[] Dendrochronology Program Library Run LOW Program COF 00:00 ®¯® 00 0000 Page 1

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[] P R O G R A M C O F E C H A Version 6.06P -30

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QUALITY CONTROL AND DATING CHECK OF TREE-RING MEASUREMENTS

Title of run: low

File of DATED series: Sprucelow.txt

CONTENTS:

Part 1: Title page, options selected, summary, absent rings by series

Part 2: Histogram of time spans

Part 3: Master series with sample depth and absent rings by year

Part 4: Bar plot of Master Dating Series

Part 5: Correlation by segment of each series with Master

Part 6: Potential problems: low correlation, divergent year-to-year changes, absent rings, outliers

Part 7: Descriptive statistics

RUN CONTROL OPTIONS SELECTED VALUE

1 Cubic smoothing spline 50% wavelength cutoff for filtering

32 years

2 Segments examined are 50 years lagged successively by 25 years

3 Autoregressive model applied A Residuals are used in master dating series and testing

4 Series transformed to logarithms Y Each series log-transformed for master dating series and testing

5 CORRELATION is Pearson (parametric, quantitative)

Critical correlation, 99% confidence level 0.3281

6 Master dating series saved N

7 Ring measurements listed N

8 Parts printed 1234567

9 Absent rings are omitted from master series and segment correlations (Y)

Time span of Master dating series is 1769 to 2011 243 years

Continuous time span is 1769 to 2011 243 years

Portion with two or more series is 1786 to 2011 226 years

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\*C\* Number of dated series 35 \*C\*

\*O\* Master series 1769 2011 243 yrs \*O\*

\*F\* Total rings in all series 3869 \*F\*

\*E\* Total dated rings checked 3852 \*E\*

\*C\* Series intercorrelation 0.428 \*C\*

\*H\* Average mean sensitivity 0.237 \*H\*

\*A\* Segments, possible problems 34 \*A\*

\*\*\* Mean length of series 110.5 \*\*\*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

ABSENT RINGS listed by SERIES: (See Master Dating Series for absent rings listed by year)

No ring measurements of zero value

PART 2: TIME PLOT OF TREE-RING SERIES: low 00:00 ®¯® 00 0000 Page 2

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1050 1100 1150 1200 1250 1300 1350 1400 1450 1500 1550 1600 1650 1700 1750 1800 1850 1900 1950 2000 2050 Ident Seq Time-span Yrs

: : : : : : : : : : : : : : : : : : : : : -------- --- ---- ---- ----

. . . . . . . . . . . . . . . . . . <========> . 03p00t72 1 1926 2010 85

. . . . . . . . . . . . . . . . . . <========> . 03p0t462 2 1923 2011 89

. . . . . . . . . . . . . . . . . . <=======> . 03p0t431 3 1921 2009 89

. . . . . . . . . . . . . . . . . . <========> . 03p0t432 4 1921 2011 91

. . . . . . . . . . . . . . . . . . <========> . 03p0t461 5 1925 2011 87

. . . . . . . . . . . . . . . . . . <=======> . 06p03301 6 1934 2011 78

. . . . . . . . . . . . . . . . . . <=======> . 06p03302 7 1934 2011 78

. . . . . . . . . . . . . . . . . . <======> . 06p0t601 8 1941 2011 71

. . . . . . . . . . . . . . . . . . <=======> . 06p0t602 9 1932 2011 80

. . . . . . . . . . . . . . . . . .<=========> . 17p03001 10 1919 2011 93

. . . . . . . . . . . . . . . . . .<=========> . 17p03002 11 1919 2011 93

. . . . . . . . . . . . . . . . . . <========> . 17p03051 12 1920 2011 92

. . . . . . . . . . . . . . . . . . <========> . 17p03052 13 1921 2011 91

. . . . . . . . . . . . . . . . . <==========> . 17p03871 14 1902 2011 110

. . . . . . . . . . . . . . . . . <==========> . 17p03872 15 1902 2011 110

. . . . . . . . . . . . . . . . . . <=======> . 20p0t371 16 1937 2011 75

. . . . . . . . . . . . . . . . . . <=======> . 20p0t372 17 1937 2011 75

. . . . . . . . . . . . . . . . <==================> . 20p04171 18 1825 2011 187

. . . . . . . . . . . . . . . . <=================> . 20p04172 19 1835 2011 177

. . . . . . . . . . . . . . .<========================> . 20p05351 20 1769 2011 243

. . . . . . . . . . . . . . . <======================> . 20p05352 21 1786 2011 226

. . . . . . . . . . . . . . . . <===============> . 30p0t361 22 1857 2011 155

. . . . . . . . . . . . . . . . . <=============> . 30p07362 23 1878 2011 134

. . . . . . . . . . . . . . . . . <==========> . 32p0t772 24 1906 2011 106

. . . . . . . . . . . . . . . . . <==========> . 32p0t771 25 1906 2011 106

. . . . . . . . . . . . . . . . <===============> . 32p0t542 26 1857 2011 155

. . . . . . . . . . . . . . . . <===============> . 32p0t541 27 1857 2011 155

. . . . . . . . . . . . . . . . . . <========> . 32p0t801 28 1923 2011 89

. . . . . . . . . . . . . . . . . . <========> . 32p0t802 29 1923 2011 89

. . . . . . . . . . . . . . . . . . <=======> . 33p02722 30 1939 2011 73

. . . . . . . . . . . . . . . . . . <=======> . 33p02721 31 1939 2011 73

. . . . . . . . . . . . . . . . . <===========> . 33p02662 32 1891 2011 121

. . . . . . . . . . . . . . . . . <===========> . 33p02661 33 1891 2011 121

. . . . . . . . . . . . . . . . . . <========> . 33p02102 34 1926 2011 86

. . . . . . . . . . . . . . . . . . <========> . 33p02101 35 1926 2011 86

: : : : : : : : : : : : : : : : : : : : :

1050 1100 1150 1200 1250 1300 1350 1400 1450 1500 1550 1600 1650 1700 1750 1800 1850 1900 1950 2000 2050

PART 3: Master Dating Series: low 00:00 ®¯® 00 0000 Page 3

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Year Value No Ab Year Value No Ab Year Value No Ab Year Value No Ab Year Value No Ab Year Value No Ab

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1800 0.599 2 1850 0.416 4 1900 0.892 10 1950 -0.230 35 2000 -0.069 35

1801 1.662 2 1851 0.595 4 1901 0.354 10 1951 0.531 35 2001 0.471 35

1802 -0.394 2 1852 -0.181 4 1902 0.250 12 1952 -0.127 35 2002 0.203 35

1803 2.992 2 1853 -0.518 4 1903 0.777 12 1953 -0.473 35 2003 -1.068 35

1804 0.896 2 1854 0.278 4 1904 1.725 12 1954 0.266 35 2004 -0.995 35

1805 0.312 2 1855 -0.581 4 1905 1.215 12 1955 0.522 35 2005 -1.389 35

1806 -2.828 2 1856 0.005 4 1906 0.996 14 1956 -1.348 35 2006 -0.591 35

1807 0.693 2 1857 -0.334 7 1907 0.535 14 1957 0.845 35 2007 0.377 35

1808 -0.677 2 1858 0.207 7 1908 0.066 14 1958 1.669 35 2008 -0.313 35

1809 -2.127 2 1859 -1.869 7 1909 -0.584 14 1959 0.738 35 2009 0.583 35

1810 0.362 2 1860 -0.148 7 1910 0.424 14 1960 0.017 35 2010 1.021 34

1811 1.124 2 1861 0.690 7 1911 -1.195 14 1961 1.377 35 2011 0.873 33

1812 0.670 2 1862 1.341 7 1912 0.058 14 1962 -0.321 35

1813 0.244 2 1863 0.103 7 1913 0.323 14 1963 0.258 35

1814 -5.254 2 1864 0.041 7 1914 -0.643 14 1964 0.825 35

1815 -2.790 2 1865 -0.036 7 1915 -0.767 14 1965 0.582 35

1816 -2.232 2 1866 -0.425 7 1916 0.904 14 1966 -0.193 35

1817 -0.330 2 1867 0.737 7 1917 -0.368 14 1967 -0.745 35

1818 -0.420 2 1868 0.150 7 1918 -1.451 14 1968 -0.347 35

1769 0.345 1 1819 0.367 2 1869 0.029 7 1919 -0.430 16 1969 -0.445 35

1770 -0.148 1 1820 0.754 2 1870 0.617 7 1920 -0.591 17 1970 0.363 35

1771 1.311 1 1821 0.773 2 1871 0.320 7 1921 -1.022 20 1971 0.744 35

1772 2.358 1 1822 1.316 2 1872 -0.128 7 1922 -0.121 20 1972 0.140 35

1773 -1.293 1 1823 1.629 2 1873 -0.824 7 1923 -1.501 23 1973 0.086 35

1774 -0.371 1 1824 -0.167 2 1874 -0.659 7 1924 0.271 23 1974 -0.945 35

1775 1.767 1 1825 0.795 3 1875 0.415 7 1925 -0.078 24 1975 -0.690 35

1776 -0.444 1 1826 -0.895 3 1876 -0.036 7 1926 -0.538 27 1976 -0.370 35

1777 -1.113 1 1827 0.692 3 1877 0.435 7 1927 0.934 27 1977 -0.484 35

1778 -0.849 1 1828 -1.073 3 1878 0.895 8 1928 0.528 27 1978 -0.693 35

1779 0.704 1 1829 -2.369 3 1879 0.039 8 1929 0.996 27 1979 -0.037 35

1780 -0.844 1 1830 -0.671 3 1880 0.940 8 1930 0.570 27 1980 1.093 35

1781 -1.591 1 1831 0.519 3 1881 0.046 8 1931 0.710 27 1981 -0.828 35

1782 -1.882 1 1832 -0.021 3 1882 -0.888 8 1932 1.084 28 1982 -1.022 35

1783 -1.403 1 1833 -0.285 3 1883 -1.331 8 1933 -0.046 28 1983 -0.044 35

1784 -0.304 1 1834 0.705 3 1884 -0.651 8 1934 0.043 30 1984 -1.277 35

1785 3.191 1 1835 0.073 4 1885 0.018 8 1935 -0.472 30 1985 -0.519 35

1786 2.079 2 1836 1.352 4 1886 2.339 8 1936 -0.314 30 1986 -0.654 35

1787 -0.261 2 1837 -0.275 4 1887 -0.083 8 1937 -0.628 32 1987 0.687 35

1788 0.802 2 1838 -0.425 4 1888 -0.658 8 1938 0.741 32 1988 0.411 35

1789 0.360 2 1839 -0.174 4 1889 0.462 8 1939 -0.144 34 1989 0.671 35

1790 1.186 2 1840 1.049 4 1890 0.061 8 1940 -0.435 34 1990 0.653 35

1791 -0.521 2 1841 0.326 4 1891 -0.026 10 1941 0.874 35 1991 0.353 35

1792 -2.963 2 1842 0.137 4 1892 -0.874 10 1942 0.055 35 1992 1.529 35

1793 0.013 2 1843 0.861 4 1893 -0.606 10 1943 -0.355 35 1993 1.700 35

1794 -0.635 2 1844 -3.240 4 1894 -0.180 10 1944 -0.717 35 1994 0.589 35

1795 -0.869 2 1845 0.470 4 1895 -0.910 10 1945 0.109 35 1995 0.149 35

1796 0.557 2 1846 1.207 4 1896 0.436 10 1946 -0.599 35 1996 -0.396 35

1797 1.185 2 1847 0.627 4 1897 -0.402 10 1947 -0.380 35 1997 -0.616 35

1798 1.500 2 1848 1.071 4 1898 -0.603 10 1948 -1.539 35 1998 -0.274 35

1799 -0.239 2 1849 -0.309 4 1899 -0.731 10 1949 -0.136 35 1999 -0.078 35

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PART 4: Master Bar Plot: low 00:00 ®¯® 00 0000 Page 4

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Year Rel value Year Rel value Year Rel value Year Rel value Year Rel value Year Rel value Year Rel value Year Rel value

1800--------B 1850-------B 1900---------D 1950----a 2000-----@

1801----------G 1851--------B 1901------A 1951-------B 2001-------B

1802---b 1852----a 1902------A 1952----a 2002------A

1803----------L 1853--b 1903--------C 1953---b 2003-d

1804---------D 1854------A 1904----------G 1954------A 2004-d

1805------A 1855--b 1905---------E 1955-------B 2005f

1806k 1856-----@ 1906---------D 1956e 2006--b

1807--------C 1857---a 1907-------B 1957---------C 2007-------B

1808--c 1858------A 1908-----@ 1958----------G 2008---a

1809i 1859g 1909--b 1959--------C 2009--------B

1810-------A 1860----a 1910-------B 1960-----@ 2010---------D

1811---------D 1861--------C 1911e 1961----------F 2011---------C

1812--------C 1862----------E 1912-----@ 1962---a

1813------A 1863-----@ 1913------A 1963------A

1814u 1864-----@ 1914--c 1964---------C

1815k 1865-----@ 1915-c 1965--------B

1816i 1866---b 1916---------D 1966----a

1817---a 1867--------C 1917---a 1967-c

1818---b 1868------A 1918f 1968---a

1769------A 1819-------A 1869-----@ 1919---b 1969---b

1770----a 1820--------C 1870--------B 1920--b 1970-------A

1771----------E 1821--------C 1871------A 1921-d 1971--------C

1772----------I 1822----------E 1872----a 1922----@ 1972------A

1773e 1823----------G 1873-c 1923f 1973-----@

1774---a 1824----a 1874--c 1924------A 1974-d

1775----------G 1825--------C 1875-------B 1925-----@ 1975--c

1776---b 1826-d 1876-----@ 1926--b 1976---a

1777-d 1827--------C 1877-------B 1927---------D 1977---b

1778-c 1828-d 1878---------D 1928-------B 1978--c

1779--------C 1829i 1879-----@ 1929---------D 1979-----@

1780-c 1830--c 1880---------D 1930-------B 1980---------D

1781f 1831-------B 1881-----@ 1931--------C 1981-c

1782h 1832-----@ 1882-d 1932---------D 1982-d

1783f 1833---a 1883e 1933-----@ 1983-----@

1784---a 1834--------C 1884--c 1934-----@ 1984e

1785----------M 1835-----@ 1885-----@ 1935---b 1985--b

1786----------H 1836----------E 1886----------I 1936---a 1986--c

1787----a 1837----a 1887----@ 1937--c 1987--------C

1788---------C 1838---b 1888--c 1938--------C 1988-------B

1789-------A 1839----a 1889-------B 1939----a 1989--------C

1790---------E 1840---------D 1890-----@ 1940---b 1990--------C

1791--b 1841------A 1891-----@ 1941---------C 1991------A

1792l 1842-----A 1892-c 1942-----@ 1992----------F

1793-----@ 1843---------C 1893--b 1943---a 1993----------G

1794--c 1844m 1894----a 1944--c 1994--------B

1795-c 1845-------B 1895-d 1945-----@ 1995------A

1796-------B 1846---------E 1896-------B 1946--b 1996---b

1797---------E 1847--------C 1897---b 1947---b 1997--b

1798----------F 1848---------D 1898--b 1948f 1998----a

1799----a 1849---a 1899-c 1949----a 1999-----@

PART 5: CORRELATION OF SERIES BY SEGMENTS: low 00:00 ®¯® 00 0000 Page 5

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Correlations of 50-year dated segments, lagged 25 years

Flags: A = correlation under 0.3281 but highest as dated; B = correlation higher at other than dated position

Seq Series Time\_span 1775 1800 1825 1850 1875 1900 1925 1950 1975

1824 1849 1874 1899 1924 1949 1974 1999 2024

--- -------- --------- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ----

1 03p00t72 1926 2010 .37 .43 .48

2 03p0t462 1923 2011 .29A .35 .37 .45

3 03p0t431 1921 2009 .40 .44 .48 .39

4 03p0t432 1921 2011 .62 .61 .53 .57

5 03p0t461 1925 2011 .47 .52 .54

6 06p03301 1934 2011 .33A .44 .48

7 06p03302 1934 2011 .41 .43 .43

8 06p0t601 1941 2011 .21B .20B .12B

9 06p0t602 1932 2011 .17B .18B .08B

10 17p03001 1919 2011 .22B .16B .26B .19B

11 17p03002 1919 2011 .12B .16B .22B .04B

12 17p03051 1920 2011 .47 .48 .53 .28A

13 17p03052 1921 2011 .46 .41 .54 .34

14 17p03871 1902 2011 .55 .67 .58 .30A

15 17p03872 1902 2011 .30A .52 .55 .44

16 20p0t371 1937 2011 .54 .58 .53

17 20p0t372 1937 2011 .37 .40 .44

18 20p04171 1825 2011 .38 .29A .46 .49 .41 .38 .40

19 20p04172 1835 2011 .52 .29A .53 .39 .44 .48 .38

20 20p05351 1769 2011 .68 .66 .50 .34 .51 .13B .11B .60 .65

21 20p05352 1786 2011 .66 .65 .53 .35 .51 .52 .42 .52 .59

22 30p0t361 1857 2011 .27A .52 .50 .53 .60 .55

23 30p07362 1878 2011 .49 .42 .46 .62 .67

24 32p0t772 1906 2011 .43 .60 .79 .64

25 32p0t771 1906 2011 .61 .57 .66 .59

26 32p0t542 1857 2011 .33A .33A .34 .51 .63 .38

27 32p0t541 1857 2011 .33A .18B .10B .35 .46 .40

28 32p0t801 1923 2011 .41 .33B .64 .59

29 32p0t802 1923 2011 .53 .50 .57 .39

30 33p02722 1939 2011 .38 .38 .39

31 33p02721 1939 2011 .20B .23B .29A

32 33p02662 1891 2011 .25B .39 .39 .33 .38

33 33p02661 1891 2011 .53 .52 .47 .52 .54

34 33p02102 1926 2011 .44 .59 .54

35 33p02101 1926 2011 .54 .56 .56

Av segment correlation 0.67 0.66 0.48 0.31 0.43 0.40 0.41 0.48 0.43

PART 6: POTENTIAL PROBLEMS: low 00:00 ®¯® 00 0000 Page 5

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For each series with potential problems the following diagnostics may appear:

[A] Correlations with master dating series of flagged 50-year segments of series filtered with 32-year spline,

at every point from ten years earlier (-10) to ten years later (+10) than dated

[B] Effect of those data values which most lower or raise correlation with master series

Symbol following year indicates value in series is greater (>) or lesser (<) than master series value

[C] Year-to-year changes very different from the mean change in other series

[D] Absent rings (zero values)

[E] Values which are statistical outliers from mean for the year

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03p00t72 1926 to 2010 85 years Series 1

[B] Entire series, effect on correlation ( 0.437) is:

Lower 1956>-0.027 1994<-0.023 2005>-0.015 1937<-0.014 1962>-0.010 1980<-0.010 Higher 2003 0.039 1974 0.016

====================================================================================================================================

03p0t462 1923 to 2011 89 years Series 2

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1923 1972 0 -.21 .05 -.21 .14 -.18 -.23 .13 .06 -.01 -.27 .29\*-.13 -.02 .16 -.03 .21 .11 .18 -.18 .11 -.02

[B] Entire series, effect on correlation ( 0.361) is:

Lower 1923>-0.042 1937<-0.027 1971<-0.022 1956>-0.020 1953>-0.013 1981>-0.012 Higher 1958 0.018 2005 0.015

1923 to 1972 segment:

Lower 1923>-0.066 1956>-0.031 1971<-0.031 1953>-0.019 1937<-0.015 1932<-0.012 Higher 1958 0.032 1927 0.023

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1937 -5.0 SD

====================================================================================================================================

03p0t431 1921 to 2009 89 years Series 3

[B] Entire series, effect on correlation ( 0.379) is:

Lower 1926<-0.052 1990<-0.027 1921>-0.023 2001<-0.020 1984>-0.017 1956>-0.016 Higher 1981 0.034 1993 0.024

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1926 -4.8 SD

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03p0t432 1921 to 2011 91 years Series 4

[B] Entire series, effect on correlation ( 0.578) is:

Lower 1984>-0.034 1921>-0.023 1931<-0.021 1977<-0.013 1982>-0.013 1974>-0.013 Higher 1981 0.029 1948 0.019

====================================================================================================================================

03p0t461 1925 to 2011 87 years Series 5

[B] Entire series, effect on correlation ( 0.513) is:

Lower 1928<-0.051 1981>-0.024 1963<-0.021 1956>-0.021 1971<-0.014 1940>-0.013 Higher 1948 0.034 1927 0.015

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06p03301 1934 to 2011 78 years Series 6

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1934 1983 0 -.23 .10 -.28 .17 .09 -.07 -.18 .28 .07 -.21 .33\* .15 -.18 -.07 .17 -.03 .14 .26 .00 -.04 .08

[B] Entire series, effect on correlation ( 0.354) is:

Lower 1942<-0.035 1943>-0.028 1949<-0.028 1955<-0.026 1956>-0.023 1982>-0.018 Higher 1958 0.028 1961 0.022

1934 to 1983 segment:

Lower 1942<-0.045 1949<-0.038 1943>-0.036 1955<-0.036 1956>-0.034 1982>-0.024 Higher 1958 0.044 1961 0.034

[C] Year-to-year changes diverging by over 4.0 std deviations:

1942 1943 4.1 SD

====================================================================================================================================

06p03302 1934 to 2011 78 years Series 7

[B] Entire series, effect on correlation ( 0.399) is:

Lower 1948>-0.040 1997>-0.016 1974>-0.014 1998<-0.013 1996>-0.013 1949<-0.013 Higher 1962 0.029 1984 0.028

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1997 +3.0 SD

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06p0t601 1941 to 2011 71 years Series 8

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1941 1990 3 .07 -.17 -.28 .25 .02 -.08 .25 .10 -.19 -.03 .21|-.25 .26 .29\*-.06 -.04 .05 .05 -.08 .00 .11

1950 1999 3 .00 -.20 -.23 .18 .04 .02 .31 .15 -.13 -.01 .20|-.19 .26 .32\*-.13 -.04 .05 .02 -.09 .05 -.01

1962 2011 -4 -.14 -.25 -.10 .22 .10 .15 .24\*-.05 -.09 -.01 .12| - - - - - - - - - -

[B] Entire series, effect on correlation ( 0.187) is:

Lower 1979<-0.050 1956>-0.049 2010<-0.029 2008>-0.022 2002<-0.022 1988<-0.021 Higher 1961 0.049 1992 0.034

1941 to 1990 segment:

Lower 1979<-0.078 1956>-0.072 1988<-0.034 1971<-0.025 1962>-0.023 1969>-0.018 Higher 1961 0.070 1941 0.035

1950 to 1999 segment:

Lower 1979<-0.072 1956>-0.068 1988<-0.029 1971<-0.026 1996>-0.025 1962>-0.021 Higher 1961 0.064 1992 0.044

1962 to 2011 segment:

Lower 1979<-0.060 2010<-0.038 2008>-0.030 2002<-0.024 1988<-0.024 1996>-0.024 Higher 1992 0.058 1987 0.036

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1956 +3.1 SD

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06p0t602 1932 to 2011 80 years Series 9

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1932 1981 -4 .29 -.36 -.21 .21 .09 -.16 .38\* .08 -.32 .16 .17|-.19 .16 .18 .09 -.25 .14 .05 .24 -.02 -.02

1950 1999 -4 .25 -.31 -.23 .12 .08 -.30 .33\* .13 -.16 .12 .18| .00 .26 .23 -.01 -.15 .15 -.01 .00 -.03 -.10

1962 2011 -10 .23\*-.31 -.30 .12 .06 -.22 .17 .11 -.10 .19 .08| - - - - - - - - - -

[B] Entire series, effect on correlation ( 0.161) is:

Lower 1956>-0.055 1962>-0.023 1937>-0.018 1993<-0.016 2001<-0.016 2010<-0.014 Higher 1961 0.033 1958 0.017

1932 to 1981 segment:

Lower 1956>-0.082 1962>-0.034 1937>-0.026 1967>-0.018 1970<-0.016 1963<-0.013 Higher 1961 0.050 1958 0.028

1950 to 1999 segment:

Lower 1956>-0.098 1962>-0.039 1993<-0.030 1970<-0.022 1967>-0.022 1963<-0.018 Higher 1961 0.053 1984 0.029

1962 to 2011 segment:

Lower 1962>-0.041 2001<-0.032 1993<-0.031 2010<-0.026 1970<-0.024 1967>-0.023 Higher 1966 0.044 1964 0.035

[C] Year-to-year changes diverging by over 4.0 std deviations:

1939 1940 -4.2 SD

[E] Outliers 2 3.0 SD above or -4.5 SD below mean for year

1940 -4.6 SD; 1956 +3.1 SD

====================================================================================================================================

17p03001 1919 to 2011 93 years Series 10

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1919 1968 -3 -.09 .07 -.09 -.07 .03 .27 -.22 .48\* .00 -.19 .22| .05 -.26 .08 .07 -.48 -.05 .15 -.08 .06 .16

1925 1974 -3 -.08 .11 -.11 -.03 -.01 .21 -.28 .49\* .02 -.20 .16| .08 -.29 .08 .12 -.48 .02 .15 -.09 .06 .13

1950 1999 -3 -.10 .20 -.26 -.05 .01 .03 -.01 .46\* .06 -.26 .26| .02 -.45 .06 -.02 -.29 -.10 .10 -.08 -.03 .25

1962 2011 -3 -.09 .28 -.23 -.14 -.09 .18 .02 .40\* .19 -.10 .19| - - - - - - - - - -

[B] Entire series, effect on correlation ( 0.223) is:

Lower 2003>-0.038 1965<-0.037 1948>-0.022 1974>-0.019 1943>-0.019 1959<-0.015 Higher 1923 0.042 1956 0.033

1919 to 1968 segment:

Lower 1965<-0.060 1948>-0.038 1943>-0.032 1935>-0.025 1959<-0.024 1960>-0.022 Higher 1923 0.068 1956 0.052

1925 to 1974 segment:

Lower 1965<-0.055 1948>-0.036 1974>-0.033 1943>-0.032 1935>-0.026 1960>-0.022 Higher 1956 0.066 1961 0.036

1950 to 1999 segment:

Lower 1965<-0.071 1974>-0.039 1960>-0.027 1959<-0.027 1994>-0.018 1962>-0.017 Higher 1956 0.060 1981 0.044

1962 to 2011 segment:

Lower 1965<-0.081 2003>-0.078 1974>-0.039 1987<-0.020 1994>-0.016 1962>-0.015 Higher 1981 0.057 2005 0.031

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2003 +3.1 SD

====================================================================================================================================

17p03002 1919 to 2011 93 years Series 11

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

--------- ---- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

1919 1968 -3 -.11 .08 .05 -.04 .13 .06 -.13 .50\*-.26 -.29 .12| .06 -.25 .08 .25 -.43 -.03 .09 .02 -.03 .08

1925 1974 -3 -.04 .08 .07 -.05 .14 -.02 -.20 .57\*-.27 -.37 .16| .00 -.24 .07 .26 -.39 -.02 .11 .01 -.02 .02

1950 1999 -3 .00 .25 -.03 .14 .08 -.22 .11 .43\*-.21 -.31 .22| .12 -.47 .12 -.01 -.23 -.13 .03 -.11 -.03 .11

1962 2011 -9 .14 .34\* .01 .18 .01 -.14 .20 .29 -.13 -.12 .04| - - - - - - - - - -

[B] Entire series, effect on correlation ( 0.087) is:

Lower 1948>-0.035 1959<-0.028 1931<-0.021 1985<-0.018 1990<-0.017 1993<-0.016 Higher 1981 0.058 1956 0.043

1919 to 1968 segment:

Lower 1959<-0.068 1948>-0.060 1931<-0.041 1921>-0.025 1924<-0.023 1965<-0.019 Higher 1956 0.077 1961 0.043

1925 to 1974 segment:

Lower 1959<-0.077 1948>-0.066 1931<-0.045 1974>-0.024 1965<-0.021 1935>-0.016 Higher 1956 0.086 1961 0.040

1950 to 1999 segment:

Lower 1959<-0.058 1985<-0.039 1974>-0.031 1990<-0.026 1993<-0.025 1982>-0.017 Higher 1981 0.083 1956 0.057

1962 to 2011 segment:

Lower 1990<-0.033 1985<-0.032 1993<-0.030 1974>-0.030 2005>-0.024 2003>-0.023 Higher 1981 0.137 1980 0.034

[E] Outliers 3 3.0 SD above or -4.5 SD below mean for year

1948 +3.4 SD; 1959 -5.7 SD; 1985 -4.9 SD

====================================================================================================================================

17p03051 1920 to 2011 92 years Series 12

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1962 2011 0 -.15 -.01 -.12 -.21 -.12 -.08 -.09 -.08 .00 .02 .28\* - - - - - - - - - -

[B] Entire series, effect on correlation ( 0.385) is:

Lower 1981>-0.022 1940>-0.020 1999<-0.016 2003>-0.016 1964<-0.013 1941<-0.013 Higher 1956 0.045 1961 0.021

1962 to 2011 segment:

Lower 1981>-0.042 1999<-0.033 2003>-0.031 1964<-0.028 2005>-0.024 2004>-0.019 Higher 1992 0.050 1980 0.038

====================================================================================================================================

17p03052 1921 to 2011 91 years Series 13

[B] Entire series, effect on correlation ( 0.415) is:

Lower 2005>-0.019 1964<-0.018 1939<-0.018 1940>-0.014 2004>-0.014 1987<-0.013 Higher 1956 0.036 1923 0.032

====================================================================================================================================

17p03871 1902 to 2011 110 years Series 14

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1962 2011 0 .05 .05 -.30 -.05 .07 -.20 .00 .28 .20 .14 .30\* - - - - - - - - - -

[B] Entire series, effect on correlation ( 0.510) is:

Lower 1918>-0.031 2006<-0.023 1967>-0.016 1903<-0.016 1980<-0.014 2003>-0.012 Higher 1956 0.028 1911 0.025

1962 to 2011 segment:

Lower 2006<-0.044 1967>-0.039 1980<-0.031 2003>-0.024 2004>-0.022 1994>-0.022 Higher 1992 0.037 1962 0.028

====================================================================================================================================

17p03872 1902 to 2011 110 years Series 15

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1902 1951 0 .01 -.10 .17 -.29 -.01 .11 .05 -.04 .04 -.03 .30\*-.05 .02 .02 .13 .01 .15 -.23 .17 -.07 -.32

[B] Entire series, effect on correlation ( 0.412) is:

Lower 1903<-0.071 1918>-0.019 1909>-0.016 1931<-0.011 1967>-0.010 2004>-0.010 Higher 1948 0.014 1958 0.014

1902 to 1951 segment:

Lower 1903<-0.163 1918>-0.035 1909>-0.033 1931<-0.024 1913<-0.021 1946>-0.018 Higher 1948 0.037 1916 0.036

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20p0t371 1937 to 2011 75 years Series 16

[B] Entire series, effect on correlation ( 0.520) is:

Lower 2010<-0.040 1946>-0.022 1945<-0.019 1977>-0.015 1940>-0.014 1964<-0.012 Higher 2003 0.027 1984 0.026

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20p0t372 1937 to 2011 75 years Series 17

[B] Entire series, effect on correlation ( 0.361) is:

Lower 1938<-0.036 1956>-0.025 1939>-0.022 1987<-0.018 2008>-0.014 1943>-0.013 Higher 1948 0.041 2003 0.034

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20p04171 1825 to 2011 187 years Series 18

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1850 1899 0 -.05 .01 .12 -.14 -.06 -.02 -.02 -.16 .08 -.11 .29\*-.04 -.14 .06 -.02 .12 -.08 .04 .09 -.06 -.02

[B] Entire series, effect on correlation ( 0.391) is:

Lower 1868<-0.023 1826>-0.016 1834<-0.013 1951<-0.010 1926>-0.009 1939>-0.008 Higher 1844 0.052 1859 0.017

1850 to 1899 segment:

Lower 1868<-0.081 1888>-0.032 1894<-0.029 1880<-0.026 1898>-0.019 1853>-0.018 Higher 1859 0.089 1886 0.083

[E] Outliers 3 3.0 SD above or -4.5 SD below mean for year

1827 +4.2 SD; 1862 +3.3 SD; 1985 +3.4 SD

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20p04172 1835 to 2011 177 years Series 19

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1850 1899 0 .28 -.02 -.02 -.12 .03 .07 -.01 .03 -.15 .02 .29\*-.07 -.07 -.28 .07 -.01 .02 .13 .07 .09 .08

[B] Entire series, effect on correlation ( 0.458) is:

Lower 1925<-0.027 1862<-0.024 1984>-0.017 1840<-0.012 1982>-0.011 1873>-0.009 Higher 1844 0.091 1859 0.018

1850 to 1899 segment:

Lower 1862<-0.100 1873>-0.031 1855>-0.028 1868>-0.022 1885<-0.015 1898>-0.014 Higher 1859 0.117 1867 0.023

[E] Outliers 2 3.0 SD above or -4.5 SD below mean for year

1982 +3.3 SD; 1984 +3.2 SD

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20p05351 1769 to 2011 243 years Series 20

[\*] Early part of series cannot be checked from 1769 to 1785 -- not matched by another series

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1900 1949 4 .16 -.14 -.02 -.15 -.16 -.13 .01 .05 -.08 .15 .13| .13 .21 -.17 .23\*-.01 .01 -.19 .14 -.10 .11

1925 1974 10 .00 -.09 .00 -.24 -.10 .02 -.13 .02 .00 .15 .11| .04 .09 -.18 .12 -.03 .02 -.11 .14 -.03 .23\*

[B] Entire series, effect on correlation ( 0.462) is:

Lower 1938<-0.080 1838>-0.013 1923>-0.009 1851<-0.008 1809>-0.007 1869<-0.006 Higher 1844 0.029 1806 0.015

1900 to 1949 segment:

Lower 1938<-0.293 1923>-0.040 1924<-0.023 1939>-0.019 1907<-0.016 1946>-0.014 Higher 1918 0.063 1948 0.047

1925 to 1974 segment:

Lower 1938<-0.330 1939>-0.025 1946>-0.018 1926>-0.010 1925>-0.009 1960>-0.008 Higher 1948 0.057 1961 0.056

[C] Year-to-year changes diverging by over 4.0 std deviations:

1937 1938 -6.5 SD 1938 1939 6.5 SD

[E] Outliers 3 3.0 SD above or -4.5 SD below mean for year

1814 +3.8 SD; 1838 +3.4 SD; 1938 -9.3 SD

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20p05352 1786 to 2011 226 years Series 21

[B] Entire series, effect on correlation ( 0.577) is:

Lower 1816>-0.010 1901<-0.007 1892>-0.007 1872>-0.006 1944>-0.006 1818>-0.005 Higher 1814 0.034 1806 0.010

[C] Year-to-year changes diverging by over 4.0 std deviations:

1813 1814 -4.7 SD

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30p0t361 1857 to 2011 155 years Series 22

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1857 1906 0 .05 -.03 .02 .03 .15 .15 .01 .05 -.16 -.16 .27\*-.02 -.16 .11 .11 .10 -.24 -.40 -.01 -.16 -.01

[B] Entire series, effect on correlation ( 0.423) is:

Lower 1859>-0.033 1911>-0.023 1874>-0.016 1898<-0.016 2011<-0.015 1857>-0.012 Higher 1886 0.023 1918 0.018

1857 to 1906 segment:

Lower 1859>-0.085 1874>-0.046 1857>-0.035 1898<-0.032 1870<-0.026 1873>-0.018 Higher 1886 0.092 1887 0.059

[E] Outliers 2 3.0 SD above or -4.5 SD below mean for year

1859 +3.6 SD; 1898 -6.0 SD

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30p07362 1878 to 2011 134 years Series 23

[B] Entire series, effect on correlation ( 0.528) is:

Lower 1909<-0.021 1911>-0.019 1988<-0.017 1957<-0.016 1926>-0.011 1908>-0.009 Higher 1886 0.022 1918 0.019

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32p0t772 1906 to 2011 106 years Series 24

[B] Entire series, effect on correlation ( 0.559) is:

Lower 1911>-0.037 1926<-0.021 1917>-0.020 2003>-0.008 1937>-0.008 1927<-0.007 Higher 1923 0.027 1956 0.026

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32p0t771 1906 to 2011 106 years Series 25

[B] Entire series, effect on correlation ( 0.612) is:

Lower 1937>-0.027 1921>-0.018 1964<-0.011 1934<-0.010 1965<-0.009 1978>-0.009 Higher 1923 0.023 1918 0.015

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32p0t542 1857 to 2011 155 years Series 26

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1857 1906 0 -.08 -.02 .30 .06 -.07 -.15 .22 -.01 -.09 -.24 .33\* .13 .06 -.13 -.15 -.11 -.06 .03 -.39 -.11 .29

1875 1924 0 -.20 -.03 .23 .12 -.05 .11 .03 .31 .03 -.07 .33\* .14 .09 .09 -.13 .04 .08 -.04 -.36 -.13 .05

[B] Entire series, effect on correlation ( 0.363) is:

Lower 1940<-0.042 2003>-0.016 1872<-0.012 1877<-0.011 1911>-0.010 1916<-0.010 Higher 1956 0.028 1948 0.023

1857 to 1906 segment:

Lower 1872<-0.050 1877<-0.042 1867<-0.031 1879>-0.025 1878<-0.019 1888>-0.016 Higher 1886 0.078 1859 0.048

1875 to 1924 segment:

Lower 1877<-0.053 1916<-0.038 1879>-0.026 1911>-0.023 1878<-0.021 1907>-0.018 Higher 1886 0.095 1887 0.016

[C] Year-to-year changes diverging by over 4.0 std deviations:

1939 1940 -4.7 SD

[E] Outliers 2 3.0 SD above or -4.5 SD below mean for year

1940 -7.6 SD; 1948 -5.4 SD

====================================================================================================================================

32p0t541 1857 to 2011 155 years Series 27

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1857 1906 0 .08 -.05 .16 -.01 .09 .02 .07 .09 -.07 -.36 .33\*-.13 -.05 -.23 -.32 -.07 -.10 -.04 .12 .14 .22

1875 1924 -3 -.10 .00 -.03 -.12 .14 .03 -.14 .23\* .04 -.36 .18|-.02 -.06 .05 -.12 -.13 .10 .04 .15 .10 .08

1900 1949 10 -.12 -.04 -.08 .04 -.05 -.09 -.08 .18 .04 -.11 .10| .16 .16 .13 .09 -.14 .16 -.05 -.07 .04 .21\*

[B] Entire series, effect on correlation ( 0.320) is:

Lower 1918>-0.027 1916<-0.018 1875<-0.017 1974>-0.016 1939>-0.014 1937>-0.014 Higher 1956 0.020 1886 0.019

1857 to 1906 segment:

Lower 1875<-0.060 1900<-0.044 1883>-0.029 1892>-0.028 1901<-0.024 1888>-0.018 Higher 1886 0.070 1887 0.054

1875 to 1924 segment:

Lower 1918>-0.081 1875<-0.050 1916<-0.049 1900<-0.033 1883>-0.026 1892>-0.025 Higher 1886 0.098 1887 0.055

1900 to 1949 segment:

Lower 1918>-0.084 1916<-0.046 1939>-0.044 1937>-0.043 1900<-0.030 1901<-0.017 Higher 1927 0.037 1946 0.029

[C] Year-to-year changes diverging by over 4.0 std deviations:

2004 2005 -4.1 SD

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

2005 -4.6 SD

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32p0t801 1923 to 2011 89 years Series 28

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1925 1974 -7 .08 -.02 .07 .35\*-.05 .00 .04 -.09 -.13 -.02 .33|-.19 .07 .02 .08 -.18 .13 .17 -.34 -.04 .14

[B] Entire series, effect on correlation ( 0.478) is:

Lower 1948>-0.049 1961<-0.038 2003>-0.021 1937>-0.017 1930<-0.014 1936>-0.012 Higher 1923 0.048 1956 0.035

1925 to 1974 segment:

Lower 1948>-0.083 1961<-0.064 1937>-0.028 1930<-0.023 1936>-0.019 1931<-0.017 Higher 1956 0.092 1974 0.044

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1948 +3.3 SD

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32p0t802 1923 to 2011 89 years Series 29

[B] Entire series, effect on correlation ( 0.463) is:

Lower 1948>-0.025 2003>-0.024 1943<-0.023 1946>-0.013 1980<-0.012 1986>-0.010 Higher 1956 0.050 1923 0.031

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33p02722 1939 to 2011 73 years Series 30

[B] Entire series, effect on correlation ( 0.444) is:

Lower 1981>-0.033 1962>-0.021 1991<-0.015 1961<-0.014 1940>-0.014 1939>-0.013 Higher 1948 0.037 2003 0.029

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33p02721 1939 to 2011 73 years Series 31

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1939 1988 6 .18 -.16 -.11 .29 -.27 -.29 .21 .11 -.11 .06 .20|-.01 -.05 .18 -.01 .19 .35\* .12 -.10 .18 .01

1950 1999 6 .17 -.11 -.30 .21 -.25 -.25 -.03 .06 -.13 .10 .23|-.17 -.13 .26 -.04 .13 .39\* .24 .14 .08 -.08

1962 2011 0 .12 .05 -.20 .16 -.25 -.15 -.11 .06 -.05 .07 .29\* - - - - - - - - - -

[B] Entire series, effect on correlation ( 0.315) is:

Lower 1981>-0.044 1948>-0.034 1962>-0.025 1940>-0.020 1956>-0.020 1970<-0.019 Higher 2003 0.056 1958 0.031

1939 to 1988 segment:

Lower 1981>-0.051 1948>-0.039 1970<-0.030 1962>-0.029 1940>-0.023 1986>-0.018 Higher 1958 0.057 1957 0.036

1950 to 1999 segment:

Lower 1981>-0.063 1962>-0.036 1970<-0.027 1986>-0.025 1956>-0.022 1991<-0.020 Higher 1958 0.053 1957 0.033

1962 to 2011 segment:

Lower 1981>-0.071 1962>-0.040 1970<-0.026 1986>-0.024 1991<-0.021 1982>-0.018 Higher 2003 0.097 1992 0.023

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33p02662 1891 to 2011 121 years Series 32

[A] Segment High -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10

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1891 1940 3 .28 .12 .00 .14 -.29 .19 -.07 -.01 .07 -.12 .25|-.04 -.07 .31\*-.15 -.06 -.02 .01 -.27 .06 -.12

[B] Entire series, effect on correlation ( 0.353) is:

Lower 1892<-0.026 1993<-0.019 1954<-0.015 1981>-0.012 1897>-0.011 1982>-0.011 Higher 1911 0.019 1948 0.016

1891 to 1940 segment:

Lower 1892<-0.036 1897>-0.022 1937>-0.016 1893>-0.015 1915>-0.013 1923>-0.013 Higher 1911 0.047 1938 0.024

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33p02661 1891 to 2011 121 years Series 33

[B] Entire series, effect on correlation ( 0.535) is:

Lower 1921<-0.041 1897>-0.016 1939>-0.015 1982>-0.015 1972<-0.010 1928<-0.009 Higher 1911 0.022 1923 0.020

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1921 -4.9 SD

====================================================================================================================================

33p02102 1926 to 2011 86 years Series 34

[B] Entire series, effect on correlation ( 0.502) is:

Lower 1937>-0.017 1969>-0.017 2006>-0.016 1941<-0.015 1930<-0.013 2010<-0.012 Higher 1981 0.040 1984 0.020

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33p02101 1926 to 2011 86 years Series 35

[B] Entire series, effect on correlation ( 0.556) is:

Lower 1974>-0.022 1941<-0.018 1933>-0.013 2006>-0.012 1996>-0.010 1953>-0.010 Higher 1948 0.023 1984 0.018

[E] Outliers 1 3.0 SD above or -4.5 SD below mean for year

1981 -4.8 SD

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PART 7: DESCRIPTIVE STATISTICS: low 00:00 ®¯® 00 0000 Page 6

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Corr //-------- Unfiltered --------\\ //---- Filtered -----\\

No. No. No. with Mean Max Std Auto Mean Max Std Auto AR

Seq Series Interval Years Segmt Flags Master msmt msmt dev corr sens value dev corr ()

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1 03p00t72 1926 2010 85 3 0 0.437 1.53 5.09 1.118 0.925 0.252 2.50 0.450 -0.056 1

2 03p0t462 1923 2011 89 4 1 0.361 1.25 4.33 0.756 0.777 0.324 2.56 0.369 -0.108 1

3 03p0t431 1921 2009 89 4 0 0.379 0.90 2.64 0.633 0.897 0.229 2.65 0.364 -0.081 1

4 03p0t432 1921 2011 91 4 0 0.578 1.16 3.13 0.693 0.868 0.237 2.74 0.492 0.005 1

5 03p0t461 1925 2011 87 3 0 0.513 1.25 3.54 0.782 0.865 0.225 2.90 0.570 -0.097 1

6 06p03301 1934 2011 78 3 1 0.354 1.84 3.76 0.716 0.775 0.221 2.62 0.461 -0.092 1

7 06p03302 1934 2011 78 3 0 0.399 1.66 3.46 0.765 0.851 0.231 2.54 0.525 -0.082 1

8 06p0t601 1941 2011 71 3 3 0.187 1.34 4.29 1.101 0.914 0.279 2.84 0.502 0.022 1

9 06p0t602 1932 2011 80 3 3 0.161 1.23 3.97 1.068 0.932 0.246 2.44 0.376 -0.077 1

10 17p03001 1919 2011 93 4 4 0.223 1.27 3.31 0.824 0.893 0.262 2.69 0.554 -0.041 1

11 17p03002 1919 2011 93 4 4 0.087 1.77 3.82 1.072 0.882 0.262 2.46 0.447 -0.056 1

12 17p03051 1920 2011 92 4 1 0.385 1.26 3.33 0.713 0.724 0.284 2.69 0.539 -0.001 1

13 17p03052 1921 2011 91 4 0 0.415 1.65 3.59 0.851 0.761 0.241 2.57 0.439 -0.048 1

14 17p03871 1902 2011 110 4 1 0.510 1.51 6.07 1.273 0.918 0.242 2.69 0.498 -0.083 1

15 17p03872 1902 2011 110 4 1 0.412 0.95 4.45 0.915 0.930 0.231 2.55 0.419 0.006 1

16 20p0t371 1937 2011 75 3 0 0.520 1.27 2.45 0.608 0.834 0.213 2.54 0.447 -0.018 1

17 20p0t372 1937 2011 75 3 0 0.361 1.26 2.67 0.722 0.919 0.208 2.64 0.520 0.055 2

18 20p04171 1825 2011 187 7 1 0.391 1.14 3.09 0.749 0.905 0.207 3.04 0.474 -0.036 1

19 20p04172 1835 2011 177 7 1 0.458 0.99 2.53 0.545 0.877 0.201 2.47 0.356 -0.016 1

20 20p05351 1769 2011 243 9 2 0.462 1.02 4.44 0.660 0.845 0.251 2.60 0.301 -0.043 1

21 20p05352 1786 2011 226 9 0 0.577 1.05 2.95 0.678 0.907 0.235 2.50 0.314 0.008 2

22 30p0t361 1857 2011 155 6 1 0.423 1.06 2.90 0.599 0.869 0.205 2.75 0.426 0.004 1

23 30p07362 1878 2011 134 5 0 0.528 1.61 3.82 0.720 0.897 0.179 2.81 0.458 -0.001 1

24 32p0t772 1906 2011 106 4 0 0.559 1.23 3.41 0.854 0.913 0.261 2.62 0.471 -0.049 2

25 32p0t771 1906 2011 106 4 0 0.612 1.55 3.49 0.826 0.835 0.266 2.59 0.399 -0.049 4

26 32p0t542 1857 2011 155 6 2 0.363 0.84 2.40 0.618 0.926 0.242 2.51 0.311 -0.053 1

27 32p0t541 1857 2011 155 6 3 0.320 1.42 3.74 0.978 0.912 0.266 2.52 0.351 -0.026 1

28 32p0t801 1923 2011 89 4 1 0.478 1.90 4.31 0.863 0.857 0.209 2.51 0.426 -0.061 1

29 32p0t802 1923 2011 89 4 0 0.463 1.83 3.26 0.627 0.769 0.178 2.64 0.468 0.040 1

30 33p02722 1939 2011 73 3 0 0.444 1.50 3.38 0.693 0.745 0.268 2.79 0.556 0.004 2

31 33p02721 1939 2011 73 3 3 0.315 1.49 4.14 0.685 0.816 0.223 2.73 0.540 -0.020 1

32 33p02662 1891 2011 121 5 1 0.353 0.99 2.94 0.564 0.805 0.282 2.55 0.366 0.006 1

33 33p02661 1891 2011 121 5 0 0.535 0.87 2.68 0.472 0.868 0.246 2.48 0.362 -0.096 1

34 33p02102 1926 2011 86 3 0 0.502 0.93 3.51 0.883 0.950 0.222 2.70 0.407 -0.032 1

35 33p02101 1926 2011 86 3 0 0.556 1.31 4.71 1.216 0.939 0.227 2.43 0.354 0.006 1

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Total or mean: 3869 153 34 0.428 1.26 6.07 0.774 0.870 0.237 3.04 0.421 -0.032

- = [ COFECHA LOW COF ] = -