[] Dendrochronology Program Library Run FRPE Program COF 11:31 Wed 24 Feb 2021 Page 1

[]

[] P R O G R A M C O F E C H A Version 6.06P 31468

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

QUALITY CONTROL AND DATING CHECK OF TREE-RING MEASUREMENTS

Title of run: FRPE\_UVM\_CORR1\_FINAL

File of DATED series: FRPE\_UVM\_CORR1.RWL

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 Y

8 Parts printed 1234567

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

Time span of Master dating series is 1980 to 2019 40 years

Continuous time span is 1980 to 2019 40 years

Portion with two or more series is 1980 to 2019 40 years

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

\*C\* Number of dated series 82 \*C\*

\*O\* Master series 1980 2019 40 yrs \*O\*

\*F\* Total rings in all series 2807 \*F\*

\*E\* Total dated rings checked 2807 \*E\*

\*C\* Series intercorrelation .444 \*C\*

\*H\* Average mean sensitivity .235 \*H\*

\*A\* Segments, possible problems 25 \*A\*

\*\*\* Mean length of series 34.2 \*\*\*

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

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

No ring measurements of zero value

2000 .389 79

2001 -.268 80

2002 .938 80

2003 -.219 80

2004 .790 80

2005 .618 82

2006 .955 82

2007 .673 82

2008 1.147 82

2009 .368 82

2010 .598 82

2011 .724 82

2012 -.339 82

2013 1.213 82

2014 -.930 82

2015 -.266 81

2016 -.330 80

2017 .767 79

2018 -.288 79

2019 .760 78

1980 -2.491 4

1981 -1.866 11

1982 -1.024 21

1983 1.019 28

1984 1.968 38

1985 1.578 58

1986 .978 64

1987 .686 67

1988 -.369 69

1989 -.570 73

1990 .821 74

1991 -1.423 74

1992 -.429 75

1993 -.930 75

1994 -.141 75

1995 -1.294 77

1996 -.755 77

1997 -1.692 77

1998 -.220 77

1999 -1.147 77

PART 5: CORRELATION OF SERIES BY SEGMENTS: FRPE\_UVM\_CORR1\_FINAL 11:31 Wed 24 Feb 2021 Page 5

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

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 1975 2000

2024 2049

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

1 8EA 1986 2019 .22A

2 8EB 1985 2019 .36

3 11FA 1985 2019 .25A

4 12DA 1982 2019 .69

5 12DB 1985 2019 .64

6 12EA 1984 2019 .29A

7 12EB 1982 2019 .52

8 14GA 1989 2019 .42

9 14GB 1985 2019 .32B

10 14HB 1981 2019 .22A

11 14OA 1985 2019 .31A

12 14OB 1984 2019 .64

13 14PA 1982 2019 .50

14 14PB 1985 2019 .55

15 15TA 2001 2019 .48B

16 15TB 1989 2019 .09B

17 17FA 2000 2019 .57

18 17FB 2000 2019 .58

19 17HA 1987 2019 .35B

20 17HB 1985 2019 .33

21 17NA 1981 2019 .56

22 17NB 1981 2019 .69

23 17QA 1984 2019 .67

24 17QB 1982 2019 .66

25 20OA 1984 2019 .56

26 20OB 1980 2019 .54

27 22CA 1986 2019 .37B

28 22CB 1986 2019 .62

29 22EA 1983 2019 .43

30 22EB 1983 2019 .22A

31 27LA 1983 2019 .64

32 27LB 1982 2019 .66

33 27UA 1986 2019 .35B

34 27UB 1985 2019 .55

35 28CA 2005 2019 .21A

36 28CB 2005 2019 .29B

37 28DA 1981 2019 .43

38 28DB 1982 2019 .31A

39 28EA 1984 2019 .32A

40 28EB 1987 2019 .54

41 33CA 1995 2019 .23B

42 33CB 1990 2019 .18B

43 9CA 1980 2016 .61

44 9CB 1982 2019 .39B

45 9DA 1985 2019 .32B

46 9DB 1985 2019 .30A

47 10CA 1981 2019 .53

48 10CB 1985 2019 .36

49 10EA 1982 2014 .39

50 10EB 1984 2015 .62

51 14KA 1980 2019 .43

52 14KB 1985 2019 .52

53 14LB 1984 2019 .55

54 15OA 1988 2019 .60

55 15OB 1984 2019 .38B

56 15PB 1992 2019 .65

57 16QA 1985 2019 .33

58 16QB 1981 2019 .48

59 17SA 1984 2019 .54

60 17SB 1983 2019 .40

61 17UA 1986 2019 .57

62 17UB 1987 2019 .37

63 18FA 1983 2019 .19A

64 18FB 1985 2019 .46

65 18GA 1982 2019 .55

66 18HA 1983 2019 .43

67 18HB 1982 2019 .42

68 18NA 1984 2019 .38

69 18NB 1985 2019 .39

70 18QA 1989 2019 .57

71 18QB 1983 2019 .49

72 20GB 1995 2019 .29A

73 22TA 1986 2019 .46

74 22TB 1985 2019 .35

75 22UA 1989 2019 .62

76 22UB 1985 2019 .34

77 24HA 1985 2018 .40

78 24HB 1985 2019 .25A

79 26SA 1980 2019 .46

80 26SB 1981 2019 .59

81 26TA 1985 2019 .35

82 26TB 1988 2019 .39

Av segment correlation .44 .43

PART 6: POTENTIAL PROBLEMS: FRPE\_UVM\_CORR1\_FINAL 11:31 Wed 24 Feb 2021 Page 6

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

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

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

8EA 1986 to 2019 34 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

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

1986 2019 0 - - - - -.13 -.17 -.13 .21 .04 .06 .22\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .217) is:

Lower 2009< -.070 2017< -.047 1997> -.038 2014> -.038 2004< -.035 2003> -.024 Higher 1991 .040 2008 .035

1986 to 2019 segment:

Lower 2009< -.070 2017< -.047 1997> -.038 2014> -.038 2004< -.035 2003> -.024 Higher 1991 .040 2008 .035

8EA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1986 1232 1047 791 588

1990 430 282 266 190 236 206 203 253 269 222

2000 214 223 215 262 196 195 239 304 316 193

2010 203 220 181 199 188 153 169 146 139 151

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

8EB 1985 to 2019 35 years Series 2

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

Lower 2014> -.096 1997> -.059 2017< -.048 2000< -.026 2003> -.022 2019< -.021 Higher 1991 .215 2008 .023

8EB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 834 893 862 558 562

1990 507 296 300 239 275 210 184 229 187 188

2000 143 146 137 183 155 170 180 287 272 195

2010 248 212 168 206 206 147 195 143 162 142

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

11FA 1985 to 2019 35 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

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

1985 2019 0 - - - - - -.36 -.08 -.20 .11 -.07 .25\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .245) is:

Lower 2005< -.081 1991> -.065 2014> -.062 1990< -.040 1993> -.013 2009> -.012 Higher 1997 .051 2012 .050

1985 to 2019 segment:

Lower 2005< -.081 1991> -.065 2014> -.062 1990< -.040 1993> -.013 2009> -.012 Higher 1997 .051 2012 .050

11FA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 492 517 391 230 172

1990 200 287 307 287 379 230 176 149 200 158

2000 167 161 173 118 126 99 112 110 119 118

2010 95 118 79 83 82 77 79 72 64 64

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

12DA 1982 to 2019 38 years Series 4

[B] Entire series, effect on correlation ( .691) is:

Lower 1995< -.026 2012> -.024 1989> -.019 2007< -.017 2014> -.009 1992> -.008 Higher 1991 .064 1982 .015

12DA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 195 385 450 471 389 375 254 307

1990 286 147 240 224 257 116 104 88 103 123

2000 200 201 248 227 251 289 352 243 293 249

2010 231 207 206 200 148 131 100 115 97 152

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

12DB 1985 to 2019 35 years Series 5

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

Lower 2015< -.084 2007< -.023 1989> -.018 1993> -.013 1999> -.011 2012> -.009 Higher 2014 .034 2013 .026

12DB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 467 453 337 221 262

1990 260 176 165 179 171 98 83 74 88 115

2000 228 251 323 277 269 300 295 220 309 249

2010 274 243 220 294 215 161 150 172 156 193

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

12EA 1984 to 2019 36 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

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

1984 2019 0 - - - - - - .02 -.18 .16 .18 .29\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .291) is:

Lower 2014> -.111 1987< -.093 2000< -.066 2013< -.036 1988> -.014 2009> -.009 Higher 1997 .050 1999 .036

1984 to 2019 segment:

Lower 2014> -.111 1987< -.093 2000< -.066 2013< -.036 1988> -.014 2009> -.009 Higher 1997 .050 1999 .036

12EA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 599 624 526 370 389 332

1990 377 277 231 211 198 156 150 96 141 78

2000 47 55 84 94 125 130 109 105 108 107

2010 90 95 83 70 88 74 63 74 69 81

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

12EB 1982 to 2019 38 years Series 7

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

Lower 2014> -.075 2015< -.034 2013< -.028 1987< -.023 2000< -.021 1986< -.017 Higher 1991 .050 1984 .028

12EB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 400 543 617 619 456 338 311 282

1990 292 208 187 178 147 115 122 85 102 70

2000 55 54 58 71 88 113 99 102 109 120

2010 98 119 81 72 83 59 65 110 106 123

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

14GA 1989 to 2019 31 years Series 8

[B] Entire series, effect on correlation ( .418) is:

Lower 2015< -.107 2011< -.067 1989> -.031 2014> -.026 1999> -.010 2012> -.010 Higher 1997 .054 2013 .029

14GA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1989 633

1990 584 365 347 345 314 236 267 185 325 352

2000 406 423 491 448 578 504 630 493 465 316

2010 447 268 289 391 311 163 217 221 223 300

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

14GB 1985 to 2019 35 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

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

1985 2019 -1 - - - - - -.32 -.03 -.02 .15 .33\* .32| - - - - - - - - - -

[B] Entire series, effect on correlation ( .322) is:

Lower 2014> -.104 2011< -.054 2015< -.050 2000< -.020 1990< -.013 1999> -.012 Higher 1997 .091 1985 .044

1985 to 2019 segment:

Lower 2014> -.104 2011< -.054 2015< -.050 2000< -.020 1990< -.013 1999> -.012 Higher 1997 .091 1985 .044

14GB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 823 618 562 475 418

1990 371 296 296 313 305 272 317 209 257 295

2000 264 341 390 360 520 515 664 564 779 815

2010 591 296 331 587 674 285 212 269 336 504

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

14HB 1981 to 2019 39 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

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

1981 2019 0 - - - - - - - - - -.03 .22\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .220) is:

Lower 2016< -.104 1982> -.040 2017< -.030 1999> -.026 2015> -.023 1986< -.016 Higher 2014 .065 1981 .040

1981 to 2019 segment:

Lower 2016< -.104 1982> -.040 2017< -.030 1999> -.026 2015> -.023 1986< -.016 Higher 2014 .065 1981 .040

14HB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1981 253 532 632 647 438 203 113 193 97

1990 137 93 59 67 38 35 24 22 37 88

2000 120 114 125 132 118 100 104 86 96 104

2010 92 105 113 149 92 163 79 64 84 77

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

14OA 1985 to 2019 35 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

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

1985 2019 0 - - - - - -.31 .15 -.10 .08 -.09 .31\* - - - - - - - - - -

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

Lower 2018< -.061 1999> -.051 2008< -.035 1995> -.022 1990< -.014 2005< -.014 Higher 1991 .044 2014 .039

1985 to 2019 segment:

Lower 2018< -.061 1999> -.051 2008< -.035 1995> -.022 1990< -.014 2005< -.014 Higher 1991 .044 2014 .039

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

1999 +3.0 SD

14OA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 819 888 714 503 265

1990 268 163 140 185 198 257 209 205 387 420

2000 306 266 302 242 223 179 175 187 159 184

2010 243 220 198 210 162 154 156 214 128 126

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

14OB 1984 to 2019 36 years Series 12

[B] Entire series, effect on correlation ( .639) is:

Lower 1989< -.040 2008< -.031 1991> -.031 1995> -.026 1999> -.016 1990< -.015 Higher 2014 .085 1997 .022

14OB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 761 625 506 446 363 211

1990 294 264 266 227 302 277 219 179 339 260

2000 270 261 265 212 250 225 185 177 152 177

2010 207 190 126 168 97 103 111 138 102 98

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

14PA 1982 to 2019 38 years Series 13

[B] Entire series, effect on correlation ( .503) is:

Lower 1998< -.053 2001< -.037 2008< -.029 2012> -.022 1996> -.016 2015> -.010 Higher 1982 .029 1991 .025

14PA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 287 653 819 587 653 641 429 266

1990 479 272 318 248 298 249 332 219 153 171

2000 244 127 174 152 174 233 230 165 118 123

2010 154 116 122 141 95 109 88 88 68 93

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

14PB 1985 to 2019 35 years Series 14

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

Lower 2007< -.081 2008< -.035 1996> -.027 1991> -.017 2013< -.016 2001> -.015 Higher 2014 .124 1985 .019

14PB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 667 493 275 160 140

1990 236 186 222 184 263 232 310 240 236 211

2000 235 245 252 192 199 199 201 144 132 117

2010 143 136 111 108 75 87 82 96 77 91

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

15TA 2001 to 2019 19 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

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

2001 2019 -2 -.12 -.26 -.27 -.03 -.23 .13 .13 -.26 .71\*-.25 .48| - - - - - - - - - -

[B] Entire series, effect on correlation ( .479) is:

Lower 2018> -.072 2012> -.047 2013< -.046 2009> -.044 2016< -.040 2015> -.032 Higher 2014 .511 2004 .023

2001 to 2019 segment:

Lower 2018> -.072 2012> -.047 2013< -.046 2009> -.044 2016< -.040 2015> -.032 Higher 2014 .511 2004 .023

15TA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

2001 538 704 677 1143 852 859 876 802 922

2010 748 643 621 521 337 540 287 417 400 336

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

15TB 1989 to 2019 31 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

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

1989 2019 -2 - -.45 -.16 -.17 .17 .21 .19 -.09 .44\* .03 .09| - - - - - - - - - -

[B] Entire series, effect on correlation ( .090) is:

Lower 2002< -.072 2017< -.052 2016< -.047 2013< -.032 1989> -.021 2012> -.011 Higher 1997 .075 1990 .041

1989 to 2019 segment:

Lower 2002< -.072 2017< -.052 2016< -.047 2013< -.032 1989> -.021 2012> -.011 Higher 1997 .075 1990 .041

15TB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1989 371

1990 398 257 271 212 282 290 265 224 510 360

2000 723 552 578 569 648 655 879 718 843 649

2010 840 584 706 471 560 513 364 325 357 314

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

17FA 2000 to 2019 20 years Series 17

[B] Entire series, effect on correlation ( .567) is:

Lower 2012> -.092 2001< -.045 2002< -.028 2018> -.019 2015< -.007 2016< -.002 Higher 2014 .048 2013 .035

17FA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

2000 267 138 168 159 270 211 222 245 236 158

2010 195 232 222 255 150 123 130 174 171 242

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

17FB 2000 to 2019 20 years Series 18

[B] Entire series, effect on correlation ( .581) is:

Lower 2012> -.072 2003> -.065 2016< -.050 2000< -.040 2007< -.019 2009> -.014 Higher 2014 .285 2018 .018

17FB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

2000 75 78 142 228 327 192 182 126 187 177

2010 165 230 183 202 126 171 139 202 153 192

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

17HA 1987 to 2019 33 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

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

1987 2019 -2 - - - -.15 .07 -.02 -.02 -.16 .44\*-.19 .35| - - - - - - - - - -

[B] Entire series, effect on correlation ( .350) is:

Lower 2008< -.083 1995> -.050 2013< -.030 1993< -.022 2012> -.019 1999> -.018 Higher 2014 .086 1990 .034

1987 to 2019 segment:

Lower 2008< -.083 1995> -.050 2013< -.030 1993< -.022 2012> -.019 1999> -.018 Higher 2014 .086 1990 .034

17HA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1987 491 419 326

1990 547 345 451 231 309 397 350 265 319 317

2000 328 281 325 228 236 259 275 259 168 177

2010 272 357 222 178 131 161 154 173 166 203

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

17HB 1985 to 2019 35 years Series 20

[B] Entire series, effect on correlation ( .329) is:

Lower 2000< -.083 2002< -.051 1995> -.023 2009> -.022 2005< -.021 2018> -.018 Higher 1997 .085 2014 .058

17HB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 697 660 644 462 430

1990 558 427 547 474 536 426 415 278 365 297

2000 231 271 223 280 248 198 318 213 202 302

2010 223 287 200 164 122 119 122 144 158 165

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

17NA 1981 to 2019 39 years Series 21

[B] Entire series, effect on correlation ( .557) is:

Lower 2008< -.046 2018> -.025 1993> -.025 1983< -.021 1995> -.021 2011< -.012 Higher 2014 .043 1981 .029

17NA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1981 140 219 282 606 512 507 424 377 388

1990 497 327 432 486 503 413 347 233 332 277

2000 431 341 292 253 417 263 256 228 185 164

2010 223 169 167 180 118 119 147 169 171 145

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

17NB 1981 to 2019 39 years Series 22

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

Lower 2003< -.042 1995> -.023 1982> -.023 1996< -.017 2001> -.016 2008< -.012 Higher 1981 .036 2014 .033

17NB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1981 100 364 644 588 564 449 426 355 400

1990 454 281 358 325 296 306 240 209 255 237

2000 265 298 259 179 266 256 225 248 191 169

2010 220 164 137 168 106 114 124 178 135 159

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

17QA 1984 to 2019 36 years Series 23

[B] Entire series, effect on correlation ( .674) is:

Lower 1984< -.049 1995> -.037 2000< -.027 2012> -.024 1988> -.022 1989> -.021 Higher 1991 .083 2014 .063

17QA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 606 720 599 514 534 519

1990 513 232 268 175 254 269 199 120 147 114

2000 111 93 321 169 159 123 130 129 199 140

2010 113 113 118 145 88 92 107 134 103 101

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

17QB 1982 to 2019 38 years Series 24

[B] Entire series, effect on correlation ( .657) is:

Lower 2019< -.069 2012> -.046 2000< -.014 1995> -.012 2004< -.011 1988> -.006 Higher 1991 .047 1997 .028

17QB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 213 489 634 633 637 496 346 247

1990 344 154 168 122 167 145 155 77 91 97

2000 87 81 239 96 86 99 107 119 216 105

2010 112 137 134 117 78 81 101 114 90 77

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

20OA 1984 to 2019 36 years Series 25

[B] Entire series, effect on correlation ( .561) is:

Lower 1986< -.062 2012> -.056 2018< -.034 2017< -.030 2016> -.018 2003> -.016 Higher 1991 .077 2014 .063

20OA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 760 689 438 401 365 304

1990 318 186 188 161 168 101 99 78 90 73

2000 81 90 111 111 143 137 102 101 100 71

2010 88 84 115 137 91 97 130 99 65 73

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

20OB 1980 to 2019 40 years Series 26

[B] Entire series, effect on correlation ( .540) is:

Lower 2005< -.129 1981> -.042 1982> -.015 2012> -.014 2006< -.011 2008< -.010 Higher 1980 .100 2014 .032

20OB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1980 79 225 334 368 560 737 589 520 439 260

1990 341 225 294 236 268 209 159 138 235 169

2000 273 238 243 188 287 129 110 99 102 74

2010 87 129 142 208 115 125 168 161 106 102

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

22CA 1986 to 2019 34 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

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

1986 2019 -2 - - - - -.04 -.14 .12 -.06 .48\*-.15 .37| - - - - - - - - - -

[B] Entire series, effect on correlation ( .372) is:

Lower 2005< -.114 1991> -.058 1999> -.037 2018> -.030 2012> -.023 2017< -.022 Higher 2014 .116 1995 .059

1986 to 2019 segment:

Lower 2005< -.114 1991> -.058 1999> -.037 2018> -.030 2012> -.023 2017< -.022 Higher 2014 .116 1995 .059

22CA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1986 495 371 251 283

1990 336 295 271 180 181 108 132 122 148 273

2000 307 309 338 276 356 208 148 251 315 246

2010 286 340 324 287 179 201 193 192 299 283

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

22CB 1986 to 2019 34 years Series 28

[B] Entire series, effect on correlation ( .618) is:

Lower 1991> -.054 1998< -.027 2003> -.025 2017< -.017 2018> -.016 1999> -.013 Higher 2014 .102 1995 .019

22CB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1986 354 585 387 265

1990 286 223 216 168 223 134 136 122 101 189

2000 393 236 283 416 639 443 358 477 517 372

2010 341 438 323 392 240 290 268 282 315 343

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

22EA 1983 to 2019 37 years Series 29

[B] Entire series, effect on correlation ( .431) is:

Lower 1985< -.087 1986< -.060 1998< -.017 2010< -.015 2005< -.014 2006< -.012 Higher 2014 .132 1984 .045

22EA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1983 817 974 546 368 607 517 490

1990 557 349 277 235 203 173 153 170 103 189

2000 570 370 441 297 272 148 129 135 140 167

2010 120 180 151 200 117 134 164 166 143 179

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

22EB 1983 to 2019 37 years Series 30

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

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

1983 2019 0 - - - - - - - -.04 -.16 -.17 .22\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .222) is:

Lower 1985< -.276 1998< -.017 2003> -.016 2005< -.015 1991> -.014 2008< -.010 Higher 1984 .060 2019 .027

1983 to 2019 segment:

Lower 1985< -.276 1998< -.017 2003> -.016 2005< -.015 1991> -.014 2008< -.010 Higher 1984 .060 2019 .027

22EB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1983 727 817 517 467 615 490 334

1990 422 352 284 268 230 177 196 144 78 102

2000 197 260 372 335 380 213 167 146 125 126

2010 108 107 81 92 76 70 79 76 63 70

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

27LA 1983 to 2019 37 years Series 31

[B] Entire series, effect on correlation ( .637) is:

Lower 2018> -.032 1994< -.027 1996> -.022 1995> -.019 1986< -.018 1983< -.013 Higher 1991 .069 1997 .031

27LA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1983 651 821 673 548 434 323 355

1990 437 290 339 212 212 195 266 161 183 141

2000 162 152 187 132 161 122 123 130 130 124

2010 130 129 97 102 76 78 72 79 82 76

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

27LB 1982 to 2019 38 years Series 32

[B] Entire series, effect on correlation ( .658) is:

Lower 2019< -.036 1991> -.032 2012> -.024 2018> -.010 1989< -.010 2010> -.006 Higher 2014 .069 1983 .018

27LB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 271 633 589 436 334 276 210 136

1990 204 166 187 144 129 118 120 98 139 106

2000 102 109 138 94 145 142 120 102 104 77

2010 117 119 103 106 68 80 73 80 79 70

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

27UA 1986 to 2019 34 years Series 33

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

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

1986 2019 -2 - - - - .08 -.02 .24 -.10 .53\* .01 .35| - - - - - - - - - -

[B] Entire series, effect on correlation ( .354) is:

Lower 1991> -.108 1989> -.035 1993< -.028 1995> -.023 2005< -.014 1988> -.013 Higher 2014 .079 2004 .031

1986 to 2019 segment:

Lower 1991> -.108 1989> -.035 1993< -.028 1995> -.023 2005< -.014 1988> -.013 Higher 2014 .079 2004 .031

27UA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1986 363 241 308 404

1990 386 379 208 48 56 64 52 69 47 26

2000 137 118 168 125 343 171 216 164 204 142

2010 129 114 103 102 67 62 50 59 46 60

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

27UB 1985 to 2019 35 years Series 34

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

Lower 1987< -.070 1994< -.041 2003> -.035 2009< -.026 2005< -.016 2018> -.015 Higher 2014 .062 1997 .032

27UB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 618 732 418 329 221

1990 457 278 301 181 82 55 117 51 104 76

2000 159 161 235 286 265 156 222 181 154 79

2010 98 75 68 82 51 44 35 41 36 36

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

28CA 2005 to 2019 15 years Series 35

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

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

2005 2019 0 .10 .12 -.07 -.22 .03 -.39 -.32 .02 -.20 -.09 .21\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .213) is:

Lower 2006< -.166 2018> -.054 2013< -.047 2014> -.031 2007< -.015 2011< -.015 Higher 2019 .080 2008 .068

2005 to 2019 segment:

Lower 2006< -.166 2018> -.054 2013< -.047 2014> -.031 2007< -.015 2011< -.015 Higher 2019 .080 2008 .068

28CA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

2005 689 513 449 504 360

2010 354 255 178 180 153 109 140 183 162 241

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

28CB 2005 to 2019 15 years Series 36

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

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

2005 2019 -4 -.22 -.14 -.25 -.19 .01 -.45 .31\*-.34 .00 -.10 .29| - - - - - - - - - -

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

Lower 2010< -.114 2012> -.087 2007< -.063 2013< -.040 2009> -.014 2011< -.012 Higher 2014 .176 2017 .047

2005 to 2019 segment:

Lower 2010< -.114 2012> -.087 2007< -.063 2013< -.040 2009> -.014 2011< -.012 Higher 2014 .176 2017 .047

28CB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

2005 543 522 445 435 421

2010 360 351 376 335 285 297 282 357 241 320

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

28DA 1981 to 2019 39 years Series 37

[B] Entire series, effect on correlation ( .426) is:

Lower 2002< -.083 1986< -.036 1985< -.019 1993> -.019 1991> -.018 2004< -.015 Higher 1981 .121 1995 .033

28DA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1981 313 613 718 856 676 504 500 413 384

1990 492 391 432 383 387 227 223 145 192 130

2000 186 129 118 77 91 117 142 152 162 186

2010 173 199 180 209 167 188 183 209 212 225

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

28DB 1982 to 2019 38 years Series 38

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

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

1982 2019 0 - - - - - - - - .08 .02 .31\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .315) is:

Lower 2004< -.186 2014> -.025 2006< -.020 1989> -.016 1999> -.015 2008< -.012 Higher 1991 .107 1984 .064

1982 to 2019 segment:

Lower 2004< -.186 2014> -.025 2006< -.020 1989> -.016 1999> -.015 2008< -.012 Higher 1991 .107 1984 .064

28DB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 745 841 998 769 735 693 601 668

1990 627 422 446 379 580 377 458 257 346 261

2000 320 151 270 119 130 136 149 169 179 238

2010 219 299 221 306 227 280 263 410 310 345

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

28EA 1984 to 2019 36 years Series 39

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

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

1984 2019 0 - - - - - - -.01 .11 .31 -.03 .32\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .322) is:

Lower 1998< -.114 1984< -.087 1995> -.065 1997> -.045 2012> -.017 1996> -.008 Higher 2014 .165 1985 .037

1984 to 2019 segment:

Lower 1998< -.114 1984< -.087 1995> -.065 1997> -.045 2012> -.017 1996> -.008 Higher 2014 .165 1985 .037

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

1997 1998 -4.2 SD

28EA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 571 679 614 553 463 426

1990 407 314 322 285 267 368 335 303 130 90

2000 111 104 104 66 81 98 105 98 127 109

2010 109 144 124 148 86 89 94 112 108 114

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

28EB 1987 to 2019 33 years Series 40

[B] Entire series, effect on correlation ( .535) is:

Lower 1995> -.060 2012> -.035 1998< -.025 2019< -.019 2009> -.017 2000< -.017 Higher 2014 .141 1991 .038

28EB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1987 531 497 452

1990 532 417 444 431 433 451 454 274 182 149

2000 132 110 121 110 118 106 133 148 169 211

2010 173 222 212 235 121 128 97 107 110 101

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

33CA 1995 to 2019 25 years Series 41

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

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

1995 2019 -4 -.22 -.11 -.07 .00 .30 -.02 .50\*-.10 .17 .18 .23| - - - - - - - - - -

[B] Entire series, effect on correlation ( .229) is:

Lower 2014> -.143 2019< -.073 2002< -.052 2012> -.043 2009> -.029 2007< -.021 Higher 1995 .136 1997 .134

1995 to 2019 segment:

Lower 2014> -.143 2019< -.073 2002< -.052 2012> -.043 2009> -.029 2007< -.021 Higher 1995 .136 1997 .134

33CA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1995 319 530 376 740 539

2000 867 596 667 480 688 713 917 626 748 845

2010 736 989 778 869 698 469 265 393 324 262

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

33CB 1990 to 2019 30 years Series 42

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

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

1990 2019 -5 -.35 -.38 -.12 .02 .17 .21\* .03 .20 .07 .11 .18| - - - - - - - - - -

[B] Entire series, effect on correlation ( .179) is:

Lower 2019< -.114 1991> -.102 1994< -.099 2018> -.020 2014> -.004 2010< -.004 Higher 2012 .038 2013 .030

1990 to 2019 segment:

Lower 2019< -.114 1991> -.102 1994< -.099 2018> -.020 2014> -.004 2010< -.004 Higher 2012 .038 2013 .030

33CB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1990 378 404 374 277 51 157 302 275 499 410

2000 705 439 497 438 618 682 738 750 748 668

2010 562 717 480 628 542 446 434 570 631 384

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

9CA 1980 to 2016 37 years Series 43

[B] Entire series, effect on correlation ( .608) is:

Lower 2004< -.063 1990< -.053 2009> -.030 1982> -.025 1997> -.016 1981> -.013 Higher 1980 .104 2014 .030

9CA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1980 141 330 441 685 698 755 627 583 443 376

1990 230 177 169 155 202 162 210 189 280 158

2000 220 161 188 143 124 164 166 152 139 216

2010 183 155 114 181 102 107 107

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

9CB 1982 to 2019 38 years Series 44

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

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

1982 2019 -2 - - - - - - - - .41\*-.03 .39| - - - - - - - - - -

[B] Entire series, effect on correlation ( .386) is:

Lower 1997> -.035 2009> -.029 2002< -.024 2004< -.024 2014> -.019 2015> -.012 Higher 1982 .040 2013 .032

1982 to 2019 segment:

Lower 1997> -.035 2009> -.029 2002< -.024 2004< -.024 2014> -.019 2015> -.012 Higher 1982 .040 2013 .032

9CB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 395 652 636 725 676 782 468 400

1990 479 328 328 255 315 297 368 341 471 230

2000 424 175 163 145 140 182 181 146 173 283

2010 198 134 140 206 135 158 156 122 78 98

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

9DA 1985 to 2019 35 years Series 45

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

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

1985 2019 -4 - - - - - -.09 .37\* .17 .16 -.12 .32| - - - - - - - - - -

[B] Entire series, effect on correlation ( .324) is:

Lower 1997> -.056 2014> -.054 1990< -.046 1989> -.032 2002< -.026 2001< -.025 Higher 1991 .110 1995 .055

1985 to 2019 segment:

Lower 1997> -.056 2014> -.054 1990< -.046 1989> -.032 2002< -.026 2001< -.025 Higher 1991 .110 1995 .055

9DA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 686 664 749 639 755

1990 483 324 286 314 392 215 285 314 221 163

2000 141 71 82 99 82 134 156 153 109 92

2010 133 140 72 91 84 76 83 84 65 75

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

9DB 1985 to 2019 35 years Series 46

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

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

1985 2019 0 - - - - - -.12 .04 .07 .07 -.12 .30\* - - - - - - - - - -

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

Lower 1997> -.077 2014> -.072 2002< -.035 2000< -.033 2017< -.023 1986< -.016 Higher 1991 .097 1985 .041

1985 to 2019 segment:

Lower 1997> -.077 2014> -.072 2002< -.035 2000< -.033 2017< -.023 1986< -.016 Higher 1991 .097 1985 .041

9DB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 627 495 489 371 378

1990 470 312 264 245 309 256 272 307 197 105

2000 88 64 69 95 94 132 197 130 99 90

2010 102 94 69 107 97 95 120 82 66 69

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

10CA 1981 to 2019 39 years Series 47

[B] Entire series, effect on correlation ( .534) is:

Lower 2004< -.047 1982> -.029 1990< -.026 1999> -.024 2014> -.021 2013< -.019 Higher 1981 .085 1991 .043

10CA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1981 385 557 705 843 667 683 475 483 483

1990 355 243 322 304 255 160 210 158 278 315

2000 519 276 360 255 158 175 363 248 259 223

2010 150 162 109 122 119 112 148 112 105 97

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

10CB 1985 to 2019 35 years Series 48

[B] Entire series, effect on correlation ( .362) is:

Lower 1991> -.118 2017< -.081 2013< -.031 1988> -.022 2004< -.022 2015> -.013 Higher 1997 .055 1995 .038

10CB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 523 474 425 442 326

1990 447 411 319 263 223 161 142 111 193 172

2000 252 283 307 204 169 204 421 260 314 297

2010 265 277 149 151 152 212 180 131 137 178

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

10EA 1982 to 2014 33 years Series 49

[B] Entire series, effect on correlation ( .393) is:

Lower 1990< -.069 1995> -.042 2000< -.034 1999> -.024 2014> -.015 2007< -.010 Higher 1991 .032 1985 .025

10EA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 446 625 597 691 609 414 287 243

1990 183 177 233 239 246 258 180 171 213 205

2000 150 170 185 132 136 177 227 155 184 148

2010 124 135 92 119 106

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

10EB 1984 to 2015 32 years Series 50

[B] Entire series, effect on correlation ( .623) is:

Lower 2003< -.102 2011< -.017 2001> -.016 2014> -.015 1986< -.013 1996> -.011 Higher 1991 .088 2013 .028

10EB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 828 704 468 347 253 224

1990 255 149 175 161 176 152 168 138 159 139

2000 139 148 145 102 113 133 133 153 161 149

2010 134 112 100 150 124 102

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

14KA 1980 to 2019 40 years Series 51

[B] Entire series, effect on correlation ( .429) is:

Lower 2017< -.096 1981> -.080 1982> -.036 1987< -.031 1985< -.021 2011< -.010 Higher 1980 .193 2014 .042

14KA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1980 185 512 798 919 1252 796 736 366 245 244

1990 224 136 102 72 47 38 25 29 33 45

2000 75 70 75 83 99 87 94 137 130 131

2010 265 211 182 264 190 171 201 145 148 153

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

14KB 1985 to 2019 35 years Series 52

[B] Entire series, effect on correlation ( .519) is:

Lower 2011< -.066 2017< -.039 2009< -.039 2015> -.018 1999> -.012 1987< -.011 Higher 2014 .067 2013 .038

14KB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 897 770 499 374 389

1990 428 257 160 117 113 96 102 86 103 125

2000 214 233 247 208 337 263 377 320 245 134

2010 258 158 155 310 200 250 233 191 170 194

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

14LB 1984 to 2019 36 years Series 53

[B] Entire series, effect on correlation ( .552) is:

Lower 2006< -.074 2011< -.035 2018> -.034 1999> -.021 2001> -.021 1997> -.017 Higher 1991 .136 1984 .031

14LB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 1019 746 523 479 419 418

1990 618 263 263 290 351 218 181 218 218 257

2000 310 355 422 232 232 255 148 199 281 161

2010 168 123 133 138 113 113 109 102 119 121

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

15OA 1988 to 2019 32 years Series 54

[B] Entire series, effect on correlation ( .601) is:

Lower 2013< -.035 1989> -.031 2002< -.029 2009> -.027 1996> -.022 1991> -.021 Higher 1997 .042 2014 .039

15OA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1988 317 583

1990 832 505 623 355 320 223 386 217 270 202

2000 210 158 154 149 220 209 321 254 312 444

2010 497 576 340 279 199 236 218 290 249 289

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

15OB 1984 to 2019 36 years Series 55

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

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

1984 2019 -2 - - - - - - .06 -.15 .42\*-.06 .38| - - - - - - - - - -

[B] Entire series, effect on correlation ( .382) is:

Lower 2014> -.045 2012> -.034 1987< -.019 1989> -.017 1995> -.016 2016< -.016 Higher 1991 .064 1990 .023

1984 to 2019 segment:

Lower 2014> -.045 2012> -.034 1987< -.019 1989> -.017 1995> -.016 2016< -.016 Higher 1991 .064 1990 .023

15OB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 635 636 595 331 218 368

1990 514 267 337 156 123 169 197 148 195 157

2000 161 162 161 202 183 228 281 302 246 217

2010 283 230 242 217 203 186 156 190 155 181

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

15PB 1992 to 2019 28 years Series 56

[B] Entire series, effect on correlation ( .649) is:

Lower 2009> -.043 2012> -.030 1995> -.029 1992> -.028 2016< -.017 2003> -.017 Higher 2014 .096 1997 .049

15PB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1992 256 164 132 131 166 77 110 107

2000 154 160 189 211 253 267 303 237 260 332

2010 263 227 220 270 170 156 127 161 132 157

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

16QA 1985 to 2019 35 years Series 57

[B] Entire series, effect on correlation ( .332) is:

Lower 1990< -.065 2019< -.060 2011< -.053 2006< -.020 2003> -.013 1988> -.013 Higher 2013 .033 2012 .033

16QA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 740 751 619 608 376

1990 242 191 184 172 209 170 185 150 373 234

2000 330 299 400 362 415 453 293 294 330 288

2010 332 171 116 265 162 271 201 303 162 147

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

16QB 1981 to 2019 39 years Series 58

[B] Entire series, effect on correlation ( .484) is:

Lower 2011< -.138 1982> -.026 2003> -.014 1990< -.012 1997> -.011 1996> -.010 Higher 1981 .046 2014 .036

16QB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1981 143 414 671 707 584 654 573 324 233

1990 240 187 158 201 225 210 343 277 430 209

2000 319 354 408 360 315 273 223 185 208 150

2010 193 102 82 163 105 131 133 193 103 88

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

17SA 1984 to 2019 36 years Series 59

[B] Entire series, effect on correlation ( .544) is:

Lower 2019< -.075 1994< -.036 2012> -.028 1985< -.019 1992> -.016 2009> -.016 Higher 2014 .104 1991 .063

17SA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 662 549 438 414 396 461

1990 796 320 537 242 67 41 39 32 36 38

2000 48 42 57 58 75 78 90 71 61 76

2010 51 73 76 123 65 77 92 97 81 71

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

17SB 1983 to 2019 37 years Series 60

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

Lower 1994< -.064 1984< -.057 2014> -.039 2012> -.034 2010< -.029 2019< -.027 Higher 1991 .081 2013 .033

17SB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1983 661 574 610 596 489 337 335

1990 576 283 443 237 69 34 24 23 35 33

2000 59 45 56 49 75 57 78 59 51 54

2010 34 52 67 97 81 74 89 106 77 74

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

17UA 1986 to 2019 34 years Series 61

[B] Entire series, effect on correlation ( .571) is:

Lower 2019< -.080 2013< -.046 2015> -.021 2014> -.019 1993> -.015 2018> -.013 Higher 1991 .178 1997 .024

17UA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1986 728 662 594 618

1990 628 340 528 441 480 372 463 290 512 317

2000 742 501 657 552 830 557 806 679 752 528

2010 564 590 358 470 340 561 363 445 383 316

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

17UB 1987 to 2019 33 years Series 62

[B] Entire series, effect on correlation ( .367) is:

Lower 2014> -.078 2019< -.064 2006< -.032 1988> -.019 1995> -.017 1997> -.014 Higher 1991 .254 2013 .035

17UB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1987 652 585 539

1990 480 330 501 398 476 402 523 354 426 217

2000 442 326 433 352 545 331 362 321 445 313

2010 398 413 326 520 359 519 325 417 379 298

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

18FA 1983 to 2019 37 years Series 63

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

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

1983 2019 0 - - - - - - - .16 -.07 .15 .19\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .194) is:

Lower 2006< -.129 2017< -.030 1997> -.023 1983< -.022 1994< -.018 2013< -.014 Higher 2012 .039 1984 .034

1983 to 2019 segment:

Lower 2006< -.129 2017< -.030 1997> -.023 1983< -.022 1994< -.018 2013< -.014 Higher 2012 .039 1984 .034

18FA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1983 697 1208 1548 1134 533 379 416

1990 480 405 262 341 199 250 284 322 406 313

2000 317 259 367 297 406 462 161 229 297 334

2010 191 278 139 153 131 145 224 134 166 199

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

18FB 1985 to 2019 35 years Series 64

[B] Entire series, effect on correlation ( .461) is:

Lower 1997> -.063 1998< -.047 2001> -.024 2000< -.020 2012> -.017 2017< -.016 Higher 1991 .208 1985 .028

18FB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 604 534 368 341 346

1990 343 127 245 124 156 150 144 215 82 141

2000 103 285 195 199 160 308 213 373 336 165

2010 206 316 225 279 165 164 145 136 128 124

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

18GA 1982 to 2019 38 years Series 65

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

Lower 2002< -.049 2014> -.047 2004< -.030 1985< -.025 2012> -.023 1995> -.019 Higher 1991 .137 1984 .026

18GA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 467 725 814 561 593 504 492 423

1990 571 306 291 307 299 277 228 220 225 178

2000 178 136 115 92 99 132 161 189 134 112

2010 114 103 115 143 115 116 100 128 108 134

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

18HA 1983 to 2019 37 years Series 66

[B] Entire series, effect on correlation ( .427) is:

Lower 1986< -.098 1985< -.042 2018> -.037 2003> -.019 2005< -.013 1993> -.013 Higher 1997 .052 1995 .047

18HA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1983 785 776 498 329 618 449 465

1990 646 378 493 396 412 192 178 136 151 144

2000 208 189 248 200 163 115 118 103 109 107

2010 89 117 89 149 88 78 87 108 121 93

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

18HB 1982 to 2019 38 years Series 67

[B] Entire series, effect on correlation ( .422) is:

Lower 2014> -.031 2018> -.029 2001< -.023 1991> -.023 1993> -.019 1986< -.017 Higher 2013 .034 1997 .027

18HB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1982 460 530 568 415 353 532 358 261

1990 445 293 387 351 447 219 177 186 194 176

2000 175 134 208 154 168 164 127 123 127 109

2010 100 99 80 112 81 83 75 72 75 74

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

18NA 1984 to 2019 36 years Series 68

[B] Entire series, effect on correlation ( .377) is:

Lower 2006< -.122 2010< -.069 1997> -.036 2019< -.025 1996> -.016 2018> -.016 Higher 1991 .127 1995 .037

18NA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1984 712 614 592 439 318 256

1990 301 185 276 318 424 243 389 264 283 192

2000 250 261 333 214 288 198 151 132 159 167

2010 123 143 110 139 104 109 101 148 118 98

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

18NB 1985 to 2019 35 years Series 69

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

Lower 2014> -.053 2018> -.039 2010< -.031 2003< -.022 1990< -.016 2008< -.014 Higher 1991 .074 2012 .029

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

2000 +3.1 SD

18NB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 673 569 303 243 263

1990 266 188 218 263 317 198 219 177 162 166

2000 269 148 180 103 113 112 104 95 93 84

2010 77 100 73 86 80 81 78 93 93 79

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

18QA 1989 to 2019 31 years Series 70

[B] Entire series, effect on correlation ( .573) is:

Lower 1996< -.114 1989> -.030 2013< -.019 1997> -.016 1993> -.016 2003> -.016 Higher 2014 .114 1991 .045

18QA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1989 574

1990 525 271 276 331 310 266 126 178 297 211

2000 304 315 302 338 410 312 253 320 458 358

2010 357 303 217 205 92 134 117 164 133 150

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

18QB 1983 to 2019 37 years Series 71

[B] Entire series, effect on correlation ( .493) is:

Lower 1997> -.068 1995> -.054 1983< -.048 2000< -.035 2009> -.023 1989> -.018 Higher 1991 .174 2014 .037

18QB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1983 553 701 655 615 654 417 581

1990 492 317 431 441 472 510 429 485 530 276

2000 275 292 414 290 338 295 291 235 371 377

2010 239 322 179 235 148 156 156 261 219 233

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

20GB 1995 to 2019 25 years Series 72

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

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

1995 2019 0 -.07 -.07 -.15 -.39 .03 -.44 .09 -.41 -.14 -.27 .29\* - - - - - - - - - -

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

Lower 2010< -.061 1999> -.061 2014> -.046 2007< -.045 2013< -.022 2005< -.021 Higher 2012 .080 1995 .054

1995 to 2019 segment:

Lower 2010< -.061 1999> -.061 2014> -.046 2007< -.045 2013< -.022 2005< -.021 Higher 2012 .080 1995 .054

20GB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1995 398 445 435 590 501

2000 488 384 414 397 530 292 395 262 314 275

2010 238 331 203 278 262 262 280 385 225 279

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

22TA 1986 to 2019 34 years Series 73

[B] Entire series, effect on correlation ( .456) is:

Lower 2004< -.043 2012> -.042 2014> -.040 2003< -.034 2013< -.020 2016> -.017 Higher 1991 .115 1990 .024

22TA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1986 578 475 313 316

1990 468 213 292 290 296 193 250 193 198 122

2000 156 106 177 86 101 146 163 176 181 122

2010 118 130 159 129 127 157 192 145 117 139

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

22TB 1985 to 2019 35 years Series 74

[B] Entire series, effect on correlation ( .350) is:

Lower 2004< -.096 2014> -.038 1985< -.030 2012> -.022 2013< -.016 2001< -.015 Higher 1991 .166 1990 .036

22TB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 489 498 488 441 428

1990 672 265 398 336 438 241 388 213 218 175

2000 264 107 151 86 85 144 151 182 143 105

2010 98 98 113 97 98 119 139 123 91 101

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

22UA 1989 to 2019 31 years Series 75

[B] Entire series, effect on correlation ( .617) is:

Lower 2013< -.073 2011< -.036 2017< -.021 2006< -.016 2001> -.015 2015> -.015 Higher 2014 .106 1991 .033

22UA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1989 422

1990 496 285 332 296 497 321 476 227 474 282

2000 542 424 464 290 472 320 371 442 419 336

2010 335 197 200 165 149 248 216 211 155 198

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

22UB 1985 to 2019 35 years Series 76

[B] Entire series, effect on correlation ( .342) is:

Lower 1990< -.185 1988> -.046 2013< -.041 2008< -.037 2015> -.019 2011< -.017 Higher 1991 .051 1995 .050

22UB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 557 436 411 531 298

1990 265 207 298 207 235 129 166 120 171 129

2000 296 190 214 138 247 159 187 172 126 134

2010 130 103 92 91 82 133 119 140 88 118

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

24HA 1985 to 2018 34 years Series 77

[B] Entire series, effect on correlation ( .398) is:

Lower 1997> -.073 2003> -.049 2008< -.025 2006< -.023 2011< -.015 1986< -.015 Higher 1991 .047 1995 .038

24HA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 531 407 468 446 351

1990 435 345 334 377 491 310 351 447 397 257

2000 370 449 448 558 359 278 246 301 246 190

2010 330 210 207 339 185 205 452 319 172

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

24HB 1985 to 2019 35 years Series 78

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

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

1985 2019 0 - - - - - -.34 -.06 -.13 .13 .02 .25\* - - - - - - - - - -

[B] Entire series, effect on correlation ( .245) is:

Lower 2011< -.121 1997> -.028 1991> -.028 2003> -.026 1995> -.022 1998< -.020 Higher 1999 .041 1990 .025

1985 to 2019 segment:

Lower 2011< -.121 1997> -.028 1991> -.028 2003> -.026 1995> -.022 1998< -.020 Higher 1999 .041 1990 .025

24HB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 544 502 526 461 348

1990 528 445 361 444 599 472 442 428 292 220

2000 329 363 458 509 399 356 265 312 372 271

2010 312 171 197 276 219 254 244 261 202 252

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

26SA 1980 to 2019 40 years Series 79

[B] Entire series, effect on correlation ( .459) is:

Lower 2004< -.045 2000< -.039 2018< -.027 1999> -.026 1981> -.020 2009< -.020 Higher 1980 .048 1984 .034

26SA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1980 110 339 557 996 1125 616 440 390 297 283

1990 383 304 289 274 298 230 250 220 336 325

2000 202 256 312 199 167 192 260 209 275 167

2010 162 207 216 325 183 257 239 223 164 210

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

26SB 1981 to 2019 39 years Series 80

[B] Entire series, effect on correlation ( .595) is:

Lower 2004< -.036 2010< -.034 1992< -.022 2012> -.022 1999> -.022 1982> -.021 Higher 2014 .065 1981 .051

26SB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1981 349 597 760 835 753 525 570 444 295

1990 382 240 219 220 274 199 234 211 235 278

2000 439 284 469 272 250 225 309 207 283 148

2010 167 190 208 263 155 197 164 173 134 158

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

26TA 1985 to 2019 35 years Series 81

[B] Entire series, effect on correlation ( .348) is:

Lower 2014> -.101 1991> -.070 2017< -.060 2000< -.021 1997> -.009 1993> -.009 Higher 1995 .057 2013 .045

26TA Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1985 864 672 547 284 235

1990 361 347 346 304 346 175 135 149 203 106

2000 100 91 119 89 92 117 109 102 124 102

2010 114 99 96 143 139 132 139 105 116 134

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

26TB 1988 to 2019 32 years Series 82

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

Lower 2014> -.091 1996< -.050 2018> -.019 1993> -.016 2011< -.014 2004< -.013 Higher 1995 .048 1990 .033

26TB Ring measurements

Annual values

Date 0 1 2 3 4 5 6 7 8 9

1988 471 398

1990 539 352 338 348 483 231 132 141 206 122

2000 138 103 113 85 89 94 95 115 138 82

2010 86 76 80 98 104 106 103 140 132 118

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

PART 7: DESCRIPTIVE STATISTICS: FRPE\_UVM\_CORR1\_FINAL 11:31 Wed 24 Feb 2021 Page 7

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

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 8EA 1986 2019 34 1 1 .217 3.04 12.32 2.484 .974 .161 2.59 .466 -.156 1

2 8EB 1985 2019 35 1 0 .364 2.86 8.93 2.087 .936 .181 2.82 .572 -.140 2

3 11FA 1985 2019 35 1 1 .245 1.80 5.17 1.178 .890 .170 2.79 .701 .020 1

4 12DA 1982 2019 38 1 0 .691 2.28 4.71 .999 .788 .217 2.50 .526 -.088 1

5 12DB 1985 2019 35 1 0 .644 2.27 4.67 .916 .813 .194 2.71 .621 .155 1

6 12EA 1984 2019 36 1 1 .291 1.81 6.24 1.557 .966 .185 2.71 .596 -.002 1

7 12EB 1982 2019 38 1 0 .516 1.80 6.19 1.575 .952 .180 2.66 .706 -.063 1

8 14GA 1989 2019 31 1 0 .418 3.72 6.33 1.299 .715 .216 2.52 .539 -.067 1

9 14GB 1985 2019 35 1 1 .322 4.32 8.23 1.765 .696 .224 2.74 .564 -.025 1

10 14HB 1981 2019 39 1 1 .220 1.49 6.47 1.514 .862 .303 2.68 .442 -.083 1

11 14OA 1985 2019 35 1 1 .306 2.76 8.88 1.849 .900 .195 2.60 .442 -.039 1

12 14OB 1984 2019 36 1 0 .639 2.51 7.61 1.431 .908 .196 2.63 .554 -.013 1

13 14PA 1982 2019 38 1 0 .503 2.60 8.19 1.885 .826 .269 2.71 .699 -.101 1

14 14PB 1985 2019 35 1 0 .551 1.99 6.67 1.165 .858 .189 2.52 .527 -.039 1

15 15TA 2001 2019 19 1 1 .479 6.43 11.43 2.328 .696 .224 2.45 .588 -.073 2

16 15TB 1989 2019 31 1 1 .090 4.93 8.79 1.981 .722 .223 2.58 .538 .057 3

17 17FA 2000 2019 20 1 0 .567 1.98 2.70 .474 .197 .222 2.55 .759 .093 1

18 17FB 2000 2019 20 1 0 .581 1.74 3.27 .554 .347 .284 2.73 .682 -.101 1

19 17HA 1987 2019 33 1 1 .350 2.82 5.47 1.017 .591 .222 2.77 .532 -.022 1

20 17HB 1985 2019 35 1 0 .329 3.26 6.97 1.649 .883 .202 2.69 .692 -.005 1

21 17NA 1981 2019 39 1 0 .557 3.01 6.06 1.332 .747 .218 2.77 .516 .038 1

22 17NB 1981 2019 39 1 0 .692 2.75 6.44 1.337 .802 .217 2.49 .645 .028 1

23 17QA 1984 2019 36 1 0 .674 2.35 7.20 1.794 .892 .237 2.94 .669 .074 1

24 17QB 1982 2019 38 1 0 .657 1.97 6.37 1.659 .863 .277 3.04 .696 .024 1

25 20OA 1984 2019 36 1 0 .561 1.79 7.60 1.653 .961 .184 2.60 .626 -.059 1

26 20OB 1980 2019 40 1 0 .540 2.37 7.37 1.522 .836 .285 2.71 .604 -.095 1

27 22CA 1986 2019 34 1 1 .372 2.58 4.95 .837 .628 .221 2.68 .673 -.016 2

28 22CB 1986 2019 34 1 0 .618 3.16 6.39 1.284 .624 .268 2.70 .495 -.068 1

29 22EA 1983 2019 37 1 0 .431 2.96 9.74 2.101 .792 .276 2.85 .597 .011 1

30 22EB 1983 2019 37 1 1 .222 2.53 8.17 1.939 .904 .216 2.67 .476 -.030 1

31 27LA 1983 2019 37 1 0 .637 2.32 8.21 1.857 .932 .170 2.62 .606 -.035 3

32 27LB 1982 2019 38 1 0 .658 1.66 6.33 1.311 .838 .208 2.64 .519 -.158 1

33 27UA 1986 2019 34 1 1 .354 1.54 4.04 1.140 .765 .338 2.89 .508 .086 3

34 27UB 1985 2019 35 1 0 .553 1.85 7.32 1.655 .830 .351 2.86 .812 -.082 1

35 28CA 2005 2019 15 1 1 .213 2.98 6.89 1.729 .919 .222 3.05 .809 -.102 1

36 28CB 2005 2019 15 1 1 .293 3.71 5.43 .874 .801 .128 2.85 .832 -.200 1

37 28DA 1981 2019 39 1 0 .426 2.89 8.56 1.898 .901 .191 2.48 .472 .111 3

38 28DB 1982 2019 38 1 1 .315 3.93 9.98 2.270 .885 .247 2.71 .521 .120 3

39 28EA 1984 2019 36 1 1 .322 2.29 6.79 1.765 .958 .170 2.72 .565 .007 1

40 28EB 1987 2019 33 1 0 .535 2.46 5.32 1.535 .942 .154 2.52 .470 -.153 1

41 33CA 1995 2019 25 1 1 .229 6.17 9.89 2.131 .522 .298 2.63 .681 -.056 3

42 33CB 1990 2019 30 1 1 .179 4.93 7.49 1.784 .683 .294 2.51 .570 .013 1

43 9CA 1980 2016 37 1 0 .608 2.60 7.55 1.845 .900 .244 2.95 .726 .060 2

44 9CB 1982 2019 38 1 1 .386 3.05 7.82 1.907 .829 .252 2.74 .612 -.019 1

45 9DA 1985 2019 35 1 1 .324 2.43 7.55 2.154 .934 .230 2.65 .705 -.007 1

46 9DB 1985 2019 35 1 1 .302 2.02 6.27 1.507 .929 .218 2.88 .744 .120 1

47 10CA 1981 2019 39 1 0 .534 3.06 8.43 1.911 .853 .252 2.85 .648 -.017 1

48 10CB 1985 2019 35 1 0 .362 2.62 5.23 1.126 .773 .223 2.87 .621 .040 1

PART 7: DESCRIPTIVE STATISTICS: FRPE\_UVM\_CORR1\_FINAL 11:31 Wed 24 Feb 2021 Page 8

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

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 ()

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

49 10EA 1982 2014 33 1 0 .393 2.50 6.91 1.625 .916 .189 2.74 .530 -.083 1

50 10EB 1984 2015 32 1 0 .623 2.06 8.28 1.652 .966 .166 2.66 .550 -.051 1

51 14KA 1980 2019 40 1 0 .429 2.43 12.52 2.774 .878 .262 3.08 .594 -.106 1

52 14KB 1985 2019 35 1 0 .519 2.63 8.97 1.756 .866 .265 2.87 .708 -.114 1

53 14LB 1984 2019 36 1 0 .552 2.87 10.19 1.969 .846 .206 2.71 .582 -.096 1

54 15OA 1988 2019 32 1 0 .601 3.26 8.32 1.580 .658 .272 2.79 .754 -.282 1

55 15OB 1984 2019 36 1 1 .382 2.56 6.36 1.353 .781 .219 2.58 .621 -.116 1

56 15PB 1992 2019 28 1 0 .649 1.92 3.32 .654 .741 .206 2.61 .567 -.134 1

57 16QA 1985 2019 35 1 0 .332 3.08 7.51 1.618 .799 .281 2.49 .520 .179 2

58 16QB 1981 2019 39 1 0 .484 2.79 7.07 1.680 .808 .288 2.84 .569 -.017 1

59 17SA 1984 2019 36 1 0 .544 1.81 7.96 2.068 .808 .276 2.84 .611 -.094 1

60 17SB 1983 2019 37 1 0 .397 1.81 6.61 2.052 .902 .299 2.73 .672 .063 1

61 17UA 1986 2019 34 1 0 .571 5.28 8.30 1.493 .267 .290 2.43 .481 -.030 2

62 17UB 1987 2019 33 1 0 .367 4.15 6.52 .959 -.027 .286 2.49 .531 .032 2

63 18FA 1983 2019 37 1 1 .194 3.80 15.48 3.067 .818 .303 2.58 .527 -.106 1

64 18FB 1985 2019 35 1 0 .461 2.33 6.04 1.196 .644 .327 2.53 .516 -.082 2

65 18GA 1982 2019 38 1 0 .551 2.63 8.14 1.940 .904 .169 2.65 .525 .037 1

66 18HA 1983 2019 37 1 0 .427 2.60 7.85 2.046 .853 .242 2.88 .654 .091 1

67 18HB 1982 2019 38 1 0 .422 2.29 5.68 1.513 .847 .195 2.75 .659 -.013 1

68 18NA 1984 2019 36 1 0 .377 2.54 7.12 1.507 .857 .250 2.72 .637 -.043 3

69 18NB 1985 2019 35 1 0 .392 1.82 6.73 1.333 .883 .186 3.00 .590 -.080 1

70 18QA 1989 2019 31 1 0 .573 2.78 5.74 1.161 .717 .253 2.61 .585 -.012 1

71 18QB 1983 2019 37 1 0 .493 3.75 7.01 1.529 .777 .219 2.47 .514 .009 1

72 20GB 1995 2019 25 1 1 .293 3.54 5.90 1.039 .559 .222 2.81 .659 .013 1

73 22TA 1986 2019 34 1 0 .456 2.07 5.78 1.147 .765 .246 2.70 .612 -.064 1

74 22TB 1985 2019 35 1 0 .350 2.34 6.72 1.583 .755 .261 2.86 .696 .026 1

75 22UA 1989 2019 31 1 0 .617 3.31 5.42 1.176 .342 .305 2.60 .521 .004 3

76 22UB 1985 2019 35 1 0 .342 2.03 5.57 1.206 .778 .280 2.83 .631 .184 2

77 24HA 1985 2018 34 1 0 .398 3.47 5.58 1.042 .410 .273 2.84 .670 -.099 1

78 24HB 1985 2019 35 1 1 .245 3.61 5.99 1.157 .726 .209 2.54 .563 .042 1

79 26SA 1980 2019 40 1 0 .459 3.12 11.24 2.012 .758 .267 2.91 .690 -.064 1

80 26SB 1981 2019 39 1 0 .595 3.16 8.35 1.794 .826 .254 2.73 .634 -.091 3

81 26TA 1985 2019 35 1 0 .348 2.10 8.64 1.768 .925 .200 2.67 .624 .052 1

82 26TB 1988 2019 32 1 0 .392 1.83 5.38 1.351 .842 .202 2.78 .643 .116 1

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

Total or mean: 2807 82 25 .444 2.74 15.48 1.600 .791 .235 3.08 .601 -.022

- = [ COFECHA FRPE COF ] = -