

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR COMMITTEE

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February 2003

Table I. Mean Sunspot Numbers (Ra) for February 2003 [boldface = maximum, minimum]

Day	N	Raw	s.d.	Ra	s.d.	s.e.
1	30	60	2.3	44	1.4	0.26
2	33	65	3.7	45	1.4	0.24
3	31	57	3.8	41	1.8	0.32
4	33	61	4.0	44	2.2	0.38
5	32	83	4.6	60	2.5	0.44
6	32	102	5.0	79	2.6	0.46
7	30	117	8.0	86	2.7	0.49
8	35	128	7.5	92	3.5	0.59
9	35	135	8.3	101	3.9	0.66
10	29	113	5.3	84	2.8	0.52
11	27	109	6.1	83	2.4	0.46
12	33	107	5.0	79	2.6	0.45
13	25	89	5.8	65	2.5	0.50
14	30	66	4.0	50	2.0	0.37
15	29	31	4.4	22	2.2	0.41
16	31	29	2.8	20	1.7	0.31
17	30	18	1.7	12	1.3	0.24
18	21	39	3.3	31	2.8	0.61
19	23	50	2.7	39	2.0	0.42
20	28	71	3.7	54	2.1	0.40
21	24	67	4.4	49	2.2	0.45
22	22	50	3.8	38	2.2	0.47
23	29	43	2.4	33	1.6	0.30
24	25	45	3.1	33	2.1	0.42
25	30	47	1.8	35	1.2	0.22
26	32	47	3.9	35	2.0	0.35
27	37	58	2.4	43	1.7	0.28
28	25	53	3.8	38	1.4	0.28
29	---	---	---	---	---	---
30	---	---	---	---	---	---
31	---	---	---	---	---	---

Means: 29.3 69.2 51.3

Total No. of Observers: 67

Total No. of Observations: 821

Table II. February Observers

8 AAP P.Abbott	5 MARE E.Mariani
16 ARAG G.Araujo	23 MARJ J.Maranon
13 ATON A.Attanasio	20 MCE E.Mochizuki
9 BARH H.Barnes	19 MMI M.Moeller
6 BATR R.Battaiola	1 MUDG G.Mudry
6 BERJ J.Berdejo	17 RICE E.Richardson
17 BMF M.Boschat	12 RITA A.Ritchie
18 BOSB B.Bose	21 SCGL G.Schott
9 BRAD D.Branchett	5 SIMC C.Simpson
8 BRAR R.Branch	10 STAB B.Gordon-States
21 BROB R.Brown	2 STEF G.Stefanopoulos
28 CHAG G.Morales	21 STEM G.Stemmler
9 CKB B.Cudnik	11 STQ N.Stoikidis
4 CLZ C.Laurent	24 SUZM M.Suzuki
1 COMT T.Compton	17 SZAK K.Szatkowski
28 CORA A.Coroas	15 SZUM M.Szulg
25 CR T.Cragg	8 TESD D.Teske
2 CVJ J.Carvajal	15 THR R.Thompson
8 DELS S.Delaney	7 TJV J.Temprano
1 DEMF F.Dempsey	17 URBP P.Urbanski
10 DGP G.Dyck	5 VALD D.del Valle
13 DRAJ J.Dragesco	16 VARG A.Vargas
19 ELR E.Reed	6 VELM M.Velea
10 FEEC C.Feehrer	1 VIDD D.Vidican
9 FERJ J.Fernandes	5 WILW W.Wilson
14 FLET T.Fleming	9 YESH H.Yesilyaprak
20 FUJK K.Fujimori	
14 GIOR R.Giovanoni	
10 GOEM M.Goetz	
10 GOTS S.Gottschalk	
8 HAYK K.Hay	
18 JAMD D.James	
19 JEFT T.Jeffrey	
18 KAPJ J.Kaplan	
17 KHAR R.Khan	
18 KNJS J&S Knight	
6 KROL L.Krozel	
6 LARJ J.Larriba	
2 LERM M.Lerman	
15 LEVM M.Leventhal	
16 MALK K.Malde	

Reporting Addresses

Sunspot Reports -- email: solar@aaavso.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 February 2003

Day	RG	S:G	Day	RG	S:G	Day	RG	S:G	Day	RG	S:G
1	4.7	2.8	9	9.4	4.4	17	1.3	3.9	25	3.2	4.7
2	4.2	5.5	10	7.8	4.5	18	2.9	3.5	26	3.6	3.1
3	2.8	10.4	11	7.8	4.0	19	3.3	5.2	27	4.4	3.2
4	3.3	8.5	12	7.9	3.5	20	4.2	6.9	28	3.8	4.0
5	5.2	6.0	13	6.9	2.9	21	3.6	8.6	29	---	---
6	6.3	6.2	14	5.1	2.9	22	2.9	7.2	30	---	---
7	7.7	5.2	15	2.2	4.1	23	2.4	7.9	31	---	---
8	9.0	4.2	16	2.3	2.6	24	2.4	8.8	Mn.	4.7	5.2

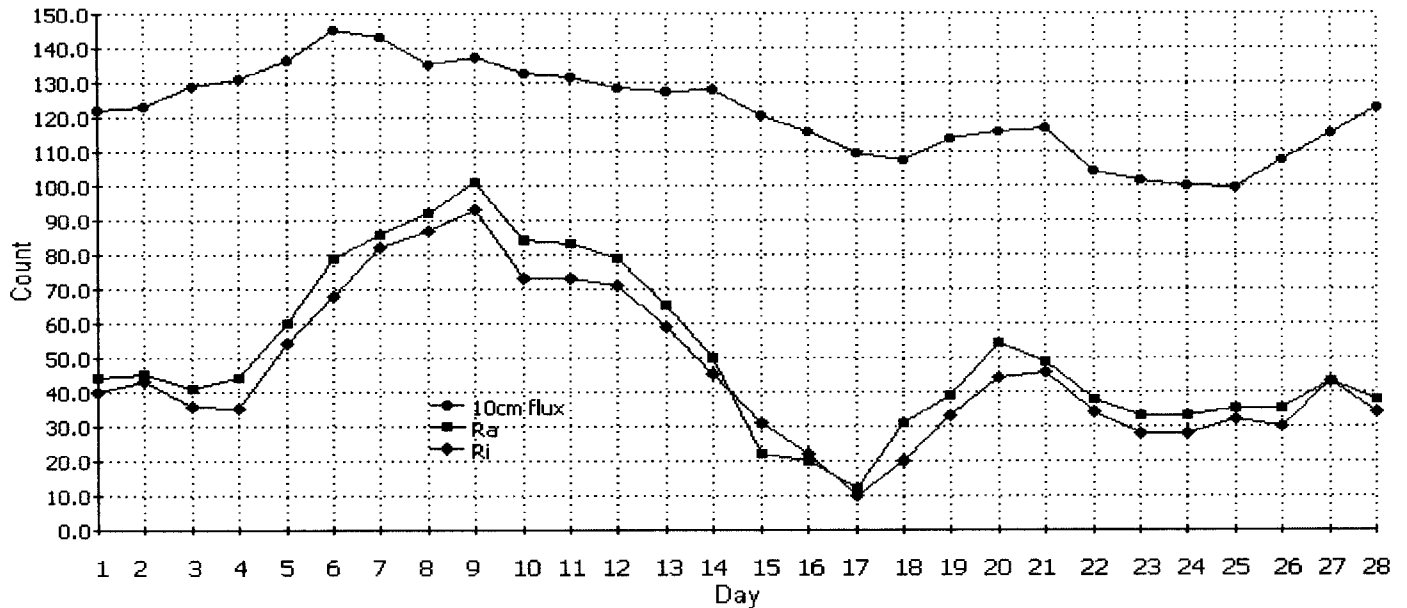


Fig. 1. 10 cm Solar Flux and Comparison of Ri (provisional) with Ra Estimates for February 2003 [r=0.986]

Ri source: <http://www.sidc.oma.be/index.php3>
 10 cm source: <http://www.drao.nrc.ca/icarus>

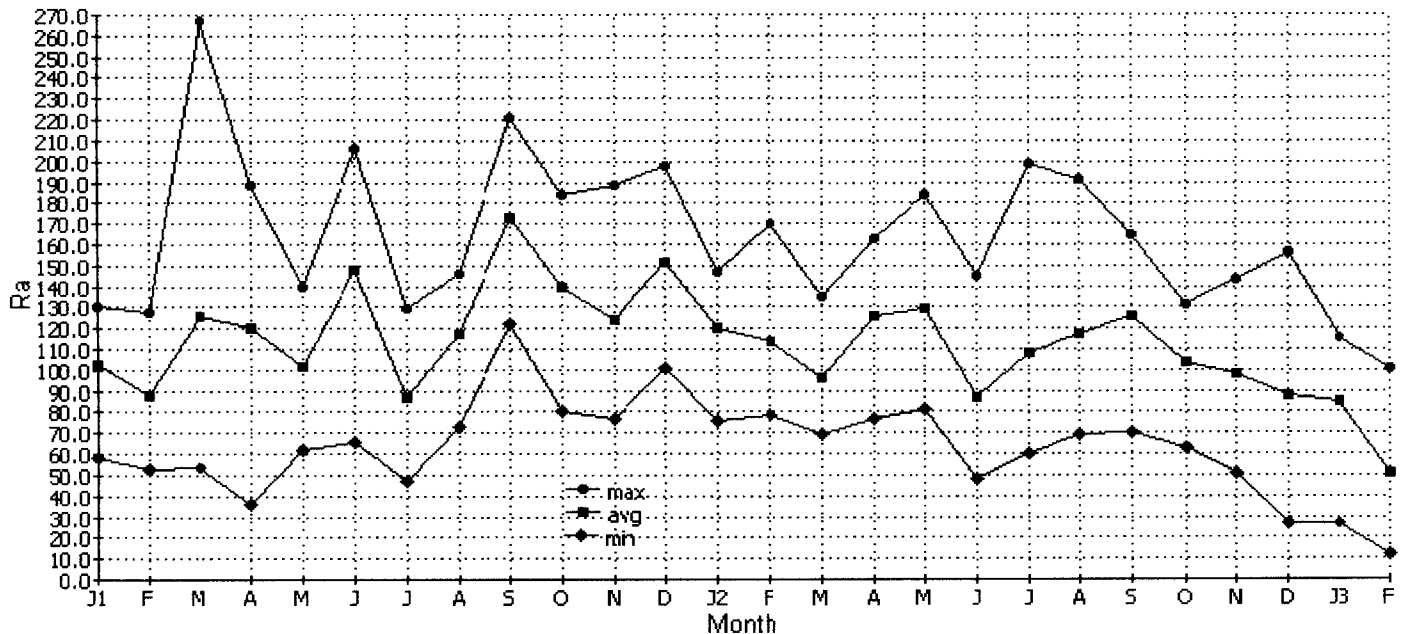
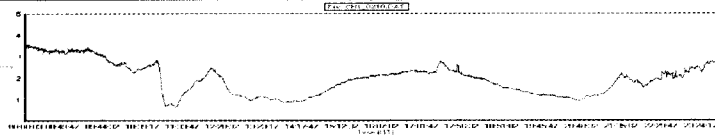


Fig. 2. Maximum, Mean, and Minimum Values of Ra for Each Month from January 2001 to Present.

Sudden Ionospheric Disturbance Report

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 Marlborough, MA 01752 USA
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Sudden Ionospheric Disturbances (SID) Recorded During February 2003

(Analysis performed by Michael Hill, SID Analyst)

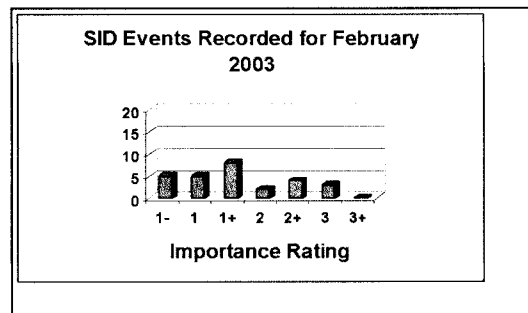
Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
030201	0614	1+	030222	0930	1+			
030201	0744	1-	030228	0630	1			
030201	0904	2+						
030202	0543	1-						
030202	0637	1-						
030202	0908	1+						
030203	0458	1-						
030206	0348	3						
030211	1730	1						
030212	0544	2						
030212	1611	1						
030214	0211	2+						
030214	0526	1+						
030214	0636	1						
030214	0911	2+						
030214	0918	1+						
030215	0758	3						
030215	0847	3						
030221	0508	1						
030221	0611	2						
030221	0715	1+						
030221	1439	1+						
030221	1514	1-						
030221	1725	2+						
030222	0511	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

Observer	Code	Station(s) monitored
A Clerkin	A29	NAA
J Winkler	A50	NAA NPR
D Toldo	A52	NWC
A Panzer	A83	NAA
W Moos	A84	FTA
M Hill	A87	NAA
G DiFillipo	A93	DHO HWU
R Battiola	A96	HWU
J Wallace	A97	NAA
M King	A99	HWU
F Steyn	A102	NAA NWC
B Bose	A103	VTX3
L Observatory	A107	DHO38

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



Solar Events

February was another slow month for SID detection. I got many reports with an apology for not having so many events to report as usual. Of course I know you all weren't really apologizing out of guilt but more from frustration that the results were on the meager side. The event counts submitted remind me of the AAVSO Variable star submissions list that is published once a year in the journal. Some observers have submitted many many observations over the course of the year. Others have submitted only 10 or 15, or less for some. All the observations, however, become part of the big picture and so all of them, either 10 or 1000, are just as valuable. And so it is for your observations. Even if your report contains only 2 SID events for the month, they are just as important as 20 or more that someone else has detected. Just as important . . .

There were 174 X-Ray flares detected by the GOES-8 Satellite this month. Of those only three were M-Class. The rest were lower C or B Class events. This is certainly one of the lowest counts I have seen since I have been counting. Not suprisingly, in response to these lower levels of activity, there were only 27 correlated SID events reported for the month. There were a couple of long duration events with an importance rating of 3, but most of these had a lower importance rating in the 1 to 1+ range.

