

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR COMMITTEE

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

Day	N	Raw Mean	Ra
1	33	62	43
2	33	45	32
3	33	38	<b>26</b>
4	28	37	27
5	24	59	42
6	26	59	42
7	32	53	38
8	34	49	36
9	38	53	38
10	38	50	36
11	31	52	38
12	22	68	49
13	46	61	44
14	31	55	39
15	38	46	34
16	30	50	36
17	35	73	54
18	29	70	52
19	43	81	60
20	27	79	57
21	32	71	51
22	40	76	57
23	41	88	64
24	30	86	63
25	27	119	85
26	28	129	<b>98</b>
27	33	115	84
28	32	104	75
29	38	83	64
30	20	74	54
31	33	74	56

Means :            32.4            69.6            50.8

Total No. of Observers: 69

Total No. of Observations: 1005

Table II. March 2004 Observers

11 AAP P.Abbott	16 KAPJ J.Kaplan
26 ARAG G.Araujo	5 KHAR R.Khan
3 ATON A.Attanasio	17 KNJS J&S Knight
15 BARH H.Barnes	5 KQR R.Kinne
3 BATR R.Battaiola	6 KROL L.Krozel
5 BEB R.Berg	2 KUZM M.Kuzmin
14 BERJ J.Berdejo	7 LERM M.Lerman
7 BLAJ J.Blackwell	8 LEVM M.Leventhal
6 BMF M.Boschat	5 MARE E.Mariani
26 BOSB B.Bose	28 MARJ J.Maranon
31 BRAB B.Branchett	8 MAV D.Matsnev
29 BRAR R.Branch	22 MCE E.Mochizuki
24 BROB R.Brown	19 MMI M.Moeller
3 BXA A.Baransky	15 OBSO IPS Observatory
3 CAMP P.Campbell	7 RICE E.Richardson
14 CARJ J.Carlson	9 RITA A.Ritchie
30 CHAG G.Morales	26 SCGL G.Schott
14 CLZ C.Laurent	15 SCHG G.Scholl
8 COMT T.Compton	6 SIMC C.Simpson
27 CR T.Cragg	20 STEM G.Stemmler
26 DEJV J.van Delft	17 STQ N.Stoikidis
2 DEME F.Dempsey	25 SUZM M.Suzuki
8 DGP G.Dyck	19 SZUM M.Szulc
22 DRAJ J.Dragesco	23 TESD D.Teske
25 DUBF F.Dubois	7 THR R.Thompson
11 FEEC C.Feehrer	15 TJV J.Temprano
19 FERJ J.Fernandes	19 URBP P.Urbanski
27 FLET T.Fleming	13 VARG A.Vargas
23 FUJK K.Fujimori	9 VELM M.Velea
13 GOEM M.Goetz	16 WILW W.Wilson
4 GOLA A.Golovin	24 YESH H.Yesilyaprak
27 GUNM M.Gundlach	
6 HAYK K.Hay	
13 HRUT T.Hrutkay	
18 JAMD D.James	
20 JEFT T.Jeffrey	
6 JENJ J.Jenkins	
3 JENS S.Jenner	

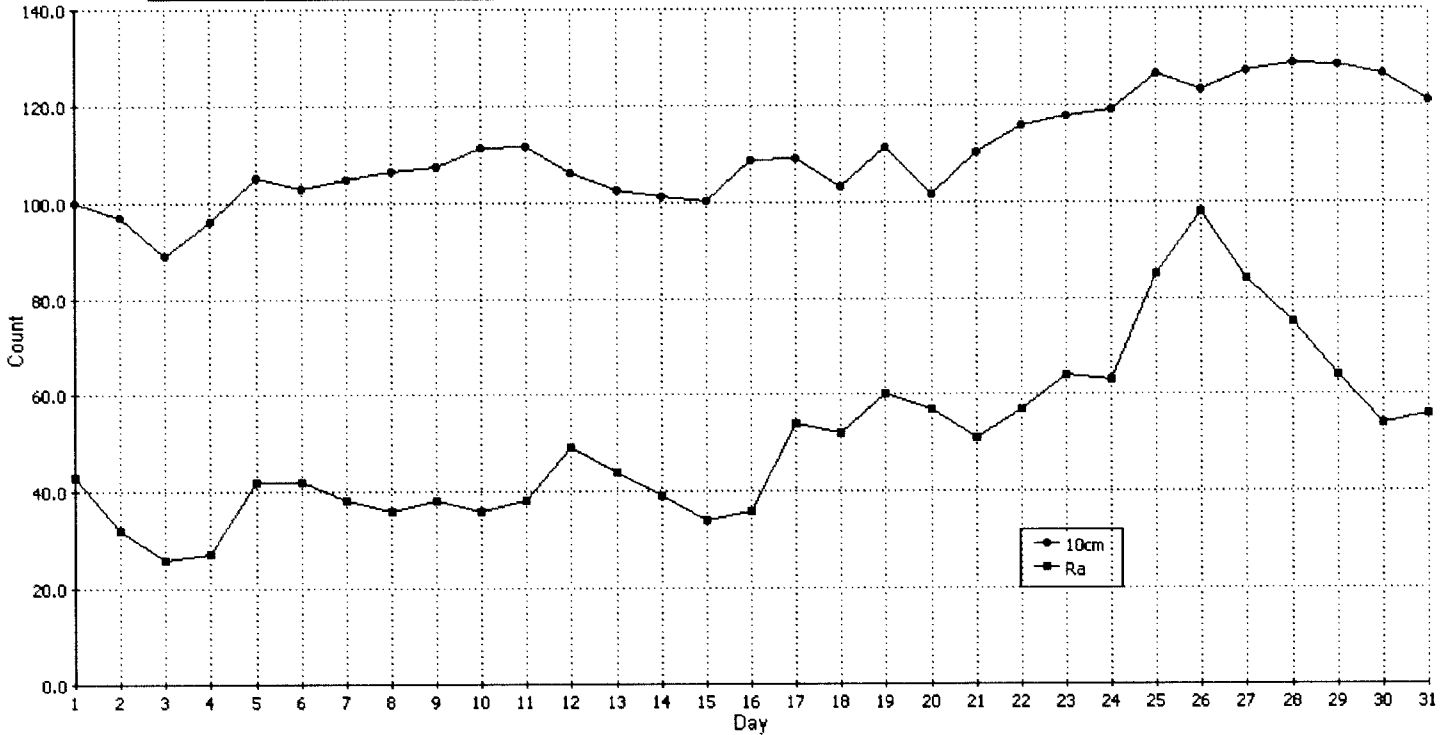
## Reporting Addresses

**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 March 2004**

Day	RG	S:G	Day	RG	S:G	Day	RG	S:G	Day	RG	S:G
1	3.4	8.0	9	3.3	6.3	17	5.1	4.3	25	7.0	6.9
2	2.3	9.9	10	2.9	6.8	18	4.5	5.5	26	7.9	6.3
3	1.7	12.0	11	2.6	10.0	19	4.6	7.5	27	7.2	6.1
4	1.6	13.6	12	3.4	9.8	20	4.2	8.9	28	6.2	6.8
5	3.0	9.9	13	3.5	7.3	21	3.4	10.9	29	4.5	8.4
6	3.2	8.6	14	3.2	7.3	22	3.7	10.8	30	3.3	12.3
7	3.2	6.7	15	3.2	4.5	23	3.9	12.4	31	3.7	10.0
8	2.9	6.9	16	3.7	3.5	24	4.0	11.5	<b>Mn.</b>	<b>3.9</b>	<b>8.4</b>



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

**Editor's Note:**

As most observers know by now, Dr. Janet Mattei, Director of the AAVSO, passed away on March 22. Below is the announcement of her death that was written by one of her close friends, AAVSO observer Mario Motta, and circulated on the the Internet. It is reprinted here for solar observers who may not have received word via email or seen the announcement on the AAVSO website. (NOTE: Funeral services were held on March 26.)

Many tributes to, and memories of Janet have been sent to the AAVSO, and several are available on the website. I encourage all observers who can to view the words written in recognition of this remarkable woman and of her contributions to our science. We have lost a giant!

CEF

"Dear members, staff, and friends of the AAVSO.

"It is my very sad duty to inform you all that Dr. Janet Mattei died at 4:20 PM today 3/22/04 at the Peter Bent Brigham Hospital after a long battle with Acute Myelogenous Leukemia. In typical Janet fashion she fought a heroic battle with this deadly disease for the past 7 months, but in the past few weeks it overcame her. Last Tuesday she asked that I inform her friends worldwide when this time came for her. Last evening she slipped into a coma, and passed away just minutes ago.

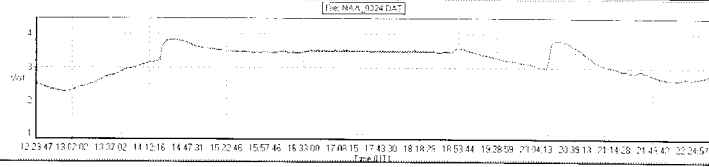
"The AAVSO has lost a strong leader who has guided our organization to greatness. The world of astronomy has lost a patron of her field. Amateur astronomers the world over have lost a mentor who bridged the world of amateurs and professionals. I, along with many others the world over who knew her well, have lost a dear friend who will be deeply missed.

"Information about services will be forthcoming soon."

Mario Motta, MD

# Sudden Ionospheric Disturbance Report

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 114 Prospect St  
 Marlborough, MA 01752 USA  
 noatak@aol.com



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

(Analysis performed by Michael Hill, SID Analyst)

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
040304	1000	2	040319	0237	1-	040329	1552	1
040304	1008	1+	040319	0307	1-	040330	0951	2+
040304	1717	1-	040319	0419	1-	040330	1300	1
040305	0905	2+	040319	0743	2	040330	1759	1+
040305	0914	2+	040319	0851	2	040331	0605	2
040305	1853	2	040319	1637	1	040331	0937	2+
040306	0700	1+	040321	0954	2			
040306	1023	1-	040322	0616	2+			
040306	1218	2+	040323	0714	2+			
040306	1517	1-	040324	1429	2			
040306	1631	1+	040324	1850	1+			
040306	1933	2	040324	2018	2			
040309	0438	2	040324	2135	1			
040309	0650	1+	040324	2330	2			
040309	0656	2	040325	0436	1+			
040312	0238	1+	040325	0714	2+			
040317	0930	1+	040325	1212	2+			
040317	1430	1+	040325	1510	1-			
040318	0516	1+	040327	0948	2			
040318	0606	1-	040327	1434	1			
040318	0618	2	040327	1647	1+			
040318	0949	1-	040328	0408	2+			
040318	1448	1+	040328	0448	1-			
040318	1929	1+	040328	0636	2			
040318	2237	2+	040329	1307	1+			

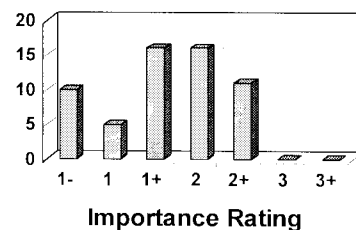
Importance rating : Duration(min)	1-: <19	1: 19-25	1+: 26-32	2: 33-45	2+: 46-85	3: 86-125	3+: >125
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The events listed above meet at least one of the following criteria

- 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 NPM NML
D Toldo	A52	NAA NWC
J Ellerbe	A63	ICV
W Moos	A84	FTA
M Hill	A87	NAA
L Anderson	A91	NWC
G DiFillipo	A93	DHO HWU
T Poulos	A95	NAA
R Battaiola	A96	DHO
J Wallace	A97	NAA
M King	A99	HWU
P Campbell	A100	NLK
F Steyn	A102	NWC
B Bose	A103	VTX
L Observatory	A107	DHO
P Mortfield	A108	NLK

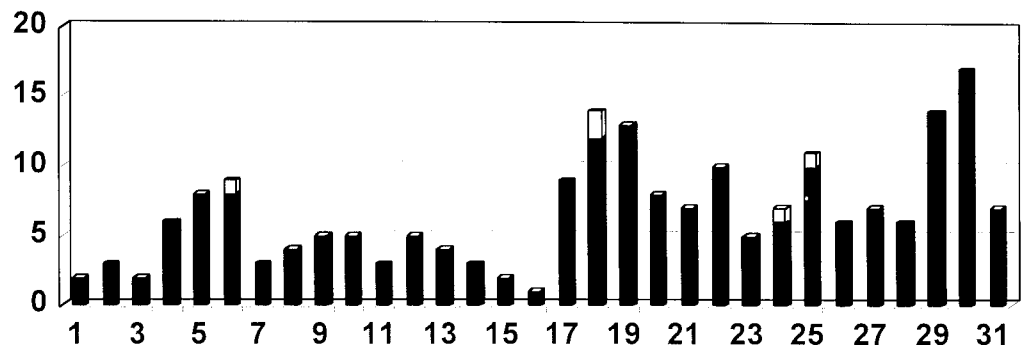
SID Events Recorded for March 2004



# Solar Events

March turned out to be a pretty active month, especially toward the end, when we saw some fairly large groupings cross the solar disk. These resulted in a fair amount of flare activity as well as a well-placed CME that just didn't have the strength to really light up our skies. Those of you farther North may have seen some aurora if you were lucky. SID observers reported a total of 58 coordinated events - quite a jump from last months twenty five. A good number of these were moderately significant events with an importance rating of 1+, 2, and 2+. The most active days were the 18<sup>th</sup> and 19<sup>th</sup> of the month. There were 206 X-Ray flare events recorded by the GOES-12 satellite. Of these only five were M-Class events. The rest were smaller C and B class events. The most active days for X-Ray flares were also the 18<sup>th</sup> and 19<sup>th</sup> which is to be expected. Oddly enough, however, the 29<sup>th</sup> and 30<sup>th</sup> appear to have been equally active but with many fewer corresponding SID events. One reason for this is the regular Monday maintenance shutdown of NAA, which is the strong station that many of us in the North East United States monitor for SIDs. The 29<sup>th</sup> happened to be a Monday, an example of why it is important to get good coverage by other observers on multiple stations. The reason why not many SIDs were detected on the 30<sup>th</sup> eludes me. With the exception of the M-Class event on the 18<sup>th</sup>, the 18-19<sup>th</sup> X-Ray events had the same average activity level as those on the 29-30<sup>th</sup>. This might be something for someone to look into sometime as an additional challenge beyond just recording and reporting SID events.

**Solar Flare Summary Based on GOES-12 Data**



March 2004

■ B-Class: ■ C-Class: □ M-Class: □ X-Class: