Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS - SOLAR DIVISION

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American Relative Sunspot Numbers, R_a, for May 1998

Date	R_a Final		Date	R_a Final		Date	R_a Final
1	64		11	59		21	22
2	68		12	73		22	17
3	80		13	84		23	35
4	86		14	87		24	38
5	86		15	85		25	49
6	74		16	89		26	47
7	80		17	78		27	44
8	67		18	69		28	38
9	56		19	54		29	28
10	42		20	35		30	47
						31	54

Monthly Mean = 59.3

(Based on 951 observations contributed by 56 observers.)

Erratum

The zip code for Michel Lerman in the April Solar Bulletin should have read "L9M 1A7," not just "L9M 1A."

Northern Lights Sighting

May 4 - Around 6:00 U.T. Very impressive covering most of the sky. Michel Lerman, Penetanguishene, Ontario, Canada.

Notes

The summary of how to count groups will appear in the next Bulletin, not this one as promised, due to the surprisingly large number of contributions from observers.

Betty Stephenson, Chair
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Sudden Ionospheric Disturbance Report

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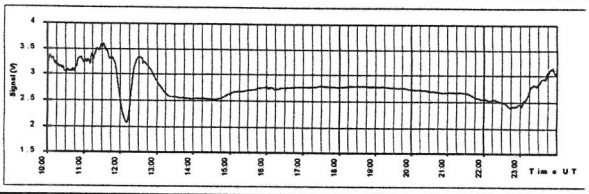

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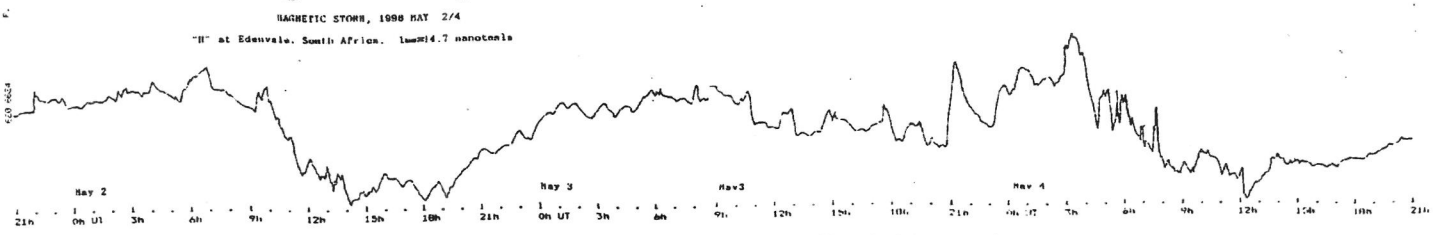
Sudden Ionospheric Disturbances Recorded During May 1998

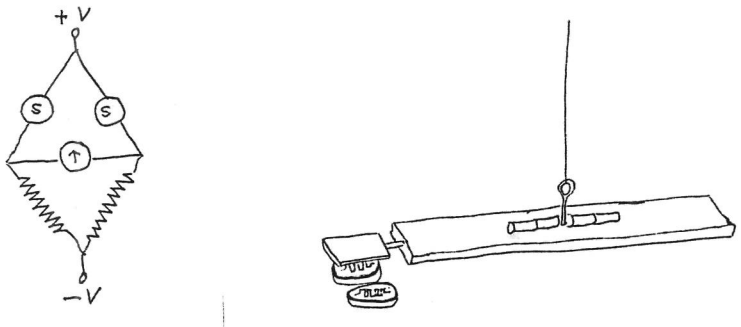
Date	Start	Importance	Date	Start	Importance	Date	Start	Importance
980501	1205	1	980507	1111	2	980514	1025	1-
980501	1300	2	980507	1328	1-	980514	1346	1
980501	1450	2	980507	1345	2	980514	1655	1-
980501	1733	2	980507	1450	1+	980515	1000	1-
980501	2010	1-	980507	1622	2	980516	1551	1
980501	2024	2	980507	2011	1+	980518	2000	2
980501	2145	2	980507	2228	1-	980519	1545	2+
980501	2237	3	980507	2252	2	980527	0815	1
980502	1335	2+	980508	1303	2	980527	0915	1
980502	2037	3	980508	1356	2+	980527	1109	1+
980503	1000	1	980508	1615	1-	980527	1215	1-
980503	1828	2+	980508	2122	2+	980527	1320	2+
980503	2117	3	980508	2249	2	980527	1816	1
980504	1710	1-	980508	2337	1	980527	1836	2+
980504	1825	1-	980509	1035	1	980527	2230	2+
980504	2358	2+	980509	1103	1	980528	0436	1+
980505	1155	1	980509	1311	2	980528	0805	1-
980505	1623	2	980509	1415	2+	980528	0849	1
980505	1845	1	980509	1730	2	980528	0920	1-
980505	1922	2	980509	2030	2+	980528	1035	1-
980505	1956	1	980509	2130	1+	980528	1115	1
980505	2052	2+	980510	0820	2	980528	1250	1-
980505	2213	2+	980510	0947	1+	980528	1348	2+
980505	2305	1	980510	1055	1-	980528	1650	1-
980505	2328	3	980510	1140	1-	980528	1851	2+
980506	0700	1-	980510	1314	2	980528	2028	1
980506	0710	1+	980510	1505	1-	980528	2116	2
980506	0800	1	980510	1928	1+	980529	0058	2
980506	1336	1+	980511	2140	3	980529	1100	1
980506	1836	1+	980512	1840	1-	980529	1239	1-
980507	0735	1-	980513	1450	1-	980529	1348	1+

The following observers submitted reports and/or charts for May:
A-05 Hossfield, New York * A-09 Scharlach, Arizona * A-50 Winkler, Texas
A-52 Overbeek & Toldo, Republic of South Africa * A-62 Stokes, Ohio * A-63 Ellerbe, Spain
A-72 Witkowski, Florida * A-80 King, England * A-81 Landry, New Hampshire
A-82 Lawrence, Indiana * A-84 Moos, Switzerland * A-87 Hill, Massachusetts

Recording of a Magnetic Storm from 2 May through 4 May, 1998



The above magnetogram was recorded in South Africa by Danie Overbeek, A-52, using a McWilliams magnetometer. It is a very simple device designed by Prof. Al McWilliams who teaches physics at a university in Minnesota. Despite its simplicity it is very sensitive and makes excellent recordings. Jim Mandaville who operates a similar torsion variometer in Arizona makes recordings virtually identical to those made by the local USGS magnetic observatory. It is sensitive enough to record little blips when a car goes by on the street and when neighbors move cars in their driveways it offsets the trace. Moving your own car in the driveway is a disaster. It easily records steel furniture moved in the house if you have it in the basement which is the best place to put it. Below is a sketch of the McWilliams torsion magnetometer.



The sensor is a magnetic compass needle suspended as a torsion balance on a thin steel music wire about 0.15 mm in diameter. A guitar string will do nicely and should be about 30 cm long. The torsion wire is wound up to provide enough torsion to rotate the needle so it points East and West instead of the North and South direction it would prefer. The magnetic needle consists of four cylindrical magnets 3/16-inch diameter by 1-inch long lined up on a thin strip of wood about 15 cm long. A shade on one end of the needle covers 1/2 of each of two Selenium cells and shades them from a beam of light above. The light can be a small bulb in a soda can with a small hole in the bottom suspended above the shade.

The selenium cells are variable resistors and their resistance depends on how much light falls on them. They are made two legs of a wheatstone bridge where they are marked "S" in the schematic. The meter connected across the bridge is a strip chart recorder and 1/4-inch / hr is a good speed. The DC voltage across the bridge should be supplied by a regulated power supply and it can also power the light source. The Torsion wire balances the needle against the Earth's magnetic field and any change in the field strength due to magnetic storms moves the shade and unbalances the resistances in the bridge. The imbalance causes a current to flow in the meter. The direction of the current flow depends on which way the needle moved uncovering one cell slightly and covering the other cell more.

Edmund Scientific , 609-573-6250, or e-mail , ---- industrialsales@edsci.com --- can supply the magnets. They are stock number D53,564 for the set of four and cost $11.50. The Selenium cells are from Radio Shack but were recently discontinued so you may have to settle for the Cadmium Sulfide cells that replace them. They will probably work just as well.