

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR COMMITTEE

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**Table I. American Relative Sunspot Numbers (Ra) for May 2004 [boldface = maximum, minimum]**

Day	N	Raw Mean	Ra
1	36	57	40
2	32	46	33
3	26	54	40
4	37	49	37
5	37	40	30
6	45	32	24
7	40	29	20
8	33	29	21
9	28	37	28
10	34	44	31
11	32	44	32
12	29	61	43
13	31	62	45
14	38	84	62
15	41	94	70
16	37	105	82
17	43	104	79
18	35	96	73
19	41	89	70
20	39	79	63
21	37	78	57
22	28	72	54
23	31	89	65
24	36	99	74
25	35	88	65
26	34	65	48
27	43	51	38
28	34	46	33
29	40	47	36
30	28	56	41
31	40	51	38

Means :            35.5            63.8            47.4

Total No. of Observers: 66

Total No. of Observations: 1100

**Table II. May 2004 Observers**

6 AAP P.Abbott	22 KAPJ J.Kaplan
24 ARAG G.Araujo	3 KHAR R.Khan
10 BARH H.Barnes	31 KNJS J&S Knight
14 BATR R.Battaiola	1 KROL L.Krozel
7 BEB R.Berg	8 LARJ J.Larriba
14 BERJ J.Berdejo	8 LERM M.Lerman
6 BLAJ J.Blackwell	24 LEVM M.Leventhal
13 BMF M.Boschat	28 MARJ J.Maranon
21 BOSB B.Bose	12 MAV D.Matsnev
30 BRAB B.Branchett	16 MCE E.Mochizuki
29 BRAR R.Branch	17 MMI M.Moeller
30 BROB R.Brown	18 OBSO IPS Observatory
5 BXA A.Baransky	7 RICE E.Richardson
15 CARJ J.Carlson	22 RITA A.Ritchie
31 CHAG G.Morales	23 SCGL G.Schott
27 CKB B.Cudnik	7 SCHG G.Scholl
12 CLZ C.Laurent	12 SIMC C.Simpson
14 COMT T.Compton	13 STEF G.Stefanopoulos
26 CR T.Cragg	15 STEM G.Stemmler
25 DEJV J.van Delft	23 STQ N.Stoikidis
10 DEMF F.Dempsey	18 SUZM M.Suzuki
13 DGP G.Dyck	26 TESD D.Teske
12 DPP P.dePonthiere	11 THR R.Thompson
25 DRAJ J.Dragesco	22 TJV J.Temprano
25 DUBF F.Dubois	24 UREP P.Urbanski
14 FEEC C.Feehrer	8 VELM M.Velea
22 FERJ J.Fernandes	21 WILW W.Wilson
27 FLET T.Fleming	25 YESH H.Yesilyaprak
15 FUJK K.Fujimori	
18 GOEM M.Goetz	
13 GOL A.Golovin	
11 HALB B.Halls	
9 HAYK K.Hay	
21 HRUT T.Hrutkay	
21 JAMD D.James	
6 JEFT T.Jeffrey	
13 JENJ J.Jenkins	
1 JENS S.Jenner	

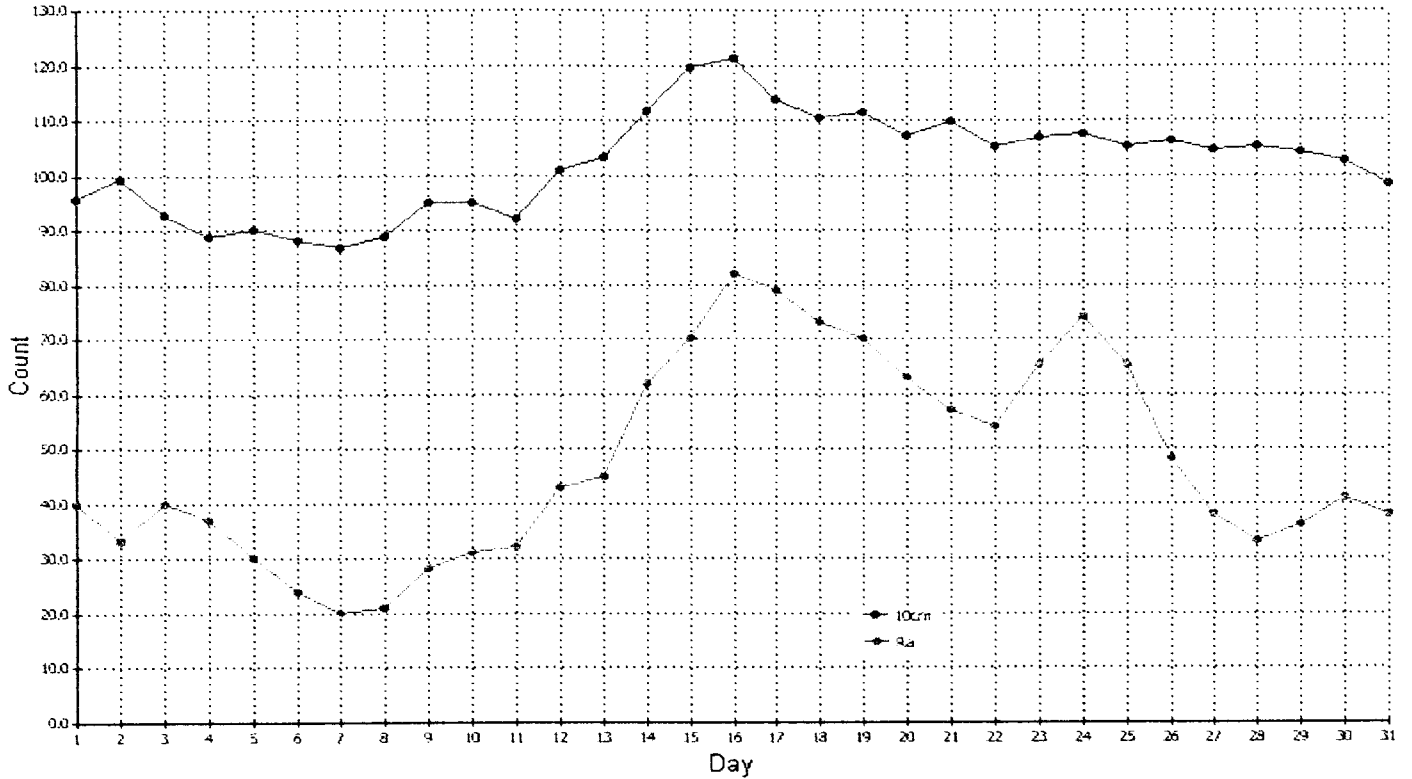
### Reporting Addresses

**Sunspot Reports -- email:** solar@aavso.org  
**postal mail:** AAVSO, 25 Birch St. Cambridge, MA 02138  
**FAX (AAVSO):** (617) 354-0665

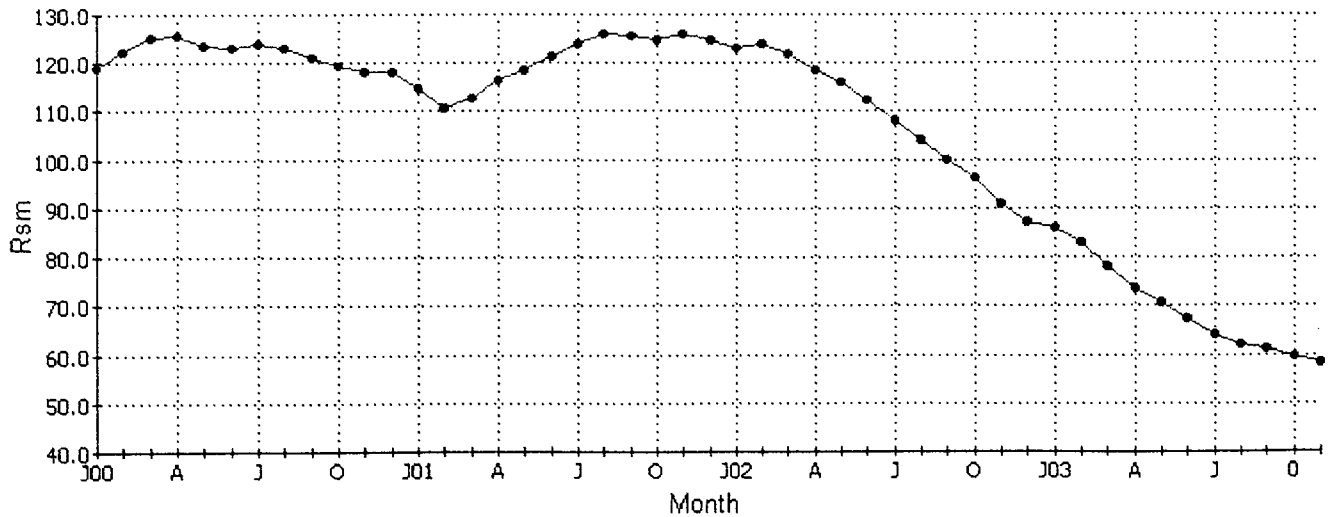
**SID Solar Flare Reports -- email:** noatak@aol.com  
**postal mail:** Mike Hill  
114 Prospect St. Marlboro, MA 01752

**Table III. Means of Raw Group Counts (RG) and Ratios of Spots to Groups (S:G) in May 2004**

Day	RG	S:G	Day	RG	S:G	Day	RG	S:G	Day	RG	S:G
1	3.0	9.2	9	2.8	3.4	17	6.2	6.7	25	4.3	10.3
2	2.4	9.4	10	3.3	3.2	18	6.0	5.9	26	2.8	13.0
3	3.2	6.6	11	3.3	3.4	19	6.0	4.8	27	2.3	12.1
4	3.1	5.9	12	3.8	6.2	20	5.2	5.2	28	2.0	12.9
5	2.4	6.7	13	3.5	8.0	21	4.6	6.8	29	2.2	11.5
6	2.2	4.6	14	4.3	9.4	22	4.2	7.3	30	3.0	8.6
7	2.3	2.3	15	4.6	10.3	23	4.5	9.9	31	3.0	7.2
8	2.2	2.9	16	6.3	6.7	24	5.3	8.9	Mn.	3.7	7.4



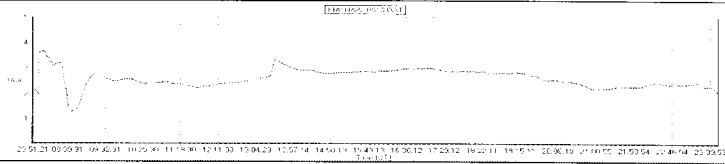
**Fig. 1. 10 cm Solar Flux and American Relative Sunspot Numbers (Ra) for May 2004**  
 10 cm source: <http://www.drao.nrc.ca/icarus>



**Fig. 2. Smoothed Mean Sunspot Numbers (Waldmeier method) from January 1999 to November 2003.**

# Sudden Ionospheric Disturbance Report

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 noatak@aol.com



## Sudden Ionospheric Disturbances (SID) Recorded During May 2004

(Analysis performed by Michael Hill, SID Analyst)

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
040501	0447	1-	040523	1741	1+			
040501	1359	2	040523	1954	1+			
040501	1538	2	040524	1105	1+			
040502	0343	2	040526	1244	1-			
040502	0535	1-	040528	1013	1			
040502	0834	2	040530	1930	1+			
040502	1119	2	040531	0027	2+			
040502	1600	2+	040531	0854	1			
040508	1430	1	040531	1036	1+			
040513	0743	2						
040513	0935	2						
040513	1334	2						
040515	1445	1+						
040518	0828	2+						
040518	1603	2						
040519	1846	1+						
040519	1951	2						
040520	1721	1+						
040521	0555	1+						
040521	1623	1						
040521	2352	1						
040522	0713	2						
040522	1158	1+						
040522	1302	1						
040523	1459	2+						

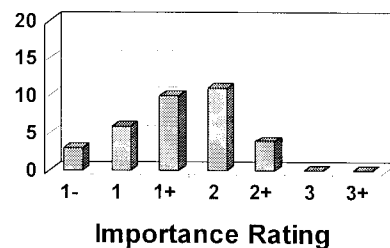
Importance rating : Duration(min)	1-: <19	1: 19-25	1+: 26-32	2: 33-45	2+: 46-85	3: 86-125	3+: >125
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The events listed above meet at least one of the following criteria

- 1) Event reported by two or more observers within  $\pm 5$  minutes
- 2) Event matched to GOES-8 XRA event to within  $\pm 15$  minutes and event time < 1000 UT
- 3) reported by observer with a quality rating > 8 (scale 1-10)

Observer	Code	Station(s) monitored
A Clerkin	A29	NAA
J Winkler	A50	NAA NML
D Toldo	A52	NAA NSS
J Ellerbe	A63	ICV
P King	A80	FTA
W Moos	A84	FTA
M Hill	A87	NAA
J Mandaville	A90	NPM
L Anderson	A91	NWC
G DiFillipo	A93	DHO HWU
T Poulos	A95	NAA
R Battaiola	A96	HWU
J Wallace	A97	NAA
M King	A99	HWU
F Steyn	A102	NWC
B Bose	A103	VTX
L Observatory	A107	DHO
P Mortfield	A108	NLK

SID Events Recorded for May 2004



# Solar Events

May was a typical month for this time in the solar cycle. The GOES-12 satellite recorded 208 X-Ray flares. However, most of these were the smaller B and C class events. There was only one M-Class and no X-Class event. SID observers recorded 34 correlated SID events for the month, most of these of a medium importance rating. I got an email from a student at Stanford Solar Center requesting information on a SID event on May 21<sup>st</sup>. I checked the GOES data and there was indeed an X-Ray flare at the time in question, 2354 UT. Checking the data analysis I had done showed that one observer, Len Anderson (A91), had recorded it but it was not reported as it was not correlated with any other observer. I checked my charts and, much to my surprise, it was on my chart but was very small and near the end of my observing window, close to sunset. Hence, I had not recorded it. I then got one last observer report from Paul Mortfield (A108), and his data did have the event recorded. Hence, a new analysis run on observers data now reported this event, since it correlated well with A91's event. Two lessons can be learned from this. First, check your data charts carefully. I'm not advocating reporting every bump on the data trace, but look at the small ones carefully and see if they have the characteristic SID signature of a quick rise and slower decline. The one I missed did but it only showed up when I zoomed in on it using the SIDGraph program that I use for analysis. Secondly, all your reports are important, even if they only contain a few entries. One of those may be the one that is needed to correlate with another observer in order to force an event to be reported by the analysis software. There has to be this correlation criterion to filter out observers who report every bump on their data trace, even though it might just be noise. The only way to offset this is to have multiple observers see the same events. So all of your reports, even if they are sparse some months, are very important to the SID program. Thanks to all of you for continuing to send in reports even as the sun approaches solar minimum in the coming years.

## Solar Flare Summary Based on GOES-12 Data – May 2004

