Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS— SOLAR DIVISION

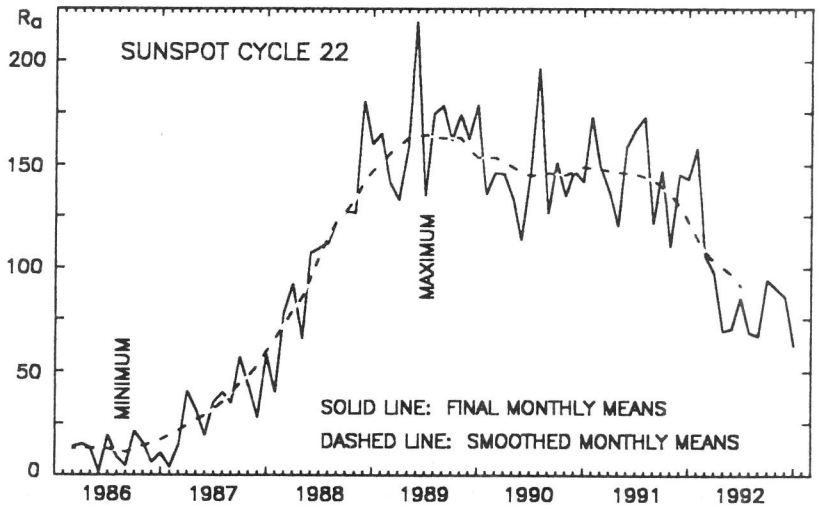
Peter O. Taylor, editor
P O Box 5685
Athens, GA 30604-5685 USA

Volume 49 Number 1 January 1993

American Relative Sunspot Numbers for January

	R_a Final				
1)	52	11)	90	21)	44
2)	50	12)	105	22)	34
3)	50	13)	99	23)	33
4)	59	14)	73	24)	43
5)	71	15)	56	25)	51
6)	84	16)	65	26)	40
7)	83	17)	64	27)	41 +
8)	98	18)	66	28)	44
9)	96	19)	61	29)	37 +
10)	97	20)	51	30)	35
				31)	40

Mean: 61.7
Number of reports: 99



January Summary: Solar activity was mainly low with one day in the moderate range between the 1st and 7th. The latter activity due to the occurrence of January's first class M flare; an optically uncorrelated M1.1 on the 2nd. This event may have erupted in northern NOAA/USAF Region 7376 when that group was over a day beyond west limb. The Sun's Northern Hemisphere was spotless on the 5th. The geomagnetic field was mostly quiet to unsettled, although storm conditions - without a clear solar source - were recorded on the 2nd through 4th.

The second week of January saw a continuation of low solar activity. The Earth's magnetic field experienced storm conditions on the 10th and 11th, possibly as a result of a coronal mass ejection several days beforehand. Other events of interest included a large filament which disappeared from the Sun on the 11th, and an eruptive prominence which was visible on the SE limb on the 14th.

Activity was low and very low from the 15th through 21st. The four to seven spot-groups on the visible hemisphere during the week were stable and quiet. Three large (+ 20 degree) filaments disappeared from the disk between the 15th and 17th; all were located on the south-central area of the Sun. The geomagnetic field continued to be quiet to unsettled.

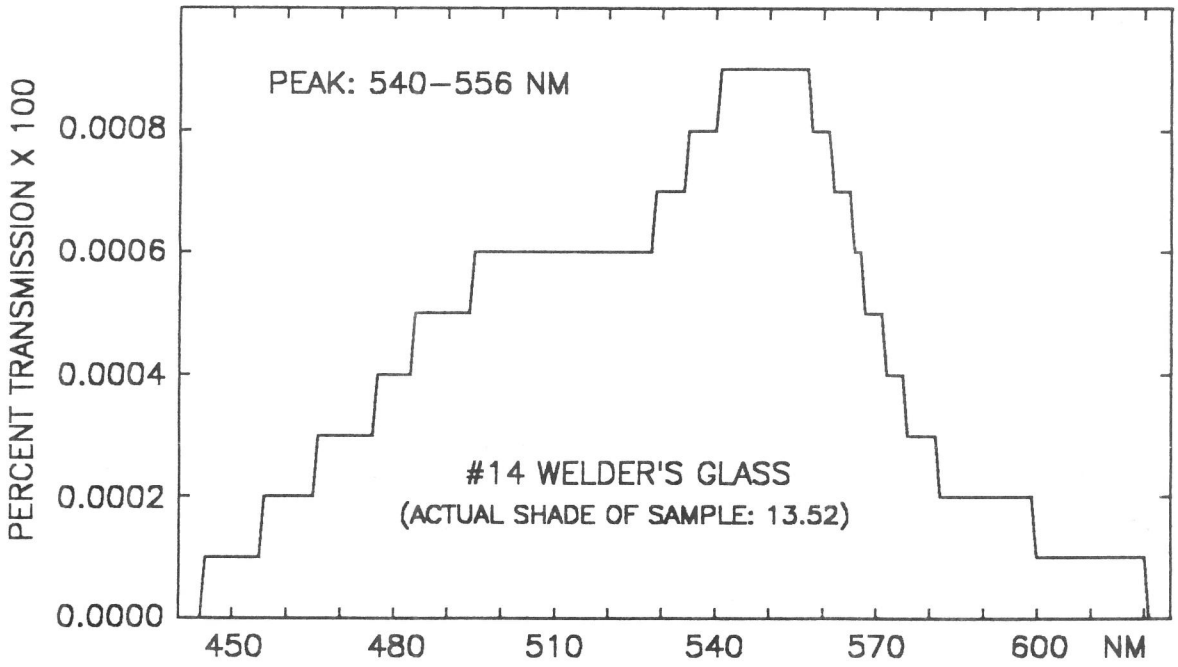
Solar activity was very low during the fourth week of January. Filaments disappeared from the Sun's NW quadrant on the 23rd and 24th, and from the Southern Hemisphere on the 25th/26th. The geomagnetic field was quiet during the first two days of the period, with brief intervals of storm conditions - especially at high latitudes - thereafter.

The final three days of the month produced a continuation of the previous week's activity level until late on the 31st when an optically uncorrelated class M1.1 flare erupted behind the SE limb, possibly in returning old Region 7391. The Sun's Northern Hemisphere was spotless for the second time during January on the 30th. Geomagnetic activity picked up a bit on the 30th and 31st (reaching storm levels), probably due to coronal hole effects. The smoothed-mean American Relative Sunspot Number for July 1992 declined to 90.4.

The estimated mean American Relative Sunspot Number for 1-14 February is 96. Solar activity during this interval has been higher than that recorded in January. Thus far, twelve solar flares have attained class M intensity, doubling the combined total for December and January. One of these events was the first major flare to be recorded since early November 1992: a complex M9.6/2B Tenflare which erupted on the 6th. Otherwise, the Sun has been relatively quiet as activity declines towards a predicted cycle minimum sometime during 1996 or 1997.

[A portion of this information was obtained from the **SELDADS** data-base.]

Visual Range Transmission Property of #14 Welder's Glass



Although welder's glass is not suitable for use as a full-aperture filter, solar observers commonly employ it at some point in their optical viewing systems, and for non-telescopic observations of the Sun. Strangely, precise information concerning its transmission properties - especially in the visual range (~ 400-750 nanometers) - is difficult to obtain. Our collaborator, Thomas Compton, has researched this question for several years. Recently, Mr Compton posed this question to Mr Steven Barker, Quality Control Engineer for Jackson Products (5801 Safety Drive NE, Belmont, MI 49306). We are indebted to Mr Barker for supplying the measurements which resulted in the diagram above, and for the following information:

'All readings were taken on a Perkin Elmer Lamda 9 spectrometer. After averaging these data per ANSI standard Z87.1 (1989), the shade of this sample falls within limits of shade #14 (13.52). Please note that the data which produced the graph have been multiplied by 100. Therefore, the true value, for example for 550 nm, is 0.000009%, not 0.0009 as shown.'

Sudden Ionospheric Disturbances (SES) Recorded During December 1992

Records were received from A3,9,40,50,59,61,62,63,65,66,67,68,69,70,71,72,73,74,75,76,77,78

Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def	Day	Max	Imp	Def
1	0528	1	5	4	1429	1-	5	11	1100	1+	5	17	1131	1-	5
1	1032	2	5	4	1514	1-	5	11	1153	1-	5	18	0329	1	5
1	1441	1-	5	4	1733	2+	5	11	1215	1-	5	20	1630	2	5
1	1559	1-	5	5	1430	2	5	11	1450	1	5	20	1730	1	5
1	1630	1-	5	5	1547	1-	5	11	1604	1+	5	22	1450	1	5
1	1754	2+	5	5	1602	1	5	12	1550	1	5	24	1300	1+	5
1	2023	1+	5	7	1431	2	5	12	2342	1-	5	29	0632	1-	5
2	0630	1-	5	7	1554	1-	5	13	1227	1-	4	29	0939	1	5
2	0945	1+	5	8	1507	1	5	13	1258	1-	4	29	1038	1-	5
2	1154	1-	5	8	1546	1	5	13	1316	2	5	29	1719	1-	5
2	1552	1-	5	8	1812	1	5	13	1654	1-	5	30	0631	1-	5
3	0616	1+	5	9	1046	1-	5	13	2144	1+	5	30	0942	1	5
3	2030	2+	5	9	1240	1-	5	14	1127	1	5	30	2126	2	5
3	2259	1-	5	9	2345	1-	5	14	1749	2	5	31	1314	1+	5
4	0717	1-	5	10	1045	1-	5	15	0905	2	5	31	1426	1-	5
4	1138	2	5	10	1203	1	5	15	1659	1	5	31	1640	1-	4
4	1242	1-	5	10	1345	1+	5	16	0602	1	5	31	1932	1+	5
4	1354	1	5												

SID Analysts: J. Ellerbe; S. Hansen; J. Knight; A. Okorogu; A. Stokes; M. Taylor; P. Taylor; B. Wingate
Frequencies recorded (kHz): 19.6; 21.4; 22.3; 23.4; 24.0; 24.8; 28.5; 30.6; 48.5; 51.6; 73.6; 77.15

DECnet: 34367::ptaylor **INTERNET:** ptaylor@selvax.sel.bldrdoc.gov **FAX:** [USA] 706-548-3553
NOTE: Network contributors are urged to submit their reports via these services whenever possible.