[] Dendrochronology Program Library Run 27\_GR Program COF 11:20 Tue 15 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 27834

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QUALITY CONTROL AND DATING CHECK OF TREE-RING MEASUREMENTS

File of DATED series: 27\_GRY

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 1911 to 2010 100 years

Continuous time span is 1911 to 2010 100 years

Portion with two or more series is 1915 to 2010 96 years

>> 242B 2009 absent in 7 of 24 series, but is not usually narrow: master index is -.086

>> 242B 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 248B 2008 absent in 3 of 24 series, but is not usually narrow: master index is .166

>> 248B 2009 absent in 7 of 24 series, but is not usually narrow: master index is -.086

>> 248B 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 249A 2008 absent in 3 of 24 series, but is not usually narrow: master index is .166

>> 249A 2009 absent in 7 of 24 series, but is not usually narrow: master index is -.086

>> 249A 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 249B 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 250A 2009 absent in 7 of 24 series, but is not usually narrow: master index is -.086

>> 250A 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 250B 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 588A 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 588B 2009 absent in 7 of 24 series, but is not usually narrow: master index is -.086

>> 588B 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 243B 2009 absent in 7 of 24 series, but is not usually narrow: master index is -.086

>> 243B 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 600A 2007 absent in 1 of 24 series, but is not usually narrow: master index is 1.005

>> 600A 2008 absent in 3 of 24 series, but is not usually narrow: master index is .166

>> 600A 2009 absent in 7 of 24 series, but is not usually narrow: master index is -.086

>> 600A 2010 absent in 10 of 24 series, but is not usually narrow: master index is 1.348

>> 600B 1995 absent in 1 of 24 series, but is not usually narrow: master index is -.356

>> 600B 1999 absent in 1 of 24 series, but is not usually narrow: master index is -.296

>> 600B 2000 absent in 1 of 24 series, but is not usually narrow: master index is -.096

>> 600B 2001 absent in 1 of 24 series, but is not usually narrow: master index is .558

>> 600B 2002 absent in 1 of 24 series, but is not usually narrow: master index is 1.199

>> 600B 2003 absent in 1 of 24 series, but is not usually narrow: master index is -.322

>> 600B 2004 absent in 1 of 24 series, but is not usually narrow: master index is .151

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

\*C\* Number of dated series 24 \*C\*

\*O\* Master series 1911 2010 100 yrs \*O\*

\*F\* Total rings in all series 1912 \*F\*

\*E\* Total dated rings checked 1908 \*E\*

\*C\* Series intercorrelation .580 \*C\*

\*H\* Average mean sensitivity .270 \*H\*

\*A\* Segments, possible problems 1 \*A\*

\*\*\* Mean length of series 79.7 \*\*\*

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

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

242B 2 absent rings: 2009 2010

248B 3 absent rings: 2008 2009 2010

249A 3 absent rings: 2008 2009 2010

249B 1 absent rings: 2010

250A 2 absent rings: 2009 2010

250B 1 absent rings: 2010

588A 1 absent rings: 2010

588B 2 absent rings: 2009 2010

243B 2 absent rings: 2009 2010

600A 4 absent rings: 2007 2008 2009 2010

600B 11 absent rings: 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004

248A 1 absent rings: 1996

33 absent rings 1.726%

PART 2: TIME PLOT OF TREE-RING SERIES: 11:20 Tue 15 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

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

. . . . . . . . . . . . . . . . . . <=======> . 242A 1 1937 2010 74

. . . . . . . . . . . . . . . . . . <=======> . 242B 2 1939 2010 72

. . . . . . . . . . . . . . . . . . <======> . 243A 3 1942 2010 69

. . . . . . . . . . . . . . . . . . <========> . 244A 4 1927 2010 84

. . . . . . . . . . . . . . . . . . <========> . 244B 5 1921 2010 90

. . . . . . . . . . . . . . . . . . <========> . 245A 6 1920 2010 91

. . . . . . . . . . . . . . . . . .<=========> . 245B 7 1915 2010 96

. . . . . . . . . . . . . . . . . . <========> . 246A 8 1927 2010 84

. . . . . . . . . . . . . . . . . . <========> . 246B 9 1922 2010 89

. . . . . . . . . . . . . . . . . . <=======> . 247A 10 1935 2010 76

. . . . . . . . . . . . . . . . . . <=======> . 247B 11 1935 2010 76

. . . . . . . . . . . . . . . . . .<=========> . 248B 12 1911 2010 100

. . . . . . . . . . . . . . . . . . <======> . 249A 13 1943 2010 68

. . . . . . . . . . . . . . . . . . <======> . 249B 14 1948 2010 63

. . . . . . . . . . . . . . . . . . <========> . 250A 15 1927 2010 84

. . . . . . . . . . . . . . . . . . <========> . 250B 16 1928 2010 83

. . . . . . . . . . . . . . . . . . <========> . 251A 17 1928 2010 83

. . . . . . . . . . . . . . . . . . <========> . 251B 18 1928 2010 83

. . . . . . . . . . . . . . . . . . <=====> . 588A 19 1955 2010 56

. . . . . . . . . . . . . . . . . . <======> . 588B 20 1946 2010 65

. . . . . . . . . . . . . . . . . . <========> . 243B 21 1928 2010 83

. . . . . . . . . . . . . . . . . . <=======> . 600A 22 1930 2010 81

. . . . . . . . . . . . . . . . . . <========> . 600B 23 1926 2010 85

. . . . . . . . . . . . . . . . . . <=======> . 248A 24 1934 2010 77

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

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: 11:20 Tue 15 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

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1950 -1.419 23 2000 -.096 24 1<<

1951 -.272 23 2001 .558 24 1<<

1952 .408 23 2002 1.199 24 1<<

1953 .542 23 2003 -.322 24 1<<

1954 .924 23 2004 .151 24 1<<

1955 .722 24 2005 -.314 24

1956 -1.211 24 2006 .036 24

1957 1.288 24 2007 1.005 24 1<<

1958 1.380 24 2008 .166 24 3<<

1959 .342 24 2009 -.086 24 7<<

1960 .675 24 2010 1.348 24 10<<

1911 .059 1 1961 1.116 24

1912 -1.945 1 1962 -.697 24

1913 -1.360 1 1963 -.236 24

1914 1.171 1 1964 -2.101 24

1915 1.684 2 1965 -.311 24

1916 .567 2 1966 -.798 24

1917 -.859 2 1967 -1.386 24

1918 .492 2 1968 -.469 24

1919 .951 2 1969 1.302 24

1920 -.696 3 1970 1.499 24

1921 -1.642 4 1971 1.513 24

1922 .972 5 1972 -.046 24

1923 .549 5 1973 .027 24

1924 .684 5 1974 -.021 24

1925 1.144 5 1975 -.090 24

1926 -1.434 6 1976 .610 24

1927 -.145 9 1977 .495 24

1928 .420 13 1978 -.623 24

1929 -.071 13 1979 -1.605 24

1930 .920 14 1980 -.865 24

1931 1.318 14 1981 -1.465 24

1932 1.780 14 1982 -.018 24

1933 -2.416 14 1983 -.469 24

1934 -1.547 15 1984 -2.248 24

1935 .049 17 1985 -.074 24

1936 -.453 17 1986 .742 24

1937 -.599 18 1987 .511 24

1938 .497 18 1988 .307 24

1939 -2.132 19 1989 .148 24

1940 .880 19 1990 1.547 24

1941 1.076 19 1991 1.252 24

1942 .873 20 1992 1.565 24

1943 -1.278 21 1993 .217 24

1944 -.659 21 1994 -.568 24 1

1945 .544 21 1995 -.356 24 1<<

1946 .017 22 1996 -1.171 24 2

1947 .541 22 1997 -1.157 24 1

1948 -1.063 23 1998 -.580 24 1

1949 -1.115 23 1999 -.296 24 1<<

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PART 4: Master Bar Plot: 11:20 Tue 15 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

1950-f 2000----@

1951---a 2001-------B

1952------B 2002---------E

1953-------B 2003---a

1954--------D 2004-----A

1955--------C 2005---a

1956-e 2006-----@

1957---------E 2007--------D

1958----------F 2008-----A

1959------A 2009----@

1960-------C 2010----------E

1911-----@ 1961---------D

1912h 1962--c

1913-e 1963---a

1914---------E 1964h

1915----------G 1965---a

1916-------B 1966--c

1917--c 1967-f

1918-------B 1968---b

1919--------D 1969---------E

1920--c 1970----------F

1921g 1971----------F

1922--------D 1972----@

1923-------B 1973-----@

1924-------C 1974-----@

1925---------E 1975----@

1926f 1976-------B

1927----a 1977-------B

1928------B 1978--b

1929----@ 1979f

1930--------D 1980--c

1931---------E 1981f

1932----------G 1982-----@

1933j 1983---b

1934f 1984i

1935-----@ 1985----@

1936---b 1986--------C

1937--b 1987-------B

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

1939i 1989-----A

1940--------D 1990----------F

1941---------D 1991---------E

1942--------C 1992----------F

1943-e 1993-----A

1944--c 1994--b

1945-------B 1995---a

1946-----@ 1996-e

1947-------B 1997-e

1948-d 1998--b

1949-d 1999---a

PART 5: CORRELATION OF SERIES BY SEGMENTS: 11:20 Tue 15 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 1900 1925 1950 1975

1949 1974 1999 2024

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

1 242A 1937 2010 .67 .63 .62

2 242B 1939 2010 .62 .52 .52

3 243A 1942 2010 .60 .60 .65

4 244A 1927 2010 .79 .42 .45

5 244B 1921 2010 .59 .68 .58 .50

6 245A 1920 2010 .73 .74 .61 .54

7 245B 1915 2010 .57 .71 .76 .72

8 246A 1927 2010 .77 .57 .54

9 246B 1922 2010 .80 .79 .65 .60

10 247A 1935 2010 .52 .66 .68

11 247B 1935 2010 .56 .56 .59

12 248B 1911 2010 .58 .69 .46 .47

13 249A 1943 2010 .42 .34 .40

14 249B 1948 2010 .57 .57 .54

15 250A 1927 2010 .82 .81 .73

16 250B 1928 2010 .69 .75 .70

17 251A 1928 2010 .79 .69 .71

18 251B 1928 2010 .55 .64 .67

19 588A 1955 2010 .52 .51

20 588B 1946 2010 .64 .59 .56

21 243B 1928 2010 .41 .69 .59

22 600A 1930 2010 .86 .79 .46

23 600B 1926 2010 .84 .69 .58

24 248A 1934 2010 .33 .31A .43

Av segment correlation .65 .65 .60 .57

PART 6: POTENTIAL PROBLEMS: 11:20 Tue 15 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

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

242A 1937 to 2010 74 years Series 1

[B] Entire series, effect on correlation ( .648) is:

Lower 1992< -.025 2006< -.013 1972> -.011 1965< -.010 1981> -.009 1943> -.009 Higher 1964 .016 1990 .012

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

242B 1939 to 2010 72 years Series 2

[B] Entire series, effect on correlation ( .584) is:

Lower 2009< -.042 1981> -.025 1965< -.015 2008> -.014 1972> -.012 1958< -.010 Higher 1939 .058 2010 .020

[D] 2 Absent rings: Year Master N series Absent

2009 -.086 24 7 >> WARNING: Ring is not usually narrow

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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

243A 1942 to 2010 69 years Series 3

[B] Entire series, effect on correlation ( .615) is:

Lower 1948> -.023 1981> -.021 1952< -.019 1991< -.012 1972> -.011 1993> -.010 Higher 1943 .025 1964 .019

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

244A 1927 to 2010 84 years Series 4

[B] Entire series, effect on correlation ( .615) is:

Lower 1990< -.058 1952< -.029 1956> -.021 1981< -.018 1978> -.014 2008< -.012 Higher 1933 .122 1943 .010

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244B 1921 to 2010 90 years Series 5

[B] Entire series, effect on correlation ( .577) is:

Lower 1921< -.050 1926> -.026 1964> -.021 1967> -.016 2006> -.012 2007< -.011 Higher 1933 .111 1957 .012

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

245A 1920 to 2010 91 years Series 6

[B] Entire series, effect on correlation ( .648) is:

Lower 1973< -.031 1939> -.020 1962> -.019 1921> -.018 1920> -.017 1923< -.012 Higher 1933 .075 1926 .020

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

245B 1915 to 2010 96 years Series 7

[B] Entire series, effect on correlation ( .613) is:

Lower 1916< -.049 1921> -.027 1947< -.011 2005< -.008 1996> -.008 1918> -.007 Higher 1984 .021 1943 .014

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

246A 1927 to 2010 84 years Series 8

[B] Entire series, effect on correlation ( .693) is:

Lower 2006< -.025 1969< -.021 1981> -.014 1978> -.013 1954< -.012 1998< -.011 Higher 1933 .089 1984 .020

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

246B 1922 to 2010 89 years Series 9

[B] Entire series, effect on correlation ( .697) is:

Lower 1925< -.025 2006< -.021 1977< -.021 1981> -.020 1978> -.009 1934> -.007 Higher 1933 .054 1984 .017

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247A 1935 to 2010 76 years Series 10

[B] Entire series, effect on correlation ( .551) is:

Lower 1939> -.033 1936> -.029 1938< -.027 1937> -.013 1941< -.011 1980> -.008 Higher 1964 .047 1943 .027

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247B 1935 to 2010 76 years Series 11

[B] Entire series, effect on correlation ( .527) is:

Lower 1996> -.036 1939> -.034 1956> -.024 1975< -.019 1936> -.017 1980< -.011 Higher 1964 .042 1984 .019

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

248B 1911 to 2010 100 years Series 12

[\*] Early part of series cannot be checked from 1911 to 1914 -- not matched by another series

[B] Entire series, effect on correlation ( .516) is:

Lower 1916> -.047 1953< -.034 2010< -.013 1987< -.011 1922< -.011 1948> -.011 Higher 1933 .113 1926 .019

[D] 3 Absent rings: Year Master N series Absent

2008 .166 24 3 >> WARNING: Ring is not usually narrow

2009 -.086 24 7 >> WARNING: Ring is not usually narrow

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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

1916 +3.9 SD

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249A 1943 to 2010 68 years Series 13

[B] Entire series, effect on correlation ( .353) is:

Lower 1955< -.085 1988< -.036 2010< -.024 1948> -.015 1983> -.014 1986< -.014 Higher 1984 .052 1964 .048

[D] 3 Absent rings: Year Master N series Absent

2008 .166 24 3 >> WARNING: Ring is not usually narrow

2009 -.086 24 7 >> WARNING: Ring is not usually narrow

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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

249B 1948 to 2010 63 years Series 14

[B] Entire series, effect on correlation ( .397) is:

Lower 2010< -.144 1985< -.018 2004< -.016 1958< -.015 1978> -.015 1996> -.014 Higher 1984 .088 1964 .043

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

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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250A 1927 to 2010 84 years Series 15

[B] Entire series, effect on correlation ( .697) is:

Lower 2009< -.065 2008> -.027 1943> -.016 2010< -.012 1927< -.006 1982< -.005 Higher 1933 .056 1956 .011

[D] 2 Absent rings: Year Master N series Absent

2009 -.086 24 7 >> WARNING: Ring is not usually narrow

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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

250B 1928 to 2010 83 years Series 16

[B] Entire series, effect on correlation ( .644) is:

Lower 2010< -.045 1943> -.027 1939< -.026 1954< -.006 1951< -.006 2009> -.005 Higher 1933 .046 1956 .011

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

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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

1939 -5.9 SD

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

251A 1928 to 2010 83 years Series 17

[B] Entire series, effect on correlation ( .745) is:

Lower 1960< -.024 2006> -.013 1944> -.009 1974< -.008 1987> -.008 1986< -.007 Higher 1933 .067 1984 .011

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251B 1928 to 2010 83 years Series 18

[B] Entire series, effect on correlation ( .589) is:

Lower 1956< -.045 2009< -.018 1962> -.015 1943> -.012 1958< -.011 1933> -.010 Higher 1990 .013 1964 .012

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588A 1955 to 2010 56 years Series 19

[B] Entire series, effect on correlation ( .306) is:

Lower 2010< -.171 1996> -.029 1957< -.020 1967> -.018 1959< -.015 2009> -.011 Higher 1962 .039 1964 .037

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

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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588B 1946 to 2010 65 years Series 20

[B] Entire series, effect on correlation ( .521) is:

Lower 2010< -.031 2009< -.029 1992< -.024 1981> -.018 1950> -.017 1996> -.016 Higher 1964 .065 1962 .021

[D] 2 Absent rings: Year Master N series Absent

2009 -.086 24 7 >> WARNING: Ring is not usually narrow

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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243B 1928 to 2010 83 years Series 21

[B] Entire series, effect on correlation ( .428) is:

Lower 1933> -.132 1937< -.024 2009< -.015 1962> -.010 1938< -.010 2008> -.010 Higher 1943 .029 1956 .026

[D] 2 Absent rings: Year Master N series Absent

2009 -.086 24 7 >> WARNING: Ring is not usually narrow

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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

1933 +3.8 SD

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600A 1930 to 2010 81 years Series 22

[B] Entire series, effect on correlation ( .671) is:

Lower 2003> -.047 2002< -.035 2007< -.031 2001< -.017 2000> -.017 1984> -.010 Higher 1933 .103 1956 .011

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

2002 2003 4.3 SD

[D] 4 Absent rings: Year Master N series Absent

2007 1.005 24 1 >> WARNING: Ring is not usually narrow

2008 .166 24 3 >> WARNING: Ring is not usually narrow

2009 -.086 24 7 >> WARNING: Ring is not usually narrow

2010 1.348 24 10 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

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

600B 1926 to 2010 85 years Series 23

[B] Entire series, effect on correlation ( .737) is:

Lower 1994< -.016 1964> -.015 2006> -.014 1987< -.012 2002< -.011 1926> -.011 Higher 1933 .081 1939 .010

[D] 11 Absent rings: Year Master N series Absent

1994 -.568 24 1

1995 -.356 24 1 >> WARNING: Ring is not usually narrow

1996 -1.171 24 2

1997 -1.157 24 1

1998 -.580 24 1

1999 -.296 24 1 >> WARNING: Ring is not usually narrow

2000 -.096 24 1 >> WARNING: Ring is not usually narrow

2001 .558 24 1 >> WARNING: Ring is not usually narrow

2002 1.199 24 1 >> WARNING: Ring is not usually narrow

2003 -.322 24 1 >> WARNING: Ring is not usually narrow

2004 .151 24 1 >> WARNING: Ring is not usually narrow

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

248A 1934 to 2010 77 years Series 24

[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 -.12 -.23 -.18 -.06 -.03 -.03 -.01 .04 -.05 -.05 .31\* .27 .24 .17 .05 -.13 -.07 -.19 -.28 .07 -.03

[B] Entire series, effect on correlation ( .337) is:

Lower 1984> -.022 1950> -.021 1956> -.019 1934> -.017 1945< -.013 1991< -.011 Higher 1962 .022 2010 .020

1950 to 1999 segment:

Lower 1984> -.033 1950> -.031 1956> -.029 1991< -.017 1955< -.017 1999> -.011 Higher 1962 .034 1990 .026

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

1996 -1.171 24 2

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

1934 +3.3 SD

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PART 7: DESCRIPTIVE STATISTICS: 11:20 Tue 15 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 242A 1937 2010 74 3 0 .648 1.83 3.74 .782 .806 .226 2.40 .328 -.068 1

2 242B 1939 2010 72 3 0 .584 2.37 6.21 1.366 .792 .292 2.91 .411 -.013 1

3 243A 1942 2010 69 3 0 .615 2.08 4.87 1.042 .786 .275 2.60 .477 .017 1

4 244A 1927 2010 84 3 0 .615 1.34 3.25 .648 .798 .266 2.50 .434 -.033 1

5 244B 1921 2010 90 4 0 .577 1.16 2.75 .563 .797 .211 2.74 .453 -.017 1

6 245A 1920 2010 91 4 0 .648 1.37 4.29 1.061 .909 .274 2.69 .505 .022 1

7 245B 1915 2010 96 4 0 .613 1.41 3.60 .851 .886 .249 2.66 .484 .000 1

8 246A 1927 2010 84 3 0 .693 1.96 5.12 1.288 .882 .240 2.55 .460 -.055 2

9 246B 1922 2010 89 4 0 .697 1.52 3.89 .729 .744 .240 2.66 .556 -.091 1

10 247A 1935 2010 76 3 0 .551 1.52 4.99 .862 .841 .224 2.66 .448 -.008 1

11 247B 1935 2010 76 3 0 .527 1.76 4.52 .965 .840 .241 2.70 .627 .060 2

12 248B 1911 2010 100 4 0 .516 1.51 5.66 1.389 .892 .301 2.78 .450 -.039 1

13 249A 1943 2010 68 3 0 .353 1.43 4.32 1.202 .932 .269 2.55 .522 -.010 1

14 249B 1948 2010 63 3 0 .397 1.83 5.44 1.248 .913 .313 3.02 .558 .024 1

15 250A 1927 2010 84 3 0 .697 1.70 3.92 1.175 .878 .321 2.80 .517 -.071 1

16 250B 1928 2010 83 3 0 .644 1.51 3.60 1.068 .896 .289 2.45 .324 -.098 1

17 251A 1928 2010 83 3 0 .745 1.68 4.05 1.170 .872 .275 2.62 .483 -.030 1

18 251B 1928 2010 83 3 0 .589 1.74 4.69 1.242 .904 .233 2.71 .348 -.076 1

19 588A 1955 2010 56 2 0 .306 2.32 5.88 1.494 .843 .335 2.70 .520 -.142 1

20 588B 1946 2010 65 3 0 .521 2.43 4.51 1.116 .795 .254 2.61 .561 .026 1

21 243B 1928 2010 83 3 0 .428 1.31 3.34 .850 .895 .310 2.51 .558 -.086 2

22 600A 1930 2010 81 3 0 .671 1.60 4.28 1.216 .875 .310 2.71 .445 .087 1

23 600B 1926 2010 85 3 0 .737 1.11 3.37 .849 .867 .263 2.65 .423 -.010 1

24 248A 1934 2010 77 3 1 .337 1.09 4.61 1.094 .952 .281 2.45 .373 -.026 1

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Total or mean: 1912 76 1 .580 1.62 6.21 1.042 .859 .270 3.02 .468 -.027

- = [ COFECHA 27\_GRCOF ] = -