.47
1995.92	-0.28
1996	0.16
1996.08	0.59
1996.17	0.75
1996.25	1.01
1996.33	1.46
1996.42	2.18
1996.5	1.1
1996.58	0.77
1996.67	-0.14
1996.75	0.24
1996.83	-0.33
1996.92	0.09
1997	-0.03
1997.08	0.23
1997.17	0.28
1997.25	0.65
1997.33	1.05
1997.42	1.83
1997.5	2.76
1997.58	2.35
1997.67	2.79

1997.75	2.19
1997.83	1.61
1997.92	1.12
1998	0.67
1998.08	0.83
1998.17	1.56
1998.25	2.01
1998.33	1.27
1998.42	0.7
1998.5	0.4
1998.58	-0.04
1998.67	-0.22
1998.75	-1.21
1998.83	-1.39
1998.92	-0.52
1999	-0.44
1999.08	-0.32
1999.17	-0.66
1999.25	-0.33
1999.33	-0.41
1999.42	-0.68
1999.5	-1.3
1999.58	-0.66
1999.67	-0.96
1999.75	-1.53
1999.83	-2.23
1999.92	-2.05
2000	-1.63
2000.08	-2
2000.17	-0.83
2000.25	0.29
2000.33	0.35
2000.42	-0.05
2000.5	-0.44
2000.58	-0.66
2000.67	-1.19
2000.75	-1.24
2000.83	-1.3
2000.92	-0.53
2001	0.52
2001.08	0.6
2001.17	0.29
2001.25	0.45
2001.33	-0.31
2001.42	-0.3
2001.5	-0.47
2001.58	-1.31
2001.67	-0.77
2001.75	-1.37

2001.83
2001.92
2002

-1.37
-1.26
-0.93