

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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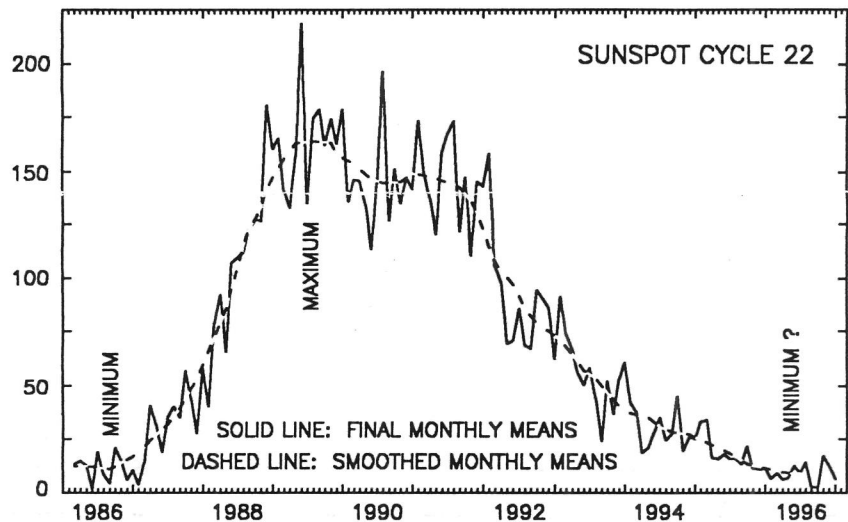
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## American Relative Sunspot Numbers for January

		R <sub>a</sub> Final				
1)	0	11)	7	21)	0	
2)	0	12)	0	22)	0	
3)	0	13)	0	23)	0	
4)	8	14)	0	24)	7	
5)	9	15)	8	25)	7	
6)	10	16)	16	26)	7	
7)	7	17)	8	27)	8	
8)	0	18)	12	28)	8	
9)	8	19)	0	29)	9	
10)	8	20)	4	30)	10	
					31)	8
Mean: 5.5						
Number of reports: 90						



**January Summary:** The Sun remained relatively quiet during the first month of 1997. Other than two filaments which disappeared as part of a large coronal mass ejection observed by the SOHO spacecraft on the 6th, little noteworthy activity occurred between the 1st and 9th. An initially spotless disk was again devoid of spots on the 8th, just prior to the emergence of new cycle NOAA/USAF Region 8010 (N38, L350, BXO). Likewise, the geomagnetic field continued to be mostly quiet with a few periods of unsettled conditions, and the daily > 2 MeV electron fluence was normal.

Little in the nature of sunspot activity occurred from the 10th through 16th. However, a cloud of magnetic plasma thought to be related to the coronal mass ejection observed by SOHO passed by the Earth on the 10th. A brief interval of major storm levels ensued, along with an increased level of > 2 MeV electron fluxes. The latter index was in the moderate to high range throughout the period.

Solar activity continued to be very low between the 17th and 23rd. New cycle Regions 8012 (N27, L172, BXO) and 8013 (S32, L119, AXX) managed a few spots on the 18th, but quickly dissolved to areas of simple plage. The geomagnetic field was mostly quiet with occasional periods of active or unsettled conditions, and the > 2 MeV electron fluence declined to normal.

Activity was very low between the 24th and 31st. The geomagnetic field continued to be relatively quiet until around midday on the 26th, when a coronal hole related wind stream began to affect the terrestrial environment. The > 2 MeV electron fluence started to rise shortly thereafter, with flux values reaching high and very high levels. Field conditions returned to the quiet or unsettled range on the 29th, although flux levels continued to be elevated.

In spite of the scarcity of sunspots during January, the smoothed monthly-mean American Relative Sunspot Number for July 1996 declined only slightly, to a value of 8.2. This measurement of solar activity has now exceeded the previous low of 8.0 for two consecutive months, lending a certain credibility to the belief that the minimum of Cycle 22, and simultaneous onset of Cycle 23, may have taken place during May 1996. If this scenario is correct, Cycle 22 will become the shortest solar cycle to occur in over 150 years.

The estimated American Relative Sunspot Number for 1-15 February is 12. Solar activity continued to be very low during the first two weeks of February. However, the highlight of the period was a large coronal mass ejection which occurred early on February 7th. The magnetic plasma cloud associated with this event passed by the Earth several days later, resulting in reports of minor to major geomagnetic storming -- especially from high latitude sites.

[A Portion of the above information was obtained from Space Environment Center]

### American Relative Sunspot Numbers for 1996

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	13	12	4	6	0	7	8	19	7	0	0	23
2	16	11	0	11	0	8	9	21	8	0	0	11
3	20	0	0	11	0	8	8	20	7	0	0	0
4	29	0	0	8	0	10	0	19	7	0	0	0
5	40	0	0	1	0	14	7	13	0	0	0	0
6	38	0	12	0	15	17	0	10	0	0	0	0
7	31	0	3	0	13	19	17	19	9	0	0	3
8	34	0	0	0	13	18	23	10	8	0	0	15
9	16	0	0	0	13	20	28	14	0	0	6	20
10	10	0	0	0	19	13	25	17	0	0	13	15
11	0	0	14	0	29	8	20	20	0	0	14	23
12	0	0	16	9	18	7	13	14	7	0	9	24
13	0	0	15	6	18	0	9	11	0	0	9	26
14	0	0	14	0	16	0	0	20	0	0	12	26
15	0	9	11	0	14	0	0	14	0	0	18	25
16	0	2	10	2	11	0	0	9	0	0	31	17
17	0	0	9	11	9	0	0	10	0	0	22	24
18	0	0	8	17	6	10	0	8	0	0	13	24
19	0	8	6	15	0	16	0	9	0	0	9	17
20	0	11	0	17	0	10	0	9	0	7	9	12
21	8	15	11	15	0	10	0	8	0	3	15	25
22	2	14	15	14	1	11	0	9	0	0	22	20
23	0	9	14	9	1	13	0	12	0	0	36	15
24	7	21	13	5	0	17	0	15	0	0	40	8
25	9	15	13	0	0	19	0	9	0	8	50	0
26	9	12	22	0	0	20	8	11	0	14	50	0
27	9	9	21	0	0	20	9	10	0	7	36	0
28	10	8	15	5	0	20	12	10	0	4	26	0
29	9	14	11	0	0	18	16	10	0	0	23	0
30	17		0	0	0	16	18	12	0	0	20	0
31	12		0		0		20	17		0		0
<b>Mean:</b>	10.9	5.9	8.3	5.4	6.3	11.6	8.1	13.2	1.8	1.4	16.1	12.0

**Yearly Mean: 8.4**

### Sudden Ionospheric Disturbances (SES) Recorded During December 1996

Records were received from A9,50,52,61,62,63,69,70,71,72,73,74,75,76,77,78,80,81,82,83,84,85,86.

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	De
1	2023	1	5	2	1402	1	5	11	0942	1-	5	16	1229	1	5
1	2052	2	5	2	1431	1	5	11	1438	1-	5	19	1600	2	5
2	1322	1-	5	10	1430	1-	5	11	1820	2	5	20	1818	1-	5
												24	1315	1	5

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

Frequencies recorded (kHz): 16.8; 18.3; 19.6; 20.3; 21.4; 23.4; 24.0; 24.8; 30.6; 48.5; 51.6; 71.6.