

# *Annual Final Report*

## *AFR*

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Year number 13

AFR for the year 1993

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### **CV-Helios Network Annual Final Report for 1993**

In the year 1993, Solar Cycle no. 22

The Average CV was: 71,7 and the Average 6-rot. Smoothed CV was: 86,3

The Average CV-USAF was: 59,5

giving an Estimated STDEV of: 9,9

CV-Helios Network observed on 361 days

CV-Helios Network had a total of 1721 observations in 1993

CV-Helios Network have received 126 observation entries in the year 1993

CV-Helios Network's observers had an average of 15,5 observations per day

This Annual Final Report contain results from 13 CV-observers

A sincere thanks to all observers for their fine contributions in the passed year.

CV-Helios Network 01. April 1994



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Kjell Inge Malde  
Director



### CV-Helios Network Annual Final Report for 1993

| Collated results CV for the year 1993 |              |               |              |              |              |              |              |              |              |              |              |              |
|---------------------------------------|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| CV                                    | Jan          | Feb           | Mar          | Apr          | May          | Jun          | Jul          | Aug          | Sep          | Oct          | Nov          | Dec          |
| 1                                     | 76,00        | 31,07         | 92,25        | 103,33       | 34,77        | 123,00       | 71,57        | 40,98        | 45,00        | 80,00        | 56,67        | 37,00        |
| 2                                     | 80,17        | 58,19         | 118,72       | 122,33       | 21,80        | 129,05       | 71,76        | 51,83        | 37,25        | 108,50       | 52,95        | 74,33        |
| 3                                     | 73,67        | 79,50         | 109,15       | 120,15       | 49,00        | 129,83       | 72,60        | 53,17        | 21,33        | 123,33       | 42,20        | 142,00       |
| 4                                     | 67,00        | 112,25        | 136,12       | 154,52       | 60,00        | 103,49       | 85,00        | 64,12        | 27,23        | 113,33       | 48,00        | 96,75        |
| 5                                     | 115,67       | 137,95        | 152,45       | 134,80       | 92,00        | 110,00       | 88,00        | 45,78        | 12,69        | 115,58       | 50,50        | 107,67       |
| 6                                     |              | 193,15        | 139,33       | 152,60       | 104,75       | 110,00       | 81,25        | 51,20        | 2,33         | 107,67       | 49,50        | 65,67        |
| 7                                     |              | 144,67        | 104,29       | 124,31       | 117,20       | 94,33        | 64,23        | 37,30        | 5,84         | 96,00        | 49,50        | 59,00        |
| 8                                     | 108,67       | 152,50        | 92,80        | 86,06        | 116,25       | 89,57        | 49,50        | 51,43        | 4,58         | 104,00       | 47,50        | 62,67        |
| 9                                     | 131,33       | 151,42        | 88,00        | 116,95       | 118,33       | 78,97        | 44,53        | 56,75        | 3,03         | 118,86       | 46,50        | 38,67        |
| 10                                    | 105,93       | 131,00        | 68,08        | 120,08       | 151,58       | 77,21        | 37,55        | 98,43        | 0,83         | 81,43        | 45,00        | 45,50        |
| 11                                    | 115,00       | 124,33        | 89,45        | 82,42        | 160,73       | 67,18        | 39,00        | 110,67       | 0,00         | 85,33        | 18,50        | 41,44        |
| 12                                    | 127,50       | 138,25        | 109,33       | 68,51        | 134,20       | 32,98        | 36,20        | 96,79        | 0,25         | 113,00       | 25,67        | 25,75        |
| 13                                    | 114,01       | 140,00        | 106,50       | 16,76        | 114,00       | 33,78        | 46,00        | 107,37       | 1,06         | 37,46        | 28,50        | 6,76         |
| 14                                    | 83,75        | 76,00         | 105,14       | 4,49         | 108,40       | 20,75        | 69,37        | 77,91        | 2,06         | 36,48        | 43,25        | 9,88         |
| 15                                    | 105,50       | 95,75         | 67,33        | 8,65         | 81,50        | 28,40        | 85,00        | 147,94       | 5,80         | 36,00        | 55,01        | 42,00        |
| 16                                    | 112,33       | 137,67        | 59,43        | 6,00         | 43,75        | 29,00        | 106,60       | 34,63        | 11,46        | 75,80        | 53,50        | 34,33        |
| 17                                    | 123,00       | 45,47         | 105,00       | 22,40        | 39,86        | 25,67        | 112,00       | 58,39        | 12,19        | 56,76        | 56,41        | 42,00        |
| 18                                    | 94,00        | 82,67         | 80,60        | 43,00        | 28,45        | 14,33        | 115,00       | 66,08        | 17,61        | 61,50        | 58,03        | 42,50        |
| 19                                    | 86,84        | 94,39         | 103,14       | 13,00        | 22,81        | 0,80         | 89,83        | 72,14        | 6,54         | 21,50        | 56,05        | 22,67        |
| 20                                    | 77,50        | 113,80        | 96,13        | 80,43        | 25,09        | 14,21        | 77,50        | 62,88        | 2,00         |              | 54,41        | 65,00        |
| 21                                    | 65,00        | 135,68        | 107,25       | 115,14       | 9,77         | 23,00        | 101,40       | 64,04        | 2,75         | 68,36        | 56,93        |              |
| 22                                    | 91,00        | 176,67        | 80,11        | 112,50       | 7,92         | 37,98        | 73,50        | 68,77        | 4,00         | 66,45        | 61,91        | 81,20        |
| 23                                    | 68,33        | 168,80        | 60,50        | 112,60       | 4,80         | 48,75        | 112,50       | 93,23        | 9,33         | 51,21        | 69,67        | 73,40        |
| 24                                    | 64,25        | 129,33        | 52,32        | 75,85        | 6,86         | 75,25        | 82,50        | 78,82        | 40,80        | 60,40        | 124,00       | 67,56        |
| 25                                    | 54,50        | 123,00        | 46,80        | 118,54       | 42,52        | 87,73        | 67,67        | 88,00        | 53,33        | 15,33        | 43,24        | 159,00       |
| 26                                    | 38,00        | 112,83        | 61,80        | 97,94        | 45,14        | 91,17        | 72,95        | 68,63        | 63,67        | 10,33        | 45,75        | 101,29       |
| 27                                    | 47,37        | 132,83        | 81,24        | 90,05        | 68,50        | 86,60        | 102,50       | 58,71        | 105,21       | 22,31        | 36,51        | 83,92        |
| 28                                    | 40,96        | 152,50        | 86,55        | 87,61        | 85,20        | 87,81        | 69,00        | 75,24        | 103,50       | 4,57         | 63,12        | 90,33        |
| 29                                    | 44,82        |               | 88,01        | 51,28        | 81,28        | 87,35        | 57,37        | 52,57        | 94,00        | 10,25        | 51,50        | 133,75       |
| 30                                    | 60,92        |               | 96,02        | 53,62        | 96,13        | 66,44        | 53,75        | 43,50        | 74,17        | 54,75        | 73,67        | 153,75       |
| 31                                    | 58,75        |               | 117,80       |              | 105,25       |              | 34,86        | 38,83        |              | 57,50        |              | 154,00       |
| <b>72,97</b>                          | <b>83,85</b> | <b>120,42</b> | <b>93,60</b> | <b>83,20</b> | <b>70,25</b> | <b>66,82</b> | <b>73,24</b> | <b>68,26</b> | <b>25,66</b> | <b>66,47</b> | <b>52,13</b> | <b>71,99</b> |

## CV-Helios Network Annual Final Report for 1993

| Collated results Observers for the year 1993 |             |             |             |             |             |             |             |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Obsrvs.                                      | Jan         | Feb         | Mar         | Apr         | May         | Jun         | Jul         | Aug         | Sep         | Oct         | Nov         | Dec         |
| 1  | 4           | 5           | 5           | 3           | 7           | 5           | 7           | 7           | 5           | 2           | 2           | 1           |
| 2  | 6           | 6           | 5           | 3           | 5           | 4           | 7           | 6           | 4           | 2           | 4           | 3           |
| 3  | 8           | 4           | 2           | 5           | 5           | 3           | 5           | 6           | 3           | 3           | 4           | 3           |
| 4  | 3           | 4           | 3           | 5           | 4           | 3           | 7           | 7           | 7           | 3           | 2           | 4           |
| 5  | 3           | 4           | 3           | 5           | 5           | 5           | 4           | 6           | 8           | 3           | 2           | 3           |
| 6  |             | 5           | 3           | 5           | 4           | 6           | 4           | 5           | 6           | 3           | 2           | 3           |
| 7  |             | 3           | 6           | 4           | 5           | 6           | 6           | 7           | 8           | 2           | 2           | 2           |
| 8  | 3           | 2           | 5           | 6           | 8           | 6           | 6           | 7           | 7           | 3           | 2           | 3           |
| 9  | 3           | 4           | 5           | 8           | 8           | 6           | 6           | 4           | 6           | 7           | 2           | 3           |
| 10   | 3           | 4           | 5           | 9           | 6           | 8           | 6           | 7           | 6           | 7           | 2           | 2           |
| 11   | 2           | 6           | 5           | 5           | 6           | 4           | 4           | 6           | 7           | 3           | 2           | 4           |
| 12   | 2           | 4           | 6           | 4           | 5           | 3           | 5           | 9           | 8           | 1           | 3           | 4           |
| 13   | 3           | 1           | 4           | 4           | 3           | 4           | 4           | 8           | 7           | 4           | 3           | 2           |
| 14   | 4           | 3           | 7           | 6           | 5           | 3           | 3           | 8           | 7           | 3           | 4           | 3           |
| 15   | 2           | 4           | 6           | 5           | 6           | 5           | 3           | 8           | 5           | 2           | 4           | 1           |
| 16   | 6           | 3           | 5           | 6           | 8           | 3           | 5           | 8           | 5           | 5           | 2           | 3           |
| 17   | 7           | 2           | 1           | 5           | 7           | 3           | 7           | 8           | 5           | 5           | 4           | 4           |
| 18   | 2           | 3           | 5           | 4           | 6           | 7           | 7           | 8           | 7           | 2           | 5           | 2           |
| 19   | 4           | 5           | 7           | 1           | 7           | 5           | 5           | 7           | 7           | 2           | 5           | 3           |
| 20   | 2           | 5           | 8           | 7           | 6           | 7           | 4           | 8           | 6           |             | 5           | 1           |
| 21   | 1           | 6           | 6           | 7           | 5           | 5           | 5           | 10          | 4           | 2           | 6           |             |
| 22   | 1           | 7           | 5           | 4           | 10          | 4           | 4           | 9           | 3           | 4           | 4           | 5           |
| 23   | 3           | 5           | 4           | 5           | 10          | 4           | 6           | 5           | 3           | 5           | 3           | 5           |
| 24   | 4           | 3           | 3           | 5           | 7           | 5           | 8           | 6           | 5           | 5           | 1           | 1           |
| 25   | 4           | 3           | 5           | 6           | 7           | 7           | 9           | 4           | 3           | 3           | 6           | 1           |
| 26   | 3           | 6           | 6           | 6           | 7           | 5           | 6           | 8           | 3           | 3           | 6           | 4           |
| 27   | 4           | 6           | 5           | 7           | 6           | 5           | 5           | 4           | 4           | 3           | 3           | 4           |
| 28   | 2           | 6           | 5           | 9           | 5           | 5           | 2           | 6           | 4           | 7           | 4           | 3           |
| 29   | 3           |             | 5           | 7           | 9           | 7           | 8           | 7           | 2           | 4           | 4           | 4           |
| 30   | 6           |             | 5           | 8           | 6           | 8           | 4           | 6           | 6           | 4           | 3           | 4           |
| 31   | 4           |             | 5           |             | 8           |             | 8           | 6           |             | 2           |             | 7           |
| <b>4,78</b>                                  | <b>3,52</b> | <b>4,25</b> | <b>4,84</b> | <b>5,47</b> | <b>6,32</b> | <b>5,03</b> | <b>5,48</b> | <b>6,81</b> | <b>5,37</b> | <b>3,47</b> | <b>3,37</b> | <b>3,07</b> |

## CV-Helios Network Annual Final Report for 1993

| Collated results CV-USAF for the year 1993 |              |               |              |              |              |              |              |              |              |              |              |              |
|--|--------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| USAF-CV                                    | Jan          | Feb           | Mar          | Apr          | May          | Jun          | Jul          | Aug          | Sep          | Oct          | Nov          | Dec          |
| 1  | 59,70        | 19,37         | 75,70        | 86,93        | 22,38        | 107,36       | 55,44        | 27,60        | 31,07        | 63,58        | 41,50        | 24,23        |
| 2  | 63,75        | 42,89         | 102,85       | 106,65       | 12,19        | 113,76       | 55,62        | 37,12        | 24,44        | 92,23        | 38,12        | 58,09        |
| 3  | 57,45        | 63,10         | 92,91        | 104,36       | 34,59        | 114,59       | 56,42        | 38,32        | 11,84        | 107,71       | 28,65        | 127,64       |
| 4  | 51,10        | 96,11         | 121,31       | 141,26       | 44,56        | 87,08        | 68,49        | 48,39        | 16,32        | 97,24        | 33,70        | 80,23        |
| 5  | 99,67        | 123,28        | 139,00       | 119,89       | 75,45        | 93,78        | 71,46        | 31,75        | 5,85         | 99,57        | 35,92        | 91,37        |
| 6  |              | 184,40        | 124,76       | 139,16       | 88,38        | 93,78        | 64,81        | 36,55        | 0,36         | 91,37        | 35,03        | 49,84        |
| 7  |              | 130,52        | 87,90        | 108,73       | 101,27       | 77,80        | 48,49        | 24,48        | 1,87         | 79,47        | 35,03        | 43,63        |
| 8  | 92,40        | 139,05        | 76,25        | 69,54        | 100,27       | 73,03        | 35,03        | 36,75        | 1,27         | 87,61        | 33,26        | 47,03        |
| 9  | 116,19       | 137,87        | 71,46        | 101,01       | 102,45       | 62,58        | 30,66        | 41,57        | 0,61         | 103,00       | 32,38        | 25,63        |
| 10   | 89,58        | 115,84        | 52,12        | 104,28       | 138,04       | 60,87        | 24,69        | 81,93        |              | 64,98        | 31,07        | 31,51        |
| 11   | 98,97        | 108,76        | 72,90        | 65,96        | 148,09       | 51,27        | 25,91        | 94,47        |              | 68,82        | 9,79         | 27,99        |
| 12   | 112,11       | 123,60        | 93,09        | 52,52        | 119,25       | 20,92        | 23,56        | 80,27        |              | 96,89        | 15,11        | 15,17        |
| 13   | 97,94        | 125,48        | 90,17        | 8,57         | 97,93        | 21,56        | 31,94        | 91,07        | 0,01         | 24,62        | 17,32        | 2,35         |
| 14   | 67,26        | 59,70         | 88,77        | 1,22         | 92,13        | 11,42        | 53,34        | 61,55        | 0,27         | 23,80        | 29,55        | 4,10         |
| 15   | 89,14        | 79,22         | 51,41        | 3,39         | 65,05        | 17,23        | 68,49        | 134,08       | 1,85         | 23,40        | 39,99        | 28,47        |
| 16   | 96,20        | 122,97        | 44,04        | 1,95         | 29,98        | 17,71        | 90,27        | 22,26        | 5,07         | 59,50        | 38,62        | 22,02        |
| 17   | 107,36       | 31,48         | 88,63        | 12,63        | 26,64        | 15,11        | 95,85        | 43,07        | 5,53         | 41,58        | 41,26        | 28,47        |
| 18   | 77,46        | 66,19         | 64,17        | 29,33        | 17,27        | 6,92         | 98,97        | 50,23        | 9,16         | 45,95        | 42,74        | 28,90        |
| 19   | 70,31        | 77,85         | 86,73        | 6,05         | 12,94        |              | 73,29        | 55,99        | 2,23         | 11,96        | 40,93        | 12,83        |
| 20   | 61,15        | 97,72         | 79,60        | 64,00        | 14,67        | 6,84         | 61,15        | 47,23        | 0,25         |              | 39,44        | 49,21        |
| 21   | 49,21        | 120,84        | 90,94        | 99,12        | 4,04         | 13,08        | 84,95        | 48,31        | 0,50         | 52,38        | 41,74        |              |
| 22   | 74,45        | 165,81        | 63,69        | 96,37        | 2,97         | 25,05        | 57,29        | 52,77        | 1,01         | 50,58        | 46,33        | 64,76        |
| 23   | 52,36        | 157,02        | 45,02        | 96,47        | 1,37         | 34,36        | 96,37        | 76,68        | 3,78         | 36,56        | 53,62        | 57,19        |
| 24   | 48,51        | 114,06        | 37,55        | 59,56        | 2,39         | 58,97        | 66,03        | 62,43        | 27,44        | 44,93        | 108,41       | 51,62        |
| 25   | 39,52        | 107,36        | 32,64        | 102,66       | 28,92        | 71,19        | 51,73        | 71,46        | 38,47        | 7,59         | 29,54        | 146,18       |
| 26   | 25,07        | 96,72         | 46,22        | 81,44        | 31,20        | 74,62        | 56,76        | 52,63        | 47,96        | 4,38         | 31,73        | 84,84        |
| 27   | 33,15        | 117,79        | 64,80        | 73,50        | 52,52        | 70,07        | 86,07        | 43,37        | 88,85        | 12,57        | 23,83        | 67,42        |
| 28   | 27,59        | 139,05        | 70,02        | 71,08        | 68,69        | 71,27        | 52,99        | 58,96        | 87,10        | 1,26         | 47,46        | 73,79        |
| 29   | 30,92        |               | 71,47        | 36,62        | 64,84        | 70,82        | 42,14        | 37,78        | 77,46        | 4,33         | 36,82        | 118,77       |
| 30   | 45,41        |               | 79,50        | 38,72        | 79,61        | 50,57        | 38,84        | 29,77        | 57,93        | 39,75        | 57,45        | 140,42       |
| 31   | 43,40        |               | 101,89       |              | 88,89        |              | 22,45        | 25,77        |              | 42,26        |              | 140,69       |
| <b>59,76</b>                               | <b>68,18</b> | <b>105,86</b> | <b>77,66</b> | <b>69,43</b> | <b>57,06</b> | <b>54,95</b> | <b>57,73</b> | <b>53,05</b> | <b>20,31</b> | <b>52,66</b> | <b>37,88</b> | <b>58,15</b> |

## CV-Helios Network Annual Final Report for 1993

| Collated results STDEV for the year 1993 |              |              |              |             |             |              |              |              |             |             |              |             |
|--|--------------|--------------|--------------|-------------|-------------|--------------|--------------|--------------|-------------|-------------|--------------|-------------|
| std. Dev.                                | Jan          | Feb          | Mar          | Apr         | May         | Jun          | Jul          | Aug          | Sep         | Oct         | Nov          | Dec         |
| 1  | 11,53        | 8,28         | 11,70        | 11,60       | 8,76        | 11,06        | 11,41        | 9,46         | 9,85        | 11,61       | 10,73        | 9,03        |
| 2  | 11,61        | 10,82        | 11,22        | 11,09       | 6,80        | 10,81        | 11,41        | 10,41        | 9,06        | 11,50       | 10,49        | 11,49       |
| 3  | 11,47        | 11,60        | 11,49        | 11,17       | 10,19       | 10,78        | 11,44        | 10,50        | 6,71        | 11,05       | 9,59         | 10,15       |
| 4  | 11,25        | 11,41        | 10,47        | 9,38        | 10,92       | 11,60        | 11,67        | 11,12        | 7,71        | 11,38       | 10,11        | 11,68       |
| 5  | 11,31        | 10,38        | 9,51         | 10,54       | 11,70       | 11,47        | 11,69        | 9,92         | 4,84        | 11,32       | 10,31        | 11,52       |
| 6  |              | 6,19         | 10,30        | 9,50        | 11,58       | 11,47        | 11,63        | 10,36        | 1,40        | 11,52       | 10,23        | 11,19       |
| 7  |              | 10,00        | 11,59        | 11,01       | 11,27       | 11,69        | 11,13        | 9,06         | 2,81        | 11,69       | 10,23        | 10,87       |
| 8  | 11,50        | 9,51         | 11,70        | 11,68       | 11,30       | 11,70        | 10,23        | 10,38        | 2,35        | 11,59       | 10,07        | 11,06       |
| 9  | 10,71        | 9,58         | 11,69        | 11,27       | 11,23       | 11,59        | 9,81         | 10,73        | 1,71        | 11,21       | 9,98         | 9,22        |
| 10                                       | 11,56        | 10,72        | 11,29        | 11,17       | 9,57        | 11,55        | 9,09         | 11,67        |             | 11,63       | 9,85         | 9,90        |
| 11                                       | 11,33        | 11,01        | 11,70        | 11,64       | 8,94        | 11,25        | 9,25         | 11,45        |             | 11,68       | 6,16         | 9,51        |
| 12                                       | 10,88        | 10,36        | 11,48        | 11,30       | 10,57       | 8,53         | 8,93         | 11,68        |             | 11,39       | 7,47         | 7,48        |
| 13                                       | 11,36        | 10,27        | 11,55        | 5,79        | 11,36       | 8,64         | 9,94         | 11,53        | 0,74        | 9,08        | 7,91         | 3,12        |
| 14                                       | 11,66        | 11,53        | 11,57        | 2,31        | 11,51       | 6,60         | 11,33        | 11,57        | 1,26        | 8,97        | 9,69         | 4,08        |
| 15                                       | 11,56        | 11,69        | 11,26        | 3,72        | 11,63       | 7,89         | 11,67        | 9,80         | 2,79        | 8,91        | 10,62        | 9,57        |
| 16                                       | 11,41        | 10,39        | 10,89        | 2,86        | 9,73        | 7,98         | 11,54        | 8,74         | 4,52        | 11,52       | 10,52        | 8,71        |
| 17                                       | 11,06        | 9,89         | 11,57        | 6,91        | 9,34        | 7,47         | 11,42        | 10,83        | 4,71        | 10,73       | 10,71        | 9,57        |
| 18                                       | 11,70        | 11,65        | 11,62        | 9,66        | 7,90        | 5,24         | 11,33        | 11,21        | 5,97        | 11,00       | 10,81        | 9,61        |
| 19                                       | 11,69        | 11,69        | 11,61        | 4,92        | 6,98        |              | 11,70        | 11,42        | 3,05        | 6,74        | 10,69        | 6,96        |
| 20                                       | 11,56        | 11,37        | 11,68        | 11,62       | 7,37        | 5,21         | 11,56        | 11,07        | 1,24        |             | 10,59        | 11,16       |
| 21                                       | 11,16        | 10,50        | 11,53        | 11,33       | 4,05        | 7,01         | 11,63        | 11,12        | 1,59        | 11,30       | 10,74        |             |
| 22                                       | 11,70        | 7,68         | 11,61        | 11,41       | 3,50        | 9,14         | 11,46        | 11,31        | 2,12        | 11,22       | 11,02        | 11,63       |
| 23                                       | 11,30        | 8,33         | 10,95        | 11,40       | 2,43        | 10,17        | 11,41        | 11,70        | 3,93        | 10,36       | 11,34        | 11,46       |
| 24                                       | 11,13        | 10,80        | 10,44        | 11,52       | 3,16        | 11,51        | 11,65        | 11,59        | 9,44        | 10,94       | 11,02        | 11,27       |
| 25                                       | 10,59        | 11,06        | 10,01        | 11,22       | 9,62        | 11,69        | 11,27        | 11,69        | 10,51       | 5,47        | 9,69         | 9,06        |
| 26                                       | 9,14         | 11,40        | 11,01        | 11,67       | 9,86        | 11,70        | 11,45        | 11,31        | 11,10       | 4,21        | 9,92         | 11,63       |
| 27                                       | 10,06        | 10,64        | 11,63        | 11,70       | 11,30       | 11,69        | 11,62        | 10,85        | 11,57       | 6,89        | 8,97         | 11,66       |
| 28                                       | 9,46         | 9,51         | 11,69        | 11,69       | 11,67       | 11,69        | 11,32        | 11,51        | 11,60       | 2,34        | 11,08        | 11,70       |
| 29                                       | 9,83         |              | 11,69        | 10,37       | 11,63       | 11,69        | 10,77        | 10,46        | 11,70       | 4,19        | 10,38        | 10,59       |
| 30                                       | 10,97        |              | 11,69        | 10,53       | 11,68       | 11,22        | 10,54        | 9,71         | 11,48       | 10,61       | 11,47        | 9,43        |
| 31                                       | 10,85        |              | 11,25        |             | 11,57       |              | 8,77         | 9,23         |             | 10,78       |              | 9,41        |
| <b>9,92</b>                              | <b>11,08</b> | <b>10,29</b> | <b>11,27</b> | <b>9,73</b> | <b>9,33</b> | <b>10,00</b> | <b>10,97</b> | <b>10,75</b> | <b>5,77</b> | <b>9,76</b> | <b>10,08</b> | <b>9,79</b> |

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| Collated results CV 6 rot. averages for the year 1993 |               |               |               |               |              |              |              |              |              |              |              |              |
|---|---------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| CV-6 rot.   | Jan           | Feb           | Mar           | Apr           | May          | Jun          | Jul          | Aug          | Sep          | Oct          | Nov          | Dec          |
| 1   | 108,42        | 105,97        | 117,66        | 117,09        | 102,44       | 90,93        | 84,28        | 80,68        | 72,45        | 63,01        | 59,85        | 57,94        |
| 2   | 108,49        | 105,93        | 117,75        | 117,00        | 101,11       | 90,94        | 84,19        | 80,42        | 72,18        | 62,97        | 60,13        | 58,25        |
| 3   | 108,50        | 106,03        | 118,07        | 117,02        | 100,11       | 91,06        | 84,16        | 80,05        | 71,95        | 63,04        | 60,35        | 58,89        |
| 4   | 108,62        | 106,42        | 118,48        | 116,90        | 99,86        | 91,13        | 84,28        | 79,61        | 71,79        | 63,04        | 60,61        | 59,18        |
| 5   | 109,10        | 107,14        | 118,86        | 116,63        | 99,43        | 91,33        | 84,26        | 78,82        | 71,59        | 63,28        | 60,66        | 59,38        |
| 6   | 109,39        | 108,27        | 118,98        | 116,12        | 98,75        | 91,61        | 84,34        | 78,10        | 71,22        | 63,22        | 60,68        | 59,25        |
| 7   | 109,49        | 109,12        | 118,90        | 115,30        | 98,12        | 91,59        | 84,34        | 77,54        | 70,76        | 63,21        | 60,57        | 59,05        |
| 8   | 109,77        | 109,94        | 119,06        | 114,76        | 98,23        | 91,45        | 84,31        | 77,10        | 70,26        | 63,29        | 60,33        | 58,90        |
| 9   | 110,19        | 110,81        | 118,88        | 114,15        | 97,83        | 91,18        | 84,35        | 76,76        | 69,74        | 63,48        | 60,12        | 58,60        |
| 10  | 110,23        | 111,49        | 118,45        | 113,68        | 98,16        | 90,96        | 84,29        | 76,55        | 69,16        | 63,67        | 59,81        | 58,34        |
| 11  | 110,46        | 112,11        | 118,20        | 113,06        | 98,47        | 90,63        | 84,28        | 76,29        | 68,45        | 63,86        | 59,28        | 58,19        |
| 12  | 110,56        | 112,78        | 118,19        | 112,16        | 98,58        | 90,11        | 84,22        | 76,32        | 67,82        | 64,34        | 58,68        | 57,91        |
| 13  | 110,56        | 113,36        | 118,12        | 111,04        | 98,75        | 89,87        | 84,13        | 76,25        | 67,08        | 64,43        | 58,06        | 57,51        |
| 14  | 110,17        | 113,37        | 118,01        | 110,41        | 98,75        | 89,52        | 84,20        | 76,06        | 66,36        | 64,36        | 57,53        | 57,13        |
| 15  | 109,83        | 113,69        | 117,74        | 109,22        | 98,71        | 89,21        | 84,53        | 76,13        | 65,45        | 64,21        | 57,23        | 56,86        |
| 16  | 109,79        | 114,15        | 117,32        | 108,24        | 98,22        | 88,93        | 84,82        | 75,42        | 64,70        | 64,11        | 56,89        | 56,53        |
| 17  | 109,79        | 114,06        | 117,23        | 107,69        | 97,91        | 88,67        | 85,02        | 74,92        | 63,84        | 63,82        | 56,56        | 56,29        |
| 18  | 109,61        | 114,18        | 116,79        | 107,28        | 98,00        | 88,05        | 85,04        | 74,69        | 63,19        | 63,48        | 56,33        | 56,16        |
| 19  | 109,30        | 114,38        | 116,59        | 106,12        | 97,89        | 87,51        | 84,74        | 74,56        | 62,71        | 62,90        | 56,13        | 55,99        |
| 20  | 108,98        | 114,81        | 116,49        | 105,56        | 97,92        | 87,07        | 84,04        | 74,41        | 62,01        | 62,56        | 55,98        | 56,12        |
| 21  | 108,62        | 115,48        | 116,49        | 105,50        | 97,38        | 86,54        | 83,77        | 74,39        | 61,29        | 62,05        | 55,85        | 56,23        |
| 22  | 108,44        | 116,27        | 116,15        | 105,14        | 96,52        | 85,98        | 83,29        | 74,26        | 60,81        | 61,47        | 55,82        | 56,50        |
| 23  | 108,24        | 116,88        | 115,94        | 105,19        | 95,66        | 85,63        | 83,05        | 74,16        | 60,45        | 60,96        | 56,05        | 56,72        |
| 24  | 107,89        | 117,05        | 115,76        | 104,64        | 94,79        | 85,38        | 82,76        | 73,99        | 60,60        | 60,63        | 56,60        | 56,86        |
| 25  | 107,59        | 117,17        | 115,62        | 104,44        | 93,65        | 85,14        | 82,41        | 73,89        | 60,90        | 60,06        | 56,74        | 57,41        |
| 26  | 107,33        | 117,24        | 115,81        | 104,39        | 92,90        | 85,00        | 82,01        | 73,90        | 61,23        | 59,63        | 56,84        | 57,51        |
| 27  | 107,11        | 117,31        | 116,09        | 104,30        | 92,39        | 85,02        | 81,79        | 73,89        | 61,84        | 59,49        | 56,89        | 57,37        |
| 28  | 106,77        | 117,62        | 116,41        | 104,31        | 91,70        | 84,91        | 81,74        | 73,71        | 62,33        | 59,28        | 57,12        | 57,24        |
| 29  | 106,48        |               | 116,85        | 103,86        | 91,35        | 84,76        | 81,51        | 73,54        | 62,64        | 59,17        | 57,35        | 57,35        |
| 30  | 106,32        |               | 117,20        | 103,54        | 90,90        | 84,41        | 81,00        | 73,18        | 63,02        | 59,36        | 57,80        | 57,75        |
| 31  | 106,22        |               | 117,21        |               | 91,06        |              | 80,93        | 72,83        |              | 59,56        |              | 58,22        |
| <b>86,24</b>  | <b>108,78</b> | <b>112,61</b> | <b>117,40</b> | <b>109,83</b> | <b>96,95</b> | <b>88,48</b> | <b>83,61</b> | <b>75,88</b> | <b>65,93</b> | <b>62,32</b> | <b>58,09</b> | <b>57,60</b> |



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| NOAA Regions year 1993 |      |          |       |      |       |     | 241 regions |      |      |       |      |       |
|------------------------|------|----------|-------|------|-------|-----|-------------|------|------|-------|------|-------|
| Reg.                   | Date | Lat.     | Long. | Rot. | Class |     | Reg.        | Date | Lat. | Long. | Rot. | Class |
| 1                      | 7386 | 02.01.93 | -04   | 182  | 1864  | CHO | 271         |      |      |       |      |       |
| 2                      | 7387 | 02.01.93 | -23   | 180  | 1864  | CSO | 272         |      |      |       |      |       |
| 3                      | 7388 | 03.01.93 | -08   | 268  | 1864  | BXO | 273         |      |      |       |      |       |
| 4                      | 7389 | 09.01.93 | -20   | 162  | 1864  | AXX | 274         |      |      |       |      |       |
| 5                      | 7390 | 03.01.93 | 12    | 262  | 1864  | BXO | 275         |      |      |       |      |       |
| 6                      | 7391 | 05.01.93 | -09   | 136  | 1864  | CSO | 276         |      |      |       |      |       |
| 7                      | 7392 | 05.01.93 | 14    | 191  | 1864  | AXX | 277         |      |      |       |      |       |
| 8                      | 7393 | 05.01.93 | -18   | 196  | 1864  | AXX | 278         |      |      |       |      |       |
| 9                      | 7394 | 06.01.93 | -17   | 177  | 1864  | AXX | 279         |      |      |       |      |       |
| 10                     | 7395 | 07.01.93 | 12    | 112  | 1864  | CSO | 280         |      |      |       |      |       |
| 11                     | 7396 | 07.01.93 | -12   | 144  | 1864  | AXX | 281         |      |      |       |      |       |
| 12                     | 7397 | 05.01.93 | 15    | 215  | 1864  | AXX | 282         |      |      |       |      |       |
| 13                     | 7398 | 08.01.93 | 08    | 114  | 1864  | AXX | 283         |      |      |       |      |       |
| 14                     | 7399 | 09.01.93 | 06    | 130  | 1864  | AXX | 284         |      |      |       |      |       |
| 15                     | 7400 | 10.01.93 | -10   | 105  | 1864  | CRO | 285         |      |      |       |      |       |
| 16                     | 7401 | 14.01.93 | -11   | 18   | 1864  | CSO | 286         |      |      |       |      |       |
| 17                     | 7402 | 14.01.93 | -26   | 24   | 1864  | CRO | 287         |      |      |       |      |       |
| 18                     | 7403 | 16.01.93 | 16    | 358  | 1865  | CSO | 288         |      |      |       |      |       |
| 19                     | 7404 | 14.01.93 | 20    | 87   | 1864  | CSO | 289         |      |      |       |      |       |
| 20                     | 7406 | 19.01.93 | -12   | 309  | 1865  | CAO | 290         |      |      |       |      |       |
| 21                     | 7407 | 22.01.93 | -07   | 277  | 1865  | CSO | 291         |      |      |       |      |       |
| 22                     | 7408 | 25.01.93 | 12    | 14   | 1864  | AXX | 292         |      |      |       |      |       |
| 23                     | 7409 | 25.01.93 | 17    | 317  | 1865  | BXO | 293         |      |      |       |      |       |
| 24                     | 7411 | 26.01.93 | -12   | 292  | 1865  | AXX | 294         |      |      |       |      |       |
| 25                     | 7412 | 28.01.93 | -14   | 192  | 1865  | CSO | 295         |      |      |       |      |       |
| 26                     | 7413 | 29.01.93 | 16    | 203  | 1865  | AXX | 296         |      |      |       |      |       |
| 27                     | 7414 | 03.02.93 | 17    | 177  | 1865  | AXX | 297         |      |      |       |      |       |
| 28                     | 7415 | 01.02.93 | 04    | 226  | 1865  | CRO | 298         |      |      |       |      |       |
| 29                     | 7416 | 02.02.93 | -11   | 124  | 1865  | AXX | 299         |      |      |       |      |       |
| 30                     | 7417 | 02.02.93 | 14    | 125  | 1865  | BXO | 300         |      |      |       |      |       |
| 31                     | 7418 | 04.02.93 | 05    | 163  | 1865  | BXO | 301         |      |      |       |      |       |
| 32                     | 7419 | 04.02.93 | 10    | 113  | 1865  | EHF | 302         |      |      |       |      |       |
| 33                     | 7420 | 05.02.93 | -08   | 87   | 1865  | CAO | 303         |      |      |       |      |       |
| 34                     | 7421 | 05.02.93 | -13   | 213  | 1865  | BXO | 304         |      |      |       |      |       |
| 35                     | 7422 | 07.02.93 | -03   | 104  | 1865  | CAO | 305         |      |      |       |      |       |
| 36                     | 7423 | 04.02.93 | 07    | 171  | 1865  | AXX | 306         |      |      |       |      |       |
| 37                     | 7424 | 10.02.93 | 07    | 22   | 1865  | AXX | 307         |      |      |       |      |       |
| 38                     | 7425 | 12.02.93 | 13    | 357  | 1866  | CSO | 308         |      |      |       |      |       |
| 39                     | 7426 | 15.02.93 | 05    | 330  | 1866  | AXX | 309         |      |      |       |      |       |
| 40                     | 7427 | 15.02.93 | -22   | 323  | 1866  | CSO | 310         |      |      |       |      |       |
| 41                     | 7428 | 15.02.93 | -05   | 315  | 1866  | AXX | 311         |      |      |       |      |       |
| 42                     | 7429 | 17.02.93 | -14   | 293  | 1866  | CSO | 312         |      |      |       |      |       |
| 43                     | 7430 | 19.02.93 | 08    | 314  | 1866  | CAO | 313         |      |      |       |      |       |
| 44                     | 7431 | 18.02.93 | -13   | 282  | 1866  | AXX | 314         |      |      |       |      |       |
| 45                     | 7432 | 19.02.93 | -17   | 265  | 1866  | BXO | 315         |      |      |       |      |       |
| 46                     | 7433 | 21.02.93 | 12    | 237  | 1866  | CSO | 316         |      |      |       |      |       |
| 47                     | 7434 | 22.02.93 | -13   | 222  | 1866  | CAO | 317         |      |      |       |      |       |
| 48                     | 7435 | 26.02.93 | 09    | 180  | 1866  | BXO | 318         |      |      |       |      |       |
| 49                     | 7436 | 24.02.93 | 07    | 266  | 1866  | CRO | 319         |      |      |       |      |       |
| 50                     | 7437 | 01.03.93 | -23   | 241  | 1866  | AXX | 320         |      |      |       |      |       |
| 51                     | 7438 | 05.03.93 | -22   | 152  | 1866  | AXX | 321         |      |      |       |      |       |
| 52                     | 7439 | 02.03.93 | -11   | 114  | 1866  | CSO | 322         |      |      |       |      |       |
| 53                     | 7440 | 03.03.93 | -05   | 99   | 1866  | CSO | 323         |      |      |       |      |       |
| 54                     | 7441 | 05.03.93 | 08    | 95   | 1866  | DAO | 324         |      |      |       |      |       |
| 55                     | 7442 | 01.03.93 | 23    | 161  | 1866  | AXX | 325         |      |      |       |      |       |
| 56                     | 7443 | 05.03.93 | 17    | 118  | 1866  | AXX | 326         |      |      |       |      |       |
| 57                     | 7444 | 06.03.93 | -08   | 82   | 1866  | AXX | 327         |      |      |       |      |       |
| 58                     | 7445 | 08.03.93 | -01   | 87   | 1866  | AXX | 328         |      |      |       |      |       |
| 59                     | 7446 | 09.03.93 | 11    | 76   | 1866  | BXO | 329         |      |      |       |      |       |
| 60                     | 7447 | 05.03.93 | 14    | 130  | 1866  | AXX | 330         |      |      |       |      |       |
| 61                     | 7448 | 11.03.93 | 16    | 358  | 1867  | AXX | 331         |      |      |       |      |       |
| 62                     | 7449 | 15.03.93 | -10   | 24   | 1866  | BXO | 332         |      |      |       |      |       |
| 63                     | 7450 | 15.03.93 | -20   | 303  | 1867  | CSO | 333         |      |      |       |      |       |
| 64                     | 7451 | 16.03.93 | -19   | 290  | 1867  | BXO | 334         |      |      |       |      |       |
| 65                     | 7452 | 17.03.93 | -14   | 282  | 1867  | CSO | 335         |      |      |       |      |       |
| 66                     | 7453 | 19.03.93 | -06   | 264  | 1867  | AXX | 336         |      |      |       |      |       |
| 67                     | 7454 | 20.03.93 | -14   | 245  | 1867  | BXO | 337         |      |      |       |      |       |
| 68                     | 7455 | 21.03.93 | 19    | 328  | 1867  | BXO | 338         |      |      |       |      |       |
| 69                     | 7456 | 19.03.93 | 05    | 268  | 1867  | CRO | 339         |      |      |       |      |       |
| 70                     | 7457 | 23.03.93 | 09    | 302  | 1867  | DSO | 340         |      |      |       |      |       |
| 71                     | 7458 | 20.03.93 | -14   | 250  | 1867  | AXX | 341         |      |      |       |      |       |
| 72                     | 7459 | 21.03.93 | 13    | 266  | 1867  | AXX | 342         |      |      |       |      |       |
| 73                     | 7460 | 26.03.93 | 21    | 192  | 1867  | BXO | 343         |      |      |       |      |       |
| 74                     | 7461 | 26.03.93 | 04    | 158  | 1867  | CSO | 344         |      |      |       |      |       |
| 75                     | 7462 | 26.03.93 | 19    | 248  | 1867  | AXX | 345         |      |      |       |      |       |
| 76                     | 7463 | 28.03.93 | -14   | 136  | 1867  | CSO | 346         |      |      |       |      |       |
| 77                     | 7464 | 28.03.93 | 10    | 184  | 1867  | AXX | 347         |      |      |       |      |       |
| 78                     | 7465 | 30.03.93 | -06   | 108  | 1867  | CSO | 348         |      |      |       |      |       |
| 79                     | 7466 | 30.03.93 | -22   | 153  | 1867  | AXX | 349         |      |      |       |      |       |
| 80                     | 7467 | 28.03.93 | 08    | 191  | 1867  | BXO | 350         |      |      |       |      |       |
| 81                     | 7468 | 01.04.93 | -06   | 94   | 1867  | AXX | 351         |      |      |       |      |       |
| 82                     | 7469 | 03.04.93 | -11   | 76   | 1867  | AXX | 352         |      |      |       |      |       |
| 83                     | 7470 | 04.04.93 | -09   | 69   | 1867  | DRO | 353         |      |      |       |      |       |
| 84                     | 7471 | 09.04.93 | 17    | 62   | 1867  | BXO | 354         |      |      |       |      |       |
| 85                     | 7472 | 08.04.93 | 03    | 73   | 1867  | BXO | 355         |      |      |       |      |       |
| 86                     | 7473 | 11.04.93 | 15    | 03   | 1867  | AXX | 356         |      |      |       |      |       |
| 87                     | 7474 | 12.04.93 | 23    | 76   | 1867  | AXX | 357         |      |      |       |      |       |
| 88                     | 7475 | 14.04.93 | 04    | 281  | 1868  | BXO | 358         |      |      |       |      |       |
| 89                     | 7477 | 17.04.93 | 08    | 231  | 1868  | AXX | 359         |      |      |       |      |       |
| 90                     | 7478 | 18.04.93 | -05   | 308  | 1868  | AXX | 360         |      |      |       |      |       |



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|     |      |          |     |     |      |     |     |  |  |  |  |  |
|-----|------|----------|-----|-----|------|-----|-----|--|--|--|--|--|
| 184 | 7584 | 19.09.93 | -03 | 92  | 1873 | BXO | 454 |  |  |  |  |  |
| 185 | 7585 | 22.09.93 | -08 | 335 | 1874 | AXX | 455 |  |  |  |  |  |
| 186 | 7587 | 26.09.93 | 04  | 01  | 1874 | BXO | 456 |  |  |  |  |  |
| 187 | 7588 | 26.09.93 | 21  | 321 | 1874 | DSO | 457 |  |  |  |  |  |
| 188 | 7589 | 27.09.93 | 18  | 335 | 1874 | BXO | 458 |  |  |  |  |  |
| 189 | 7590 | 28.09.93 | 12  | 225 | 1874 | FKO | 459 |  |  |  |  |  |
| 190 | 7591 | 28.09.93 | 09  | 233 | 1874 | EAI | 460 |  |  |  |  |  |
| 191 | 7592 | 01.10.93 | -13 | 181 | 1874 | CSO | 461 |  |  |  |  |  |
| 192 | 7593 | 03.10.93 | -16 | 265 | 1874 | DSO | 462 |  |  |  |  |  |
| 193 | 7594 | 03.10.93 | 09  | 247 | 1874 | BXO | 463 |  |  |  |  |  |
| 194 | 7595 | 04.10.93 | 06  | 269 | 1874 | CRO | 464 |  |  |  |  |  |
| 195 | 7596 | 07.10.93 | 04  | 135 | 1874 | AXX | 465 |  |  |  |  |  |
| 196 | 7597 | 09.10.93 | -21 | 81  | 1874 | DAO | 466 |  |  |  |  |  |
| 197 | 7598 | 09.10.93 | -12 | 84  | 1874 | BXO | 467 |  |  |  |  |  |
| 198 | 7599 | 12.10.93 | -12 | 111 | 1874 | BXO | 468 |  |  |  |  |  |
| 199 | 7600 | 12.10.93 | 14  | 45  | 1874 | CSO | 469 |  |  |  |  |  |
| 200 | 7601 | 16.10.93 | 05  | 67  | 1874 | BXO | 470 |  |  |  |  |  |
| 201 | 7602 | 16.10.93 | -09 | 348 | 1875 | CAO | 471 |  |  |  |  |  |
| 202 | 7603 | 19.10.93 | -17 | 334 | 1875 | AXX | 472 |  |  |  |  |  |
| 203 | 7604 | 20.10.93 | 10  | 00  | 1875 | AXX | 473 |  |  |  |  |  |
| 204 | 7605 | 21.10.93 | -17 | 350 | 1875 | BXO | 474 |  |  |  |  |  |
| 205 | 7607 | 23.10.93 | -03 | 308 | 1875 | AXX | 475 |  |  |  |  |  |
| 206 | 7608 | 26.10.93 | 09  | 237 | 1875 | AXX | 476 |  |  |  |  |  |
| 207 | 7609 | 27.10.93 | 12  | 275 | 1875 | AXX | 477 |  |  |  |  |  |
| 208 | 7610 | 26.10.93 | -13 | 296 | 1875 | AXX | 478 |  |  |  |  |  |
| 209 | 7612 | 28.10.93 | -17 | 188 | 1875 | AXX | 479 |  |  |  |  |  |
| 210 | 7613 | 30.10.93 | -11 | 158 | 1875 | AXX | 480 |  |  |  |  |  |
| 211 | 7614 | 01.11.93 | -07 | 165 | 1875 | AXX | 481 |  |  |  |  |  |
| 212 | 7615 | 03.11.93 | -14 | 204 | 1875 | AXX | 482 |  |  |  |  |  |
| 213 | 7616 | 06.11.93 | 07  | 71  | 1875 | AXX | 483 |  |  |  |  |  |
| 214 | 7617 | 06.11.93 | -20 | 84  | 1875 | AXX | 484 |  |  |  |  |  |
| 215 | 7618 | 13.11.93 | 08  | 338 | 1876 | DAI | 485 |  |  |  |  |  |
| 216 | 7619 | 15.11.93 | 11  | 45  | 1875 | AXX | 486 |  |  |  |  |  |
| 217 | 7620 | 19.11.93 | 04  | 261 | 1876 | AXX | 487 |  |  |  |  |  |
| 218 | 7621 | 21.11.93 | -10 | 257 | 1876 | AXX | 488 |  |  |  |  |  |
| 219 | 7622 | 22.11.93 | 13  | 223 | 1876 | CSO | 489 |  |  |  |  |  |
| 220 | 7623 | 02.12.93 | -09 | 162 | 1876 | CSO | 490 |  |  |  |  |  |
| 221 | 7624 | 29.11.93 | 03  | 187 | 1876 | BXO | 491 |  |  |  |  |  |
| 222 | 7625 | 29.11.93 | -14 | 186 | 1876 | CRO | 492 |  |  |  |  |  |
| 223 | 7626 | 30.11.93 | 28  | 176 | 1876 | CSO | 493 |  |  |  |  |  |
| 224 | 7627 | 02.12.93 | -18 | 104 | 1876 | EAI | 494 |  |  |  |  |  |
| 225 | 7628 | 01.12.93 | -21 | 233 | 1876 | AXX | 495 |  |  |  |  |  |
| 226 | 7629 | 04.12.93 | -22 | 80  | 1876 | DAO | 496 |  |  |  |  |  |
| 227 | 7630 | 04.12.93 | -10 | 79  | 1876 | AXX | 497 |  |  |  |  |  |
| 228 | 7631 | 10.12.93 | 15  | 74  | 1876 | AXX | 498 |  |  |  |  |  |
| 229 | 7632 | 10.12.93 | 07  | 345 | 1877 | AXX | 499 |  |  |  |  |  |
| 230 | 7633 | 11.12.93 | -18 | 90  | 1876 | AXX | 500 |  |  |  |  |  |
| 231 | 7634 | 11.12.93 | -12 | 70  | 1876 | AXX | 501 |  |  |  |  |  |
| 232 | 7635 | 15.12.93 | 03  | 275 | 1877 | CSO | 502 |  |  |  |  |  |
| 233 | 7637 | 17.12.93 | 07  | 329 | 1877 | DAI | 503 |  |  |  |  |  |
| 234 | 7638 | 18.12.93 | 12  | 349 | 1877 | BXO | 504 |  |  |  |  |  |
| 235 | 7640 | 21.12.93 | 08  | 200 | 1877 | DAO | 505 |  |  |  |  |  |
| 236 | 7641 | 21.12.93 | 03  | 198 | 1877 | CSO | 506 |  |  |  |  |  |
| 237 | 7642 | 25.12.93 | -10 | 238 | 1877 | AXX | 507 |  |  |  |  |  |
| 238 | 7643 | 25.12.93 | -16 | 149 | 1877 | AXX | 508 |  |  |  |  |  |
| 239 | 7644 | 28.12.93 | 11  | 189 | 1877 | AXX | 509 |  |  |  |  |  |
| 240 | 7645 | 29.12.93 | 11  | 83  | 1877 | CSO | 510 |  |  |  |  |  |
| 241 | 7646 | 29.12.93 | -09 | 84  | 1877 | CSI | 511 |  |  |  |  |  |
| 242 |      |          |     |     |      |     | 512 |  |  |  |  |  |
| 243 |      |          |     |     |      |     | 513 |  |  |  |  |  |
| 244 |      |          |     |     |      |     | 514 |  |  |  |  |  |
| 245 |      |          |     |     |      |     | 515 |  |  |  |  |  |
| 246 |      |          |     |     |      |     | 516 |  |  |  |  |  |
| 247 |      |          |     |     |      |     | 517 |  |  |  |  |  |
| 248 |      |          |     |     |      |     | 518 |  |  |  |  |  |
| 249 |      |          |     |     |      |     | 519 |  |  |  |  |  |
| 250 |      |          |     |     |      |     | 520 |  |  |  |  |  |
| 251 |      |          |     |     |      |     | 521 |  |  |  |  |  |
| 252 |      |          |     |     |      |     | 522 |  |  |  |  |  |
| 253 |      |          |     |     |      |     | 523 |  |  |  |  |  |
| 254 |      |          |     |     |      |     | 524 |  |  |  |  |  |
| 255 |      |          |     |     |      |     | 525 |  |  |  |  |  |
| 256 |      |          |     |     |      |     | 526 |  |  |  |  |  |
| 257 |      |          |     |     |      |     | 527 |  |  |  |  |  |
| 258 |      |          |     |     |      |     | 528 |  |  |  |  |  |
| 259 |      |          |     |     |      |     | 529 |  |  |  |  |  |
| 260 |      |          |     |     |      |     | 530 |  |  |  |  |  |
| 261 |      |          |     |     |      |     | 531 |  |  |  |  |  |
| 262 |      |          |     |     |      |     | 532 |  |  |  |  |  |
| 263 |      |          |     |     |      |     | 533 |  |  |  |  |  |
| 264 |      |          |     |     |      |     | 534 |  |  |  |  |  |
| 265 |      |          |     |     |      |     | 535 |  |  |  |  |  |
| 266 |      |          |     |     |      |     | 536 |  |  |  |  |  |
| 267 |      |          |     |     |      |     | 537 |  |  |  |  |  |
| 268 |      |          |     |     |      |     | 538 |  |  |  |  |  |
| 269 |      |          |     |     |      |     | 539 |  |  |  |  |  |
| 270 |      |          |     |     |      |     | 540 |  |  |  |  |  |

## CV-Helios Network Annual Final Report for 1993

### ZÜRICH/McINTOSH-CLASSIFICATIONS DISTRIBUTION for the year 1993

| A      | B      | C     | D     | E     | F   | H   |
|--------|--------|-------|-------|-------|-----|-----|
| AXX    | BXO    | CRO   | DRO   | ERO   | FRO | HRX |
| 42,3 % | 20,7 % | 3,7 % | 0,4 % |       |     |     |
|        | BXI    | CRI   | DRI   | ERI   | FRI | HAX |
|        | 0,4 %  |       |       |       |     |     |
|        | CAO    | DAO   | EAO   | FAO   | HSX |     |
|        | 6,2 %  | 2,9 % |       |       |     |     |
|        | CAI    | DAI   | EAI   | FAI   | HKX |     |
|        |        | 1,2 % | 0,8 % |       |     |     |
|        | CSO    | DSO   | ESO   | FSO   | HHX |     |
|        | 17,4 % | 1,7 % | 0,4 % |       |     |     |
|        | CSI    | DSI   | ESI   | FSI   |     |     |
|        | 0,4 %  |       |       |       |     |     |
|        | CKO    | DAC   | EAC   | FAC   |     |     |
|        |        |       |       |       |     |     |
|        | CKI    | DSC   | ESC   | FSC   |     |     |
|        |        |       |       |       |     |     |
|        | CHO    | DKO   | EKO   | FKO   |     |     |
|        | 0,4 %  |       |       | 0,4 % |     |     |
|        | CHI    | DKI   | EKI   | FKI   |     |     |
|        |        |       |       |       |     |     |
|        |        | DHO   | EHO   | FHO   |     |     |
|        |        |       |       |       |     |     |
|        |        | DHI   | EHI   | FHI   |     |     |
|        |        |       | 0,4 % |       |     |     |
|        |        | DKC   | EKC   | FKC   |     |     |
|        |        |       |       |       |     |     |
|        |        | DHC   | EHC   | FHC   |     |     |
|        |        |       |       |       |     |     |

#### SUNSPOT CLASS

1st letter

|   | 241 |        |
|---|-----|--------|
| A | 102 | 42,3 % |
| B | 51  | 21,2 % |
| C | 68  | 28,2 % |
| D | 15  | 6,2 %  |
| E | 4   | 1,7 %  |
| F | 1   | 0,4 %  |
| H | 0   | 0,0 %  |

#### MAIN SUNSPOT TYPE

2nd letter

|   | 241 |        |
|---|-----|--------|
| X | 153 | 63,5 % |
| R | 10  | 4,1 %  |
| A | 27  | 11,2 % |
| S | 48  | 19,9 % |
| K | 1   | 0,4 %  |
| H | 2   | 0,8 %  |

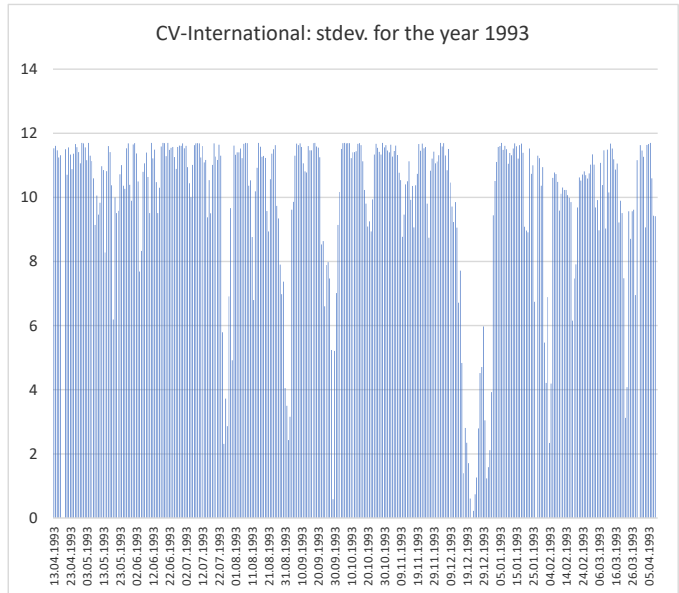
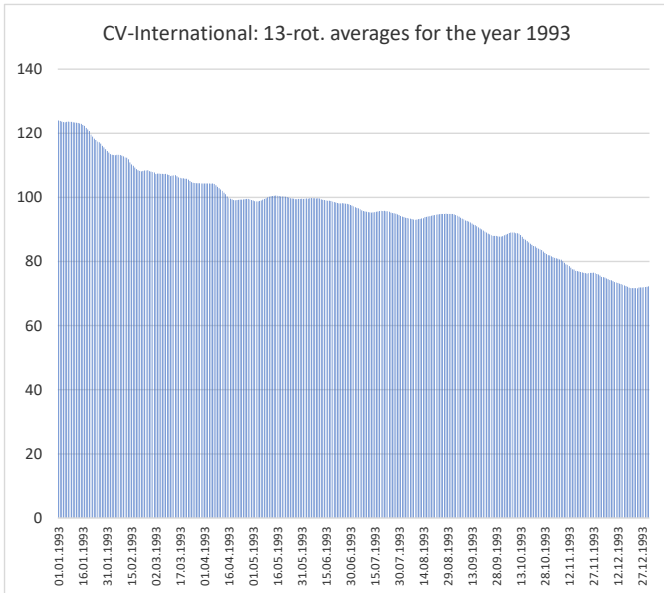
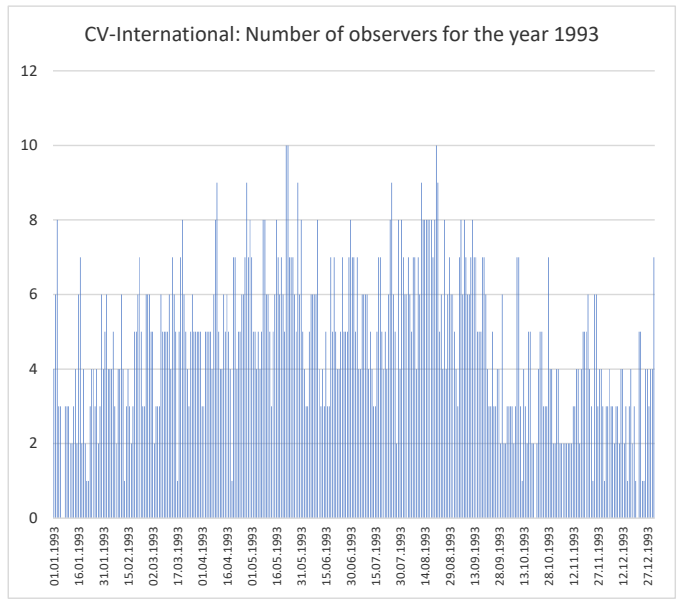
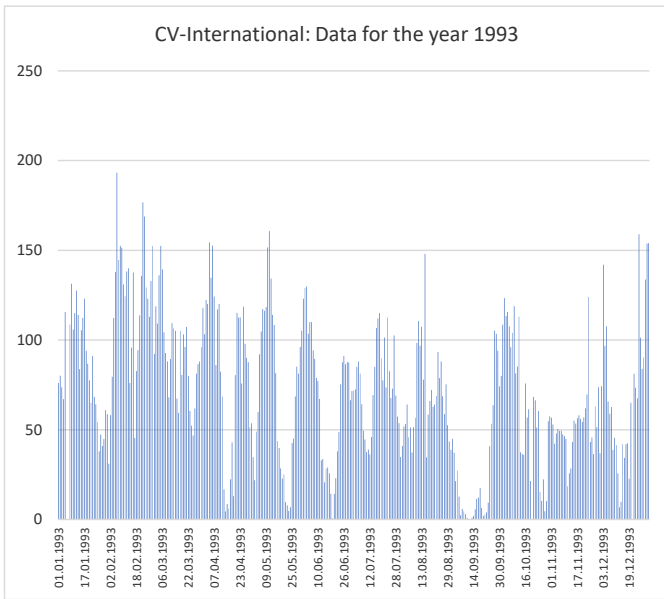
#### SUNSPOT DISTRIBUTION

3rd letter

|   | 241 |        |
|---|-----|--------|
| X | 102 | 42,3 % |
| O | 131 | 54,4 % |
| I | 8   | 3,3 %  |
| C | 0   | 0,0 %  |

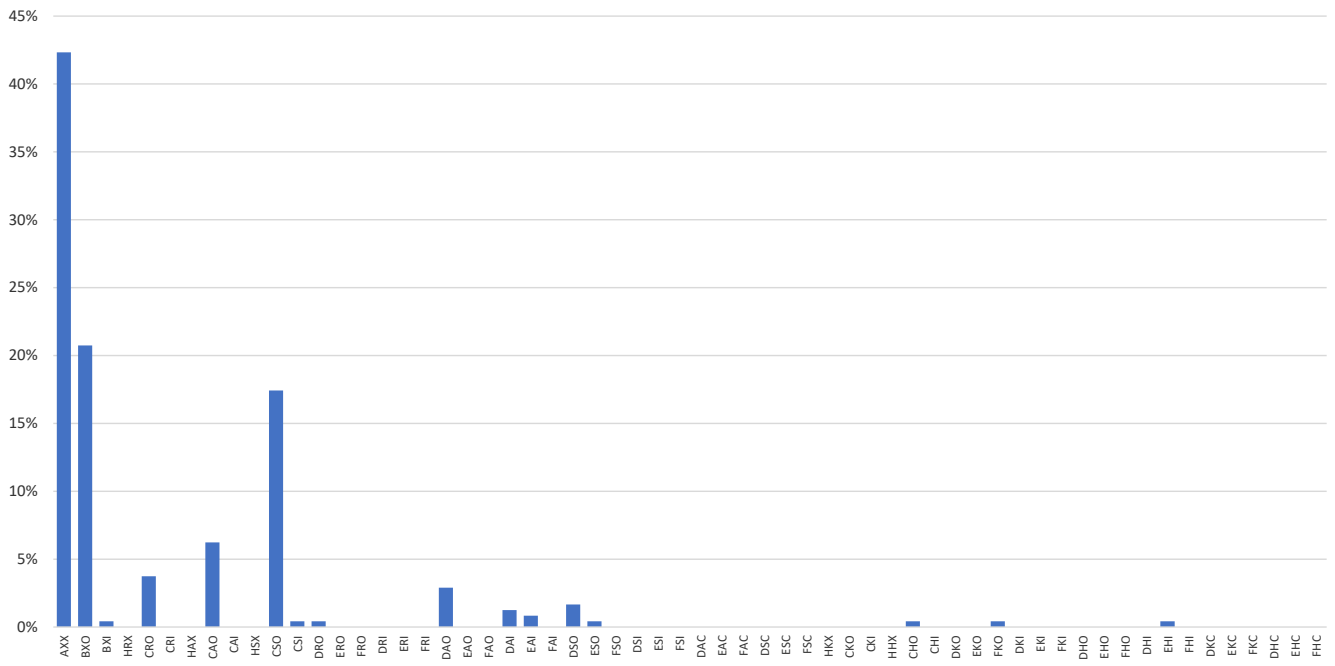
# CV-Helios Network Annual Final Report for 1993

## Graphics for the year 1993

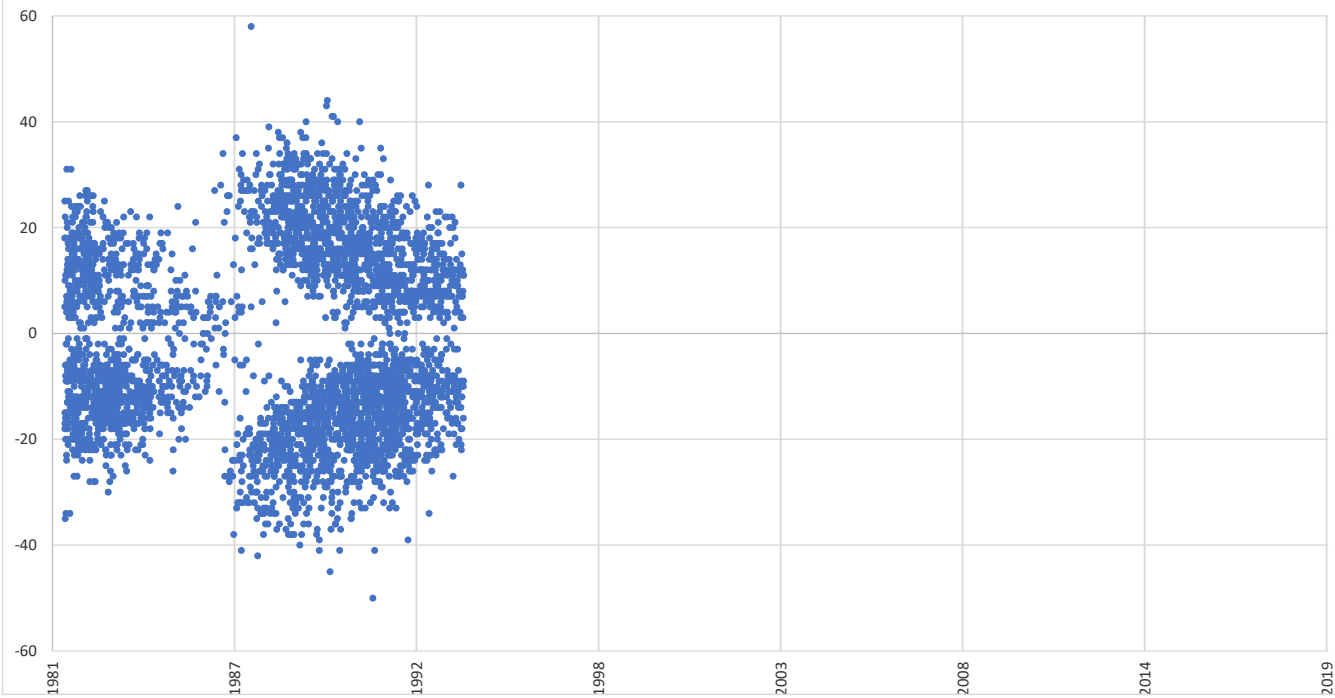


### CV-Helios Network Annual Final Report for 1993

Zürich/McIntosh-classifications denoted by NOAA/USAF for the year 1993



RGO/NOAA-USAF Sunspot Regions 1981-1993



## CV-Helios Network Annual Final Report for 1993

### CV-Helios Network - over 12 years in solar amateur astronomy service!

There are now 902 entries registered  
containing 12479 CV-observations!

**This AFR issued 1st April 1994**

#### **CV-Helios Network**

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Worldwide Amateur Solar Observing Network  
Magnetic Sunspot Classifications Zürich/McIntosh system  
CV - Classification Values (Malde/1981) - numeric system  
Serving Amateur Solar Astronomy since 1981

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