

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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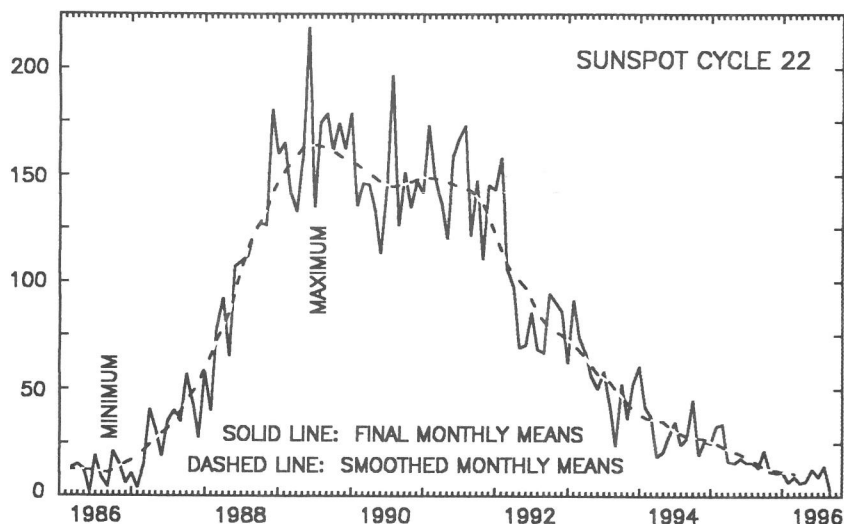
Volume 52 Number 9

September 1996

## American Relative Sunspot Numbers for September

|     |   | R <sub>a</sub> Final |   |     |   |
|-----|---|----------------------|---|-----|---|
| 1)  | 7 | 11)                  | 0 | 21) | 0 |
| 2)  | 8 | 12)                  | 7 | 22) | 0 |
| 3)  | 7 | 13)                  | 0 | 23) | 0 |
| 4)  | 7 | 14)                  | 0 | 24) | 0 |
| 5)  | 0 | 15)                  | 0 | 25) | 0 |
|     |   |                      |   |     |   |
| 6)  | 0 | 16)                  | 0 | 26) | 0 |
| 7)  | 9 | 17)                  | 0 | 27) | 0 |
| 8)  | 8 | 18)                  | 0 | 28) | 0 |
| 9)  | 0 | 19)                  | 0 | 29) | 0 |
| 10) | 0 | 20)                  | 0 | 30) | 0 |

Mean: 1.8  
Number of reports: 84



**September Summary:** Solar activity was very low during the first five days of September. The geomagnetic field was disturbed at the beginning of the period due to a coronal hole wind stream, but conditions returned to normal shortly thereafter. The  $>2$  MeV electron fluence was moderate to high throughout most of the interval.

Activity remained in the very low range during the following seven days; other than on the 7th and 8th when new cycle NOAA/USAF Region 7988 (S26, L136, BXO) produced a few spots, and the 12th when new cycle Region 7989 (N29, L059, AXX) appeared, the disk was spotless between the 6th and 11th. The geomagnetic field was initially at quiet to unsettled levels that escalated to minor storm on the 10th due to the impact of a solar wind stream on the Earth. The  $>2$  MeV energetic fluxes also climbed into the high range around that time, remaining near that level throughout the remainder of the period.

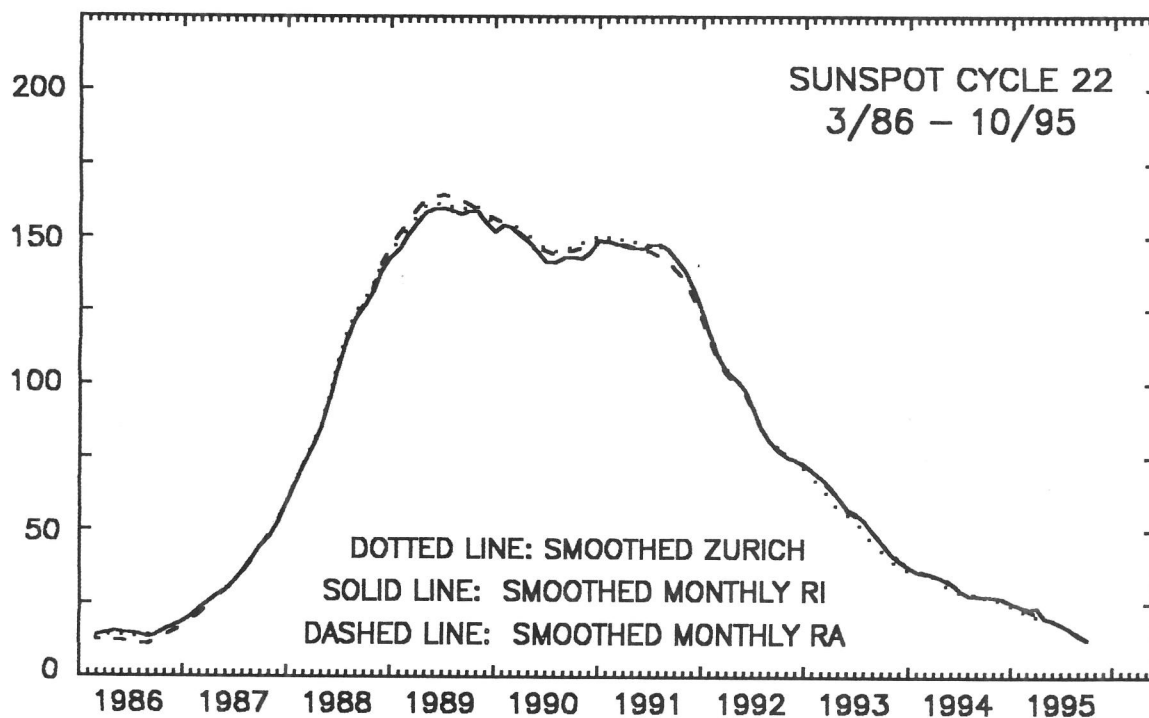
Solar active phenomena continued to be absent from the 13th to 19th; no spotted regions appeared on the visible hemisphere during this interval. Geomagnetic field conditions ranged between quiet and occasional minor storm. The  $>2$  MeV electron fluence was very high or high.

The visible hemisphere of the Sun continued to be spotless during the remainder of the month (see below). New cycle spot-groups outnumbered those from Cycle 22 by 2 to 1 in September. Occasional periods of minor storm conditions due to coronal hole effects continued during the last ten days of the month, and the  $>2$  MeV electron fluence varied between very high and high, with a slight decline at the end of the period. The smoothed monthly-mean American Relative Sunspot Number continued its decline, reaching a value of 9.8 for March 1996.

The estimated American Relative Sunspot Number for 1-15 October is 0. Solar activity was very low during the first half of October. The visible hemisphere has been spotless since September 12th. We point out that such a long spotless period (thirty-three days through 15 October) is somewhat unusual for very recent cycles, but it is not a rare occurrence. The most recent of such strings took place in 1954 (thirty and twenty-seven day periods) during the minimum of Cycle 19, and a twenty-four day interval occurred in 1976. The longest series of consecutive spotless days during this century occurred in 1913 (ninety-two days).

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

### Three Relative Sunspot Number Indices During Solar Cycle 22



Although these three indices are each computed with different techniques, we call attention to the excellent agreement between them. Source: *International Relative Sunspot Numbers* -- SIDC Index Center, Brussels, Belgium; *Zurich Relative Sunspot Numbers* (through June 1995) -- H.U. Keller, standard observer 1980-1995, Swiss Federal Observatory, Zurich, Switzerland.

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

Records were received from A9,40,50,61,62,63,68,69,70,71,72,73,74,75,76,77,78,80,81,82,83,84,85

The international monitoring network of the AAVSO Solar Division recorded no sudden ionospheric disturbances during August 1996.

**Analysts:** J. Ellerbe; S. Hansen; M. Hayden; P. King; A. Landry; 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.

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