

# *Annual Final Report*

## *AFR*

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### **CV-Helios Network Annual Final Report for 1999**

In the year 1999, Solar Cycle no. 23

The Average CV was: 105,3 and the Average 6-rot. Smoothed CV was: 96,7

The Average CV-USAF was: 89,8

giving an Estimated STDEV of: 9,9

CV-Helios Network observed on 365 days

CV-Helios Network had a total of 6108 observations in 1999

CV-Helios Network have received 406 observation entries in the year 1999

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

This Annual Final Report contain results from 44 CV-observers

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

CV-Helios Network 01. April 2000



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Kjell Inge Malde  
Director



## CV-Helios Network Annual Final Report for 1999

Collated results CV for the year 1999												
CV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	67,86	19,33	72,80	38,96	70,52	156,28	171,64	168,58	95,83	58,94	154,58	86,38
2	67,29	13,57	73,10	37,46	84,50	176,04	187,41	171,28	75,05	48,82	100,11	93,00
3	63,69	18,33	105,64	41,79	66,45	178,36	182,71	188,15	51,79	56,23	90,21	87,25
4	63,75	8,82	94,23	66,57	49,64	170,16	186,91	169,05	61,04	85,89	110,55	59,13
5	60,00	7,85	85,22	74,91	61,80	139,41	199,57	148,74	41,42	112,45	111,08	62,11
6	43,69	12,60	61,07	83,91	107,56	134,50	152,38	118,73	40,18	140,54	104,00	84,00
7	30,56	11,40	54,10	106,31	160,74	131,73	152,79	103,90	59,67	120,42	142,25	78,18
8	46,40	53,00	45,50	96,86	175,60	140,79	157,50	98,28	71,04	100,33	166,67	81,60
9	31,93	78,35	70,73	117,75	175,21	155,13	155,65	77,10	57,63	109,09	172,38	117,18
10	29,14	118,29	79,58	93,45	139,81	142,31	154,63	49,88	68,25	107,00	195,25	112,83
11	18,89	126,50	94,75	88,90	112,19	159,00	163,73	45,13	73,63	119,10	200,80	111,90
12	47,92	148,68	87,13	73,19	115,88	195,29	148,50	50,10	98,56	136,30	176,60	94,00
13	39,00	173,23	101,73	51,37	106,07	189,83	126,11	60,00	135,88	155,23	160,08	93,27
14	69,43	183,64	113,05	47,47	129,29	213,59	97,12	71,87	135,59	157,07	167,00	92,11
15	73,13	167,82	102,45	44,05	136,24	169,42	87,83	62,43	144,06	135,06	209,65	65,88
16	65,77	173,50	113,00	53,36	147,60	118,74	87,09	56,46	130,22	131,46	201,20	92,86
17	91,59	166,73	101,04	63,65	149,11	109,41	101,75	48,57	148,39	138,65	207,75	137,82
18	103,04	150,42	101,42	50,63	120,00	90,38	100,36	49,95	118,06	126,79	182,80	140,13
19	104,05	111,00	77,21	54,86	105,65	81,50	68,08	61,83	97,31	128,65	185,22	138,89
20	109,44	104,13	50,06	54,00	125,27	78,88	77,33	92,38	68,15	141,93	151,85	146,11
21	105,00	82,46	43,73	42,53	145,61	109,91	81,67	122,00	43,47	123,08	151,50	148,27
22	110,64	26,67	24,70	36,57	137,69	109,14	103,47	105,71	43,95	109,43	162,69	158,88
23	106,18	31,63	22,57	33,94	120,00	151,94	109,73	114,27	43,53	108,38	138,14	150,64
24	92,87	34,75	40,71	33,77	134,90	201,90	124,56	108,86	32,83	141,78	110,43	147,21
25	27,10	38,67	32,91	50,00	144,78	217,48	150,05	137,76	28,17	171,50	106,82	135,64
26	14,15	38,30	31,89	62,42	152,52	212,83	148,52	133,69	24,90	157,67	111,25	111,33
27	11,20	41,40	29,67	59,25	138,23	187,29	173,64	140,14	41,00	164,06	115,35	131,89
28	5,20	54,50	28,13	66,20	127,95	194,35	189,11	136,11	38,33	145,13	101,15	104,67
29	12,88		50,94	69,15	114,32	175,41	195,92	151,26	29,93	177,25	76,92	115,60
30	23,65		48,45	75,07	118,81	158,50	179,26	168,35	39,22	185,78	101,60	67,30
31	30,76		45,96		139,81		160,83	129,26		181,05		57,00
<b>103,99</b>	<b>56,97</b>	<b>78,41</b>	<b>67,21</b>	<b>62,28</b>	<b>123,02</b>	<b>154,98</b>	<b>141,16</b>	<b>107,74</b>	<b>71,24</b>	<b>128,23</b>	<b>145,53</b>	<b>106,55</b>

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Collated results Observers for the year 1999													
Obsrvrs.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	14	12	10	25	25	25	14	26	18	17	19		8
2	17	7	10	28	26	25	17	25	21	17	9		10
3	13	9	14	24	20	25	24	20	28	13	14		8
4	8	11	13	23	11	19	22	21	24	9	11		16
5	13	13	9	22	15	22	21	19	26	11	12		18
6	16	20	15	22	16	20	13	26	22	13	11		14
7	9	20	20	13	23	22	14	20	21	12	12		11
8	10	14	16	14	15	14	14	18	23	12	9		15
9	14	17	11	20	24	16	20	20	27	11	8		11
10	14	17	12	22	16	16	19	17	24	11	8		12
11	9	16	12	20	16	13	22	8	19	10	10		10
12	13	22	23	16	16	14	24	10	25	20	10		6
13	7	13	26	19	15	18	18	13	25	13	13		11
14	7	11	20	17	17	17	25	15	22	14	13		9
15	8	17	20	19	17	19	23	14	16	17	17		8
16	13	14	16	11	20	23	22	13	18	26	15		7
17	17	15	24	17	27	17	24	14	18	17	8		17
18	23	12	24	24	21	21	22	20	16	19	15		15
19	19	7	19	21	26	14	24	18	16	20	9		18
20	18	16	17	25	22	16	21	21	13	14	13		9
21	13	13	11	19	18	22	21	19	17	12	10		15
22	14	9	10	21	16	21	15	14	19	14	13		16
23	11	16	14	17	23	18	11	22	19	13	7		11
24	15	12	14	26	20	21	18	21	24	18	7		14
25	10	18	22	26	18	23	20	25	18	14	11		11
26	13	10	18	19	21	23	25	16	10	15	8		6
27	10	20	21	20	26	17	22	14	20	16	17		9
28	10	20	15	25	22	17	27	18	18	15	13		9
29	16		17	27	25	17	25	19	15	16	12		10
30	23		20	27	21	18	27	17	9	18	10		10
31	17		25		21		24	19		20			8
<b>16,70</b>	<b>13,35</b>	<b>14,32</b>	<b>16,71</b>	<b>20,97</b>	<b>19,97</b>	<b>19,10</b>	<b>20,58</b>	<b>18,13</b>	<b>19,70</b>	<b>15,06</b>	<b>11,47</b>		<b>11,35</b>

## CV-Helios Network Annual Final Report for 1999

Collated results CV-USAF for the year 1999												
USAF-CV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	51,91	10,39	56,62	25,88	54,44	143,19	160,19	156,77	79,31	43,58	141,33	69,85
2	51,37	6,42	56,90	24,62	68,00	165,10	177,89	159,78	58,78	34,43	83,64	76,46
3	47,99	9,67	89,29	28,29	50,58	167,70	172,58	178,72	37,07	41,10	73,67	70,72
4	48,04	3,48	77,69	50,69	35,15	158,53	177,32	157,30	45,52	69,37	94,34	43,75
5	44,56	2,93	68,71	58,64	46,22	124,84	191,71	134,94	27,98	96,32	94,90	46,51
6	29,93	5,79	45,54	67,42	91,27	119,57	138,92	102,87	26,92	126,06	87,61	67,51
7	18,95	5,03	39,16	89,97	148,10	116,61	139,36	87,50	44,25	104,64	127,91	61,81
8	32,29	38,17	31,51	80,34	164,60	126,33	144,53	81,78	54,93	83,87	154,65	65,15
9	20,06	61,98	54,63	101,84	164,17	141,92	142,50	60,76	42,38	92,84	161,00	101,25
10	17,82	102,41	63,18	76,91	125,28	127,98	141,38	35,37	52,28	90,69	186,78	96,72
11	10,07	111,05	78,21	72,36	96,05	146,18	151,40	31,18	57,41	103,26	193,11	95,75
12	33,63	134,88	70,60	56,99	99,88	186,82	134,69	35,57	82,06	121,50	165,72	77,46
13	25,91	161,96	85,29	36,70	89,73	180,63	110,64	44,56	121,05	142,04	147,37	76,73
14	53,40	173,63	96,94	33,24	114,02	207,80	80,61	55,72	120,74	144,06	155,02	75,56
15	56,93	155,94	86,02	30,25	121,43	157,71	71,29	46,81	129,87	120,17	203,26	50,04
16	49,94	162,26	96,89	38,49	133,71	102,88	70,56	41,31	115,01	116,33	193,57	76,31
17	75,04	154,73	84,59	47,95	135,35	93,17	85,31	34,21	134,57	124,02	201,08	123,14
18	86,63	136,78	84,97	36,03	104,20	73,83	83,90	35,43	102,17	111,36	172,69	125,62
19	87,66	94,82	60,87	39,85	89,30	65,05	52,12	46,26	80,80	113,34	175,42	124,28
20	93,21	87,74	35,53	39,07	109,76	62,49	60,99	75,83	52,19	127,56	138,34	132,09
21	88,63	65,99	29,96	28,93	131,55	93,69	65,21	106,30	29,74	107,44	137,96	134,43
22	94,45	15,88	14,37	23,87	122,99	92,90	87,06	89,36	30,15	93,19	150,25	146,04
23	89,85	19,81	12,76	21,70	104,20	138,44	93,50	98,21	29,79	92,11	123,48	137,01
24	76,32	22,36	27,37	21,56	120,00	194,37	109,00	92,60	20,79	127,40	94,22	133,29
25	16,22	25,63	20,85	35,48	130,64	212,30	136,38	123,07	17,05	160,03	90,50	120,79
26	6,80	25,32	20,03	46,80	139,08	206,92	134,71	118,70	14,52	144,71	95,07	95,16
27	4,91	27,96	18,24	43,86	123,58	177,76	162,41	125,63	27,62	151,77	99,34	116,78
28	1,55	39,52	17,03	50,34	112,60	185,76	179,81	121,30	25,35	131,03	84,70	88,29
29	5,97		36,32	53,13	98,26	164,39	187,54	137,70	18,45	166,45	60,58	99,60
30	13,57		34,10	58,80	102,95	145,63	168,71	156,52	26,10	176,04	85,16	51,38
31	19,12		31,91		125,28		148,20	113,99		170,72		41,80
<b>90,00</b>	<b>43,64</b>	<b>66,52</b>	<b>52,45</b>	<b>47,33</b>	<b>108,14</b>	<b>142,68</b>	<b>127,76</b>	<b>93,10</b>	<b>56,83</b>	<b>113,79</b>	<b>132,42</b>	<b>91,01</b>

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Collated results STDEV for the year 1999												
std. Dev.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	11,28	6,33	11,44	9,25	11,37	9,26	8,10	8,35	11,69	10,86	9,37	11,68
2	11,26	5,06	11,45	9,08	11,67	7,74	6,73	8,13	11,50	10,18	11,65	11,70
3	11,10	6,12	11,56	9,54	11,22	7,54	7,16	6,66	10,40	10,70	11,70	11,69
4	11,11	3,77	11,69	11,23	10,24	8,22	6,78	8,31	10,97	11,68	11,46	10,87
5	10,92	3,48	11,67	11,50	11,01	10,30	5,56	9,75	9,51	11,41	11,44	11,03
6	9,73	4,82	10,98	11,66	11,52	10,55	9,52	11,22	9,38	10,24	11,59	11,66
7	8,21	4,50	10,56	11,55	8,94	10,69	9,49	11,59	10,90	11,16	10,14	11,58
8	9,97	10,49	9,90	11,68	7,77	10,22	9,17	11,67	11,39	11,64	8,50	11,63
9	8,39	11,58	11,38	11,25	7,81	9,33	9,30	11,55	10,79	11,49	8,04	11,27
10	8,00	11,23	11,60	11,70	10,28	10,14	9,37	10,26	11,29	11,54	5,99	11,40
11	6,24	10,92	11,69	11,70	11,41	9,06	8,72	9,86	11,47	11,20	5,44	11,42
12	10,10	9,76	11,69	11,46	11,31	5,99	9,77	10,28	11,66	10,46	7,69	11,70
13	9,25	7,97	11,63	10,37	11,55	6,51	10,94	10,92	10,48	9,33	8,99	11,70
14	11,34	7,08	11,39	10,07	10,80	4,09	11,68	11,42	10,50	9,20	8,47	11,70
15	11,45	8,41	11,62	9,76	10,47	8,28	11,69	11,04	10,04	10,53	4,52	11,20
16	11,20	7,95	11,39	10,51	9,82	11,22	11,69	10,72	10,76	10,70	5,40	11,70
17	11,70	8,49	11,64	11,10	9,73	11,48	11,63	10,16	9,77	10,34	4,72	10,38
18	11,61	9,65	11,63	10,32	11,17	11,70	11,64	10,27	11,24	10,91	7,15	10,26
19	11,59	11,44	11,56	10,61	11,56	11,63	11,29	11,01	11,68	10,83	6,93	10,33
20	11,48	11,59	10,27	10,56	10,97	11,59	11,56	11,70	11,29	10,16	9,55	9,91
21	11,57	11,65	9,73	9,62	9,94	11,47	11,63	11,10	9,71	11,06	9,58	9,78
22	11,45	7,63	7,31	8,98	10,39	11,49	11,60	11,56	9,75	11,48	8,80	9,07
23	11,55	8,35	6,94	8,66	11,17	9,55	11,48	11,36	9,71	11,51	10,37	9,63
24	11,70	8,76	9,43	8,64	10,53	5,32	11,00	11,50	8,51	10,17	11,46	9,85
25	7,69	9,22	8,52	10,27	9,99	3,66	9,67	10,39	7,86	8,11	11,54	10,50
26	5,20	9,18	8,39	11,04	9,51	4,17	9,77	10,59	7,34	9,16	11,44	11,44
27	4,45	9,51	8,08	10,88	10,36	6,74	7,94	10,26	9,46	8,69	11,32	10,68
28	2,58	10,59	7,85	11,21	10,86	6,08	6,58	10,47	9,18	9,97	11,63	11,58
29	4,88		10,34	11,33	11,35	7,79	5,92	9,59	8,12	7,64	11,55	11,32
30	7,13		10,15	11,51	11,21	9,10	7,46	8,36	9,28	6,88	11,63	11,26
31	8,23		9,94		10,28		8,93	10,80		7,31		10,75
<b>9,89</b>	<b>9,43</b>	<b>8,41</b>	<b>10,43</b>	<b>10,57</b>	<b>10,52</b>	<b>8,70</b>	<b>9,48</b>	<b>10,35</b>	<b>10,19</b>	<b>10,21</b>	<b>9,27</b>	<b>10,99</b>

### CV-Helios Network Annual Final Report for 1999

Collated results CV 6 rot. averages for the year 1999												
CV-6 rot.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	90,28	79,67	74,75	73,46	73,45	78,24	94,84	106,96	112,91	115,27	121,71	121,94
2	90,13	79,16	74,52	73,36	73,66	78,99	95,35	107,33	113,11	115,31	121,48	121,84
3	90,01	78,66	74,52	73,30	73,75	79,78	95,80	107,84	113,28	115,43	121,30	121,71
4	89,76	78,11	74,42	73,40	73,71	80,60	96,30	108,37	113,41	115,74	121,15	121,14
5	89,49	77,59	74,26	73,58	73,76	81,25	96,84	109,12	113,46	116,22	120,95	120,29
6	89,14	77,08	73,96	73,87	74,12	81,64	97,12	109,65	113,51	116,77	120,65	119,48
7	88,70	76,61	73,64	74,37	74,69	82,03	97,49	110,07	113,69	117,13	120,68	118,65
8	88,31	76,38	73,32	74,82	75,01	82,30	98,28	110,43	113,96	117,38	120,91	118,01
9	87,82	76,14	73,13	75,47	75,30	82,54	99,15	110,67	114,00	117,64	121,27	117,54
10	87,42	75,91	72,92	75,90	75,54	82,70	100,02	110,72	114,12	117,87	121,73	117,16
11	87,01	75,81	72,99	76,15	75,61	83,04	100,99	110,66	114,29	118,14	122,10	116,87
12	86,83	75,88	73,18	76,27	75,80	83,65	101,81	110,52	114,65	118,54	122,23	116,40
13	86,59	76,26	73,61	76,29	75,69	84,24	102,44	110,44	115,25	118,97	122,13	115,83
14	86,58	76,74	74,15	76,33	75,69	85,13	102,84	110,24	115,82	119,52	122,06	115,27
15	86,64	77,23	74,58	76,39	75,77	85,75	103,26	110,04	116,29	120,05	122,30	114,54
16	86,59	77,62	75,10	76,35	75,94	86,09	103,71	109,87	116,63	120,47	122,68	113,89
17	86,46	77,88	75,52	76,25	76,08	86,36	104,22	109,79	117,02	120,66	123,13	113,80
18	86,33	77,97	75,95	76,05	76,27	86,55	104,78	109,77	117,10	120,45	123,44	113,72
19	86,22	77,76	76,21	75,80	76,20	86,78	105,14	109,87	117,10	120,17	123,71	113,61
20	86,08	77,58	76,06	75,58	75,96	87,07	105,54	110,00	116,80	119,96	123,69	113,55
21	85,80	77,47	75,92	75,32	75,88	87,46	105,97	110,26	116,49	119,86	123,74	113,51
22	85,51	77,03	75,80	74,98	75,74	87,93	106,27	110,33	116,22	119,84	123,77	113,48
23	85,20	76,45	75,60	74,43	75,67	88,68	106,47	110,49	116,04	119,80	123,42	113,49
24	84,91	75,86	75,56	74,09	75,90	89,80	106,50	110,53	115,92	120,02	122,93	113,62
25	84,31	75,46	75,48	73,90	76,08	90,83	106,65	110,68	115,81	120,27	122,28	113,86
26	83,67	75,18	75,34	73,60	76,40	91,89	106,65	110,88	115,69	120,40	121,93	114,00
27	82,92	75,09	75,19	73,23	76,60	92,61	106,65	111,04	115,61	120,50	121,91	114,27
28	82,17	74,90	74,99	73,11	76,92	93,35	106,68	111,25	115,46	120,48	121,86	114,29
29	81,55		74,67	73,20	77,11	94,02	106,85	111,56	115,33	120,83	121,78	114,38
30	80,77		74,30	73,30	77,34	94,43	106,89	112,11	115,24	121,32	121,90	114,38
31	80,25		73,89		77,69		106,85	112,60		121,66		114,25
<b>96,75</b>	<b>86,24</b>	<b>76,91</b>	<b>74,63</b>	<b>74,74</b>	<b>75,59</b>	<b>85,86</b>	<b>102,53</b>	<b>110,13</b>	<b>115,14</b>	<b>118,93</b>	<b>122,16</b>	<b>116,09</b>







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184	8609	27.06.99	16	310	1951	AXX	454							
185	8610	27.06.99	11	304	1951	BXO	455							
186	8611	28.06.99	-25	256	1951	CAO	456							
187	8612	28.06.99	-17	296	1951	HSX	457							
188	8613	01.07.99	18	211	1951	CSO	458							
189	8614	02.07.99	19	192	1951	AXX	459							
190	8615	02.07.99	-29	187	1951	HSX	460							
191	8616	03.07.99	29	324	1951	BXO	461							
192	8617	03.07.99	14	279	1951	BXO	462							
193	8618	04.07.99	-17	180	1951	AXX	463							
194	8619	04.07.99	-17	166	1951	BXO	464							
195	8620	04.07.99	22	181	1951	HAX	465							
196	8621	05.07.99	20	156	1951	HSX	466							
197	8622	07.07.99	-31	217	1951	CRO	467							
198	8623	07.07.99	26	208	1951	AXX	468							
199	8624	07.07.99	24	171	1951	AXX	469							
200	8625	07.07.99	-20	121	1951	HRX	470							
201	8626	08.07.99	-21	200	1951	BXO	471							
202	8627	09.07.99	-12	101	1951	HSX	472							
203	8628	10.07.99	18	104	1951	CRO	473							
204	8629	10.07.99	23	226	1951	DAO	474							
205	8630	10.07.99	-10	211	1951	BXO	475							
206	8631	12.07.99	11	53	1951	HAX	476							
207	8632	12.07.99	-19	188	1951	CSO	477							
208	8633	13.07.99	42	96	1951	BXO	478							
209	8634	13.07.99	-18	48	1951	AXX	479							
210	8635	16.07.99	42	141	1951	CRO	480							
211	8636	18.07.99	20	338	1952	CAO	481							
212	8637	19.07.99	12	65	1951	BXO	482							
213	8638	19.07.99	-10	331	1952	AXX	483							
214	8639	20.07.99	38	39	1951	BXO	484							
215	8640	21.07.99	17	295	1952	HSX	485							
216	8641	21.07.99	32	68	1951	BXO	486							
217	8642	22.07.99	-18	293	1952	BXO	487							
218	8643	23.07.99	21	48	1951	BXO	488							
219	8644	24.07.99	-24	264	1952	HAX	489							
220	8645	25.07.99	-26	251	1952	DKO	490							
221	8646	25.07.99	12	338	1952	BXO	491							
222	8647	26.07.99	-18	242	1952	CAO	492							
223	8648	26.07.99	24	221	1952	AXX	493							
224	8649	28.07.99	-15	270	1952	DAO	494							
225	8650	28.07.99	17	204	1952	HAX	495							
226	8651	28.07.99	24	206	1952	AXX	496							
227	8652	29.07.99	17	303	1952	BXO	497							
228	8653	29.07.99	28	296	1952	BXO	498							
229	8654	01.08.99	19	244	1952	BXO	499							
230	8655	02.08.99	25	175	1952	HSX	500							
231	8656	02.08.99	18	179	1952	BXO	501							
232	8657	03.08.99	-32	129	1952	HSX	502							
233	8658	04.08.99	-25	200	1952	AXX	503							
234	8659	04.08.99	-23	165	1952	AXX	504							
235	8660	05.08.99	-34	199	1952	BXO	505							
236	8661	06.08.99	-14	159	1952	BXO	506							
237	8662	07.08.99	-16	87	1952	CRO	507							
238	8663	08.08.99	19	118	1952	BXO	508							
239	8664	09.08.99	23	105	1952	BXO	509							
240	8665	12.08.99	-26	14	1952	CRO	510							
241	8666	13.08.99	14	126	1952	BXO	511							
242	8667	13.08.99	23	358	1952	CRO	512							
243	8668	14.08.99	21	339	1953	HAX	513							
244	8669	15.08.99	-21	02	1952	BXO	514							
245	8670	16.08.99	-12	51	1952	AXX	515							
246	8671	16.08.99	-09	41	1952	BXO	516							
247	8672	19.08.99	12	347	1953	BXO	517							
248	8673	20.08.99	-17	254	1953	HSX	518							
249	8674	21.08.99	-24	256	1953	EKO	519							
250	8675	25.08.99	21	194	1953	HSX	520							
251	8676	25.08.99	26	197	1953	BXO	521							
252	8677	26.08.99	07	185	1953	HSX	522							
253	8678	26.08.99	16	296	1953	AXX	523							
254	8679	27.08.99	-34	185	1953	CSO	524							
255	8680	27.08.99	20	319	1953	AXX	525							
256	8681	29.08.99	21	208	1953	DSO	526							
257	8682	30.08.99	18	138	1953	HSX	527							
258	8683	31.08.99	-10	153	1953	AXX	528							
259	8684	31.08.99	-12	141	1953	AXX	529							
260	8685	01.09.99	-08	111	1953	BXO	530							
261	8686	01.09.99	-24	172	1953	BXO	531							
262	8687	03.09.99	11	157	1953	CRO	532							
263	8688	04.09.99	-24	123	1953	BXO	533							
264	8689	06.09.99	18	116	1953	BXO	534							
265	8690	07.09.99	13	24	1953	DAO	535							
266	8691	08.09.99	-30	116	1953	CRO	536							
267	8692	08.09.99	-25	10	1953	DSO	537							
268	8693	08.09.99	12	05	1953	HSX	538							
269	8694	09.09.99	-14	85	1953	AXX	539							
270	8695	11.09.99	19	332	1954	HSX	540							

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### ZÜRICH/McINTOSH-CLASSIFICATIONS DISTRIBUTION for the year 1999

A	B	C	D	E	F	H
AXX	BXO	CRO	DRO	ERO	FRO	HRX
17,5 %	35,0 %	8,2 %	0,5 %			2,3 %
	BXI	CRI	DRI	ERI	FRI	HAX
						4,4 %
		CAO	DAO	EAO	FAO	HSX
		4,4 %	2,6 %	0,5 %		12,1 %
		CAI	DAI	EAI	FAI	HKX
						0,8 %
		CSO	DSO	ESO	FSO	HHX
		8,0 %	1,8 %	0,3 %		0,8 %
		CSI	DSI	ESI	FSI	
		CKO	DAC	EAC	FAC	
		CKI	DSC	ESC	FSC	
		CHO	DKO	EKO	FKO	
		0,3 %	0,3 %	0,3 %		
		CHI	DKI	EKI	FKI	
			DHO	EHO	FHO	
						0,3 %
			DHI	EHI	FHI	
			DKC	EKC	FKC	
			DHC	EHC	FHC	

#### SUNSPOT CLASS

1st letter

	389	
A	68	17,5 %
B	136	35,0 %
C	81	20,8 %
D	20	5,1 %
E	4	1,0 %
F	1	0,3 %
H	79	20,3 %

#### MAIN SUNSPOT TYPE

2nd letter

	389	
X	204	52,4 %
R	43	11,1 %
A	46	11,8 %
S	86	22,1 %
K	5	1,3 %
H	5	1,3 %

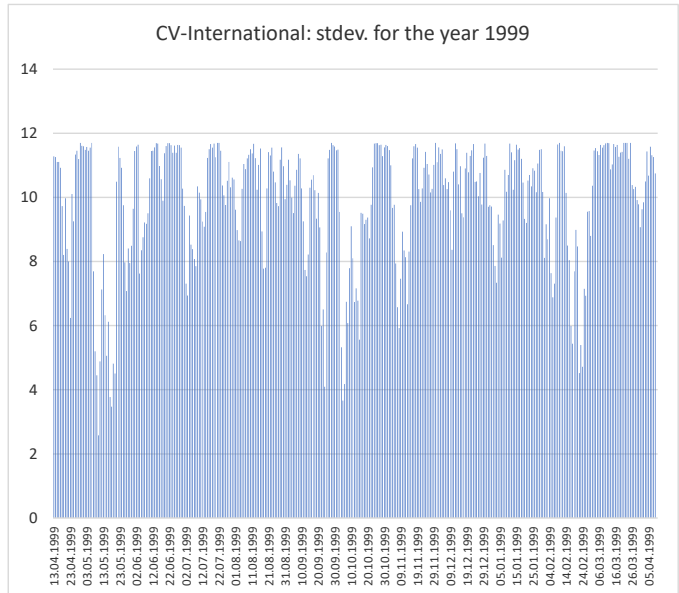
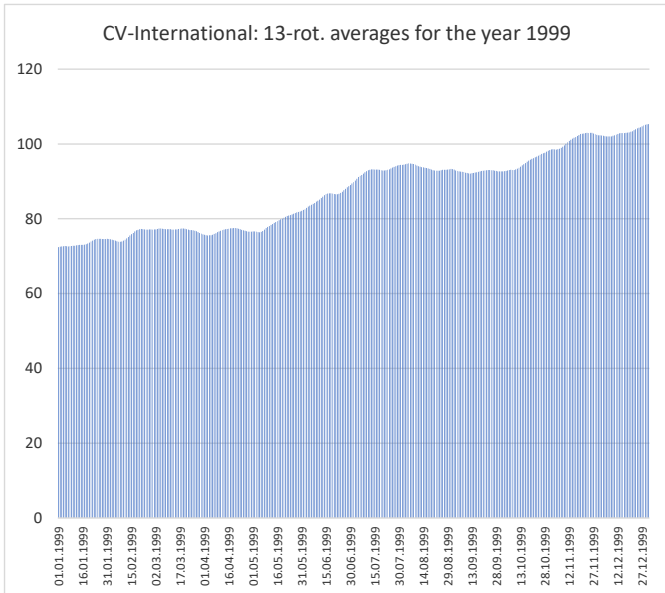
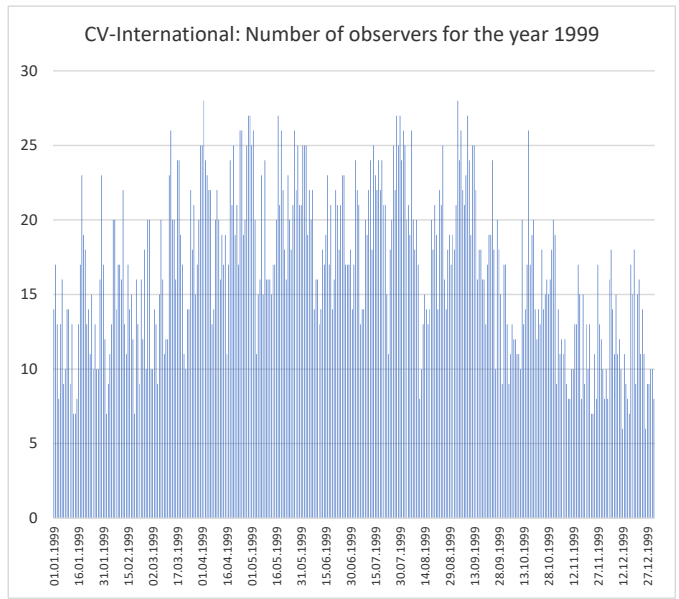
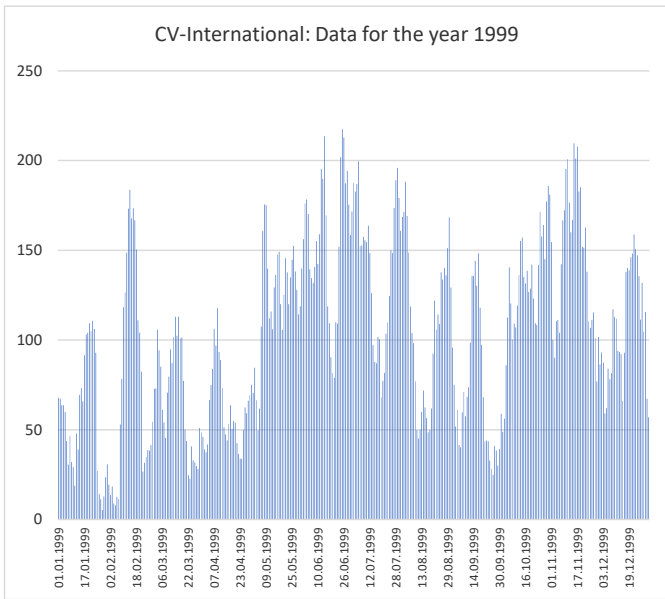
#### SUNSPOT DISTRIBUTION

3rd letter

	389	
X	147	37,8 %
O	242	62,2 %
I	0	0,0 %
C	0	0,0 %

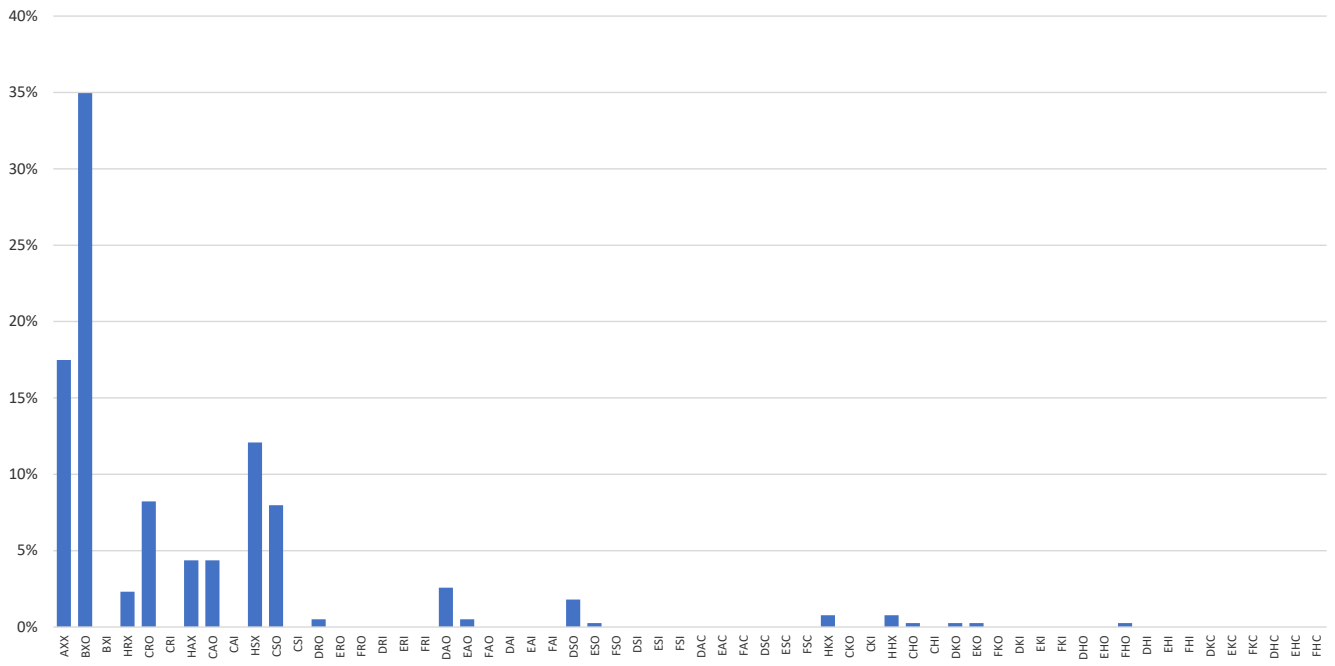
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## Graphics for the year 1999

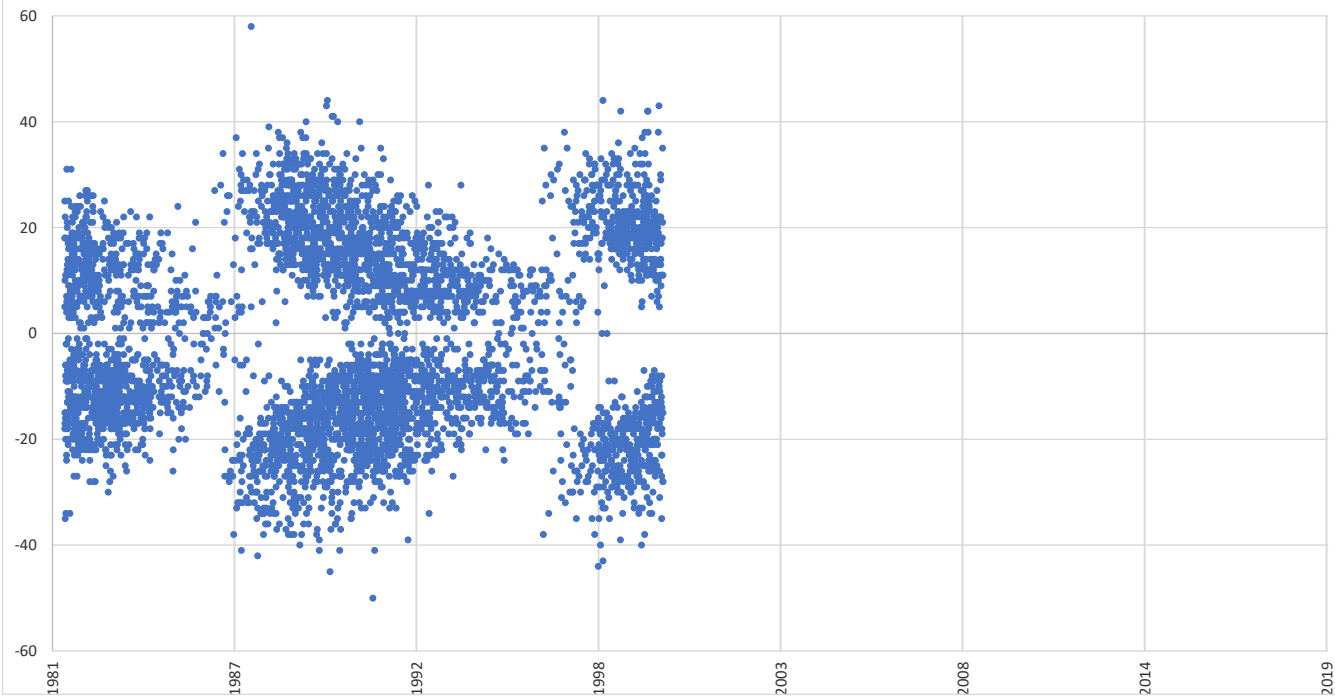


### CV-Helios Network Annual Final Report for 1999

Zürich/McIntosh-classifications denoted by NOAA/USAF for the year 1999



RGO/NOAA-USAF Sunspot Regions 1981-1999



## CV-Helios Network Annual Final Report for 1999

**CV-Helios Network - over 18 years in solar amateur astronomy service!**

There are now 2485 entries registered  
containing 37251 CV-observations!

**This AFR issued 1st April 2000**

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