Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR DIVISION

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Daily Mean Sunspot Numbers, R_a for September 1999

(computational analysis performed by Joseph Lawrence)

	simple average			k-corrected	
Day	R_a avg	Std. Dev.		R_a k	Std. Dev.
1	109	3.9		98	4.0
2	97	3.7		85	3.6
3	86	4.8		87	5.2
4	85	3.3		71	2.3
5	83	3.2		75	2.5
6	70	3.7		62	2.8
7	90	4.3		87	3.7
8	94	4.9		89	2.9
9	77	3.6		65	2.5
10	83	3.8		71	3.0
11	90	4.1		81	3.1
12	113	4.1		102	4.2
13	129	5.1		114	3.9
14	138	5.5		127	4.2
15	155	7.0		130	5.3
16	140	5.8		121	3.7
17	135	5.5		113	3.0
18	119	5.3		105	3.2
19	105	4.5		92	3.0
20	79	3.8		67	2.8
21	58	2.6		51	2.2
22	72	3.4		60	2.7
23	67	2.9		57	2.2
24	50	2.4		45	1.5
25	37	1.5		32	1.2
26	40	1.8		33	1.6
27	41	2.2		39	1.6
28	56	3.9		49	2.4
29	65	2.3		60	1.5
30	66	4.0		57	4.4
31	-	-		-	-

Monthly Mean R_a avg = 87.7

Observer	Code	Country	Days Obs.
Abbott, P	AAP	Canada	16
Anderson, E	ANDE	USA, NY	3
Atac, T	ATAT	Greece	30
Attanasio, A	ATON	Italy	21
Barnes, H	BARH	New Zealand	17
Barton, W	BARW	England	5
Battaiola, R	BATR	Italy	12
Berg, R	BEB	USA, IN	23
Berdejo, J	BERJ	Spain	3
Blackwell, J	BLAJ	USA, NH	12
Boschat, M	BMF	Canada	21
Bose, B	BOSB	India	7
Branchett, B	BRAB	USA, FL	22
Branch, R	BRAR	USA, CA	28
Carlson, J	CARJ	USA, MA	22
Morales, G	CHAG	Bolivia	14
Cudnik, B	CKB	USA, TX	29
Clemens, C	CLEC	USA, PA	16
Corp, L	CLZ	France	4
Collins, B	COLB	USA, OH	12
Compton, T	COMT	USA, MI	19
Conlin, G	CONG	USA, WA	8
Cragg, T	CR	Australia	30
Dempsey, F	DEMF	Canada	15
Dragesco, J	DRAJ	France	10
Dubois, F	DUBF	Belgium	24
Ellerbe, J	ELLJ	Spain	5
Reed, E	ELR	USA, TX	28
Feehrer, C	FEEC	USA. MA	21
Ruiz, J	FERJ	Spain	23
Fleming, T	FLET	USA, TX	26
Gallo, M	GALM	Argentina	6
Giovanoni, R	GIOR	USA. MD	21
Gottschalk, S	GOTS	USA, IA	20
Halls, B	HALB	England	7
Hay, K	HAYK	Canada	13
Hrutkay, T	HRUT	USA, PA	9
Ibanez, J	IBAJ	Spain	22
Jenner, S	JENS	England	7
Jennings, V	JENV	USA, VA	2
Kaplan, J	KAPJ	USA, MN	27
Knight, J	KNJS	South Africa	6
Lerman, M	LERM	Canada	18
Leventhal, M	LEVM	Australia	19
Lohvinenko, T	LWT	Canada	7
Malde, K	MALK	Norway	16
Mariani, E	MARE	Italy	9
Marboles, J	MARJ	Spain	27
Mochizuki, E	MCE	Japan	21
McHenry, L	MCHL	USA, PA	3
Moeller, M	MMI	Germany	24
Mudry, G	MUDG	Canada	14
Nilsson, B	NILB	Denmark	18
Nylander, H	NYLH	Finland	20
Prestage, N	OBSO	Australia	21
Randall, T	RANT	USA,NY	1
Richardson, E	RICE	England	13
Ritchie, A	RITA	USA, MA	21
Simpson, C	SIMC	USA, OH	12
Stoikidis, N	STQ	Greece	26
Teske, D	TESD	USA, MS	26
Thompson, R	THR	Canada	16
Vargas, G	VARG	Bolivia	21
Vardaxoglou, P	VARP	Greece	18
Vazquez, C	VAZC	Argentina	4
Whitehouse, M	WHIM	USA, MS	7
Wilson, W	WILW	USA, TN	22
Witkowski, L	WITL	USA, FL	16
Watts, K	WKW	USA, CA	6
Wydra, K	WYDK	Poland	15

Monthly Mean R_a k = 77.5

Sudden Ionospheric Disturbance Report

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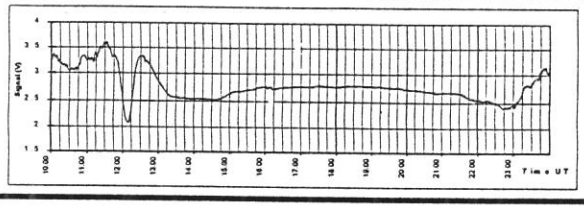

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Sudden Ionospheric Disturbances (SID) Recorded During September 1999

(correlation analysis performed by Joseph Lawrence, SID Analyst)

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
990901	1857	2+	990912	1205	1	990917	1802	2	990921	0730	1
990902	1745	2	990912	1735	2+	990917	2208	1+	990921	1050	2+
990906	2112	2	990913	0734	1	990918	1415	1	990922	1343	2
990907	1400	1	990913	1645	2	990918	1512	1+	990928	1534	2+
990907	2308	1+	990914	1320	1+	990918	1556	2+	990929	1555	2
990908	1215	2+	990917	1205	2	990919	1125	3	-	-	-
990909	1622	2+	990917	1435	1-	990919	1435	2+	-	-	-

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

1) reported in at least two observers' reports.
2) visually analyzed with definiteness rating = 5 on submitted charts
3) reported by overseas observers with high definiteness rating

Observer	Code	Station(s) Monitored
Hossfield, C	A-05	NAA
Winkler, J	A-50	NAA, NPM
Stokes, A	A-62	NAA
Ellerbe, J	A-63	ICV
Witkowski, L	A-72	NAA
King, P	A-80	FTA
Landry, A	A-81	NAA
Panzer, A	A-83	NAA
Moos, W	A-84	FTA, GBZ, ICV
Hill, M	A-87	NAA
Mandaville, J	A-90	NAA, NPM

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

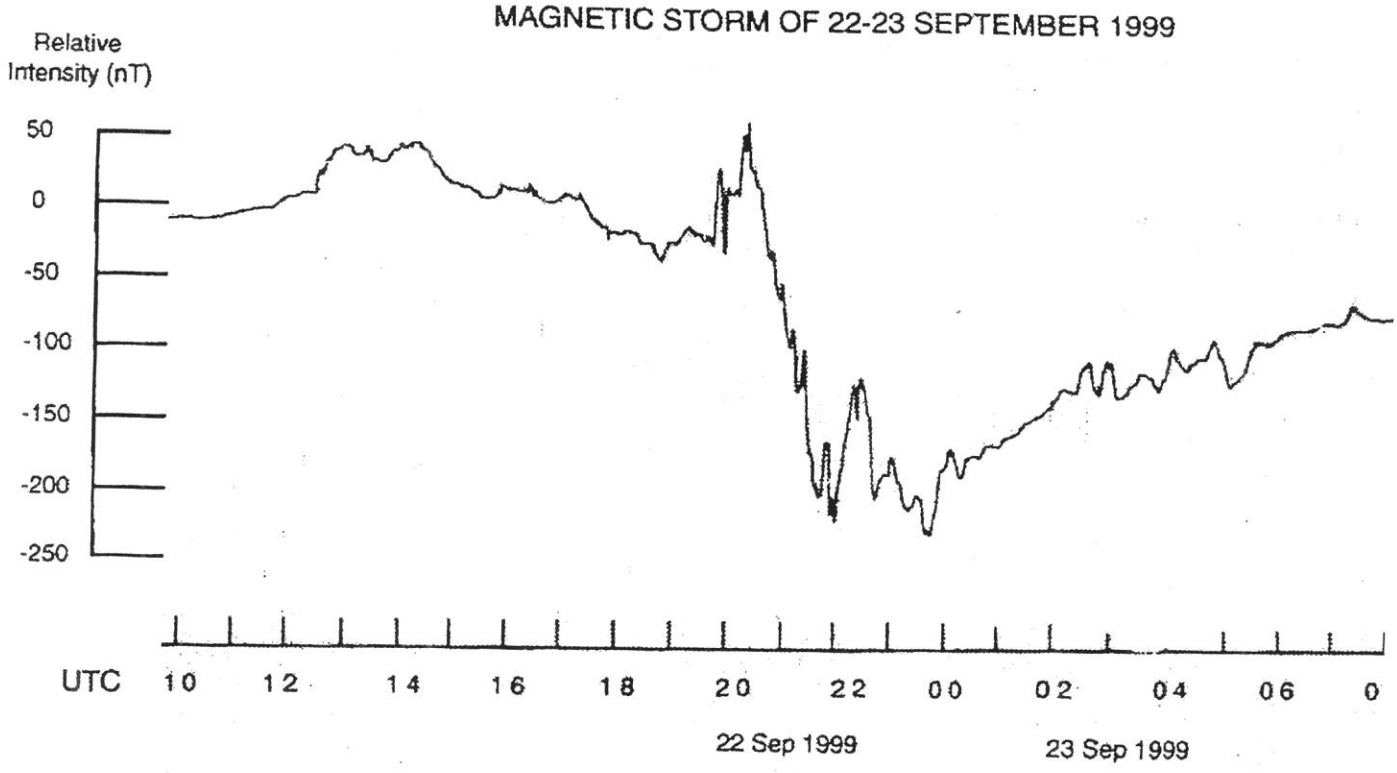
Editor's Note: Following publication of "Determination of Sunspot Group Number; Practical Guidelines Part I" in the August 1999 *Solar Bulletin*, several sunspot observers submitted comments and offered personal experience anecdotes worthy of inclusion in the promised next installment of the article. Time-consuming preparations for the upcoming AAVSO annual meeting and the wealth of suggestions offered by readers of Part I have delayed publication of the expected Part II. As more attention can be given to the article next month, it is hoped the results will be worth the wait.

Personal apologies are owed to sunspot observer Michel Lerman (LERM) for grossly underestimating his contribution to the report which motivated the aforementioned article. Michel collected input from other experienced observers and then he wrote his final report summarizing the consensus guidelines. Special thanks for his effort and my personal apology for misrepresenting his significant role in the final report are extended to Michel.

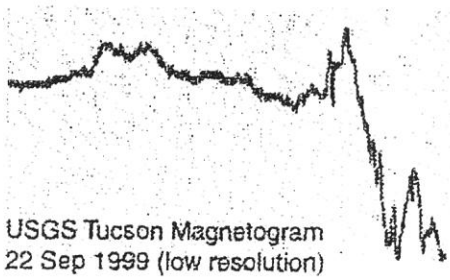
Sudden Ionospheric Disturbances Recorded During September

Prepared By
Casper H. Hossfield

Below are magnetograms of the 22 – 23 September magnetic storm by Jim mandaville, A-90 and Danie Overbeek, A52. Jim has downloaded a magnetogram of the same storm from the USGS magnetic observatory in nearby Tucson for comparison. There is little doubt that Jim's simple homemade McWilliams magnetometer makes very accurate recordings of magnetic storms. Below Jim has very kindly provided detailed instructions how other amateurs can compare their magnetograms with those made by a nearby professional magnetic observatory.



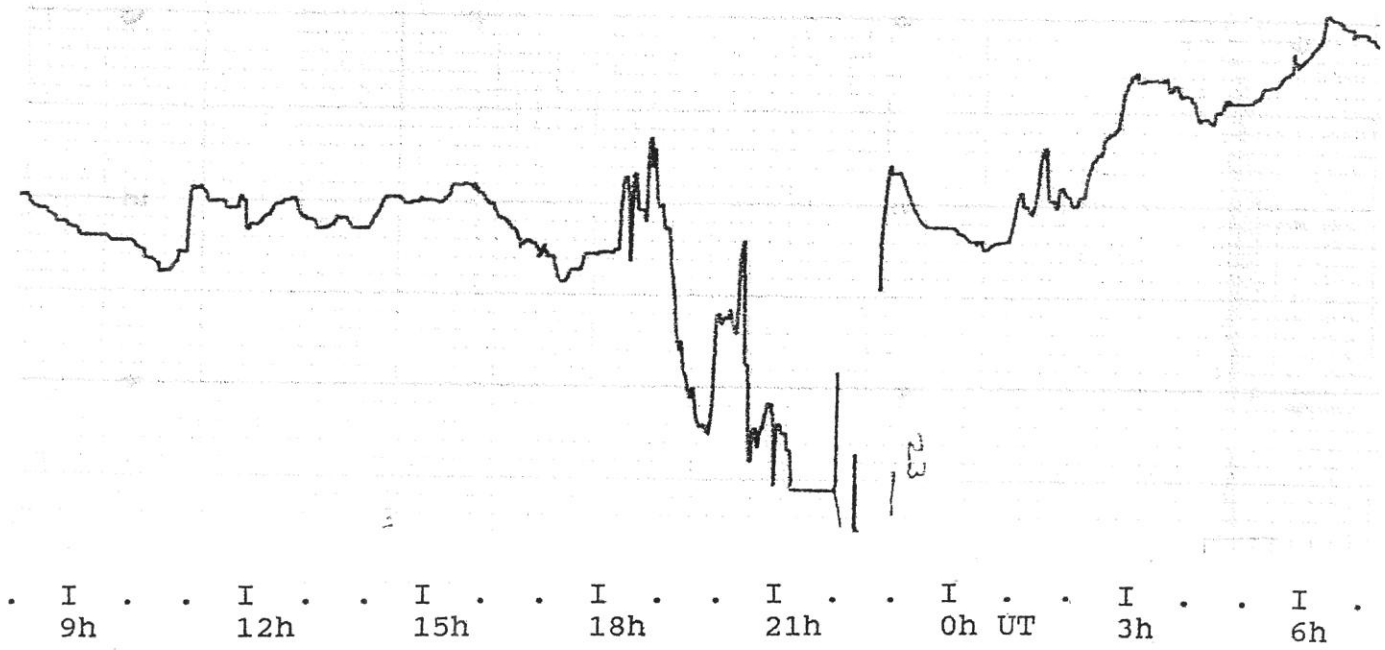
Horizontal Component (H) at Oro Valley, Arizona (geographic 32-23.4'N, 110-56.8'W); magnetic latitude 40 N).



USGS Tucson Magnetogram
22 Sep 1999 (low resolution)

Location: 12 miles from observer A-90

Magnetogram: "H" at Edenvale, South Africa. 1999



I've recently discovered that numerous magnetograms from government observatories are made available on the Internet by Intermagnet, an international organization that pools magnetic observatory data from member governments and makes it available through several data centers. Some of these observatory records, including those from the United States, are available in near-real time, with a lag of only 10-15 minutes. This makes it possible to compare one's amateur magnetograms quickly and directly with those of the nearest professional observatory and help answer the vexing question of whether one's trace is "real" or resulting from instrument error or local interference. The main site can be reached at:

http:/www.intermagnet.org/english/magneto_e.html

This page brings up a long table with observatories shown in the left column. In the right column are the data centers that hold the present data for each. Clicking on the observatory brings up some written information about the station. For data, however, one clicks on one of the data centers listed to the right, opposite the station of interest. Each data center has its own format, but the procedure for obtaining data for individual stations is usually self-evident. The procedure for the Golden, Colorado center (Gol) is one of the simplest. Clicking on "Gol" brings up a map showing U.S. observatories. In the boxes below one simply selects the station and day, and a magnetogram will come up on the screen. With some data centers, one has to be careful to select plotted data; otherwise only numbers will be provided. Some centers require either a user ID (which is whatever name you want to show on the record of users).

The Golden center does not appear to encourage downloading of its magnetograms (which are based on raw uncalibrated data), and the only way I found to copy them was by performing a screen dump. Their resolution is quite low, and they cannot be enlarged greatly without showing blocky pixels. They are nevertheless extremely useful for comparison with home traces.

When picking an observatory to compare with home data it is usually preferable to choose the nearest one that is similar in latitude to the home station. Observatories considerably to the North or South will often show rather different trace shapes because of latitude effects.

Jim Mandaville