

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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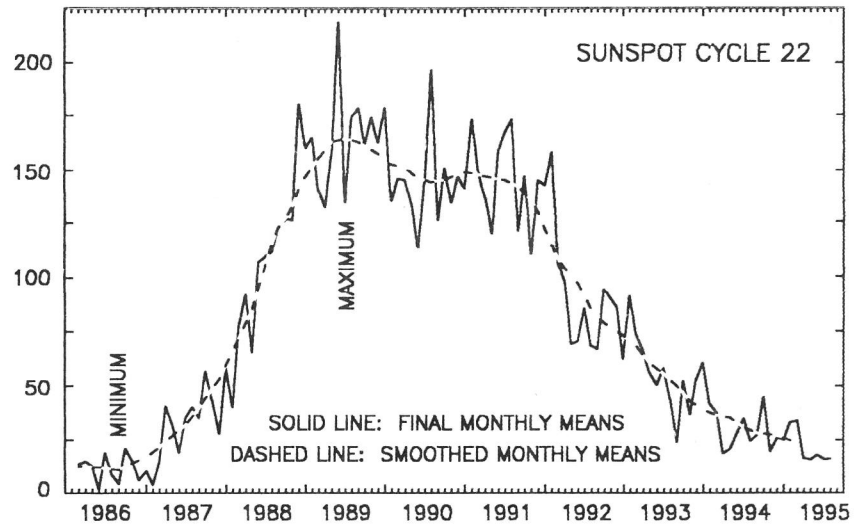


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American Relative Sunspot Numbers for August

	R _a Final				
1)	13	11)	11	21)	0
2)	14	12)	7	22)	9
3)	15	13)	8	23)	17
4)	13	14)	7	24)	30
5)	19	15)	17	25)	35
6)	23	16)	26	26)	42
7)	17	17)	16	27)	31
8)	12	18)	0	28)	20
9)	9	19)	0	29)	15
10)	10	20)	8	30)	13
			31)	11	
Mean: 15.1					
Number of reports: 95					



August Summary: Solar activity was very low during the first four days of August. A 27-degree filament disappeared from the Sun's SE quadrant on the 1st, but little other noteworthy activity occurred. The geomagnetic field was quiet to unsettled, and the >2 MeV electron fluence was normal.

Activity continued at a very low level between the 5th and 11th. Interesting events during the period were limited to small filaments which disappeared from the Sun's NE and SE quadrants on the 6th and 7th (respectively). The geomagnetic field was initially quiet to unsettled. Active to (occasional) minor storm conditions accompanied by an increase to moderate and high >2 MeV electron fluence levels began on the 9th. These phenomena were associated with a coronal hole.

On the 12th, NOAA/USAF Region 7899 (S20, L215) -- a small reverse-polarity sunspot-group (compared with the current cycle) -- emerged on the visible hemisphere. Although the region was located at a lower-than-expected latitude, many experts agree that it is likely to be one of the first groups from the new solar cycle. (See Dr. John Kennewell's description on page two of the *Solar Bulletin* for more information.)

Solar activity remained at a very low level between the 12th and 24th. However, a coronal mass ejection may have occurred around the 12th. Yohkoh satellite data is unavailable at this time, but the event was indicated by the August 12th time-variable eruption of a large, 42-degree filament in the Sun's SE hemisphere.

By the 13th, electron fluence levels had declined to moderate, and storm conditions subsided. Solar activity continued to be in the very low range, but geomagnetic activity picked up again on the 15th, and the >2 MeV electron fluence climbed to a high level. A brief flurry of active to severe storm conditions was recorded on the 17th; this disturbance is likely to be related to phenomena associated with the filament eruption described above. Both indices began to decline later that day, and were near normal by the 18th. (Short-lived disturbances occurred on the 23rd and 24th.)

Activity continued to be very low throughout the final week of August. Geomagnetic activity was mainly in the quiet to unsettled range. The lone exception occurred on the 25th, when a sudden impulse followed by a brief interval of minor to severe storm conditions was recorded at high latitude stations. The >2 MeV electron fluence remained at background level. The smoothed mean American Relative Sunspot Number for February 1995 is 23.6.

The mean estimated American Relative Sunspot Number for 1-16 September is 5. Solar activity continued to be very low during the first half of September. The geomagnetic field was quiet to active, with periods of storm conditions mostly associated with coronal hole activity.

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

Cycle 23 Sunspots Observed at Learmonth Observatory

A total of three sunspot groups potentially belonging to new cycle 23 have now been observed at Learmonth Solar Observatory, jointly run by the USAF Space Command and IPS Radio and Space Services. Using hourly full-disc magnetograms via a network connected to the recently established NSO/GONG site on the North West Cape of Western Australia, observers on 13 August reported the third potential new cycle sunspot group. These groups were also observed by Kitt Peak magnetogram and at the Big Bear Solar Observatory.

Details of the groups are:

Date	NOAA Region	Latitude	Carr. Long.	Max. Spots	Class
May 13	7872	N13	321	2	Bxo
Jul 26	7893	S18	125	3	Axx
Aug 13	7899	S20	215	2	Bxo

All of the above regions had the correct hemispheric magnetic polarity for cycle 23. (Note: Although it did not develop sunspots, a fourth region located at N38 on 24 August also showed new cycle polarity. - *editor* -) However, the low latitudes of these sunspot groups could call into question their cycle allegiance. In recent cycles, the latitudes of the first spotted region has typically lain between 25- and 40-degrees.

It is not uncommon for a region belonging magnetically to one hemisphere to become 'lost' and 'stray' into the wrong hemisphere. Most such groups are located at latitudes less than 10-degrees, while from 10- to 20-degrees we have a grey area. However, in lost groups the leader polarity is typically poleward of the trailer. Such was not the case for Regions 7893 and 7899. Both of these had the leader inclined toward the equator. In fact, the axis of Region 7893 was inclined almost 45-degrees equatorward.

The major significance of new cycle spots lies in their predictive value for the minimum of the current cycle which coincides with the onset of the new cycle. Typically minimum does not occur until at least 12-months following the appearance of the first spot group of the new cycle. Details for the last three cycles are:

Cycle	First Spot	Minimum	Latency
20	Sep 1963	Oct 1964	13 months
21	Nov 1974	Jun 1976	19 months
22	Mar 1985	Sep 1986	16 months

On the basis of past behavior we would thus expect the next solar minimum to occur between June and December 1996 and the duration of cycle 22 to lie between 9.7 and 10.3 years, noticeably shorter than the average cycle length of around 11 years.

-- *John Kennewell* -- Learmonth Solar Observatory, Australia
(received 14 August 1995)

Sudden Ionospheric Disturbances (SES) Recorded During July 1995

Records were received from A5,9,40,50,59,61,62,63,65,68,69,70,71,72,73,74,75,76,77,78,80,81,82,83,84,85

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def
2	0000	1-	5	4	1521	2	5	4	1838	1+	5	7	1614	1-	5
4	1414	1-	5	4	1750	1-	4	6	0815	1-	5	17	1512	1-	4

Analysts: J. Ellerbe; S. Hansen; M. Hayden; P. King; A. Landry; R. Papp; G. Rosenberg; A. Stokes; M. Taylor; P. Taylor; L. Witkowski

Frequencies recorded (kHz): 16.8; 18.3; 19.6; 20.3; 21.4; 23.4; 24.8; 28.5; 30.6; 48.5; 51.6;

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