

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR COMMITTEE

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

Day	N	Raw	s.d.	Ra	s.d.	s.e.
1	38	149	7.0	<b>105</b>	2.4	0.39
2	42	130	8.2	93	3.2	0.49
3	46	128	6.5	94	2.5	0.37
4	57	131	5.2	98	2.1	0.28
5	36	126	6.1	94	2.9	0.48
6	34	104	5.0	77	2.7	0.46
7	44	72	4.1	55	2.6	0.39
8	37	44	3.0	31	1.6	0.26
9	49	27	1.1	21	0.7	0.10
10	52	25	1.0	<b>19</b>	0.7	0.10
11	47	41	2.0	30	1.0	0.15
12	42	56	2.7	41	1.5	0.23
13	39	60	2.9	43	1.2	0.19
14	40	59	2.8	44	1.3	0.21
15	40	65	3.4	47	1.6	0.25
16	38	64	2.7	47	1.4	0.23
17	48	51	2.8	39	1.4	0.20
18	48	59	3.3	42	1.6	0.23
19	46	80	4.3	58	2.1	0.31
20	36	81	4.6	58	2.3	0.38
21	42	76	3.9	55	1.9	0.29
22	38	85	4.4	60	2.3	0.37
23	35	71	6.1	51	2.9	0.49
24	39	47	3.5	34	1.6	0.26
25	39	57	3.1	42	1.7	0.27
26	39	80	5.4	57	2.1	0.34
27	45	77	4.2	58	2.0	0.30
28	51	85	4.8	63	2.1	0.29
29	49	82	4.1	60	1.6	0.23
30	51	64	2.6	47	1.0	0.14
31	40	59	3.0	42	1.1	0.17

Means: 42.8 75.3 55.1

Total No. of Observers: 79

Total No. of Observations: 1327

Table II. May Observers

10	AAP	P. Abbott
27	ARAG	G. Araujo
19	ATON	A. Attanasio
15	BARH	H. Barnes
14	BATR	R. Battaiola
21	BERJ	J. Berdejo
9	BLAJ	J. Blackwell
10	BMF	M. Boschat
23	BOJP	P. Bojda
26	BOSB	B. Bose
31	BRAB	B. Branchett
21	BRAD	D. Branchett
18	BRAR	R. Branch
27	BROB	R. Brown
3	BURS	S. Burgess
8	CAMP	P. Campbell
14	CARJ	J. Carlson
30	CHAG	G. Morales
29	CKB	B. Cudnik
9	CLZ	C. Laurent
10	COMT	T. Compton
31	CORA	A. Coroas
22	CR	T. Cragg
8	CVJ	J. Carvajal
28	DEJV	J. van Delft
6	DELS	S. Delaney
5	DEMF	F. Dempsey
16	DGP	G. Dyck
24	DRAJ	J. Dragesco
28	DUBF	F. DuBois
28	ELR	E. Reed
11	FEEC	C. Feehrer
19	FERJ	J. Fernandes
25	FLET	T. Fleming
18	FUJK	K. Fujimori
20	GIOR	R. Giovanoni
23	GOEM	M. Goetz
3	GOLA	A. Golovin
10	GOTS	S. Gottschalk
5	HALB	B. Halls
8	HAYK	K. Hay
2	HUZR	R. Huziak
18	JAMD	D. James
10	JEFT	T. Jeffrey
7	JENJ	J. Jenkins
22	KAPJ	J. Kaplan
21	KHAR	R. Khan
22	KNJS	J&S Knight
2	KROL	L. Krozel
5	KUZM	M. Kuzmin
10	LARJ	J. Larriba
12	LERM	M. Lerman
18	LEVM	M. Leventhal
21	MALK	K. Malde
29	MARJ	J. Maranon
19	MCE	E. Mochizuki
2	MILJ	J. Miller
15	MMI	M. Moeller
16	OBSO	IPS Observatory
7	PARN	N. Parker
14	RICE	E. Richardson
17	RITA	A. Ritchie
5	SCHG	G. Scholl
12	SIMC	C. Simpson
24	STAB	B. Gordon-States
14	STEM	G. Stefanopoulos
26	STEM	G. Stemmler
26	STQ	N. Stoikidis
22	SUZM	M. Suzuki
23	SZUM	M. Szulc
25	TESD	D. Teske
8	THR	R. Thompson
14	TJV	J. Temprano
26	URBP	P. Urbanski
19	VARG	A. Vargas
9	VELM	M. Velea
26	VIDD	D. Vidican
19	WILW	W. Wilson
28	YESH	H. Yesilyaprak

## 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 May 2003

Day	RG	S:G	Day	RG	S:G	Day	RG	S:G	Day	RG	S:G
1	7.3	10.4	9	2.2	2.3	17	3.4	5.0	25	3.5	6.3
2	6.1	11.3	10	2.1	1.9	18	3.6	6.4	26	4.2	9.1
3	6.4	10.0	11	3.3	2.4	19	4.4	8.2	27	3.8	10.3
4	6.5	10.2	12	4.5	2.4	20	4.6	7.6	28	4.4	9.3
5	6.8	8.5	13	4.2	4.3	21	4.6	6.5	29	4.3	9.1
6	6.3	6.5	14	4.1	4.4	22	6.0	4.2	30	3.3	9.4
7	4.9	4.7	15	4.7	3.8	23	5.5	2.9	31	3.3	7.9
8	3.5	2.6	16	4.6	3.9	24	3.8	2.4	Mn.	4.5	6.3

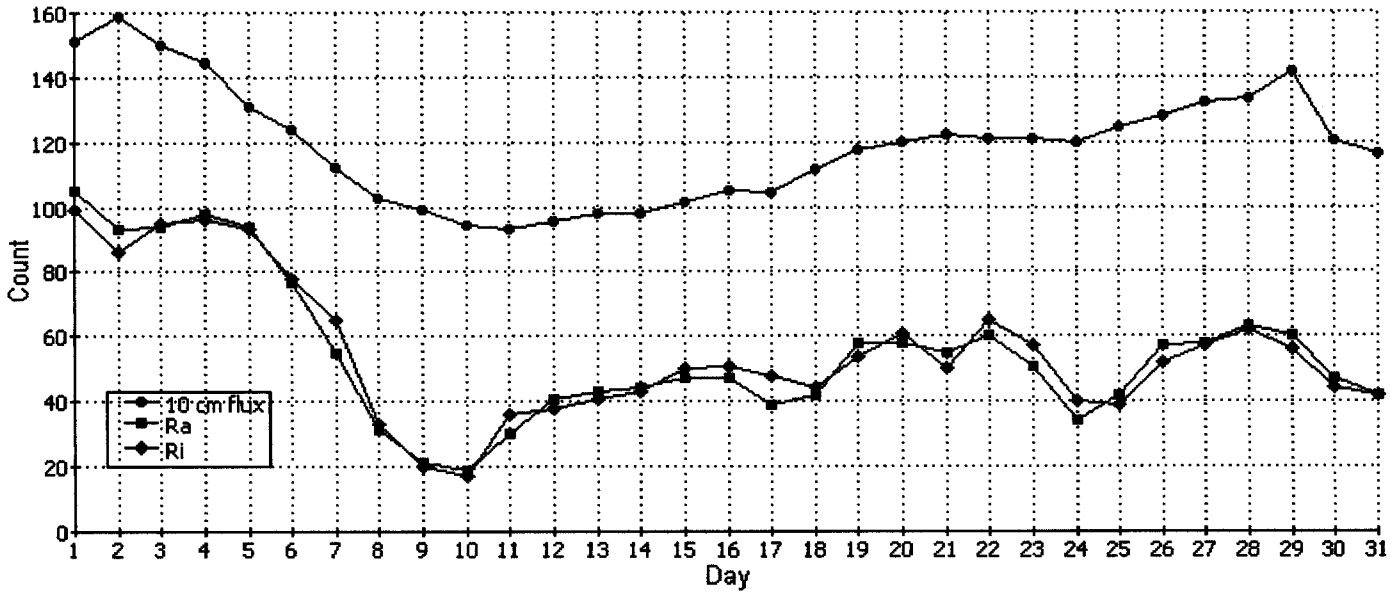


Fig. 1. 10 cm Solar Flux and Comparison of Ri (provisional) with Ra Estimates for May 2003 [ $r = 0.981$ ]

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

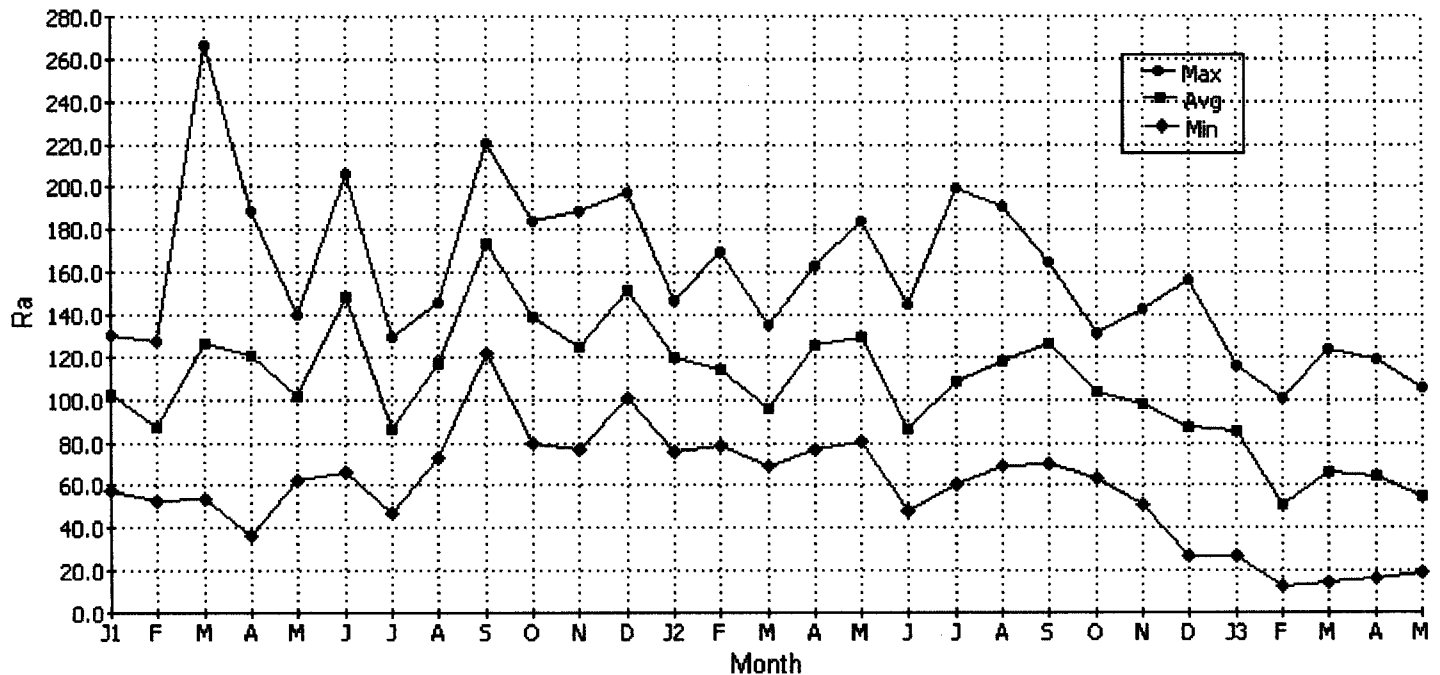
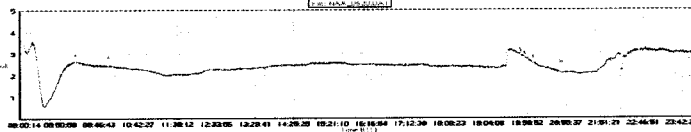


Fig. 2. Maximum, Mean, and Minimum Values of Ra for Each Month from January 2001 to Present.

# Sudden Ionospheric Disturbance Report

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 noatak@aol.com



## Sudden Ionospheric Disturbances (SID) Recorded During May 2003

(Analysis performed by Michael Hill, SID Analyst)

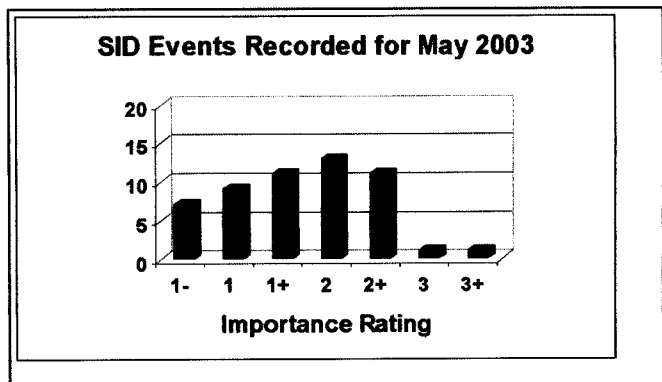
Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
030501	1141	1	030526	0551	2+	030531	1534	1
030501	1414	1+	030526	1513	1+	030531	1631	1+
030501	1922	2	030526	1522	2	030531	1641	2
030502	0307	2	030526	1637	2			
030502	1816	3+	030527	0349	2+			
030502	1831	2+	030527	0623	2+			
030503	0951	1-	030527	1506	2+			
030503	1832	1+	030527	1513	2+			
030504	0813	1-	030527	2307	2			
030504	1351	1-	030528	0025	3			
030504	1507	1-	030528	0610	2+			
030506	1014	2	030528	1425	1			
030506	1403	2+	030528	1546	1+			
030506	1410	2	030528	1733	1+			
030506	1921	2	030528	1746	1+			
030507	0617	1	030528	1805	1-			
030507	0711	1+	030528	1847	2			
030507	1028	1	030528	1939	1			
030507	1057	1-	030529	0105	2			
030507	1312	1	030529	0220	1+			
030507	2032	1-	030529	1936	2			
030507	2049	2	030530	0651	1+			
030507	2139	1+	030530	0921	1			
030508	0554	2+	030531	0225	2+			
030522	0700	2+	030531	1417	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
W Shariack	A09	NAA
A Clerkin	A29	NAA
J Winkler	A50	NAA NPM NPR
D Toldo	A52	NWC
A Panzer	A83	NAA
M Hill	A87	NAA
L Anderson	A91	NWC
G DiFillipo	A93	DHO
T Poulos	A95	NAA
R Battaiola	A96	DHO
J Wallace	A97	NAA
M King	A99	HWU
P Campbell	A100	NLK
G Bressan	A101	DHO
F Steyn	A102	NAA NWC
L Observatory	A107	DHO

- 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)



# Solar Events

May was not an overly active month but it sure got busy towards the end. There were only 53 reported SID events this month, none of them having an importance rating greater than 2+. The middle of the month from the 10<sup>th</sup> to the 20<sup>th</sup> had very little activity, if any, on any given day. There was a short active period around the 20<sup>th</sup> and then the sun became very active on the 25<sup>th</sup> and remained this way until the end of the month. The GOES-10 Satellite measured only 159 X-Ray events. Of these, only eight were M-Class; however, there were 3 X-Class flares. All three of them were centered on the 28<sup>th</sup>, which was the most active day indeed. Along with the X-Class flare that occurred that day, there were also 16 C-Class flares as well.

The sun has been keeping things interesting and with these large sunspot groups that continue to emerge as the cycle progresses, things may, in fact, remain that way for the time being. So I hope you all have your systems working optimally and are able to record these interesting bursts of activity that we keep seeing once or twice a month. Thanks to all of you for submitting data so regularly. I want to thank all of you as well for making your submissions of data promptly after the end of the month. This is very helpful to me.

