[] Dendrochronology Program Library Run 185 Program COF 10:05 Wed 30 Mar 2011 Page 1

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[] P R O G R A M C O F E C H A Version 6.06P 27849

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QUALITY CONTROL AND DATING CHECK OF TREE-RING MEASUREMENTS

File of DATED series: 185\_BNT

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 .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 1891 to 2010 120 years

Continuous time span is 1891 to 2010 120 years

Portion with two or more series is 1892 to 2010 119 years

>> 258B 1949 absent in 1 of 20 series, but is not usually narrow: master index is .739

>> 259B 1998 absent in 1 of 20 series, but is not usually narrow: master index is -.137

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

\*C\* Number of dated series 20 \*C\*

\*O\* Master series 1891 2010 120 yrs \*O\*

\*F\* Total rings in all series 1809 \*F\*

\*E\* Total dated rings checked 1808 \*E\*

\*C\* Series intercorrelation .485 \*C\*

\*H\* Average mean sensitivity .236 \*H\*

\*A\* Segments, possible problems 12 \*A\*

\*\*\* Mean length of series 90.4 \*\*\*

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

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

258B 1 absent rings: 1949

259B 8 absent rings: 1995 1996 1997 1998 2003 2004 2005 2006

260A 1 absent rings: 1997

260B 1 absent rings: 1997

11 absent rings .608%

PART 2: TIME PLOT OF TREE-RING SERIES: 10:05 Wed 30 Mar 2011 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

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

. . . . . . . . . . . . . . . . . .<=========> . 253A 1 1911 2010 100

. . . . . . . . . . . . . . . . . <==========> . 253B 2 1908 2010 103

. . . . . . . . . . . . . . . . . . <========> . 254A 3 1924 2010 87

. . . . . . . . . . . . . . . . . . <=======> . 254B 4 1931 2010 80

. . . . . . . . . . . . . . . . . . <=======> . 255A 5 1934 2010 77

. . . . . . . . . . . . . . . . . . <========> . 255B 6 1924 2010 87

. . . . . . . . . . . . . . . . . . <========> . 256A 7 1928 2010 83

. . . . . . . . . . . . . . . . . <===========> . 256B 8 1896 2010 115

. . . . . . . . . . . . . . . . . <==========> . 257A 9 1906 2010 105

. . . . . . . . . . . . . . . . . .<=========> . 257B 10 1913 2010 98

. . . . . . . . . . . . . . . . . . <======> . 258A 11 1942 2010 69

. . . . . . . . . . . . . . . . . . <=======> . 258B 12 1930 2010 81

. . . . . . . . . . . . . . . . . . <=======> . 259A 13 1938 2010 73

. . . . . . . . . . . . . . . . . . <=======> . 259B 14 1939 2010 72

. . . . . . . . . . . . . . . . . . <========> . 260A 15 1925 2010 86

. . . . . . . . . . . . . . . . . . <========> . 260B 16 1927 2010 84

. . . . . . . . . . . . . . . . . . <========> . 261A 17 1923 2010 88

. . . . . . . . . . . . . . . . . . <========> . 261B 18 1929 2010 82

. . . . . . . . . . . . . . . . . <===========> . 587A 19 1892 2010 119

. . . . . . . . . . . . . . . . . <===========> . 587B 20 1891 2010 120

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

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: 10:05 Wed 30 Mar 2011 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

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

1900 1.434 3 1950 -.221 20 2000 .637 20

1901 .381 3 1951 .611 20 2001 .844 20

1902 1.119 3 1952 .369 20 2002 -.029 20

1903 2.433 3 1953 -.095 20 2003 -1.204 20 1

1904 .319 3 1954 .923 20 2004 -.404 20 1

1905 -2.767 3 1955 .801 20 2005 -1.291 20 1

1906 -.635 4 1956 -1.854 20 2006 -1.128 20 1

1907 -.416 4 1957 .908 20 2007 .989 20

1908 -.122 5 1958 1.657 20 2008 .281 20

1909 -.307 5 1959 -.456 20 2009 .650 20

1910 1.056 5 1960 -.378 20 2010 1.101 20

1911 -1.443 6 1961 1.355 20

1912 -.401 6 1962 -.277 20

1913 .283 7 1963 .456 20

1914 -.561 7 1964 .728 20

1915 .633 7 1965 1.304 20

1916 .094 7 1966 -.340 20

1917 -1.825 7 1967 -1.083 20

1918 -4.528 7 1968 .080 20

1919 -.557 7 1969 -.434 20

1920 -.442 7 1970 .521 20

1921 -1.185 7 1971 .030 20

1922 -.752 7 1972 -.104 20

1923 -.134 8 1973 .309 20

1924 .253 10 1974 -.494 20

1925 .745 11 1975 -.607 20

1926 -.033 11 1976 -.044 20

1927 .809 12 1977 -.109 20

1928 .308 13 1978 -.147 20

1929 .652 14 1979 -.345 20

1930 .379 15 1980 .827 20

1931 1.476 16 1981 -.578 20

1932 .950 16 1982 -1.667 20

1933 .976 16 1983 -.910 20

1934 -.627 17 1984 -.812 20

1935 .341 17 1985 -.847 20

1936 .242 17 1986 -.767 20

1937 -.109 17 1987 .633 20

1938 .205 18 1988 .560 20

1939 -.131 19 1989 .202 20

1940 -.823 19 1990 1.092 20

1891 -1.316 1 1941 .680 19 1991 .248 20

1892 .125 2 1942 -.305 20 1992 1.406 20

1893 -1.126 2 1943 -.949 20 1993 1.226 20

1894 .477 2 1944 -1.149 20 1994 -.184 20

1895 .255 2 1945 .526 20 1995 -1.099 20 1

1896 .267 3 1946 -.444 20 1996 -.894 20 1

1897 1.501 3 1947 1.489 20 1997 -.639 20 3

1898 2.096 3 1948 -2.815 20 1998 -.137 20 1<<

1899 .634 3 1949 .739 20 1<< 1999 .855 20

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PART 4: Master Bar Plot: 10:05 Wed 30 Mar 2011 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

1900----------F 1950----a 2000--------C

1901------B 1951-------B 2001--------C

1902---------D 1952------A 2002----@

1903----------J 1953----@ 2003-e

1904------A 1954---------D 2004---b

1905k 1955--------C 2005-e

1906--c 1956g 2006-e

1907---b 1957---------D 2007---------D

1908----@ 1958----------G 2008------A

1909---a 1959---b 2009--------C

1910---------D 1960---b 2010---------D

1911f 1961----------E

1912---b 1962---a

1913------A 1963-------B

1914--b 1964--------C

1915--------C 1965----------E

1916-----@ 1966---a

1917g 1967-d

1918r 1968-----@

1919--b 1969---b

1920---b 1970-------B

1921-e 1971-----@

1922--c 1972----@

1923----a 1973------A

1924------A 1974---b

1925--------C 1975--b

1926----@ 1976----@

1927--------C 1977----@

1928------A 1978----a

1929--------C 1979---a

1930------B 1980--------C

1931----------F 1981--b

1932---------D 1982g

1933---------D 1983-d

1934--c 1984-c

1935------A 1985-c

1936------A 1986--c

1937----@ 1987-------C

1938------A 1988-------B

1939----a 1989------A

1940-c 1990---------D

1891e 1941--------C 1991------A

1892-----A 1942---a 1992----------F

1893-e 1943-d 1993---------E

1894-------B 1944-e 1994----a

1895------A 1945-------B 1995-d

1896------A 1946---b 1996-d

1897----------F 1947----------F 1997--c

1898----------H 1948k 1998----a

1899--------C 1949--------C 1999--------C

PART 5: CORRELATION OF SERIES BY SEGMENTS: 10:05 Wed 30 Mar 2011 Page 5

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Correlations of 50-year dated segments, lagged 25 years

Flags: A = correlation under .3281 but highest as dated; B = correlation higher at other than dated position

Seq Series Time\_span 1875 1900 1925 1950 1975

1924 1949 1974 1999 2024

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

1 253A 1911 2010 .27B .36 .50 .39

2 253B 1908 2010 .44 .33B .38 .17B

3 254A 1924 2010 .51 .55 .20B .25A

4 254B 1931 2010 .54 .33B .33

5 255A 1934 2010 .44 .37B .45

6 255B 1924 2010 .42 .47 .49 .64

7 256A 1928 2010 .61 .43 .36

8 256B 1896 2010 .57 .74 .74 .44 .38

9 257A 1906 2010 .43 .48 .43 .21A

10 257B 1913 2010 .40 .40 .59 .50

11 258A 1942 2010 .49 .29A .28A

12 258B 1930 2010 .40 .42 .43

13 259A 1938 2010 .40 .42 .40

14 259B 1939 2010 .42 .55 .39

15 260A 1925 2010 .77 .59 .44

16 260B 1927 2010 .57 .57 .53

17 261A 1923 2010 .23B .26B .71 .69

18 261B 1929 2010 .65 .53 .46

19 587A 1892 2010 .55 .77 .74 .60 .57

20 587B 1891 2010 .77 .85 .77 .57 .51

Av segment correlation .63 .50 .52 .47 .42

PART 6: POTENTIAL PROBLEMS: 10:05 Wed 30 Mar 2011 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

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

253A 1911 to 2010 100 years Series 1

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

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

1911 1960 4 .00 .12 .06 -.06 -.16 -.14 -.09 .22 -.21 -.23 .27|-.15 -.31 .13 .34\*-.22 .07 .05 .01 .12 .07

[B] Entire series, effect on correlation ( .302) is:

Lower 1914< -.035 1911> -.028 1933< -.020 1948> -.018 1980< -.010 1921> -.008 Higher 1956 .035 1958 .014

1911 to 1960 segment:

Lower 1914< -.055 1911> -.037 1933< -.031 1948> -.018 1930< -.011 1928< -.010 Higher 1956 .051 1958 .023

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

253B 1908 to 2010 103 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

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

1925 1974 -3 .03 -.14 .09 -.03 .15 -.22 -.07 .34\*-.07 -.27 .33|-.22 .04 -.07 .10 -.28 .10 .07 .17 -.20 .15

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

1961 2010 -7 .20 .11 .07 .24\* .23 .04 .03 .14 -.21 -.08 .17| - - - - - - - - - -

[B] Entire series, effect on correlation ( .364) is:

Lower 1948> -.051 1936< -.023 1996> -.017 1934> -.015 1914> -.009 1980< -.009 Higher 1918 .071 1956 .043

1925 to 1974 segment:

Lower 1948> -.103 1936< -.034 1934> -.027 1967> -.015 1966> -.011 1939> -.011 Higher 1956 .085 1959 .028

1961 to 2010 segment:

Lower 1996> -.064 1967> -.030 1980< -.029 1990< -.026 1966> -.023 1994> -.019 Higher 1982 .060 1961 .043

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

1996 +3.4 SD

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254A 1924 to 2010 87 years Series 3

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

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

1950 1999 -7 -.13 .02 -.03 .26\*-.15 -.08 .21 .09 .05 -.24 .20| .16 -.16 .14 .11 -.23 -.24 -.06 -.05 -.23 .15

1961 2010 0 -.05 .19 .03 .20 -.18 -.19 .20 .10 -.19 .09 .25\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .457) is:

Lower 1924< -.038 1956> -.030 2009< -.028 1963< -.019 1937< -.018 1965< -.013 Higher 1948 .206 1992 .011

1950 to 1999 segment:

Lower 1963< -.042 1956> -.036 1993< -.028 1965< -.027 1996> -.023 1962> -.020 Higher 1992 .044 1957 .035

1961 to 2010 segment:

Lower 2009< -.064 1963< -.043 1965< -.030 1993< -.030 1996> -.025 1962> -.023 Higher 1992 .043 2007 .042

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

254B 1931 to 2010 80 years Series 4

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

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

1950 1999 3 .00 .10 -.08 .21 -.31 -.10 .12 .03 .02 -.16 .33| .08 -.16 .35\* .07 -.25 -.04 -.01 -.19 -.01 .16

[B] Entire series, effect on correlation ( .533) is:

Lower 1993< -.036 1937< -.023 1974> -.022 1971< -.019 1940> -.017 1943> -.011 Higher 1948 .172 1958 .012

1950 to 1999 segment:

Lower 1993< -.073 1974> -.042 1971< -.033 1970< -.022 1962> -.020 1963< -.017 Higher 1961 .037 1958 .037

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

255A 1934 to 2010 77 years Series 5

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

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

1950 1999 -7 .11 -.05 -.10 .39\*-.16 -.11 -.08 -.03 .05 -.24 .37| .19 -.27 .07 .16 -.19 -.16 .09 -.16 -.07 .02

[B] Entire series, effect on correlation ( .401) is:

Lower 1955< -.106 2010< -.060 1939> -.019 1959> -.012 1958< -.012 2006> -.009 Higher 1948 .089 1956 .032

1950 to 1999 segment:

Lower 1955< -.191 1959> -.027 1958< -.019 1978> -.015 1960> -.013 1975> -.010 Higher 1956 .062 1982 .046

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

1955 -4.6 SD

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255B 1924 to 2010 87 years Series 6

[B] Entire series, effect on correlation ( .483) is:

Lower 1939< -.081 1924< -.041 1956> -.024 1959> -.020 1941< -.013 1944> -.010 Higher 1948 .108 1957 .013

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256A 1928 to 2010 83 years Series 7

[B] Entire series, effect on correlation ( .549) is:

Lower 1996> -.027 1934< -.021 1956> -.018 1942< -.014 1970< -.012 2010< -.012 Higher 1948 .090 1959 .013

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256B 1896 to 2010 115 years Series 8

[B] Entire series, effect on correlation ( .598) is:

Lower 1981> -.023 1896< -.017 1962> -.011 1990< -.010 1899> -.010 1957< -.010 Higher 1948 .093 1918 .025

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257A 1906 to 2010 105 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

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

1961 2010 0 -.15 .00 -.05 -.02 .19 -.14 -.01 .04 .00 .04 .21\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .366) is:

Lower 2000< -.056 1968< -.022 1959> -.015 1906> -.013 1909< -.011 1994> -.009 Higher 1956 .025 1911 .020

1961 to 2010 segment:

Lower 2000< -.123 1968< -.046 1994> -.028 1974> -.028 2008> -.020 1980< -.014 Higher 2007 .028 1982 .028

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

1906 +3.5 SD

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257B 1913 to 2010 98 years Series 10

[B] Entire series, effect on correlation ( .437) is:

Lower 1948> -.050 1932< -.023 1961< -.017 1918> -.012 1946< -.011 1935< -.010 Higher 1956 .053 1917 .019

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

1946 -4.8 SD

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258A 1942 to 2010 69 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

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

1950 1999 0 .08 -.06 .08 .13 -.04 .14 -.26 .03 -.22 -.04 .29\*-.07 -.12 .11 -.20 -.02 .23 .23 .16 .11 .06

1961 2010 0 .17 .05 -.04 .12 .06 -.10 -.35 .09 -.03 -.10 .28\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .483) is:

Lower 1982> -.040 1959> -.030 1976< -.020 1950> -.013 2009< -.013 1988< -.012 Higher 1948 .140 1956 .021

1950 to 1999 segment:

Lower 1982> -.062 1959> -.045 1976< -.025 1950> -.019 1988< -.017 1985> -.015 Higher 1956 .064 1965 .028

1961 to 2010 segment:

Lower 1982> -.077 1976< -.028 2009< -.021 1988< -.019 1985> -.018 1986> -.017 Higher 1965 .034 2007 .024

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258B 1930 to 2010 81 years Series 12

[B] Entire series, effect on correlation ( .242) is:

Lower 1949< -.144 1982> -.024 1934> -.022 1931< -.015 1988< -.015 1976< -.012 Higher 1948 .045 1956 .022

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

1948 1949 -6.2 SD 1949 1950 4.5 SD

[D] 1 Absent rings: Year Master N series Absent

1949 .739 20 1 >> WARNING: Ring is not usually narrow

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

1949 -6.9 SD

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259A 1938 to 2010 73 years Series 13

[B] Entire series, effect on correlation ( .392) is:

Lower 1938< -.055 1952< -.019 1990< -.016 1948> -.014 2008< -.012 1963< -.012 Higher 1982 .029 1956 .029

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259B 1939 to 2010 72 years Series 14

[B] Entire series, effect on correlation ( .452) is:

Lower 1948> -.074 1939> -.026 1963< -.020 1969> -.015 1974> -.015 1994> -.014 Higher 1956 .077 1982 .020

[D] 8 Absent rings: Year Master N series Absent

1995 -1.099 20 1

1996 -.894 20 1

1997 -.639 20 3

1998 -.137 20 1 >> WARNING: Ring is not usually narrow

2003 -1.204 20 1

2004 -.404 20 1

2005 -1.291 20 1

2006 -1.128 20 1

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

260A 1925 to 2010 86 years Series 15

[B] Entire series, effect on correlation ( .659) is:

Lower 1925< -.020 1958< -.015 1983> -.012 1994> -.011 1997< -.011 1980< -.011 Higher 1948 .119 1956 .019

[D] 1 Absent rings: Year Master N series Absent

1997 -.639 20 3

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260B 1927 to 2010 84 years Series 16

[B] Entire series, effect on correlation ( .553) is:

Lower 1969> -.017 1940< -.017 1997< -.017 1927< -.016 1930< -.015 1956> -.014 Higher 1948 .034 1947 .013

[D] 1 Absent rings: Year Master N series Absent

1997 -.639 20 3

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

261A 1923 to 2010 88 years Series 17

[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 10 .04 -.28 .14 -.15 .16 .01 .01 .08 -.09 -.06 .23|-.04 -.05 .12 -.09 .07 .05 -.17 .02 -.04 .30\*

1925 1974 10 .07 -.30 .17 -.18 .09 -.14 .05 .08 -.16 -.06 .26|-.03 -.03 .11 -.06 .08 .08 -.17 .06 -.03 .33\*

[B] Entire series, effect on correlation ( .339) is:

Lower 1948> -.100 1938< -.060 1923< -.027 1947< -.021 1934> -.016 1944> -.009 Higher 1956 .067 1982 .031

1923 to 1972 segment:

Lower 1948> -.118 1938< -.076 1923< -.034 1947< -.026 1934> -.022 1944> -.012 Higher 1956 .117 1961 .020

1925 to 1974 segment:

Lower 1948> -.119 1938< -.095 1947< -.030 1934> -.021 1944> -.011 1954< -.010 Higher 1956 .120 1961 .019

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

1947 1948 4.7 SD

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261B 1929 to 2010 82 years Series 18

[B] Entire series, effect on correlation ( .627) is:

Lower 1962> -.021 1934> -.019 1973< -.018 1972> -.015 1942> -.014 1944> -.011 Higher 1948 .148 1956 .031

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587A 1892 to 2010 119 years Series 19

[B] Entire series, effect on correlation ( .647) is:

Lower 1892< -.019 1896> -.018 1893> -.011 1917> -.011 1915< -.011 1967> -.008 Higher 1948 .077 1918 .036

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587B 1891 to 2010 120 years Series 20

[\*] Early part of series cannot be checked from 1891 to 1891 -- not matched by another series

[B] Entire series, effect on correlation ( .698) is:

Lower 1956> -.023 1892> -.017 2009< -.010 2003> -.009 1982> -.009 2000> -.007 Higher 1948 .058 1918 .036

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PART 7: DESCRIPTIVE STATISTICS: 10:05 Wed 30 Mar 2011 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 ()

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

1 253A 1911 2010 100 4 1 .302 1.45 3.62 .992 .933 .212 2.51 .424 -.070 1

2 253B 1908 2010 103 4 2 .364 1.50 3.37 .806 .860 .206 2.66 .409 -.020 3

3 254A 1924 2010 87 4 2 .457 1.40 3.78 .932 .942 .225 2.53 .380 -.099 1

4 254B 1931 2010 80 3 1 .533 1.46 4.27 .947 .906 .250 2.54 .412 -.062 1

5 255A 1934 2010 77 3 1 .401 1.84 4.47 .857 .774 .261 2.73 .466 .007 1

6 255B 1924 2010 87 4 0 .483 1.48 3.77 .807 .852 .227 2.64 .392 -.074 1

7 256A 1928 2010 83 3 0 .549 1.58 3.19 .880 .865 .217 2.66 .460 -.048 1

8 256B 1896 2010 115 5 0 .598 .91 3.14 .522 .846 .214 2.38 .310 -.011 1

9 257A 1906 2010 105 4 1 .366 .94 2.52 .607 .880 .242 2.65 .494 -.071 1

10 257B 1913 2010 98 4 0 .437 1.65 3.83 .803 .820 .205 2.77 .450 .002 2

11 258A 1942 2010 69 3 2 .483 2.31 3.35 .598 .591 .197 2.62 .555 -.084 1

12 258B 1930 2010 81 3 0 .242 1.49 4.00 .764 .797 .273 2.42 .392 .020 1

13 259A 1938 2010 73 3 0 .392 1.83 4.04 .892 .848 .213 2.73 .545 .067 1

14 259B 1939 2010 72 3 0 .452 .89 2.79 .810 .898 .414 2.84 .457 -.020 1

15 260A 1925 2010 86 3 0 .659 1.18 3.95 1.018 .941 .263 2.54 .412 .003 1

16 260B 1927 2010 84 3 0 .553 1.40 3.08 .895 .941 .267 2.64 .530 -.065 1

17 261A 1923 2010 88 4 2 .339 1.85 4.07 .893 .837 .194 2.61 .461 .063 1

18 261B 1929 2010 82 3 0 .627 1.50 4.03 .768 .859 .233 2.47 .387 -.024 1

19 587A 1892 2010 119 5 0 .647 .88 2.15 .520 .884 .220 2.50 .334 -.070 1

20 587B 1891 2010 120 5 0 .698 1.15 2.70 .613 .831 .241 2.78 .433 -.003 1

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Total or mean: 1809 73 12 .485 1.40 4.47 .783 .858 .236 2.84 .430 -.029

- = [ COFECHA 185 COF ] = -