Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR DIVISION

Joseph D. Lawrence, Editor
1808 N. Anthony Blvd.
Fort Wayne, IN 46805 USA

email: lawrence@ipfw.edu
phone: 219.422.0230

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Daily Mean Sunspot Numbers, R_a for June 1999

(computational analysis performed by Joseph Lawrence)

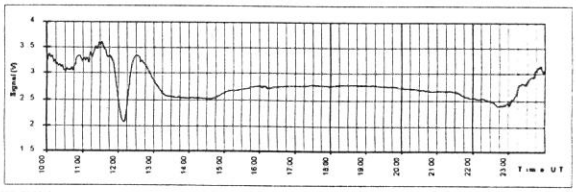
	simple average			k-corrected	
Day	R_a avg	Std. Dev.		R_a k	Std. Dev.
1	164	8.1		140	4.8
2	167	9.2		141	5.2
3	164	6.7		137	3.4
4	171	6.3		150	3.9
5	161	6.9		137	3.6
6	169	8.9		146	5.5
7	143	6.2		122	4.2
8	164	7.7		140	5.1
9	165	10.3		136	6.6
10	174	8.1		148	5.4
11	196	10.1		172	7.5
12	204	9.1		176	4.7
13	202	8.7		170	5.4
14	185	8.6		154	5.5
15	163	6.7		139	3.9
16	131	7.2		116	5.3
17	107	4.9		91	3.7
18	105	3.7		91	2.6
19	89	3.2		77	2.4
20	83	3.8		71	2.7
21	104	4.6		93	3.3
22	135	5.5		118	4.1
23	180	8.4		152	6.8
24	214	9.0		184	7.6
25	221	10.6		181	9.9
26	219	8.8		201	7.6
27	201	11.9		187	8.3
28	203	10.8		181	6.9
29	179	9.1		154	7.6
30	179	9.2		159	5.8
31	-	-		-	-

Monthly Mean R_a avg = 164.7
Monthly Mean R_a k = 142.1

Observer	Code	Country	Days Obs.
Abbott, P	AAP	Canada	13
Anderson, E	ANDE	USA, NY	6
Atac, T	ATAT	Turkey	26
Attanasio, A	ATON	Italy	16
Barnes, H	BARH	New Zealand	16
Battaiola, R	BATR	Italy	21
Berg, R	BEB	USA, IN	14
Blackwell, J	BLAJ	USA, NH	9
Boschat, M	BMF	Canada	17
Bose, B	BOSB	India	9
Branchett, B	BRAB	USA, FL	22
Branch, R	BRAR	USA, CA	27
Carlson, J	CARJ	USA, MA	20
Morales, G	CHAG	Bolivia	19
Cudnik, B	CKB	USA, TX	23
Clemens, C	CLEC	USA, PA	17
Compton, T	COMT	USA, MI	18
Cragg, T	CR	Australia	28
Dempsey, F	DEMF	Canada	19
Dragesco, J	DRAJ	France	27
Dubois, F	DUBF	Belgium	23
Eleizalde, G	ELEG	Venezuela	24
Reed, E	ELR	USA, TX	28
Feehrer, C	FEEC	USA, MA	26
Ruiz, J	FERJ	Spain	20
Fleming, T	FLET	USA, TX	22
Galvez, E	GALE	Peru	11
Giovanoni, R	GIOR	USA, MD	27
Gottschalk, S	GOTS	USA, IA	14
Gundlach, M	GUNM	Bolivia	20
Halls, B	HALB	England	9
Hay, K	HAYK	Canada	9
Hrutkay, T	HRUT	USA, PA	12
Imperi, R	IMPR	USA, OH	12
Janssens, J	JANJ	USA, TX	2
Jenkins, J	JENJ	USA, IL	6
Jenner, S	JENS	England	4
Kaplan, J	KAPJ	USA, MN	17
Knight, J	KNJS	South Africa	19
Lawrence, J	LAWJ	USA, IN	9
Lerman, M	LERM	Canada	25
Leventhal, M	LEVM	Australia	18
Lizak, T	LIZT	USA, RI	21
Lubbers, T	LUBT	USA, MN	18
Lohvinenko, T	LWT	Canada	7
Mariani, E	MARE	Italy	12
Mochizuki, E	MCE	Japan	17
McHenry, L	MCHL	USA, PA	5
Miller, J	MILJ	USA	8
Moeller, M	MMI	Germany	22
Mudry, G	MUDG	Canada	5
Prestage, N	OBSO	Australia	17
Randall, T	RANT	USA,NY	17
Richardson, E	RICE	England	14
Ritchie, A	RITA	USA, MA	27
Ramsey, J	RMAJ	USA, AR	1
Ramsey, S	RMAS	USA, AR	1
Schott, G	SCGL	Germany	27
Scholl, G	SCHG	USA, NY	12
States, B	STAB	England	27
Stemmler, G	STEM	Germany	27
Stoikidis, N	STQ	Greece	27
Suzuki, M	SUZM	Japan	20
Teske, D	TESD	USA, MS	30
Thompson, R	THR	Canada	17
Vargas, G	VARG	Bolivia	8
Vardaxoglou, P	VARP	Greece	22
Vazquez, C	VAZC	Argentina	7
Wilson, W	WILW	USA, TN	20
Witkowski, L	WITL	USA, FL	15
Watts, K	WKW	USA, CA	4
Wydra, K	WYDK	Poland	11

Sudden Ionospheric Disturbance Report

Casper Hossfield, SID Coordinator
PO Box 23
New Milford, NY 10959 USA
capaavso@aol.com
FAX 201.327.5246



Joseph Lawrence, SID Analyst
1808 N. Anthony Blvd.
Fort Wayne, IN 46805 USA
lawrence@ipfw.edu
FAX 219.451.6033

Sudden Ionospheric Disturbances (SID) Recorded During June 1999

(correlation analysis performed by Joseph Lawrence, SID Analyst)

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
990601	0510	1	990611	1821	2+	990620	1403	2+	990626	1646	2
990601	0957	2	990611	2019	2	990620	1532	2+	990626	2037	2
990601	1905	2	990611	2110	2	990620	1715	1-	990627	0732	2
990601	2250	2	990612	0830	1-	990620	1728	2	990627	1528	2
990601	2342	2+	990612	1337	2+	990620	1918	2+	990627	1846	2+
990602	0338	1-	990612	1535	2+	990620	2007	2	990627	2054	2
990602	0404	2	990612	2125	2	990620	2111	2	990628	0110	2
990602	0757	1	990612	2220	2	990622	1715	2	990628	1815	2
990602	1342	1	990612	2253	2	990622	1828	3	990628	1852	3
990602	1934	2	990613	1430	1-	990623	0048	2	990628	1913	2+
990602	2053	3	990613	1514	1-	990623	0529	2+	990629	0356	2+
990603	0535	2	990616	1813	1+	990623	1818	1	990629	0520	1+
990603	1620	1+	990617	1724	2+	990623	1833	1	990629	0709	3
990603	2112	2	990618	0530	2	990623	1857	1+	990629	1414	2
990604	0552	2+	990618	0603	2	990623	2053	2+	990629	1514	2+
990604	1141	2	990618	1403	1	990623	2315	2+	990629	1803	2
990604	1530	1	990618	1431	2+	990624	0700	1+	990629	1911	2+
990604	1932	1	990618	1610	1+	990624	1415	1+	990629	2210	2
990608	1800	2	990618	1647	2+	990624	1543	1	990630	0330	2+
990608	1916	2+	990618	1801	2	990624	1842	2+	990630	0533	2+
990609	0223	1	990618	1824	2	990624	2007	2	990630	1017	2
990609	1542	2	990618	2015	2+	990624	2305	2+	990630	1128	2+
990609	1910	2	990618	2140	2+	990625	2203	1+	990630	1642	2
990609	2050	2+	990619	1353	2+	990626	0400	2	990630	1737	1+
990609	2252	1+	990619	2236	2+	990626	0610	1	990630	1808	2+
990610	2103	2	990620	0349	2	990626	0630	2	990630	1936	2+
990610	2128	2	990620	0726	2	990626	1334	2	990630	2010	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
Winkler, J	A-50	NAA, NPM
Overbeek, D	A-52	NAA, NSW, NPM
Toldo, D	A-52	NAA, NSW, NPM
Stokes, A	A-62	NAA
Witkowski, L	A-72	NAA
Landry, A	A-81	NAA
Lawrence, J	A-82	NAA
Moos, W	A-84	FTA, GBZ, ICV
Hill, M	A-87	NAA
Mandaville, J	A-90	NAA, NPM

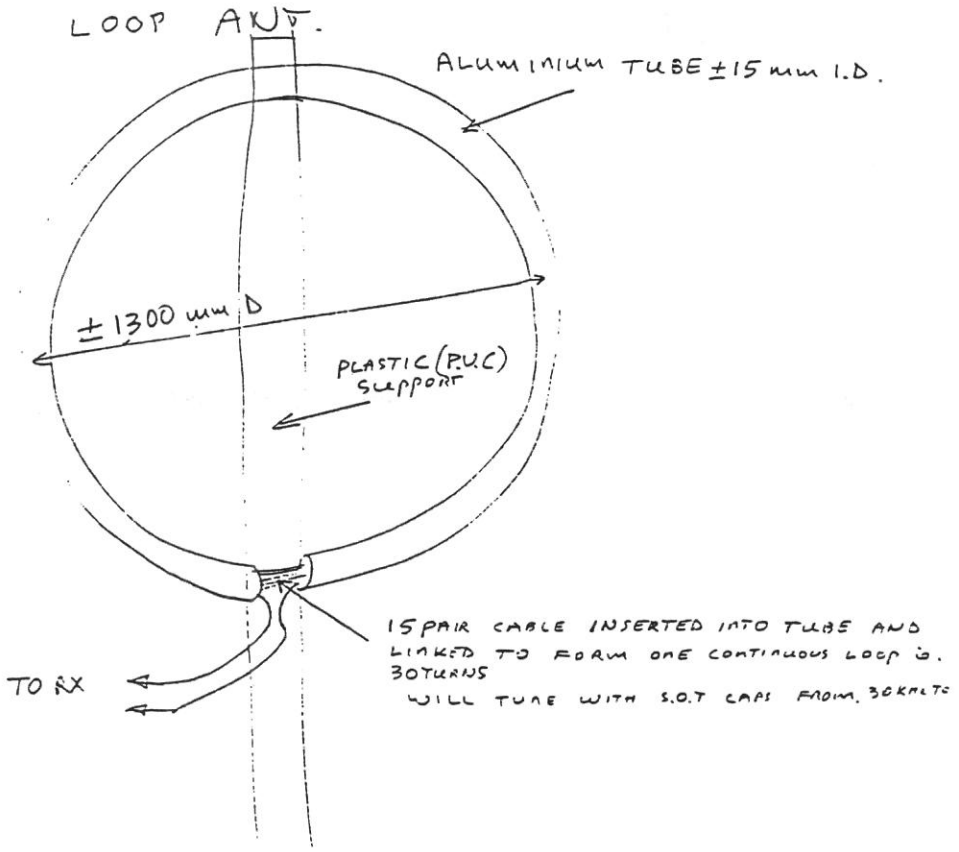
Importance	Duration (min)
1-	< 19
1	19 - 25
1+	26 - 32
2	33 - 45
2+	46 - 85
3	86 - 125
3+	> 125

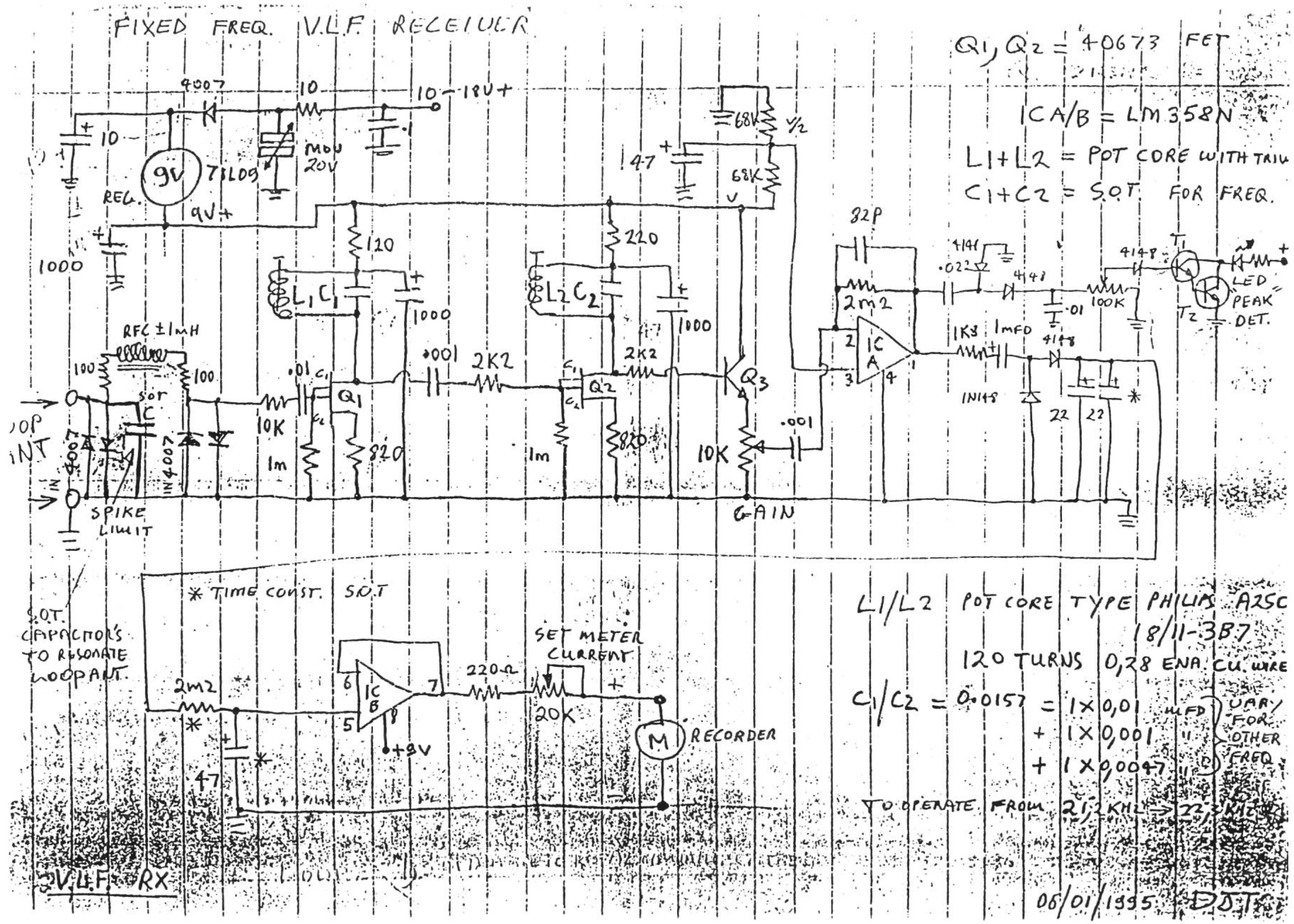
Sudden Ionospheric Disturbances Recorded During June

Prepared by
Casper H. Hossfield

Last month we published a schematic of the A-52 superhetrodyne receiver designed by Domenic Toldo. This receiver needs a 3-gang 360 picofarad variable capacitor that is a difficult thing to find these days. Jerry Winkler, A-50, found something similar at Fair Electronics in Lima, Ohio and is building the Toldo superhet. Jerry bought the only suitable variable capacitor Fair Electronics had. If anyone knows of another possible source please let us know.

This month we publish a detailed schematic of Domenic's fixed frequency receiver. This is a good receiver to build if you live in the USA and would like to record a distant signal like NPM in Hawaii. Its two tuned RF stages and the tuned loop antenna make it selective enough to easily pick a weak signal out of the background noise. Domenic's receivers in South Africa easily record NAA in Maine, USA and NWC in Northwest Cape, West Australia. Both of these are as distant as NPM in Hawaii is from eastern USA. The receiver's LED peak-signal detector is a good idea that could be added to any of our present receivers. Another nice feature is the voltage follower IC 'B' with its 20K variable meter current control. This allows adjustment to drive any strip chart recorder or A/D converter independent of the receiver's 10K gain control in the source of Q3. This fixed frequency receiver uses the same loop antenna as the superhet. A drawing below shows the loop's dimensions. The schematic of the receiver is on the next page.




FIXED FREQ. V.L.F. RECEIVER
Q1, Q2 = 40673 FET
ICA/B = LM358N
L1+L2 = POT CORE WITH TRIM
C1+C2 = S.O.T. FOR FREQ.
4007
10
10–18V+
10
9V
78L09
REG.
9V+
MOV 20V
1000
68K
1/2
47
68K
82P
2m2
4148
.022
.01
100K
T1
T2
LED "PEAK" DET.
120
220
L1 C1
L2 C2
1000
RFC ±1mH
100
100
S.O.T. C
.01
10K
Q1
Q2
Q3
.001
2K2
2K2
1m
820
1m
820
10K
GAIN
.001
IC A
1K8
1MFD
1N148
22
22
1N4007
SPIKE LIMIT
V_{IN}
S.O.T. CAPACITOR'S TO RESONATE LOOP ANT.
* TIME CONST. S.O.T.
2m2
47
IC B
+9V
220Ω
SET METER CURRENT
20K
M
RECORDER
L1/L2 POT CORE TYPE PHILIPS A25C 18/11-3B7
120 TURNS 0,28 ENA. CU. WIRE
C1/C2 = 0.0157 = 1×0,01 MFD
+ 1×0,001
+ 1×0,0047
VARY FOR OTHER FREQ.
TO OPERATE FROM 21,2 KHz → 22 KHz
V.L.F. RX
06/01/1995 D.D.T.