

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR DIVISION

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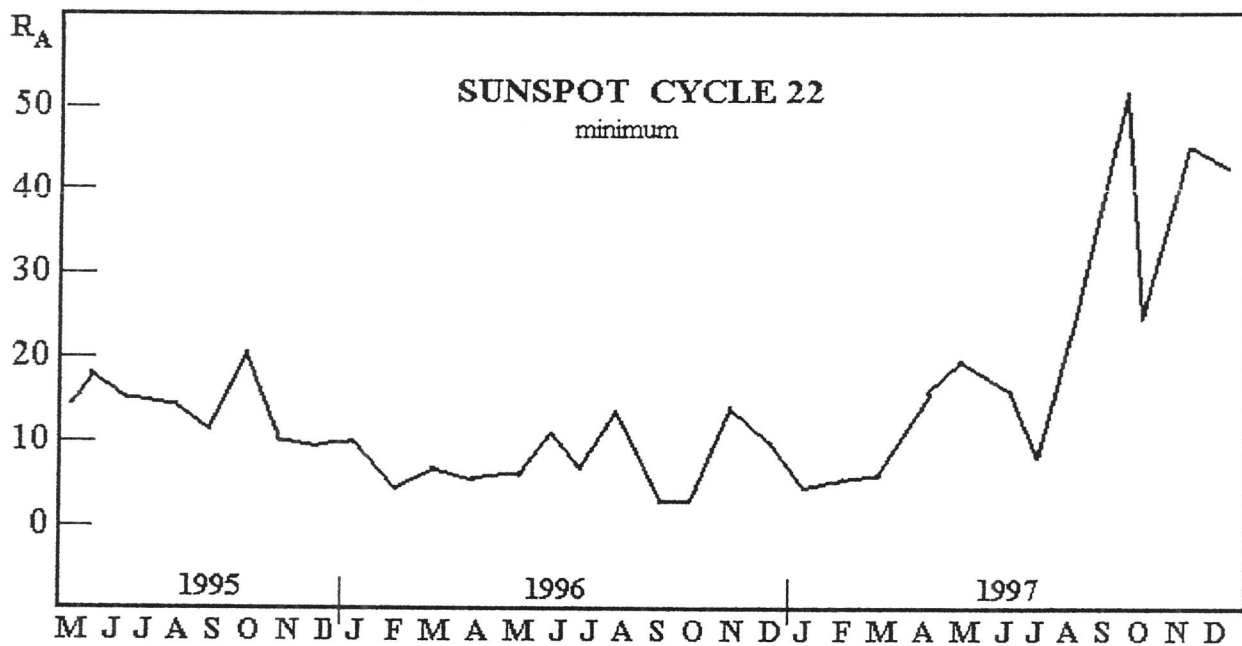
December 1997

## American Relative Sunspot Numbers, $R_a$ , for December 1997

Date	$R_a$ Final		Date	$R_a$ Final		Date	$R_a$ Final
1	44		11	72		21	31
2	40		12	68		22	39
3	37		13	51		23	44
4	36		14	45		24	52
5	32		15	42		25	47
6	38		16	43		26	40
7	44		17	34		27	42
8	57		18	21		28	48
9	64		19	17		29	46
10	59		20	22		30	51
						31	53

Monthly Mean = 43.8

(Based on 535 observations contributed by 47 observers.)



Betty Stephenson

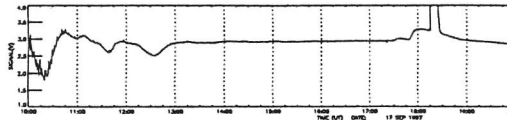
**American Relative Sunspot Numbers for 1997**

<b>Day</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
1	0	9	0	24	0	33	0	0	59	25	44	44
2	0	23	0	38	1	27	2	5	53	25	68	40
3	0	27	0	43	1	22	2	16	46	27	54	37
4	8	25	0	42	1	16	8	13	38	26	68	36
5	9	20	0	28	8	16	3	20	53	26	60	32
6	10	21	7	20	10	18	4	42	57	21	53	38
7	7	22	8	14	11	23	22	46	69	19	43	44
8	0	8	17	13	11	21	10	48	84	14	36	57
9	8	7	17	24	12	17	18	39	98	23	26	64
10	8	0	14	26	16	11	2	22	98	27	25	59
11	7	0	10	28	14	10	0	39	95	29	32	72
12	0	0	12	20	12	20	0	53	87	33	18	68
13	0	0	12	22	15	24	0	56	83	32	26	51
14	0	0	18	26	16	22	3	45	67	30	40	45
15	8	0	14	36	14	23	0	35	66	35	35	42
16	16	6	14	30	21	25	0	24	63	46	37	43
17	8	7	11	18	17	18	4	20	47	49	42	34
18	12	8	11	9	23	21	3	13	32	37	46	21
19	0	7	0	2	28	14	0	12	17	29	45	17
20	4	6	8	0	45	10	6	11	15	26	42	22
21	0	0	0	0	67	3	0	11	29	24	43	31
22	0	0	0	1	56	1	7	11	44	9	44	39
23	0	5	0	6	43	7	28	3	41	2	64	44
24	7	7	0	6	35	15	43	1	43	1	56	52
25	7	7	4	2	34	23	45	17	45	11	30	47
26	7	4	0	16	36	22	37	24	27	13	30	40
27	8	3	8	16	24	14	22	30	23	28	35	42
28	8	0	11	13	14	9	5	43	19	38	45	48
29	9		19	9	17	2	2	48	18	41	53	46
30	10		17	1	17	0	0	57	21	50	43	51
31	8		13		17		0	68		45		53
<b>Mean:</b>	5.5	7.9	7.9	17.8	21	16.2	8.9	28.2	51.3	27.2	44.7	43.8

**Yearly Mean: 23.4**

# Sudden Ionospheric Disturbance Report

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## Sudden Ionospheric Disturbances Recorded During December 1997

Date	Start	Date	Start	Date	Start	Date	Start
971201	1320	971211	1249	971212	1215	971226	0552
971203	1345	971211	1258	971221	0347	971227	1632
971206	0830	971212	1045	971221	1643	971231	1823
971209	0930	971212	1145	971222	1515	971231	2022

The following observers submitted reports and/or charts for December:

A-05\* Hossfield, New York/ A-09 Scharlach, Arizona/ A-50\* Winkler, Texas/ A-52\* Overbeek-Toldo, Republic of South Africa/ A-62\* Stokes, Ohio/ A-63\* Ellerbe, Spain/ A-72\* Witkowski, Florida/ A-80\* King, England/ A-81\* Landry, New Hampshire/ A-82\* Lawrence, Indiana/ A-84 Moos, Switzerland/ A-87\* Hill, Massachusetts/ A-89 Dormann, Washington.

\* observers who analyzed their own charts and submitted an e-mail report

The events listed above meet at least one of the following criteria:

- 1) reported in at least two observers' reports.
- 2) visually analyzed with Definiteness = 5 on submitted charts
- 3) reported by overseas observers with high Definiteness rating

NOTE: Observers submitting analyzed reports via e-mail should update the SID Analyst's address to: LAWRENCE@IPFW.EDU. The new address is presently in use and the previous address will disappear in the next couple of months. The server institution is upgrading its computer network and is re-assigning user addresses. Sorry for any inconvenience.

## Update on SID Monitoring Hardware

In the April 1997 SID Technical Report, I described an easy to build A/D converter for SID event computer logging. My unit has been in service for a year working flawlessly except for the necessary replacement of my computer hard drive. Recently a former SID program contributor sent me a prototype PCB for the converter circuit. Carl Chernan plans to promote VLF monitoring to high school science groups involved with the NASA Project INSPIRE. He hopes to have the students build Stoke's gyrator receivers and the Quad-12 datalogger for recording. In the near future, the A/D PCB will be available from FAR Circuits, 18 N. 640 Field Court, Dundee, IL 60118.

Additionally, Carl found GraphCAD by Math Consultants of Canada, a shareware plotting program which can read output files from my A/D LOGGER.EXE software and generate the daily SID plots for visual analysis. The plotting software requires a Windows operating system, but it does reduce much of the overhead associated with importing the SID data into a spreadsheet program. Once the initial tests are complete, Carl has agreed to prepare a description for publication in this bulletin.

Joseph Lawrence (A82)  
SID Analyst