Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

Peter O. Taylor, editor
4523 Thurston Lane, #5
Madison, WI 53711-4738 USA

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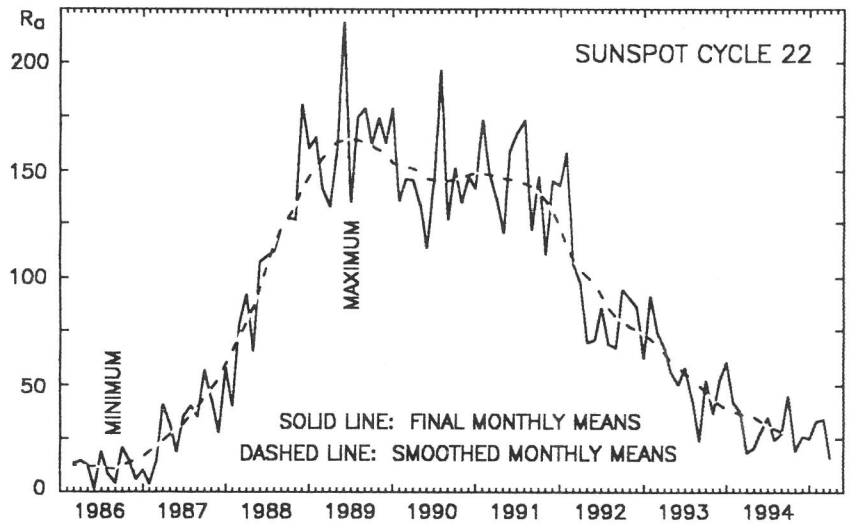
American Relative Sunspot Numbers for April

		R_a Final			
1)	17	11)	14	21)	13
2)	20	12)	21	22)	9
3)	21	13)	31	23)	0
4)	9	14)	38	24)	0
5)	0	15)	44	25)	0
6)	0	16)	48	26)	0
7)	0	17)	49	27)	0
8)	0	18)	43	28)	0
9)	7	19)	38	29)	5
10)	10	20)	22	30)	0

Mean: 15.3
Number of reports: 95



April Summary: Solar activity was very low during the first week of April. Small filaments disappeared from the Sun's SW hemisphere on the 5th and 6th, but otherwise little of note occurred. With the exception of a small sudden impulse (SI) on the 1st, the geomagnetic field was generally quiet until the final day of the week. The Space Environment Laboratory points out that the timing of the SI coincides with an expected shock-wave from a probable coronal mass ejection on March 29th. A minor to major storm disturbance (unrelated to the SI) -- believed to be generated by a high speed solar wind -- began on the 7th. The >2 MeV electron fluence was moderate on the 1st and normal throughout the remainder of the week.

Low and very low solar activity levels persisted throughout the second and third weeks of April. The first spot-group to appear in the Sun's Northern Hemisphere since March 27th, emerged on April 13th; a small type-B group in the eastern quadrant which exhibited both growth and longevity. The geomagnetic field experienced intervals of storm conditions during most of week two, primarily at high latitudes. The >2 MeV electron fluence was very high for most of the period, then moderated at the end of the third week.

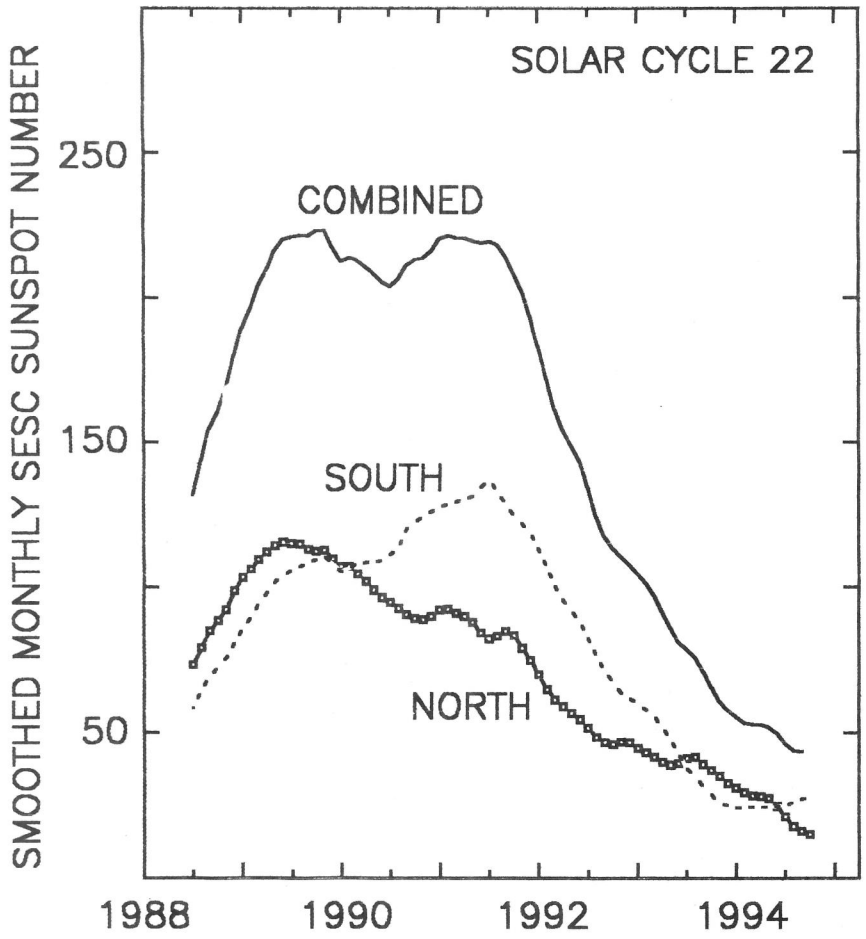
The long string of low (occasionally moderate) daily solar activity levels was finally interrupted on the 22nd, when USAF/NOAA Region 7863 (S04, L047, CAO) spawned a major solar flare (M7.1/2F) as it transitted the Sun's western limb. This event was the first major flare (>M5) to occur since January 1994, and carried the strongest X-ray rating since a class M9.7 was recorded during June 1993. A weak proton enhancement at satellite altitude reached a maximum 1.6 p.f.u. several hours after the event reached maximum, and the flare produced a moderately strong shortwave fadeout at frequencies up to 15 MHz which lasted for approximately 45 minutes. Region 7863 is also the suspected source of a second class M flare (M1.2) which erupted later on the 22nd.

Isolated reports of geomagnetic storming began on the 22nd, increased in frequency, and continued throughout the fourth week. According to the Space Environment Laboratory, solar wind data pointed to a moderate velocity, moderate density wind stream in the terrestrial environment during much of the period. A coronal hole influenced conditions at the end of the week. The >2 MeV electron fluence was moderate to high during the remainder of April. The smoothed mean American Relative Sunspot Number for October 1994 is 26.9.

The mean estimated American Relative Sunspot Number for 1-11 May is 8. Solar activity has been very low during this interval. Minor to severe storm conditions -- related to a recurrent coronal hole -- were the rule throughout the first week of May. Otherwise, the Sun was relatively quiet.

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

Variation of Hemispheric Sunspot Numbers
1987.5 - 1994.8



A close inspection of the trend of the smoothed monthly sunspot number during the past year or so shows that the previously steep decline has flattened. The earlier descent was very rapid, and can be linked to the extraordinarily sharp drop in sunspot activity in the Sun's Southern Hemisphere, the more active hemisphere during solar cycle 22.

The graph to the left shows this activity by Northern Hemisphere (open diamonds) and Southern Hemisphere (dashes), as well as by overall activity (solid line). The values in this diagram were derived by smoothing the un-adjusted monthly-mean sunspot numbers compiled by the USAF/NOAA observer network and provided by the Space Environment Laboratory in Boulder, Colorado. In this case, the use of the term 'un-adjusted' means that while the values were determined in the conventional manner, they have not been reduced to the scale of American or International Relative Sunspot Numbers.

Why has the overall descent slowed? It appears that too can be traced to activity in the Southern Hemisphere. While activity in the Northern Hemisphere has shown the fairly regular decline that we would expect at this cycle phase, activity in the south -- at least as measured by the smoothed monthly sunspot number -- has actually *increased* each month, beginning March 1994.

Why do the hemispheres behave so differently at times? According to Richard Thompson of the IPS Radio & Space Service in Sidney, Australia, the answer is not known; and perhaps whoever invented the phrase 'there is nothing new under the Sun' didn't really understand our closest star! -- *the editor* --

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Sudden Ionospheric Disturbances (SES) Recorded During March 1995

Records were received from A9,40,50,59,61,62,63,65,68,69,70,71,72,73,74,75,76,77,78,80,81,82,83,84,85

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def
3	1435	2+	5	8	1714	1	5	16	1418	2+	5	24	2001	1-	5
3	1541	2	5	10	1220	1	5	20	1736	2+	5	26	1542	1	5
3	1952	2	5	10	1759	2	5	20	2229	1-	5	26	1608	1-	5
4	0009	1-	5	10	2032	1-	5	21	2024	1-	5	29	0649	1-	5
4	1559	1-	5	14	1939	1-	5	21	2202	2	5	29	1433	1-	5
6	0830	2	5	15	1810	1-	5	22	1410	2	5	29	1852	1	5
7	1502	1	5	16	1339	1-	5	22	1635	3	5	30	0008	1-	5

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;

INTERNET: ptaylor@ngdc.noaa.gov **FAX:** [USA] 608-231-2385

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