

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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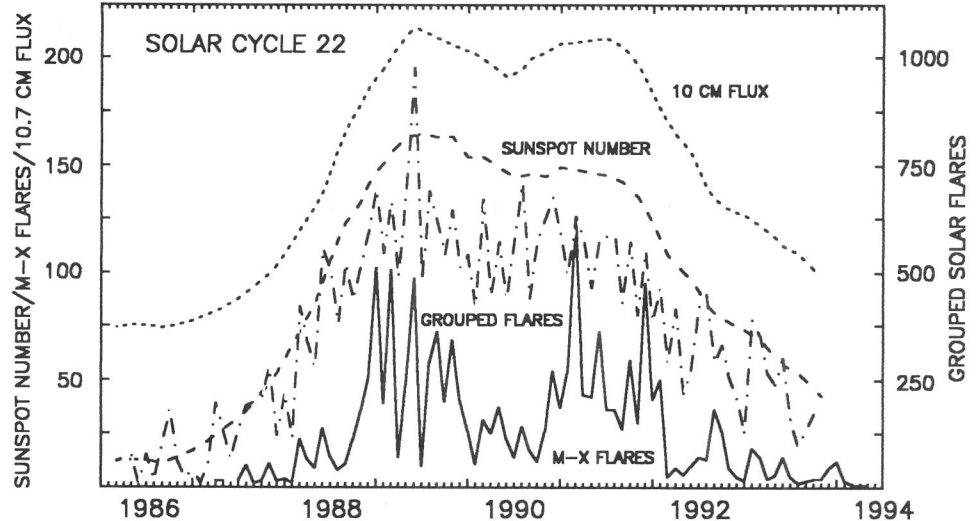
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May 1994

American Relative Sunspot Numbers for May

	R _a Final				
1)	35	11)	21	21)	26
2)	37	12)	28	22)	23
3)	25	13)	36	23)	18
4)	14	14)	37	24)	9
5)	11	15)	30	25)	8
6)	18	16)	36	26)	1
7)	18	17)	38	27)	0
8)	21	18)	35	28)	0
9)	14	19)	31	29)	0
10)	18	20)	28	30)	0
				31)	0

Mean: 19.9
Number of reports: 100



May Summary: Solar activity continued to be very low through May 12th. On the other hand, the geomagnetic field was at minor to major storm levels - depending on latitude - through the 11th, due to the presence of a favorably-located coronal hole. Reports of aurorae peaked on the 2nd/3rd, with activity reported from North American mid-latitude stations as low as 43 degrees. The > 2 MeV electron fluence became enhanced around midday on the 3rd, and climbed into the high range (E +09) on the 4th. This enhancement results from the recurrent coronal hole which has been geoeffective each month since January.

An eruptive prominence was visible on the Sun's SW limb on the 1st, and two filaments (10 and 19-degrees long) disappeared from the Sun during the 10th/11th time period. Little else of note occurred until the 12th when sixteen separate class B flares were recorded. Most of these events were optically uncorrelated.

Activity was very low through the remainder of May. The > 2 MeV electron fluence declined with the departure of the Southern Hemisphere coronal hole, dropping into the E +08 range. The geomagnetic field was mostly quiet to unsettled with intervals of storm conditions towards the end of the fourth week due to a coronal hole in the Sun's northwest quadrant. The > 2 MeV electron fluence returned to the high range for several days then declined to normal (E +06/07).

The Sun was totally spotless during the final five days of the month. However, beginning on the 28th, the geomagnetic field experienced intervals of storm conditions related to the repeat-return of the persistent southern coronal hole mentioned in the first paragraph. Near month's end, the > 2 MeV electron fluence rose accordingly. The smoothed-mean American Relative Sunspot Number for November, 1993, declined to 41.9.

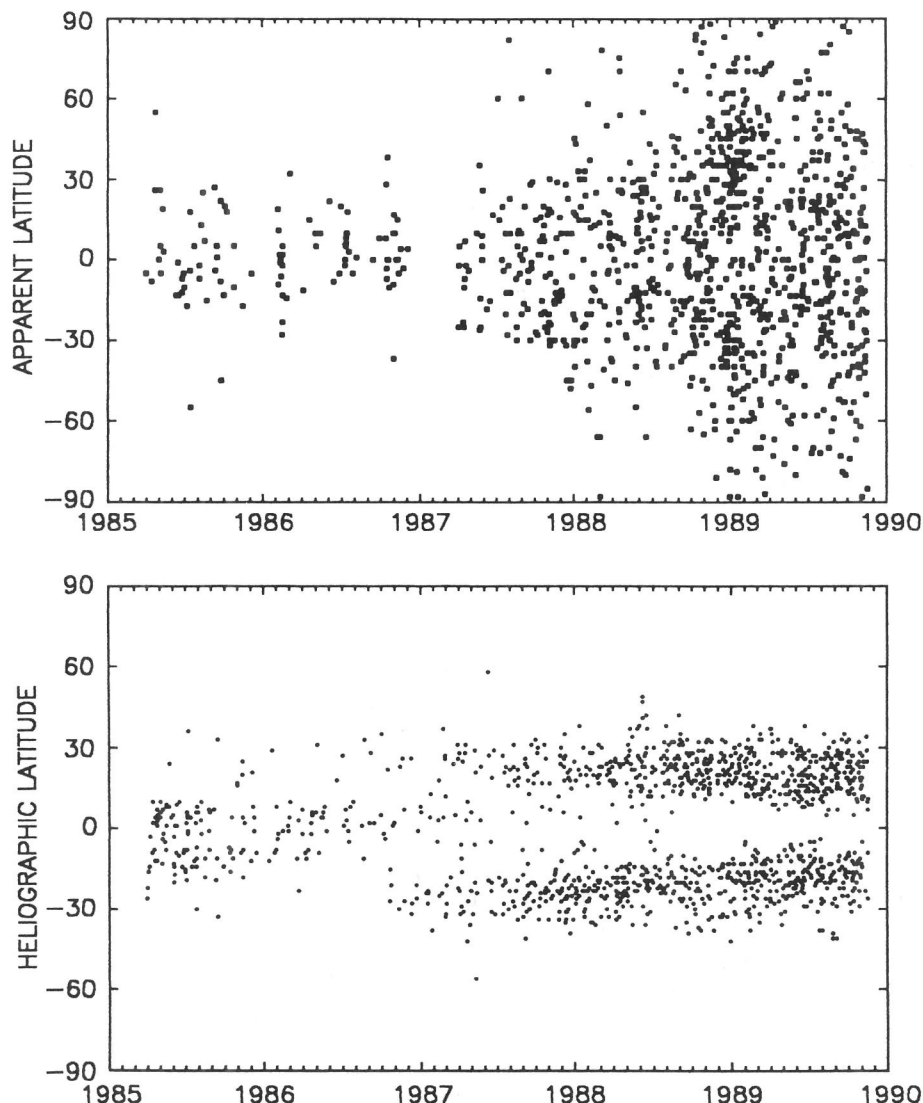
The mean estimated American Relative Sunspot Number for 1-14 June is 25. Solar activity has been low and very low thus far during June. No class M or greater intensity solar flares were recorded during this interval. The Sun continued to be spotless until the 6th, when a small type-B sunspot group emerged in the SW Hemisphere and produced a class C2/1F flare; the first event to reach class C status since mid-May. The > 2 MeV electron fluence remained enhanced throughout the period, but gradually declined to a moderate level.

[A portion of the above information was obtained from SELDADS]

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

Locations of Coronal Mass Ejections and Emerging Sunspot Groups: 1985-1989



Coronal mass ejections (CMEs) are now believed to be responsible for most, if not all, large non-recurrent geomagnetic storms. The 'butterfly-diagrams' which appear above show the locations of CMEs (top) and emerging sunspot groups between April 1985 and November 1989 as observed by the Solar Maximum Mission spacecraft and determined by Space Environment Services Center (respectively). Note that while both phenomena follow the traditional butterfly pattern - appearance at locations near the solar equator at cycle minimum (September, 1986) progressing to high latitudes at maximum (July, 1989) - CMEs also occur at very high latitudes. CME locations are 'apparent' latitudes because they are computed from position angles along the Sun's limb.

Sudden Ionospheric Disturbances (SES) Recorded During April, 1994

Records were received from A9,40,50,59,61,62,63,65,66,67,68,69,70,71,72,73,74,75,76,77,78,80,81,82

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def
2	1215	1	5	17	2130	1-	5	21	2215	1	5	28	1648	1-	5
2	1923	2+	5	18	1415	2+	5	22	0547	1-	5	28	2205	2+	4
9	2204	1-	5	20	1530	2	5	22	0630	1-	5	29	0800	1-	5
10	1230	1-	5	21	1414	2	5	23	0951	1-	5	30	1353	1-	5
10	1636	1-	5	21	1819	1-	5	23	1910	1-	5	30	1729	1-	4
13	1744	1	5	21	1915	1-	5	26	1930	1-	5				

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

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