[] Dendrochronology Program Library Run CH\_H Program COF 14:56 Wed 24 Jan 2007 Page 1

[] P R O G R A M C O F E C H A Version 6.06P 26323

QUALITY CONTROL AND DATING CHECK OF TREE-RING MEASUREMENTS

Title of run: Camel's Hump-High Corr4-30

File of DATED series: ch\_high\_compact\_corr4.dta

RUN CONTROL OPTIONS SELECTED VALUE

1 Cubic smoothing spline 50% wavelength cutoff for filtering

2 Segments examined are 30 years lagged successively by 15 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 .4226

6 Master dating series saved N

7 Ring measurements listed Y

8 Parts printed 1234567

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

Time span of Master dating series is 1908 to 2006 99 years

Continuous time span is 1908 to 2006 99 years

Portion with two or more series is 1910 to 2006 97 years

>> 171a 2005 absent in 4 of 20 series, but is not usually narrow: master index is 1.324

>> 171a 2006 absent in 9 of 20 series, but is not usually narrow: master index is .526

>> 171b 1999 absent in 1 of 20 series, but is not usually narrow: master index is .270

>> 171b 2005 absent in 4 of 20 series, but is not usually narrow: master index is 1.324

>> 171b 2006 absent in 9 of 20 series, but is not usually narrow: master index is .526

>> 173a 2006 absent in 9 of 20 series, but is not usually narrow: master index is .526

>> 173b 2003 absent in 2 of 20 series, but is not usually narrow: master index is -.386

>> 174b 2006 absent in 9 of 20 series, but is not usually narrow: master index is .526

>> 176a 2006 absent in 9 of 20 series, but is not usually narrow: master index is .526

>> 176b 2006 absent in 9 of 20 series, but is not usually narrow: master index is .526

>> 177b 2003 absent in 2 of 20 series, but is not usually narrow: master index is -.386

>> 177b 2004 absent in 1 of 20 series, but is not usually narrow: master index is .379

>> 177b 2005 absent in 4 of 20 series, but is not usually narrow: master index is 1.324

>> 177b 2006 absent in 9 of 20 series, but is not usually narrow: master index is .526

>> 178a 2006 absent in 9 of 20 series, but is not usually narrow: master index is .526

>> 178b 2005 absent in 4 of 20 series, but is not usually narrow: master index is 1.324

>> 178b 2006 absent in 9 of 20 series, but is not usually narrow: master index is .526

>> 179a 1993 absent in 2 of 20 series, but is not usually narrow: master index is -.223

>> 179b 1993 absent in 2 of 20 series, but is not usually narrow: master index is -.223

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

171a 2 absent rings: 2005 2006

171b 3 absent rings: 1999 2005 2006

173a 1 absent rings: 2006

173b 1 absent rings: 2003

174b 1 absent rings: 2006

176a 1 absent rings: 2006

176b 1 absent rings: 2006

177b 4 absent rings: 2003 2004 2005 2006

178a 1 absent rings: 2006

178b 2 absent rings: 2005 2006

179a 1 absent rings: 1993

179b 1 absent rings: 1993

19 absent rings 1.039%

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

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

1950 -.318 20 2000 -.880 20

1951 .026 20 2001 -.641 20

1952 1.391 20 2002 -.491 20

1953 .228 20 2003 -.386 20 2<<

1954 .844 20 2004 .379 20 1<<

1955 1.331 20 2005 1.324 20 4<<

1956 1.064 20 2006 .526 20 9<<

1957 -1.088 20

1908 .012 1 1958 -1.167 20

1909 -.042 1 1959 -.299 20

1910 -3.096 3 1960 .920 20

1911 -.553 6 1961 1.596 20

1912 -.943 8 1962 -.241 20

1913 -.622 9 1963 .758 20

1914 1.228 9 1964 .306 20

1915 .577 9 1965 .393 20

1916 -.756 13 1966 -.432 20

1917 -.070 16 1967 .115 20

1918 .073 16 1968 -.989 20

1919 -.183 17 1969 .295 20

1920 .133 18 1970 .467 20

1921 .088 18 1971 -.097 20

1922 .197 18 1972 -.023 20

1923 .008 18 1973 .291 20

1924 .942 18 1974 -1.320 20

1925 -.591 18 1975 -.694 20

1926 -1.783 18 1976 -.993 20

1927 1.059 18 1977 .737 20

1928 1.479 18 1978 1.267 20

1929 .844 19 1979 -.458 20

1930 .913 20 1980 -.734 20

1931 1.131 20 1981 -.971 20

1932 -1.101 20 1982 .939 20

1933 -.356 20 1983 .723 20

1934 .504 20 1984 .190 20

1935 .269 20 1985 -.992 20

1936 -4.905 20 1986 .006 20

1937 .412 20 1987 -.676 20

1938 .146 20 1988 .788 20

1939 .032 20 1989 .940 20

1940 1.093 20 1990 .298 20

1941 .829 20 1991 .888 20

1942 .692 20 1992 -.345 20

1943 .578 20 1993 -.223 20 2<<

1944 -.647 20 1994 .418 20

1945 -2.836 20 1995 .382 20

1946 -1.282 20 1996 -.831 20

1947 .665 20 1997 1.116 20

1948 -1.281 20 1998 1.089 20

1949 .131 20 1999 .270 20 1<<

PART 5: CORRELATION OF SERIES BY SEGMENTS: Camel's Hump-High Corr4-30 14:56 Wed 24 Jan 2007 Page 5

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

Correlations of 30-year dated segments, lagged 15 years

Flags: A = correlation under .4226 but highest as dated; B = correlation higher at other than dated position

Seq Series Time\_span 1905 1920 1935 1950 1965 1980

1934 1949 1964 1979 1994 2009

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

1 171a 1908 2006 .54 .56 .53 .46 .53 .54

2 171b 1912 2006 .53 .62 .66 .35A .46 .67

3 172a 1917 2006 .73 .83 .72 .27A .24B .35A

4 172b 1919 2006 .84 .84 .80 .40B .43 .60

5 173a 1910 2006 .83 .88 .89 .73 .61 .57

6 173b 1912 2006 .55 .63 .75 .70 .53 .44

7 174a 1916 2006 .82 .86 .86 .76 .85 .60

8 174b 1916 2006 .89 .88 .78 .55 .53 .51

9 175a 1917 2006 .90 .92 .85 .58 .45 .47

10 175b 1917 2006 .67 .73 .65 .41A .51 .63

11 176a 1911 2006 .79 .84 .85 .66 .47 .29A

12 176b 1911 2006 .83 .88 .86 .66 .63 .54

13 177a 1911 2006 .26B .46 .46 .50 .41A .59

14 177b 1910 2006 .81 .82 .90 .81 .75 .64

15 178a 1916 2006 .69 .77 .78 .66 .55 .41A

16 178b 1913 2006 .82 .78 .69 .22B .31A .52

17 179a 1916 2006 .63 .67 .69 .45 .28B .44

18 179b 1920 2006 .30B .40A .45 .14B .12B

19 180a 1930 2006 .43 .35A .40A .35A .37A

20 180b 1929 2006 .37B .37A .19B .06B .12B

Av segment correlation .71 .70 .69 .51 .45 .47

171a 1908 to 2006 99 years Series 1

[\*] Early part of series cannot be checked from 1908 to 1909 -- not matched by another series

[B] Entire series, effect on correlation ( .478) is:

Lower 1962< -.051 1920< -.028 1931< -.014 1981> -.011 1957> -.010 1911> -.009 Higher 1936 .052 1910 .033

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

2005 1.324 20 4 >> WARNING: Ring is not usually narrow

2006 .526 20 9 >> 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

1962 -5.0 SD

171a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1908 310 314

1910 214 368 270 370 452 453 421 473 399 357

1920 233 287 379 338 356 361 342 430 444 334

1930 362 255 241 250 198 230 120 293 309 209

1940 248 230 211 280 181 122 104 139 97 130

1950 69 90 199 175 207 126 112 116 111 108

1960 145 155 20 66 66 93 62 47 56 75

1970 54 60 68 85 18 38 61 75 102 57

1980 36 81 125 102 52 40 55 24 48 50

1990 38 41 51 70 65 74 17 35 27 9

2000 4 3 4 4 2 0 0

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

171b 1912 to 2006 95 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

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

1950 1979 0 -.06 -.13 .18 -.50 .04 .26 -.04 -.09 .13 .02 .35\* .03 .05 .00 .06 -.26 -.09 .03 .10 .24 -.18

[B] Entire series, effect on correlation ( .475) is:

Lower 1999< -.034 1956< -.029 1930< -.026 1972< -.020 1957> -.017 1927< -.013 Higher 1936 .075 1945 .016

1950 to 1979 segment:

Lower 1956< -.106 1957> -.072 1972< -.061 1968> -.049 1975> -.014 1970< -.012 Higher 1974 .057 1952 .040

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

1999 .270 20 1 >> WARNING: Ring is not usually narrow

2005 1.324 20 4 >> WARNING: Ring is not usually narrow

2006 .526 20 9 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

171b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1912 272 337 408 483 378 484 426 360

1920 256 375 301 305 317 221 212 237 280 262

1930 188 264 206 227 189 247 135 284 224 230

1940 174 168 219 254 169 117 121 197 129 190

1950 103 151 212 169 195 207 83 157 109 91

1960 162 148 85 138 155 185 92 94 113 120

1970 63 61 24 78 34 74 28 52 102 45

1980 27 52 92 90 60 17 69 59 88 42

1990 26 41 33 31 30 45 12 34 23 0

2000 6 6 3 3 3 0 0

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

172a 1917 to 2006 90 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 1979 0 -.03 .03 -.10 -.09 -.40 -.11 -.01 -.31 -.04 .25 .27\* .22 -.16 -.15 .24 .17 -.03 -.27 .16 .06 .12

1965 1994 4 -.06 .17 -.31 .15 -.13 .31 .15 -.37 .02 -.09 .24| .15 .03 -.07 .44\*-.13 -.03 -.24 .00 -.05 .14

1977 2006 0 .13 -.06 -.19 .10 .11 .13 .03 -.20 -.19 -.28 .35\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .518) is:

Lower 2006< -.066 1974> -.030 1918< -.028 1987> -.019 1983< -.018 1962> -.011 Higher 1945 .039 1936 .037

1950 to 1979 segment:

Lower 1974> -.111 1960< -.043 1962> -.033 1973< -.030 1961< -.027 1979> -.021 Higher 1957 .070 1955 .039

1965 to 1994 segment:

Lower 1974> -.127 1983< -.079 1987> -.075 1973< -.033 1979> -.025 1970< -.015 Higher 1985 .052 1977 .051

1977 to 2006 segment:

Lower 2006< -.177 1987> -.076 1983< -.050 1979> -.032 1993> -.014 2000> -.009 Higher 1996 .043 2005 .041

172a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1917 246 220 231

1920 248 245 244 236 288 215 213 301 302 255

1930 301 293 186 220 284 230 149 274 249 226

1940 250 237 275 222 174 106 167 330 221 359

1950 342 374 339 269 319 349 286 205 184 230

1960 227 233 252 232 234 269 218 216 200 196

1970 179 157 153 143 218 151 142 260 251 184

1980 155 128 175 116 137 118 132 203 198 170

1990 127 139 106 144 145 115 81 117 114 98

2000 78 58 66 63 56 78 19

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

172b 1919 to 2006 88 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 1979 -1 -.10 .13 .19 -.23 -.13 -.17 -.08 -.26 -.11 .44\* .40| .12 -.49 -.02 .16 .35 .06 -.32 -.02 .22 .12

[B] Entire series, effect on correlation ( .702) is:

Lower 1963< -.017 1943< -.016 1926> -.015 1979> -.014 1922< -.011 1962> -.011 Higher 1936 .121 1945 .019

1950 to 1979 segment:

Lower 1963< -.064 1979> -.050 1962> -.038 1954< -.020 1970< -.019 1965< -.018 Higher 1955 .040 1952 .038

172b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1919 213

1920 242 248 199 175 268 233 237 341 350 340

1930 292 283 152 228 224 215 85 196 175 227

1940 233 232 229 154 175 108 171 281 183 284

1950 277 263 304 242 223 306 333 246 187 202

1960 267 238 237 200 237 202 183 198 182 187

1970 176 185 207 179 170 147 142 205 207 204

1980 204 149 167 161 191 147 176 162 192 182

1990 161 112 44 69 108 80 62 169 145 92

2000 12 36 37 48 97 99 53

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

173a 1910 to 2006 97 years Series 5

[B] Entire series, effect on correlation ( .750) is:

Lower 1911> -.016 1968< -.014 2000> -.007 1981> -.006 1994< -.005 1925> -.005 Higher 1936 .100 1945 .006

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

2006 .526 20 9 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

173a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1910 108 233 173 193 261 205 226 242 239 237

1920 302 357 326 352 385 319 254 337 343 297

1930 305 294 234 245 247 213 87 209 168 168

1940 222 217 223 258 197 121 180 217 127 161

1950 174 157 217 157 213 260 266 45 105 108

1960 207 219 167 183 204 146 133 145 46 157

1970 161 164 182 153 100 111 98 142 203 71

1980 80 123 154 165 142 81 54 22 98 106

1990 121 88 36 29 27 45 9 41 77 71

2000 44 24 21 3 4 13 0

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

173b 1912 to 2006 95 years Series 6

[B] Entire series, effect on correlation ( .585) is:

Lower 1925< -.033 1926> -.018 1990< -.017 1999> -.010 1935< -.009 1916> -.007 Higher 1936 .050 1945 .018

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

2003 -.386 20 2 >> WARNING: Ring is not usually narrow

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

1957 -4.9 SD

173b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1912 156 177 255 216 263 316 307 279

1920 295 282 307 314 301 189 255 339 335 280

1930 308 350 252 256 276 194 128 188 201 216

1940 213 224 192 215 157 103 141 248 178 227

1950 212 184 214 162 234 263 186 20 67 119

1960 208 267 182 166 176 205 165 150 102 196

1970 228 194 143 127 115 95 81 162 191 111

1980 77 69 125 134 107 67 30 23 52 80

1990 20 67 43 12 22 36 6 28 20 49

2000 29 20 16 0 8 20 2

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

174a 1916 to 2006 91 years Series 7

[B] Entire series, effect on correlation ( .718) is:

Lower 2000< -.053 1954< -.014 1932> -.009 1917< -.008 1999> -.006 1939< -.005 Higher 1936 .066 1974 .008

174a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1916 279 276 288 306

1920 287 306 332 282 342 236 235 363 389 422

1930 412 330 254 273 288 280 118 246 287 189

1940 288 327 290 323 209 127 161 224 146 163

1950 155 166 199 196 136 164 214 118 111 171

1960 210 240 149 165 118 122 117 152 90 112

1970 107 78 89 85 27 63 28 106 146 60

1980 61 50 115 80 50 26 42 48 72 68

1990 57 57 40 55 68 52 40 50 53 73

2000 24 54 46 50 51 111 82

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

174b 1916 to 2006 91 years Series 8

[B] Entire series, effect on correlation ( .695) is:

Lower 1964< -.031 1948> -.023 1981> -.013 1993> -.012 1997< -.012 1932> -.010 Higher 1936 .140 1945 .011

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

2006 .526 20 9 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

174b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1916 252 257 256 280

1920 301 287 275 293 330 259 244 328 345 325

1930 330 310 263 265 325 278 81 251 227 218

1940 305 305 200 196 158 95 90 230 215 219

1950 123 162 248 198 227 236 196 171 201 213

1960 221 237 144 160 77 117 100 128 107 95

1970 147 111 104 127 58 123 75 155 155 62

1980 71 100 81 67 63 34 43 11 32 59

1990 60 78 56 99 91 46 25 27 49 32

2000 17 20 17 24 26 35 0

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

175a 1917 to 2006 90 years Series 9

[B] Entire series, effect on correlation ( .692) is:

Lower 1985> -.017 1993< -.017 1968> -.014 1951< -.013 1917< -.012 1948> -.009 Higher 1936 .125 1945 .016

175a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1917 287 337 296

1920 369 360 376 329 384 255 210 312 312 341

1930 323 318 173 203 267 282 66 199 175 186

1940 246 219 200 200 164 63 98 176 146 134

1950 83 58 147 149 179 129 122 56 82 134

1960 146 120 98 105 110 113 101 105 93 85

1970 82 82 61 37 21 51 26 62 97 31

1980 50 27 53 52 49 58 52 17 57 70

1990 63 38 38 11 56 40 33 79 163 80

2000 56 68 75 68 98 111 50

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

175b 1917 to 2006 90 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

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

1950 1979 0 .16 .13 -.19 -.42 .04 -.10 .00 -.04 .17 -.11 .41\*-.05 -.01 .00 .00 -.06 .25 .03 .27 -.19 -.32

[B] Entire series, effect on correlation ( .563) is:

Lower 1968< -.045 1943< -.041 1919< -.027 1991< -.015 1948> -.014 1960< -.014 Higher 1936 .134 1945 .024

1950 to 1979 segment:

Lower 1968< -.072 1960< -.043 1953> -.023 1958> -.015 1961< -.011 1954< -.010 Higher 1952 .036 1976 .025

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

1968 -5.7 SD

175b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1917 271 288 225

1920 299 281 246 292 336 278 260 302 376 324

1930 295 284 159 182 213 202 55 170 163 166

1940 164 188 177 65 93 48 141 132 121 124

1950 97 134 166 160 120 119 105 87 100 117

1960 83 91 85 116 106 119 91 74 21 61

1970 58 61 58 53 36 42 21 53 73 32

1980 20 20 85 68 53 48 62 42 87 134

1990 129 37 14 6 37 40 19 57 72 61

2000 48 36 27 41 85 84 68

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

176a 1911 to 2006 96 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

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

1977 2006 0 -.33 -.02 .01 -.06 .25 -.19 -.12 -.02 .12 .22 .29\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .672) is:

Lower 1911< -.018 2005< -.015 1932> -.011 1916> -.010 2006< -.009 1977< -.009 Higher 1936 .171 1926 .009

1977 to 2006 segment:

Lower 2005< -.059 1977< -.038 1998< -.032 1979> -.031 1992> -.025 2001> -.023 Higher 1997 .064 1978 .042

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

2006 .526 20 9 >> 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

1936 -4.9 SD

176a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1911 38 225 259 344 341 366 316 327 297

1920 334 319 262 304 269 249 198 313 310 283

1930 300 303 248 247 271 228 62 244 215 169

1940 193 222 179 192 191 121 178 169 94 119

1950 105 173 259 141 203 249 187 156 89 136

1960 162 253 169 234 160 193 106 193 138 156

1970 127 107 128 75 38 35 47 55 149 120

1980 56 74 118 216 121 87 87 40 78 105

1990 144 146 106 76 62 81 55 97 53 58

2000 46 54 35 20 23 13 0

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

176b 1911 to 2006 96 years Series 12

[B] Entire series, effect on correlation ( .733) is:

Lower 1957> -.027 1916> -.015 1931< -.010 2004> -.008 1911< -.008 1994< -.007 Higher 1936 .125 1945 .013

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

2006 .526 20 9 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

176b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1911 47 95 215 294 294 374 340 315 306

1920 359 293 309 248 280 278 234 320 314 275

1930 263 222 146 208 237 246 50 263 219 199

1940 255 311 257 215 199 77 119 199 125 151

1950 116 141 269 144 185 248 149 192 122 124

1960 140 201 142 192 160 162 98 120 75 123

1970 91 97 87 128 59 102 89 160 126 72

1980 121 97 165 142 82 53 95 52 61 63

1990 38 65 56 40 24 37 15 59 38 5

2000 3 3 15 12 46 10 0

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

177a 1911 to 2006 96 years Series 13

[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 1940 10 - - - - - - - .25 -.08 -.17 .26| .11 -.12 -.24 .15 -.15 -.16 .01 -.18 -.10 .38\*

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

1965 1994 0 -.24 -.01 -.08 .14 .04 .03 -.09 -.13 .01 -.07 .41\*-.14 -.16 -.15 .03 .23 .14 .00 .14 .17 -.46

[B] Entire series, effect on correlation ( .436) is:

Lower 1936> -.086 1915< -.043 1912> -.013 1962> -.012 1967< -.010 1921< -.010 Higher 1945 .030 1948 .022

1911 to 1940 segment:

Lower 1915< -.142 1936> -.101 1921< -.029 1912> -.021 1924< -.015 1933> -.006 Higher 1926 .042 1914 .037

1965 to 1994 segment:

Lower 1967< -.052 1976> -.044 1974> -.044 1985> -.039 1988< -.036 1987< -.014 Higher 1982 .055 1977 .029

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

1936 +3.9 SD

177a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1911 123 138 130 185 110 84 131 166 183

1920 190 120 169 207 175 153 123 204 274 228

1930 250 232 142 210 201 150 128 141 133 119

1940 139 96 111 137 64 21 96 174 46 72

1950 82 115 183 161 91 152 176 96 105 132

1960 247 242 177 153 114 93 84 57 64 102

1970 136 75 56 78 82 63 84 119 93 44

1980 31 28 130 121 116 82 103 21 30 88

1990 87 91 62 70 72 89 57 108 83 72

2000 30 28 22 44 43 70 55

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

177b 1910 to 2006 97 years Series 14

[B] Entire series, effect on correlation ( .755) is:

Lower 2006> -.023 1926< -.018 1947< -.013 1998< -.009 1921< -.009 1916> -.007 Higher 1936 .070 1910 .018

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

2003 -.386 20 2 >> WARNING: Ring is not usually narrow

2004 .379 20 1 >> WARNING: Ring is not usually narrow

2005 1.324 20 4 >> WARNING: Ring is not usually narrow

2006 .526 20 9 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

177b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1910 53 234 263 272 410 415 393 415 352 351

1920 345 256 312 282 307 278 175 293 347 292

1930 300 377 254 296 352 287 91 205 203 174

1940 240 251 193 240 113 15 77 77 68 110

1950 142 145 188 141 165 189 236 132 115 112

1960 206 234 189 225 223 230 157 152 136 145

1970 137 111 108 127 63 68 58 104 151 115

1980 69 88 154 95 74 53 69 49 101 135

1990 142 123 46 47 44 62 40 58 31 20

2000 11 10 12 0 0 0 0

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

178a 1916 to 2006 91 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

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

1977 2006 0 .04 .08 -.06 .08 .19 .19 -.07 -.22 -.27 .10 .41\* - - - - - - - - - -

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

Lower 1932> -.024 1916< -.022 1933< -.011 1957< -.011 1982< -.011 1945> -.011 Higher 1936 .114 1948 .013

1977 to 2006 segment:

Lower 1996> -.054 1982< -.050 2000> -.044 2005< -.032 1988< -.019 1979> -.019 Higher 1985 .077 1997 .051

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

2006 .526 20 9 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

178a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1916 199 235 261 299

1920 318 319 362 333 433 372 205 328 375 348

1930 300 311 317 163 312 316 67 142 240 260

1940 329 210 193 117 77 72 77 127 38 143

1950 173 157 215 162 182 135 166 17 49 103

1960 239 199 109 172 137 180 115 127 116 167

1970 154 124 124 110 72 76 77 128 111 86

1980 60 54 45 68 48 18 19 20 28 32

1990 26 42 31 55 64 81 70 96 125 61

2000 53 24 16 5 10 10 0

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

178b 1913 to 2006 94 years Series 16

[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 1979 -3 -.46 -.04 .11 .21 .14 .24 .06 .29\*-.01 .04 .22|-.29 -.05 -.21 .07 .22 .20 -.06 -.07 -.10 -.06

1965 1994 0 -.15 -.08 -.09 .22 .15 .23 -.25 -.13 .01 -.10 .31\*-.28 .22 .12 .15 -.07 .22 -.25 -.23 .13 .08

[B] Entire series, effect on correlation ( .542) is:

Lower 1952< -.027 2005< -.026 1945> -.016 1913< -.016 1968> -.016 1944> -.015 Higher 1936 .213 1926 .016

1950 to 1979 segment:

Lower 1952< -.112 1968> -.066 1957> -.029 1951< -.026 1969< -.025 1975> -.025 Higher 1978 .057 1974 .055

1965 to 1994 segment:

Lower 1968> -.074 1983< -.029 1969< -.025 1975> -.025 1970< -.024 1980> -.018 Higher 1988 .064 1978 .056

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

2005 1.324 20 4 >> WARNING: Ring is not usually narrow

2006 .526 20 9 >> WARNING: Ring is not usually narrow

>> WARNING: Last ring in series is ABSENT

178b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1913 31 246 275 214 228 245 259

1920 269 292 299 260 362 329 174 319 310 304

1930 282 277 238 187 286 244 52 245 275 232

1940 240 217 257 234 255 169 154 196 137 92

1950 89 60 72 94 173 230 285 163 110 170

1960 149 190 135 176 181 119 117 154 152 93

1970 77 77 83 87 76 103 89 79 113 76

1980 81 30 83 61 68 60 69 66 141 105

1990 29 67 57 27 50 36 34 70 86 35

2000 22 19 12 20 28 0 0

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

179a 1916 to 2006 91 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

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

1965 1994 4 .01 .19 -.09 .07 .00 .15 .03 -.09 -.14 .09 .28|-.10 -.03 -.35 .36\*-.04 .33 -.12 .17 -.11 -.03

[B] Entire series, effect on correlation ( .451) is:

Lower 1993< -.091 1925> -.016 1987> -.015 1976> -.015 1917< -.014 1974> -.011 Higher 1945 .028 1926 .014

1965 to 1994 segment:

Lower 1993< -.105 1976> -.046 1987> -.046 1974> -.037 1988< -.017 1970< -.011 Higher 1991 .037 1981 .035

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

1992 1993 -4.3 SD

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

1993 -.223 20 2 >> WARNING: Ring is not usually narrow

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

1993 -7.0 SD

179a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1916 158 149 198 190

1920 201 208 223 251 290 309 188 367 358 257

1930 312 269 204 222 212 267 155 263 201 183

1940 290 237 171 222 103 70 88 179 159 150

1950 178 184 212 167 188 210 294 169 119 131

1960 179 266 209 228 200 193 122 130 128 177

1970 142 144 155 221 160 108 156 142 121 92

1980 106 78 128 129 115 99 90 142 98 137

1990 122 142 91 0 92 105 50 64 79 68

2000 48 58 44 30 35 43 35

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

179b 1920 to 2006 87 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

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

1920 1949 4 .08 .27 -.08 .16 .08 -.02 -.54 .07 .00 -.14 .30|-.13 .01 .22 .34\*-.46 .08 .11 -.32 .03 -.02

1935 1964 0 -.11 .30 -.05 -.06 -.16 .13 -.43 .00 -.03 -.11 .40\* .00 .03 .01 .20 .09 -.03 -.03 -.29 .35 -.03

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

1965 1994 -9 -.21 .43\*-.19 -.06 .00 .23 -.08 -.06 .06 -.16 .14|-.02 .01 .19 -.11 -.10 -.03 .22 .07 -.28 .16

1977 2006 -9 -.20 .46\* .04 -.08 .03 .04 .06 -.15 .06 -.12 .12| - - - - - - - - - -

[B] Entire series, effect on correlation ( .281) is:

Lower 2006> -.039 1936> -.038 1989< -.026 1987> -.017 1941< -.014 1950> -.010 Higher 1957 .025 1932 .025

1920 to 1949 segment:

Lower 1936> -.096 1941< -.054 1920< -.006 1928< -.006 1949> -.005 1934< -.004 Higher 1932 .061 1940 .038

1935 to 1964 segment:

Lower 1936> -.122 1941< -.043 1950> -.024 1953< -.015 1937< -.012 1963< -.010 Higher 1957 .038 1961 .031

1965 to 1994 segment:

Lower 1989< -.083 1987> -.068 1977< -.024 1973< -.022 1972> -.015 1978< -.013 Higher 1985 .081 1988 .053

1977 to 2006 segment:

Lower 2006> -.122 1989< -.082 1987> -.055 1977< -.031 1978< -.025 1982< -.024 Higher 1985 .101 1997 .057

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

1936 1937 -4.0 SD

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

1993 -.223 20 2 >> WARNING: Ring is not usually narrow

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

1936 +3.7 SD; 1987 +3.0 SD; 2006 +3.8 SD

179b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1920 259 237 274 206 288 286 196 283 274 282

1930 260 283 192 188 194 230 181 218 217 218

1940 281 203 178 156 98 67 121 197 103 211

1950 216 239 212 163 215 222 246 111 113 91

1960 193 238 167 187 139 142 152 179 162 145

1970 245 161 191 179 173 167 128 69 131 138

1980 138 116 154 162 180 113 166 162 165 136

1990 131 154 108 0 74 82 83 86 83 34

2000 25 22 5 23 20 5 23

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

180a 1930 to 2006 77 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

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

1935 1964 0 -.17 .20 .15 -.04 -.14 .14 -.22 .04 -.05 -.27 .35\* .02 .12 -.09 .19 -.02 .12 -.15 -.34 .19 -.06

1950 1979 0 -.37 -.02 .01 -.04 -.12 .30 -.03 .05 -.21 -.32 .40\*-.20 .03 -.14 .11 .03 .17 -.11 -.08 .31 .05

1965 1994 0 .12 -.01 .16 .07 .23 .20 .00 .01 -.36 -.11 .35\* .09 -.12 .13 -.22 .09 -.10 .00 -.06 .10 .08

1977 2006 0 .01 -.12 .25 -.09 .08 .31 -.04 -.12 -.28 -.15 .37\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .378) is:

Lower 1936> -.162 1962< -.014 1965< -.013 1957> -.010 1982< -.009 1964< -.008 Higher 1948 .030 1932 .030

1935 to 1964 segment:

Lower 1936> -.295 1962< -.041 1957> -.015 1964< -.015 1943< -.006 1958> -.006 Higher 1948 .049 1945 .046

1950 to 1979 segment:

Lower 1957> -.041 1965< -.036 1978< -.027 1968> -.022 1964< -.021 1962< -.020 Higher 1961 .031 1952 .026

1965 to 1994 segment:

Lower 1965< -.073 1982< -.055 1978< -.044 1984< -.034 1987> -.028 1968> -.026 Higher 1988 .060 1991 .036

1977 to 2006 segment:

Lower 1987> -.040 1982< -.039 1996> -.037 1998< -.030 1978< -.029 2004< -.028 Higher 2005 .056 1988 .046

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

1935 1936 4.5 SD

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

1936 +5.5 SD

180a Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1930 230 249 124 125 206 191 216 233 191 191

1940 252 210 228 180 106 103 143 251 138 217

1950 241 222 285 204 305 303 282 246 237 226

1960 261 283 138 198 148 129 143 179 168 151

1970 209 145 126 176 124 116 100 134 101 71

1980 50 57 65 88 50 56 74 113 231 171

1990 140 179 109 124 147 77 87 106 69 40

2000 42 35 52 51 36 49 38

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

180b 1929 to 2006 78 years Series 20

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

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

1929 1958 4 .12 .10 -.11 -.13 .06 -.18 -.24 .08 .12 -.04 .37|-.03 -.17 -.08 .51\*-.25 -.20 -.10 -.27 .10 -.02

1935 1964 0 .17 .20 .02 -.26 -.11 .03 -.19 .11 .23 -.01 .37\*-.02 -.06 -.19 .06 -.19 -.25 -.19 -.21 .19 .05

1950 1979 -3 -.12 .14 .14 .07 .17 .11 -.20 .33\*-.17 .00 .19|-.11 -.01 -.07 .04 -.20 .08 -.01 .05 .19 -.10

1965 1994 -3 .08 .03 .15 -.02 .26 .02 .02 .32\*-.26 -.05 .06| .05 -.02 .15 -.22 -.19 .00 .11 .02 .08 -.17

1977 2006 -8 .03 .06 .31\*-.06 .00 .13 .06 .20 -.05 -.05 .12| - - - - - - - - - -

[B] Entire series, effect on correlation ( .293) is:

Lower 1936> -.130 1977< -.029 1965< -.026 1996> -.025 1978< -.024 1976> -.015 Higher 1948 .041 1932 .039

1929 to 1958 segment:

Lower 1936> -.299 1957> -.006 1939> -.004 1938< -.003 1953< -.003 1954< -.002 Higher 1948 .052 1952 .022

1935 to 1964 segment:

Lower 1936> -.302 1953< -.008 1938< -.008 1939> -.006 1954< -.006 1949< -.005 Higher 1948 .053 1961 .027

1950 to 1979 segment:

Lower 1977< -.103 1978< -.086 1965< -.085 1976> -.054 1966> -.036 1971> -.008 Higher 1974 .059 1961 .053

1965 to 1994 segment:

Lower 1977< -.104 1978< -.088 1965< -.081 1976> -.054 1966> -.034 1984< -.024 Higher 1974 .072 1988 .038

1977 to 2006 segment:

Lower 1996> -.128 1977< -.106 1978< -.088 2006> -.034 1984< -.018 1995< -.009 Higher 1997 .064 2005 .057

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

1935 1936 4.7 SD

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

1936 +5.2 SD

180b Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1929 223

1930 239 248 152 173 199 183 214 221 169 234

1940 259 237 242 279 197 155 98 151 75 117

1950 137 142 199 145 157 204 215 188 170 190

1960 215 243 200 227 192 134 205 205 165 186

1970 276 225 188 224 139 112 165 85 61 67

1980 60 61 108 95 57 73 136 107 138 130

1990 138 145 120 93 173 82 175 184 117 48

2000 28 2 21 14 28 75 83

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

PART 7: DESCRIPTIVE STATISTICS: Camel's Hump-High Corr4-30 14:56 Wed 24 Jan 2007 Page 6

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

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 171a 1908 2006 99 6 0 .478 1.60 4.73 1.343 .918 .342 2.45 .365 -.057 1

2 171b 1912 2006 95 6 1 .475 1.48 4.84 1.176 .894 .416 2.61 .522 -.044 1

3 172a 1917 2006 90 6 3 .518 2.02 3.74 .777 .786 .201 2.57 .471 -.001 2

4 172b 1919 2006 88 6 1 .702 1.89 3.50 .737 .767 .243 2.46 .390 .004 1

5 173a 1910 2006 97 6 0 .750 1.63 3.85 .937 .833 .353 2.31 .330 -.017 1

6 173b 1912 2006 95 6 0 .585 1.60 3.50 .975 .875 .399 2.54 .452 .015 2

7 174a 1916 2006 91 6 0 .718 1.62 4.22 1.065 .887 .288 2.55 .442 -.084 2

8 174b 1916 2006 91 6 0 .695 1.58 3.45 1.002 .874 .305 2.43 .351 -.024 1

9 175a 1917 2006 90 6 0 .692 1.38 3.84 1.016 .876 .343 2.61 .388 -.042 3

10 175b 1917 2006 90 6 1 .563 1.22 3.76 .903 .896 .335 2.39 .402 -.047 1

11 176a 1911 2006 96 6 1 .672 1.63 3.66 .946 .816 .331 2.38 .287 -.031 1

12 176b 1911 2006 96 6 0 .733 1.53 3.74 .987 .828 .397 2.54 .327 -.054 1

13 177a 1911 2006 96 6 2 .436 1.15 2.74 .582 .717 .332 2.57 .441 -.022 2

14 177b 1910 2006 97 6 0 .755 1.65 4.15 1.113 .872 .301 2.75 .433 -.015 2

15 178a 1916 2006 91 6 1 .647 1.47 4.33 1.090 .841 .359 2.54 .440 -.021 1

16 178b 1913 2006 94 6 2 .542 1.47 3.62 .955 .817 .326 2.56 .336 -.035 2

17 179a 1916 2006 91 6 1 .451 1.61 3.67 .767 .759 .277 2.51 .360 .008 2

18 179b 1920 2006 87 5 4 .281 1.60 2.88 .745 .788 .309 3.61 .705 -.155 1

19 180a 1930 2006 77 5 4 .378 1.53 3.05 .749 .783 .252 2.60 .444 -.006 1

20 180b 1929 2006 78 5 5 .293 1.51 2.79 .675 .785 .309 2.55 .411 -.016 1

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

Total or mean: 1829 117 26 .573 1.56 4.84 .933 .832 .322 3.61 .413 -.032

- = [ COFECHA CH\_H COF ] = -