Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR DIVISION

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Table I. Mean Sunspot Numbers for October

Day	Raw	s.d.	K-corrected	s.d.
1	147	5.6	119	3.8
2	187	9.1	151	7.0
3	194	10.1	165	7.3
4	188	9.2	150	7.0
5	146	6.6	119	3.8
6	124	5.4	101	3.1
7	95	4.6	81	3.5
8	84	5.0	72	4.1
9	70	3.7	57	2.6
10	82	4.6	64	3.3
11	114	6.2	92	4.6
12	166	8.3	142	5.7
13	139	6.8	122	5.3
14	112	6.7	98	4.1
15	107	6.8	90	4.3
16	113	5.5	93	2.9
17	116	4.4	98	3.7
18	113	7.3	93	4.9
19	105	5.9	89	3.8
20	131	7.5	106	5.1
21	122	8.9	97	4.9
22	110	6.8	90	4.4
23	107	5.8	90	3.7
24	106	5.6	88	2.6
25	104	5.9	89	4.6
26	106	4.8	89	3.8
27	105	5.7	84	3.9
28	133	9.2	103	7.1
29	139	7.9	114	6.4
30	134	8.4	101	7.5
31	137	5.8	113	4.7

Means: 123.8 102.0

No. of Observations: 983

No. of Observers: 67

Table II. October Observers

5	AAP	P.Abbott
7	ATON	A.Attanasio
14	BARH	H.Barnes
3	BATR	R.Battiola
15	BEB	R.Berg
12	BERJ	J.Berdejo
2	BLAJ	J.Blackwell
9	BMF	M.Boschat
18	BOSB	B.Bose
27	BRAB	B.Branchett
17	BRAD	D.Branchett
21	BRAR	R.Branch
22	BROB	B.Brown
19	CARJ	J.Carlson
28	CHAG	G.Morales
23	CKB	B.Cudnick
13	CLEC	C.Clemens
2	CLZ	C.Laurent
15	COMT	T.Compton
7	DEMF	F.Dempsey
16	DRAJ	J.Dragesco
16	DUBF	F.Dubois
19	ELR	E.Reed
17	FEEC	C.Feehrer
18	FERJ	J.Fernandez
17	FLET	T.Fleming
19	FUJK	K.Fujimori
21	GIOR	R.Giovannoni
8	GOTS	S.Gottschalk
3	HALB	B.Halls
12	HAYK	K.Hay
17	HRUT	T.Hrutkay
11	HSF	C.Hossfield
11	IBRA	A.Ibrahim
6	IMPR	R.Imperi
26	JAMD	D.James
4	JEFT	T.Jeffrey
15	JENV	V.Jennings
18	KAPJ	J.Kaplan
15	KNJS	J&S Knight
9	LARJ	J.Larriba
18	LERM	M.Lerman
17	LEVM	M.Leventhal
9	LIZT	T.Lizak
19	MALK	K.Malde
25	MARJ	J.Maranon
17	MCE	E.Mochizuki
7	MILJ	J.Miller
22	MMI	M.Moeller
9	MUDG	G.Mudry
8	NILB	B.Nilson
13	OBSO	IPS Obs.
14	PENG	G.Pennington
8	RADS	S.Radabah
15	RITA	A.Ritchie
14	SCGL	G.Schott
11	SIMC	C.Simpson
5	STEF	G.Stefanopoulis
17	STEM	G.Stemmler
17	SUZM	M.Suzuki
19	SZAK	K.Szatkowski
16	TESD	D.Teske
13	THR	R.Thompson
26	URBP	P.Urbanksi
19	VARG	A.Vargas
23	WILW	W.Wilson
25	YESH	H.Yesilyaprak

Reporting Addresses

Sunspot Reports -- **email:** solar@aavso.org
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FAX *(AAVSO):* (617) 354-0665

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

Magnetometer Reports -- **email:** capaavso@aol.com
postal mail: Casper Hossfield
PO Box 23, New Milford, NY 10959
FAX: (973) 853-2588

Table III. Means of Raw Group Counts for October 2000

Day	Mn.	Day	Mn.	Day	Mn.	Day	Mn.
1	7.7	9	4.9	17	7.4	25	7.3
2	9.7	10	5.0	18	6.7	26	6.9
3	9.9	11	6.6	19	5.2	27	6.4
4	8.9	12	8.4	20	6.6	28	8.1
5	7.8	13	7.8	21	6.2	29	8.2
6	7.1	14	6.5	22	5.2	30	7.5
7	6.1	15	6.3	23	5.7	31	7.9
8	5.7	16	7.0	24	6.2	Mn.	6.99

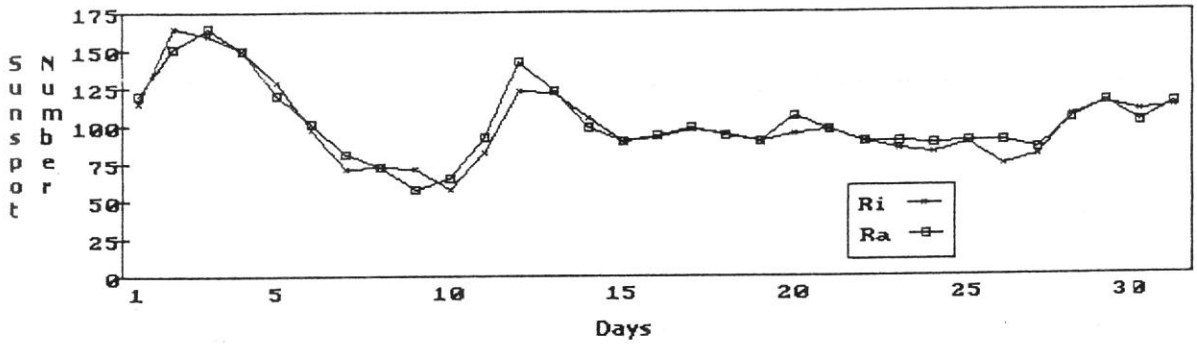


Fig. 1. Comparison of Ri (provisional) and Ra estimates for October.
(Source: www.oma.be/KSB-ORB/SIDC/index.html)

Smoothed Mean Sunspot Number (Rsm) for April 2000: 120

Editor's Notes

With the help of all of you since April of this year, I was able to present a very favorable report on the activities and status of the Solar Division at the recently-concluded Fall meeting of the AAVSO in Cambridge, MA. Your willingness to continue your observing and to send your reports despite occasional difficulties with reestablishing the Division's procedures and products is largely responsible for that outcome. Thank you very much. Thanks also to Mike Hill and Casper Hossfield, our SID Analyst and SID Supplement Editor, respectively, to Arthur Ritchie, an AAVSO volunteer, and to other Headquarters personnel for their vital contributions to the total effort.

Software for Computation of K- and W-coefficients

Software has now been completed to aid in computation of k- and w-factors, and it is being tested to be certain that it will interface successfully with the programs used each month to produce the Bulletin. The results so far are very encouraging. I fully expect that we will shortly be able to reexamine all of the coefficients currently used and to produce new ones for observers who have emerged from the "novice" category.

After testing has been completed, I hope to follow up on the recommendation made by B. Schaefer (*JAAVSO*, 1997, **26**, 49) that AAVSO's criteria for the timing of coefficient updating and the admission of new observers to the program be published. He reports--and my own search for highly detailed information on these items suggests he is correct--that they have not been published, making it difficult to reconstruct the history of Ra index and to validate its contents.

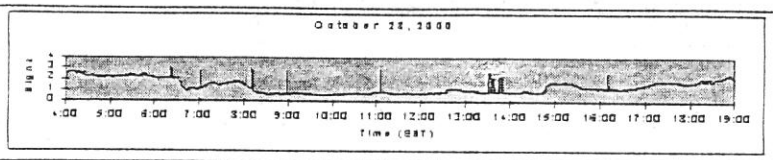
Once again, thank you all for continuing to contribute to the work of the Solar Division.

Clear Skies,

CEF

Sudden Ionospheric Disturbance Report

Michael Hill, SID Analyst
114 Prospect St
Marlborough, MA 01752 USA
noatak@aol.com



Sudden Ionospheric Disturbances (SID) Recorded During October 2000

(Analysis performed by Michael Hill, SID Analyst)

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
001001	0630	1-	001025	1125	3+			
001001	1407	2+	001026	0615	2			
001002	1804	2	001026	0742	2			
001002	2006	2	001026	1135	1			
001002	2132	2+	001026	1608	3			
001003	2103	1+	001027	1131	1+			
001004	1515	2	001027	1205	1			
001009	1318	1+	001027	1854	1			
001010	0904	1+	001027	1954	2			
001012	1742	2+	001027	2050	2+			
001012	2037	3	001028	0430	2+			
001014	0840	2+	001028	0713	1-			
001014	1052	1	001028	0725	2			
001014	1205	2	001028	0955	2			
001014	1412	2	001028	1135	2+			
001015	0725	1-	001028	1636	2			
001015	0835	1+	001028	1848	2+			
001016	0700	3+						
001017	1753	1+						
001017	2148	2+						
001021	0515	2						
001021	0702	1-						
001021	1825	2+						
001025	0425	1						
001025	0533	1						

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

1) Reported in at least two observer reports
2) Visually analyzed with definiteness rating = 5
3) Reported by overseas observers with high definiteness rating

Observer	Code	Station(s) monitored
J Winkler	A50	NAA,NPM
D Overbeek	A52	NAA, NSW
D Toldo	A52	NAA, NSW
A Stokes	A62	NAA, TBD
J Ellerbe	A63	ICV
P King	A80	FTA
A Panzer	A83	NAA, TBD
W Moos	A84	FTA
M Hill	A87	NAA
Gulielmo Fillipo	A93	GZB

Importance	Duration (min)
1-	< 19
1	19 – 25
1+	26-32
2	33-45
2+	46-85
3	86-125
3+	> 125

Solar Events

Before I continue, I must apologize for last months error in the SID Report that listed the data as being for July. The data were, of course, for September. I use a form template from which I base each month's report as one of my tools for performing the monthly SID analysis, and since I began this job in July, the template I created is labeled as July, 2000. Sometimes time gets the better of me as I'm trying to finish things up and the minor details elude me. My apologies.

We have gained a new observer this month. A man from Italy named Guglielmo Filippo. He has been given an official Station ID of A93, and reported in this month with 13 valid event recordings which was about average for the month. He sent me a data file for one day's observations which displayed exceptionally good reception of the station he is monitoring. Welcome aboard Guglielmo.

Of the 141 X-Ray flare events recorded by the Goes-8 spacecraft in October, we detected 42. The month was not overly active with very large flares until the end of the month. There were 10 M class events and of those we detected 9. Of course all M class events are detectable by our means but one of them happened in a time frame not covered by our observers. It was on the 29th at 0128 UT. We have Danie Overbeek and Dominic Toldo in South Africa and they cover us pretty well in the early hours of the day, regularly reporting SID events in the 0400 – 0700 UT time frame and beyond. To get the earlier hours we need an observer a bit further East. Anyone with friends in Eastern Europe or Asia who wish to become part of our network ??

I once again thank you all for your continued promptness in e-mailing your data files to me. Everyone seems to have settled into the routine business of reporting with either the SIDPlot program or the SIDForm program or, in some cases, a version of their own. There are few minor bugs in a couple of formats that I'm presented with, but I am able to overcome them fairly easily so I have let them go for now. It has been verified that the SID data is posted to the NGDC web site. If any of you want to see it you can go to the following site.

www.ngdc.noaa.gov/stp

Goto: Solar and Upper Atmosphere
Goto: Get Data
Goto: Sudden Ionosperic Disturbances

The data have not been kept up to date since 1998, but NGDC still wants us to send data and we will do that. We will also look into what happened since 1998 but that may take time. I haven't even gotten to the Jan – Jun analysis yet !!

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SUDDEN IONOSPHERIC DISTURBANCES SUPPLEMENT

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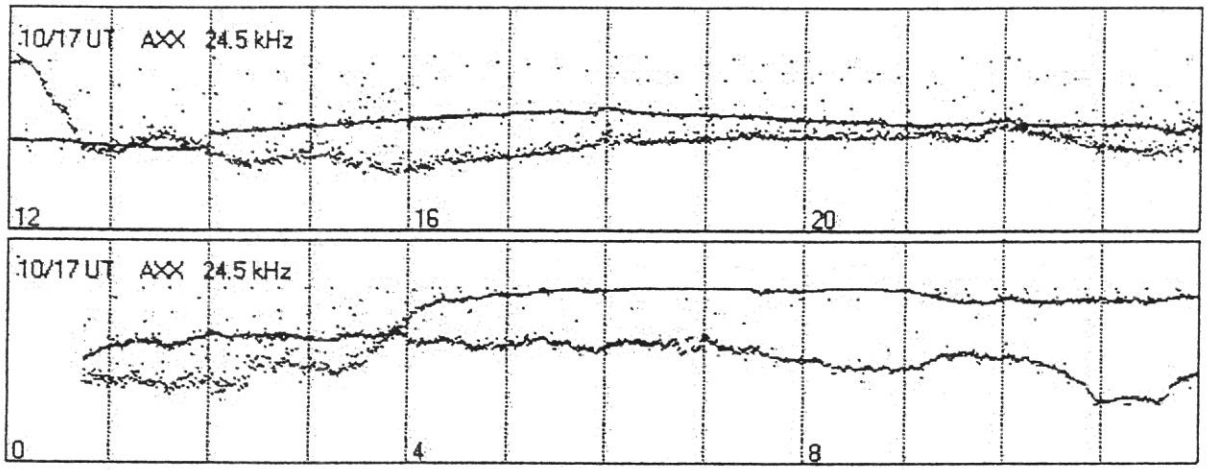
SUDDEN IONOSPHERIC DISTURBANCES
RECORDED DURING OCTOBER, 2000

The chart below was made with new plotting software that is being developed by Al McWilliams to be used for sending SES and magnetometer charts by email. The default setting produces charts like the one below. It is a ½-size Rustrak-format chart and the right size to publish in the Solar Bulletin which is the main purpose of the new software. If you are recording by computer and using Joseph Lawrence's SIDPLOT software you already have everything you need to prepare your monthly SID report to be sent to SID analyst Mike Hill at the end of each month. The new software which is called Piclogger will not be needed unless you want to send charts for publication in the Solar Bulletin. You could also use it to send charts to Mike if you had a question or if you just wanted to show him how your SES receiver is recording the SIDs. The new Piclogger software is still a work in progress so it is not available yet. Some more options are yet to be added. One of these options will allow increasing the chart speed and the sampling rate to search for SIDs caused by gamma ray bursts, GRBs. Dr. Jerry Fishman at NASA's High Energy Astrophysics Laboratory in Huntsville Alabama believes we should be able to record GRBs as SIDs. So far only rare long-lasting and powerful GRBs have been recorded as SIDs. The lesser ones that occur daily have so far not been detected. This may be because they usually last only for 10 to 20 seconds. Their rise time on an SID chart running 1-inch/hour and sampling once every two seconds would not be recognizable. A faster chart speed and sample rate will be needed and that is the reason for adding this option to the Piclogger plotting program.



October was a month of high sunspot activity but the number of solar flares that produced sudden ionospheric disturbances seemed to be fewer than would be expected. Charts below show some of the flares recorded as SIDs