Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

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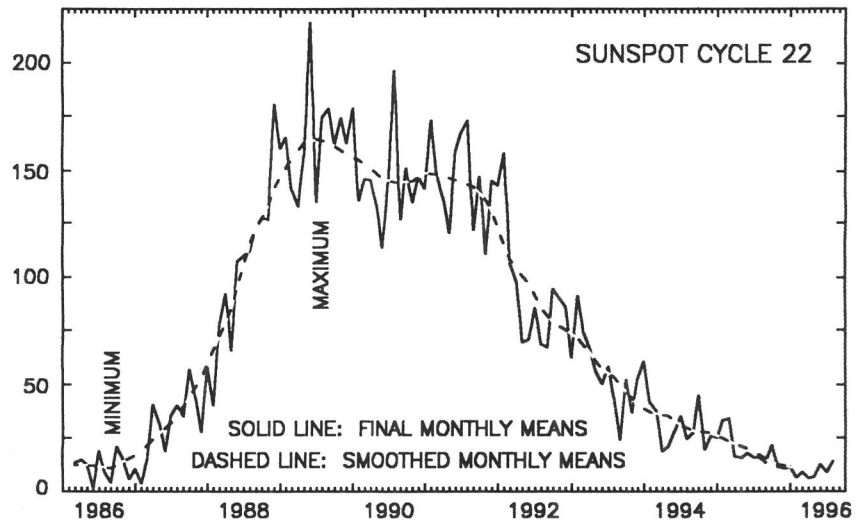
American Relative Sunspot Numbers for August

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

Mean: 13.2
Number of reports: 90



August Summary: Solar activity was very low until the 7th and 8th, when a long-duration class C1.5 flare and a class C1.0 flare -- both without optical correlation -- occurred. The >2 MeV electron flux was moderate and high for most of the first eight days of August. Geomagnetic field conditions ranged between quiet and active.

Activity continued at very low levels between the 9th and 15th. Sunspots were confined to the Sun's Northern Hemisphere, where two new cycle spot-groups appeared. The geomagnetic field was quiet with occasional short periods of unsettled or active conditions, and the >2 MeV electron fluence was normal.

Very low activity was also the rule between the 16th and 21st. However, things picked up a bit on the 22nd, due the occurrence of two optically uncorrelated class C flares. These events may have been associated with the impending return of old NOAA/USAF Region 7978/7981. According to Space Weather Operations, this region is also the likely site of a long-duration X-ray enhancement on the 21st which may have been accompanied by a coronal mass ejection. The geomagnetic field was quiet to slightly unsettled during the period, and the >2 MeV electron flux experienced intervals of moderate to high level activity.

Old Region 7981 made its reappearance on the 23rd and was re-named Region 7986 (S12, L258). Initially classed as a type-H group during this rotation, Region 7986 grew in size and number of sunspots becoming a type C by the 25th, again declined to type-H, then regained spots and a type C pattern. Some life still remained in the group's flare producing capacity as well, and several class C flares occurred in the region during the remainder of August.

The geomagnetic field was at quiet to major storm levels on the 23rd, possibly as a result of the long-duration event on the 21st that is mentioned above. Minor to major storm conditions were again the rule on the 29th-30th, this time due to a coronal hole related solar wind stream. The >2 Mev electron fluence rose to high on the 26th, and fluctuated between moderate and high during the rest of the month. The smoothed mean American Relative Sunspot Number for February 1996 continued to decline, falling to a value of 10.3.

The estimated mean American Relative Sunspot Number for 1-15 September is 3. Solar activity was very low during the first half September. Region 7986 was the sole occupant of the visible hemisphere at the beginning of the month. Other than on the 7th and 8th when new cycle Region 7988 (S26, L136, BXO) produced a few spots, and the 12th when new cycle Region 7989 (N29, L059, AXX) made a brief appearance as a small spot-group, the disk was spotless between the 6th and 11th and 13th through 15th. The geomagnetic field was disturbed at the beginning of September due to a coronal hole wind stream, and field levels escalated to minor storm on the 10th-13th due to the impact of a second such stream on the Earth.

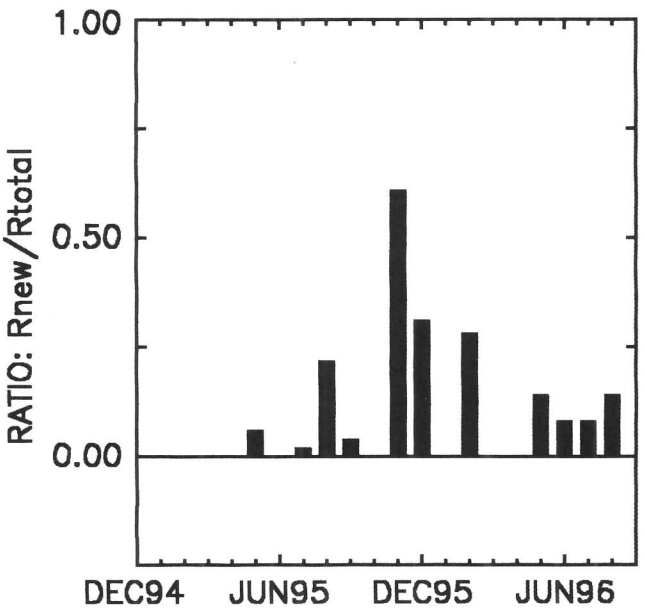
[A Portion of the above information was obtained from **SELDADS**]

Another Look at New Cycle Activity

The diagram to the right updates the **Rnew/Rold** ratio explained in the Solar Bulletin for October 1995. This version is complete through August 1996.

The graph below depicts these data in a different manner. Each vertical bar represents a single appearance of a potential Cycle 23 sunspot group (as determined for **Rnew**, above). The bars are shown as increasing in height only to emphasize the growing number of new cycle groups. This diagram is accurate through mid-September.

It should be noted that thus far in September Cycle 23 groups have outnumbered old cycle groups by 3 to 1, and that the lone Cycle 22 group is represented by the continued passage of long-lived Region 7986 (see page one).



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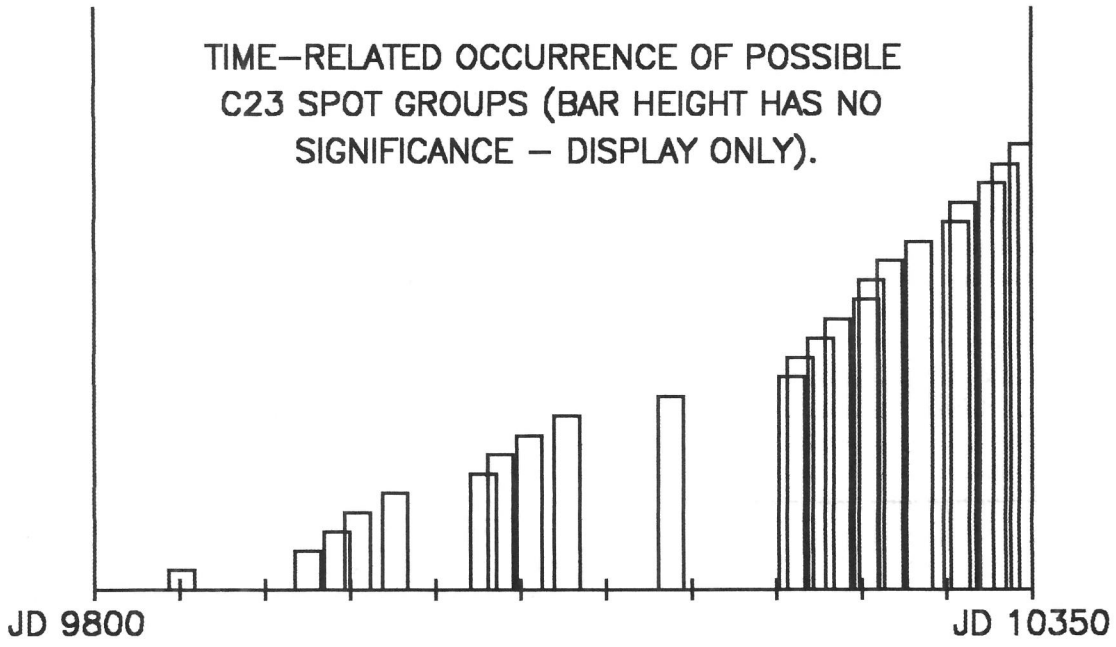

Sudden Ionospheric Disturbances (SES) Recorded During July 1996

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

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	De
7	2224	1-	5	9	0912	2	5	10	1430	2	5	11	1231	1-	5
8	0616	1	5	9	1843	1-	4	10	1640	1-	5	11	1700	1+	5
8	1622	1-	5	9	1857	1+	5	10	1815	2	5	12	1530	2+	5
8	2158	2+	5	9	2246	2+	5	10	1855	1+	5	14	1458	2+	5
9	0020	2	4	10	1105	1-	5	11	0825	1+	5	28	1744	1	4

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.