

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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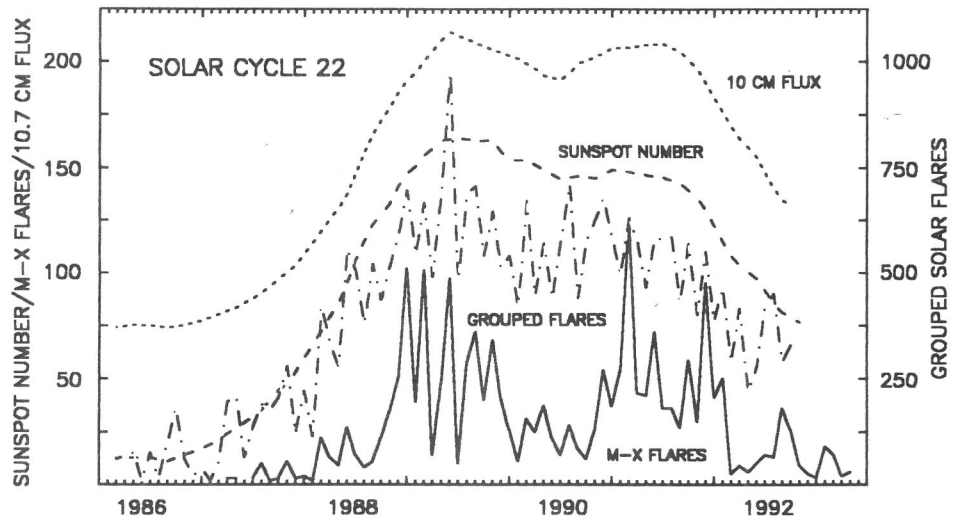
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May 1993

American Relative Sunspot Numbers for May

		R_a Final			
1)	28	11)	106	21)	22
2)	24	12)	99	22)	12
3)	42	13)	77	23)	14
4)	61	14)	50	24)	28
5)	64	15)	39	25)	41
6)	65	16)	31	26)	51
7)	67	17)	28	27)	62
8)	79	18)	17	28)	78
9)	93	19)	20	29)	86
10)	105	20)	30	30)	90
				31)	92

Mean: 54.9
 Number of reports: 99



May Summary: Solar activity was mainly low during the first week of May. Only class C level solar flares occurred until late on the 7th when NOAA/USAF Region 7500 (N17, L351, DK1) spawned a class M1.6/1B solar flare. Small filaments disappeared from the Sun on the 6th and 7th. The geomagnetic field was at quiet to unsettled disturbance levels, with isolated periods of minor storm conditions at high latitudes.

Activity continued in the low range until late on the 14th when Region 7500 produced a class M4.4/2B Tenflare. In spite of the generally low activity levels, the geomagnetic field experienced storm conditions between the 8th and 10th, and aurorae were frequently observed above latitude forty-degrees. The source of this phenomenon is probably a combination of effects from a negative polarity coronal hole and the class M flare which occurred on the 7th. A minor disturbance on the 14th was also related to coronal hole effects.

The Sun was at low or very low activity levels throughout the third week of May. Only class C and lesser-intensity solar flares were recorded. The Sun's Southern Hemisphere was spotless for four straight days beginning with the 14th. Two small filaments disappeared from the disk on the 21st and a 28-degree long filament disappeared on the 24th. Otherwise, the geomagnetic field was at quiet to unsettled conditions with occasional periods in the active range.

Solar activity continued to be low until the 27th when Region 7515 (N14, L075, DA1) spawned the month's third class M flare, an event rated M1.2/2B. An optically uncorrelated class M flare followed on the 28th (this event may also have occurred in Region 7515). Region 7515 produced May's fifth and final class M flare on the 30th. The Sun's Northern Hemisphere was spotless on the 23rd, as was the Southern Hemisphere on the 27th and 28th. The geomagnetic field was mostly quiet, although some high-latitude storm conditions were recorded on the 27th, and auroral activity increased slightly. The smoothed-mean American Relative Sunspot Number for November 1992 is 75.6.

The estimated mean American Relative Sunspot Number for 1-14 June is 57. Activity has continued at the May level during this interval. The first class M flare to occur in the Sun's Southern Hemisphere since March - a major event rated M5.4/2B - erupted on the 7th. Five additional class M flares have been recorded thus far during June; a majority were spawned by the group responsible for the major flare, Region 7518.

[A portion of this information was taken from the SELDADS data base.]

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Note: Network contributors are urged to submit their reports via these media whenever possible.

Solar White-Light Flare (WLF) Note

Our collaborator from the United States, Thomas G. Compton, urges all observers to continue their search for the rare, solar white-light flares. Mr Compton notes that such events can also occur during the declining phase of a sunspot cycle, within just a few years of cycle minimum. Compact, complex spot-groups are the more likely sites of these spectacular emissions. Observer reports of these events should be sent to the editor; after validation, they will be forwarded to Dr D.F. Neidig at **National Solar Observatory** (Sacramento Peak). The following recorded WLFs erupted near cycle minima:

Verified Events

<u>Year</u>	<u>Date</u>	<u>Hemisphere</u>	<u>Cycle Minimum</u>
1921	Feb 21	SW	1923
	Sep 21	NW	1923
1951	May 18	NW	1954
1963	Sep 26	NW	1964
1974	Jul 04 (I)	SW	1976
	Sep 10	NE	1976
1984*	Apr 24	--	1986

Other Probable Events

1954	Aug 11	--	1954
1961	Jul 12	SE	1964
1962	Jul 14	NE	1964
1974	Jul 04 (II)	--	1976

References: Neidig, D.F. and E.W. Cliver 1983, 'A Catalog of Solar White-Light Flares (1859-1982),' AFGL-TR-83-0257, Environmental Research Papers, Number 856.

* Neidig, D.F. 1993, Private communication.

Sudden Ionospheric Disturbances (SES) Recorded During April 1993

Records were received from A9,40,50,59,61,62,63,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	De
1	0432	2	5	7	1045	1-	5	11	1203	1-	5	18	2220	1	5
1	1547	1-	5	7	1153	1	5	11	1731	1	5	19	0007	2	4
1	1639	1+	5	7	1243	2+	5	12	1138	1-	5	19	0508	1+	5
1	1706	1-	5	7	1343	1-	5	12	1608	1-	5	19	0605	1-	5
2	1512	2	5	7	1402	2	5	12	1810	1-	5	19	1432	1	5
2	1824	2+	5	7	1522	1-	5	13	0658	1-	5	19	1915	2	4
2	1913	1-	5	8	0320	1+	5	13	2029	1-	5	19	2045	1	5
2	2050	1+	5	8	1528	1+	5	15	0908	2	5	20	0939	1+	5
2	2130	2+	5	8	1610	1+	5	15	1100	1-	5	20	1030	1-	5
3	0708	1	5	8	1943	1-	5	15	1503	1-	5	20	1253	1	5
5	0015	1+	5	8	2000	2+	5	16	1243	1-	5	20	1519	1-	5
5	1645	2	5	8	2045	2+	5	16	1740	1	5	20	1750	2	5
5	1959	2	5	8	2130	1-	5	16	1927	1-	5	20	1931	1-	5
5	2058	1-	5	9	1117	1-	5	16	1945	1	5	20	2110	1-	5
5	2216	1-	5	9	1742	2+	5	16	2009	2	5	21	0722	1	5
6	0243	1	5	9	2125	1	5	16	2107	1-	5	21	1433	2	5
6	1155	2+	5	10	1515	1	5	17	0030	1-	5	22	1410	2	5
6	1850	1	5	10	1642	1	5	17	0206	1-	5	22	1947	1	5
6	2115	1-	5	10	1735	1-	5	17	1015	1-	5	24	1540	1	5
6	2215	1	5	10	1747	2+	5	17	1345	1	5	25	0245	1	5
6	2247	1	5	10	1946	2+	3	17	1722	1+	5	25	0811	1-	5
6	2345	1	5	10	2121	1	5	18	0659	1-	5	25	1227	1	5
7	0300	1-	5	10	2333	1	5	18	0912	2+	5	25	2136	2	5
7	0616	1-	5	11	0029	2	5	18	1820	1+	5	26	1206	1-	5
7	0943	1	5	11	0614	1	5	18	1912	2+	5	30	1752	2	5

SID Analysts: J Ellerbe; S Hansen; M Hayden; J Knight; A Okorogu; R Papp; C Ranft; A Stokes; M Taylor; P Taylor; L Witkowski

Frequencies recorded (kHz): 16.8; 18.3; 19.6; 21.4; 22.3; 23.4; 24.0; 24.8; 28.5; 30.6; 48.5; 51.6; 73.6; 77.15