

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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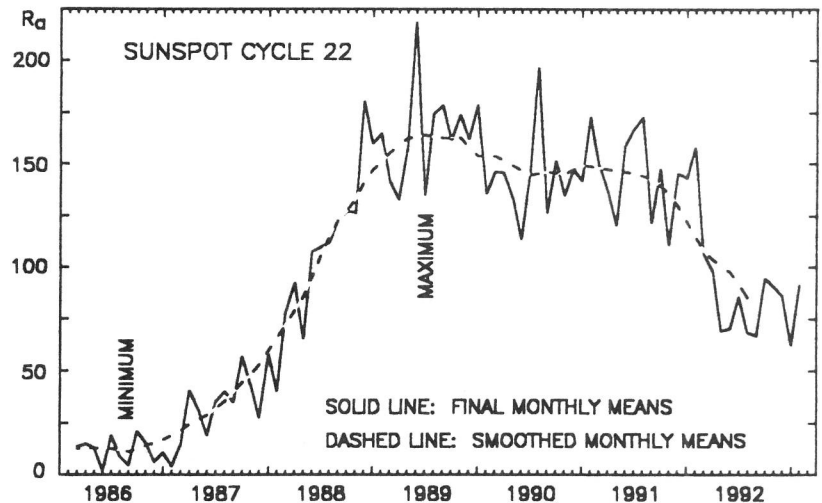
Volume 49 Number 2

February 1993

American Relative Sunspot Numbers for February

		R _a Final			
1)	25	11)	95	21)	95
2)	43	12)	94	22)	100
3)	67	13)	89	23)	96
4)	89	14)	83	24)	90
5)	117	15)	75	25)	85
6)	127	16)	84	26)	82
7)	125	17)	65	27)	85
8)	127	18)	86	28)	91
9)	124	19)	87		
10)	110	20)	86		

Mean: 90.1
 Number of reports: 99



February Summary: Activity varied during the first four days of February. Two class M flares - one uncorrelated, one in NOAA/USAF Region 7416 (S11, L124, CRO) - occurred on the 1st, and a long-duration class C8 flare erupted in Region 7417 (N16, L120, EKO) on the 3rd. The latter event produced a disproportionately large-amplitude sudden ionospheric disturbance on several observer's records. Geomagnetic field conditions began the period at minor storm levels, then declined to active or unsettled.

Solar activity ranged between high and low from the 5th through 11th. Eight class M solar flares were recorded during the period, including the first major event to occur since early November; a complex M9.6/2B Tenflare on the 6th in Region 7417. Six of the remaining class M events were spawned in Region 7420 (S07, L085, EK1), and one was optically uncorrelated. With a maximum area spread over 1270 millionths of the solar hemisphere (~3900 million km²), Region 7420 was the largest on the disk during the interval. In addition, a moderately-sized filament disappeared from center-disk on the 5th/6th. The geomagnetic field was quiet at the beginning of the period, and at unsettled to minor storm levels thereafter. On the 13th, aurorae were reported from Tasmania and New Zealand.

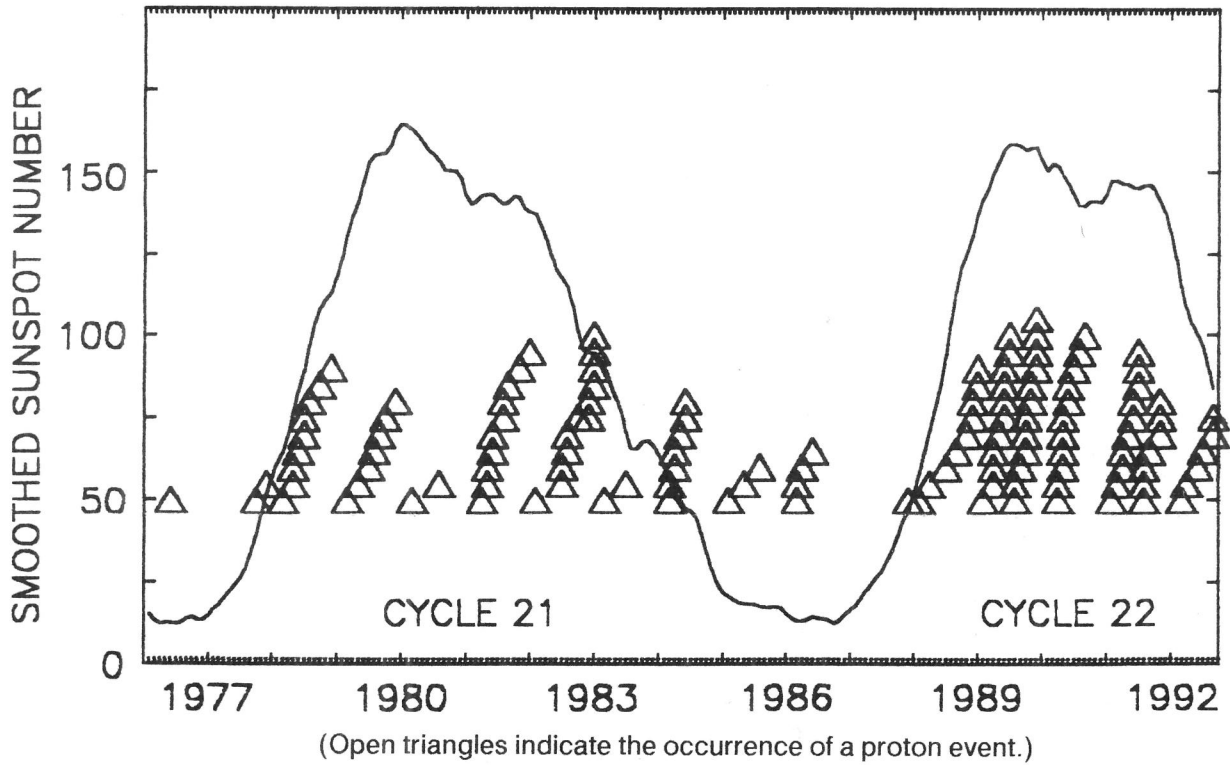
Activity ranged between low and high during the third week of February. Six class M solar flares occurred, raising the total for the month to seventeen. Region 7420 spawned two of these events, including the second major flare to erupt during February, a M5.8/SF on the 17th. Region 7427 (S20, L322, DAO) was also active, contributing three lesser-intensity class M flares during the period. The geomagnetic field was mostly quiet until the 17th when major to severe conditions - dependent upon latitude - were recorded. This disturbance may have resulted from a filament which disappeared from the Sun late on the 13th.

Solar activity was mainly low during the remainder of February. The lone exception occurred when Region 7433 (N12, L240, DAO) spawned the month's final class M flare (nearly tripling the combined total for December and January), a M1.4/SF early on the 21st. Otherwise, filaments disappeared from the Sun during the 24th to 26th time period.

Class M flare activity on the 18th was the likely cause of major geomagnetic storm conditions at high latitudes on the 20th. A separate disturbance on the following two days is thought to be related to coronal hole effects. A sudden impulse (12 nT) was recorded at Boulder late on the 27th, with storm conditions at some high latitude stations thereafter. This activity may have been related to a combination of filament disappearances and coronal hole effects. Smoothed mean for August 1992: 84.2

The estimated mean American Relative Sunspot Number for 1-14 March is 87. Seven class M flares have been recorded during this interval. Major events (M5.1/SF, M7.7/3B, M7.0/3B Tenflares) occurred in Region 7440 (S06, L103, EK1) on the 2nd, 6th and 12th. A fourth major flare (M7.3/2B Tenflare) erupted in Region 7448 (N15, L359, FSO) on the 11th.

Solar Proton Events Affecting the Terrestrial Environment



Reference: [SESC PRF 908](#), 26 January 1993.

Erratum

The statement by Steven Barker in the January 1993 issue of the Solar Bulletin, 'Therefore, the true value, for example for 550 nm, is 0.000009%, not 0.0009 as shown (i.e., graphically).' is not correct. The graph reflects the actual transmission percentages for that sample of #14 welder's glass.

- - editor - -

Sudden Ionospheric Disturbances (SES) Recorded During January 1993

Records were received from A3,9,40,50,59,61,62,63,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def
1	1151	1-	5	11	0044	1-	5	16	1552	1-	5	21	1435	1-	5
1	1341	1+	5	11	1740	3	5	16	1648	1-	5	24	0828	1	5
2	1745	1+	5	12	0901	2	5	17	0852	1-	5	25	1229	1-	5
2	2013	1+	5	12	1435	1	5	17	1435	1-	5	25	1508	1-	5
2	2344	2	5	13	0314	1+	5	17	1620	1-	5	27	1909	1-	5
4	0045	1-	5	13	0826	1-	5	17	1720	1-	5	27	2135	1	5
4	2021	1	5	13	1214	1+	5	17	1750	1-	5	28	1317	1-	5
4	2040	1+	5	13	1405	1	5	17	1822	1	5	29	1608	1-	5
5	1507	1	5	13	2027	1-	5	17	1903	1-	5	29	2055	1-	5
6	0103	1-	5	14	0935	1	5	17	2154	1	5	30	1150	1-	5
6	0631	1-	5	14	0954	1-	5	18	1302	1-	5	30	1352	1-	5
7	0918	1-	5	14	1238	1+	5	18	1657	1-	5	31	1430	3	5
7	2054	1	5	16	0755	1	5	20	1254	1-	5	31	1912	2	5
9	2202	1+	5	16	0957	2	5	20	1314	1-	5	31	2254	1+	5
10	1332	2	5	16	1509	1-	5	20	2332	1-	5				

SID Analysts: J. Ellerbe; S. Hansen; J. Knight; A. Okorogu; A. Stokes; M. Taylor; P. Taylor; B. Wingate

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

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