

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR DIVISION

Elizabeth Stephenson, Editor
14205 Washington Boulevard
University Heights, OH 44118



email: AU206265@aol.com
phone: 216-291-0275
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American Relative Sunspot Numbers, R_a , for July 1997

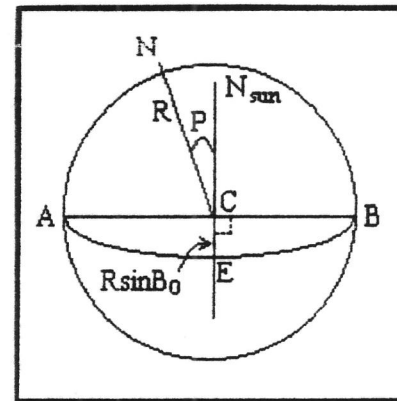
Date	R_a Final	Date	R_a Final	Date	R_a Final
1	0	11	0	21	0
2	2	12	0	22	7
3	2	13	0	23	28
4	8	14	3	24	43
5	3	15	0	25	45
6	4	16	0	26	37
7	22	17	4	27	22
8	10	18	3	28	5
9	18	19	0	29	2
10	2	20	6	30	0
				31	0

Monthly Mean = 8.9

(Based on 1090 observations contributed by 57 observers.)

QUICK WAY TO DRAW IN THE SOLAR EQUATOR ON A SUNSPOT DRAWING

1. Look up the quantities P , the position angle of the sun's axis of rotation, and B_0 , the heliographic latitude of the center of the solar disk, in *The Astronomical Almanac*, or in any other equivalent source of this information.
2. Draw a line from the center, C , of your drawing through the north point, N .
3. On this line, CN , construct the angle P with a protractor. This will define the solar rotation axis (although, of course, the pole is not necessarily at the limb). $P > 0$ means the north pole of rotation is east of the CN line.
4. Construct a perpendicular to the sun's axis at the center of the disk. Extended, it intercepts the limb where the equator does, at points A and B .
5. With R = the radius of your solar disk, locate the intersection of the equator, E , and the projected solar rotation axis along the axis at a distance $R \sin B_0$ from the center. If this number is > 0 , put the point south of the center; otherwise north.
6. The solar equator is the arc of an ellipse connecting the equator-axis intersection, E , and the two limb points, A and B , of the equator.



Betty Stephenson

Sudden Ionospheric Disturbance Report

prepared by Casper H. Hossfield

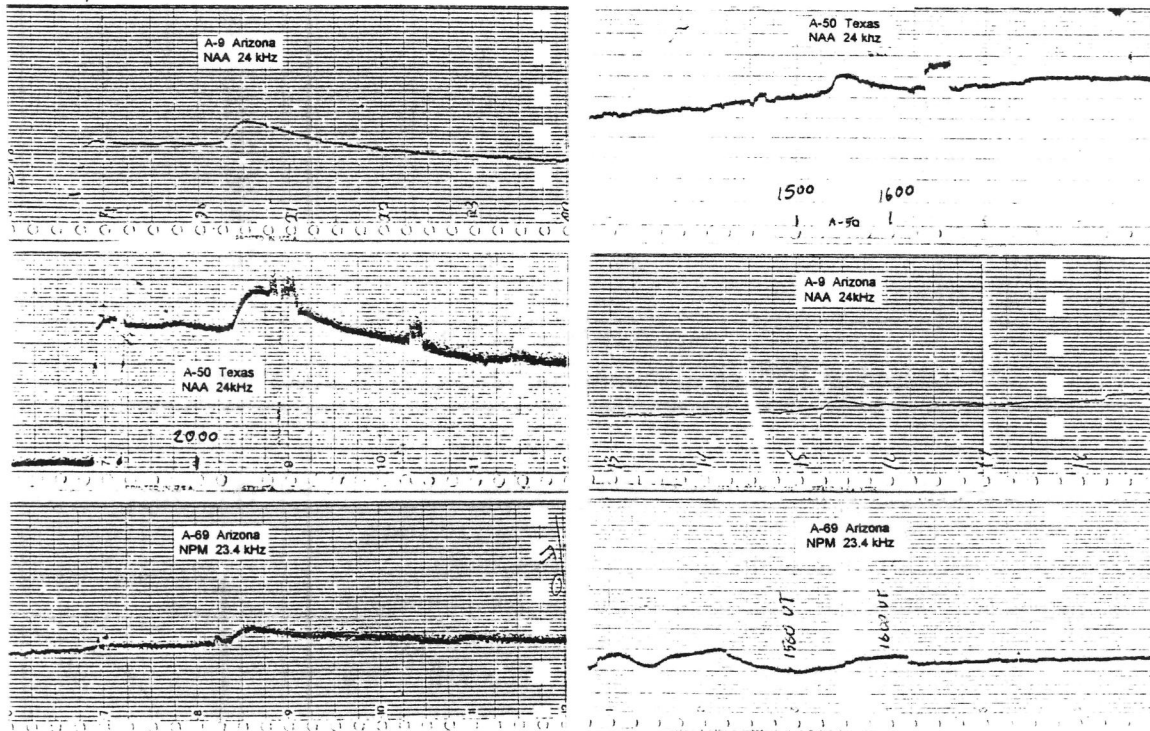
Cap Hossfield
P.O. Box 23
New Milford, NY 10959 USA

fax: 201 327 5246
email: casper@carroll.com

SUDDEN IONOSPHERIC DISTURBANCES RECORDED DURING JULY 1997

Day	Start	Importance	Definiteness	Day	Start	Importance	definiteness
3	0228	2	1pm23	20	1342	1-	2
10	1310	1-	0aa24	20	1423	1-	2
10	1445	1-	0aa24	20	1506	1-	2
10	1522	2+	4	23	1655	1-	2
20	1330	1-	2	25	2021	2+	5
				27	0430	3	1

Reports and/or charts were received from: A-9 Scharlach, Arizona / A-40, Parker, California / A-50, Winkler, Texas / A-52, Overbeek-Toldo, Rep. South Africa / A-62, Stokes, Ohio / A-63, Ellerbe, Spain / A-69, Rosenberg, Arizona / A-72, Witkowski, Florida / A-80, King, England / A-81, Landry, New Hampshire / A-84, Moos, Switzerland



Three charts above show a nice definite SID on 25 July recorded by four observers as an SES on two different frequencies, 23.4 kHz and 24 kHz, at a time when there was a credible sunspot group on the Sun. Two other Charts show what looks like a very definite SES on 12 July recorded by three observers all as an SES on 24 kHz. Beneath it is a recording of 23.4 kHz which does not show the SES at that time and makes it doubtful the event was Flare related, especially since the Sun was spotless that day. The most likely explanation is the SES was caused by a meteorological event such as a severe storm that affected the propagation path of NAA only. Similar storm related SES events have been confirmed by microbaragraph records in the past.

Cap Hossfield, SID Coordinator
PO Box 23
New Milford, NY 10959, USA
Casper@carroll.com