

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
SOLAR SECTION



Rodney Howe, Editor, Chairperson
c/o AAVSO, 49 Bay State Rd
Cambridge, MA 02138

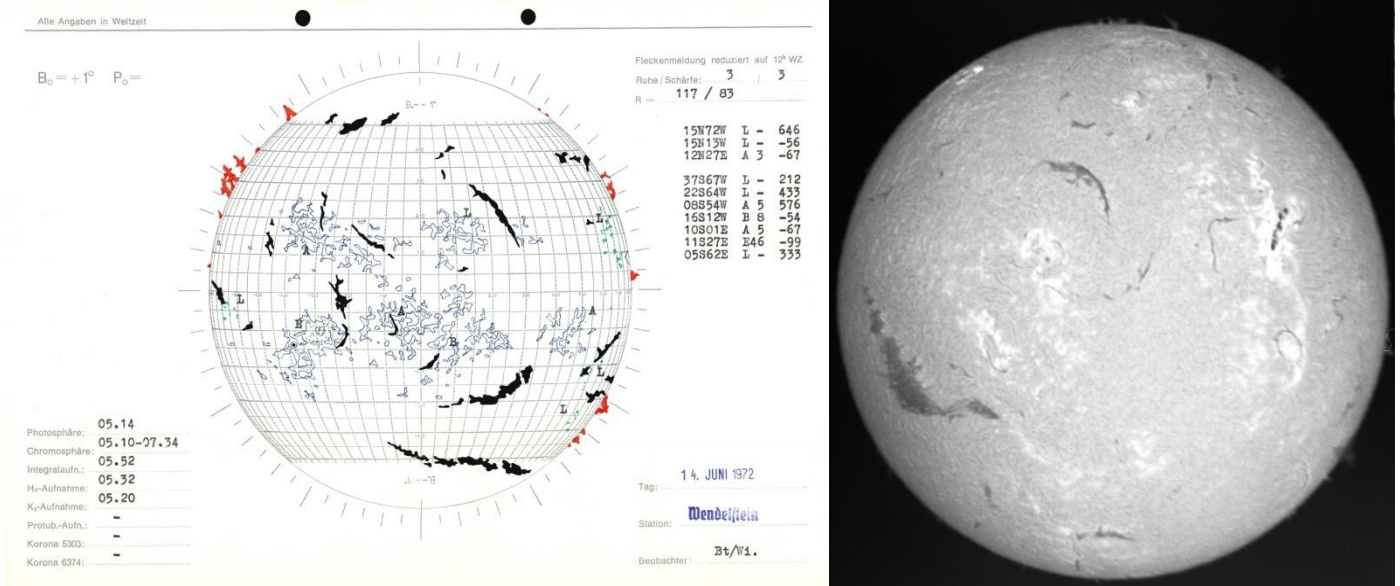
Web: <http://www.aavso.org/solar-bulletin>

Email: solar.aavso@gmail.com

ISSN 0271-8480

Volume 70 Number 4

April, 2014



Wendelstein Synoptic Drawing – 04 June 1972, (left)

Typical synoptic drawings include the locations of active regions, filaments and prominences, coronal holes, and the solar magnetic structure. A particularly beautiful set of drawings were provided from the [Wendelstein Observatory](#), Germany (1947-1987) although other professionally prepared drawings are available from the [Fraunhofer Institute](#), Germany (1956-1973) and [Boulder](#) (1972-present) as well as records from the [International Geophysical Year](#) (1957-1958) and from [amateur solar gazers](#) (1958-1970).

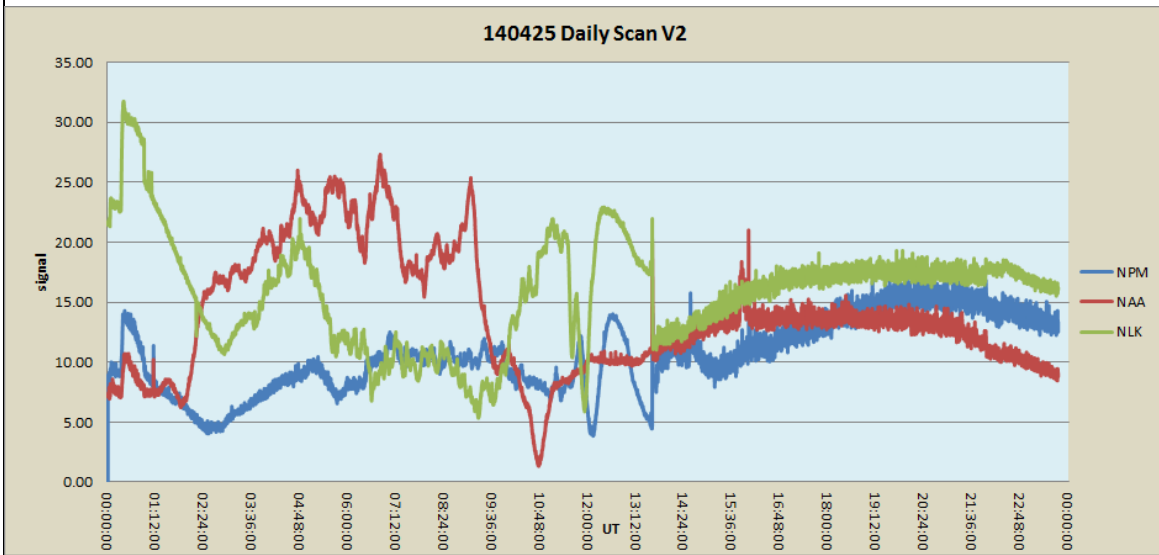
Boulder H-alpha Photograph – 12 March 1989, (right)

Whereas the white light images depict features such as sunspots and plage regions on the photosphere, the Calcium II and H-alpha photographs image the lower and mid-level chromosphere. Features within the chromosphere include filaments/prominences, plage and the chromospheric network.

The drawing above left and the H-alpha photograph above right are from NGDC, which also provides tabular lists of space weather events provided by ground-based observatories, including [H-alpha solar flares](#) (1938-present), [solar radio bursts](#) (1960-2010) and [sudden ionospheric disturbances](#) (1958-2010). Also included are the various records of sunspot numbers from providers, including the World Data Center for [Sunspot Index and Long-term Solar Observations](#) (1818-present), [American Association of Variable Star Observers](#) (1944-present)

Courtesy of William Denig, ¹NOAA/NESDIS/National Geophysical Data Center (NGDC), 325 Broadway, Boulder, CO 80305 [william.denig@noaa.gov]

Sudden Ionospheric Disturbance Report

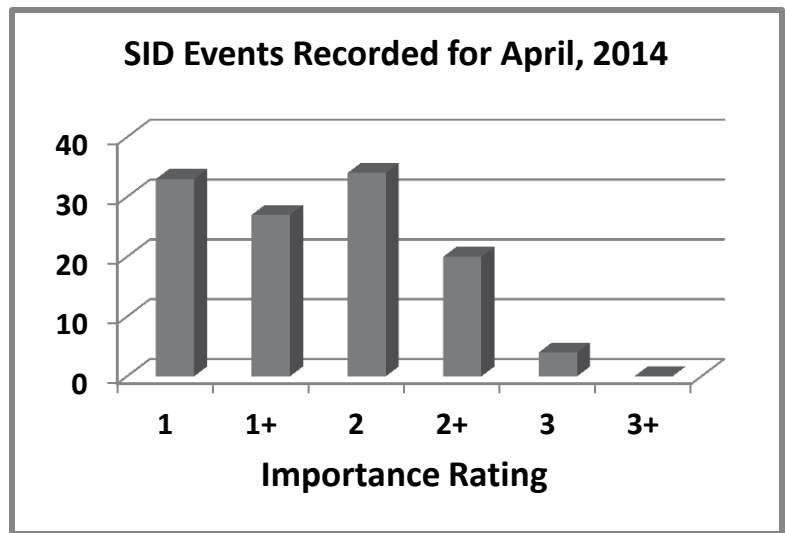


The only X class flare this month in the early hours, April 25, 2014.

Sudden Ionospheric Disturbances (SID) Records During April, 2014

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
140401	2159	1+	140412	1501	2+	140420	0827	1+
140401	2231	2	140413	1220	2	140420	1208	2
140402	0612	1+	140414	0809	2	140422	1517	1+
140402	1333	2	140414	0757	2+	140422	0544	2
140402	1402	2	140415	0323	1+	140422	1138	2
140402	1346	2+	140415	0803	1+	140422	0526	2+
140402	1614	2+	140415	0922	1+	140423	1516	1+
140402	1354	3	140415	0959	1+	140423	1307	2
140403	1850	1+	140416	0844	1+	140423	0110	2+
140403	0414	2+	140416	0309	2	140423	1257	2+
140403	0424	2+	140416	0508	2	140424	1015	1+
140404	0350	1+	140416	1959	2	140424	1020	1+
140404	1455	1+	140417	0412	1+	140425	0024	1+
140404	1657	1+	140417	1152	1+	140425	1201	2
140404	1347	2	140417	0010	2	140425	1209	2
140405	1050	1+	140417	1204	2+	140425	1329	2
140405	1852	2	140418	0717	1+	140425	2038	2
140407	1334	2	140418	0812	1+	140425	1615	2+
140410	0151	2	140418	1247	2	140426	1458	1+
140410	1817	2	140418	1257	2	140426	1529	2
140410	0355	2+	140418	1816	2	140426	2348	3
140410	1800	2+	140418	1305	2+	140427	1526	2+
140411	1456	2+	140418	1326	3	140428	1525	2
140412	0725	2	140419	0329	2	140430	1830	1+
140412	1127	2+	140419	0600	2			

Solar Events

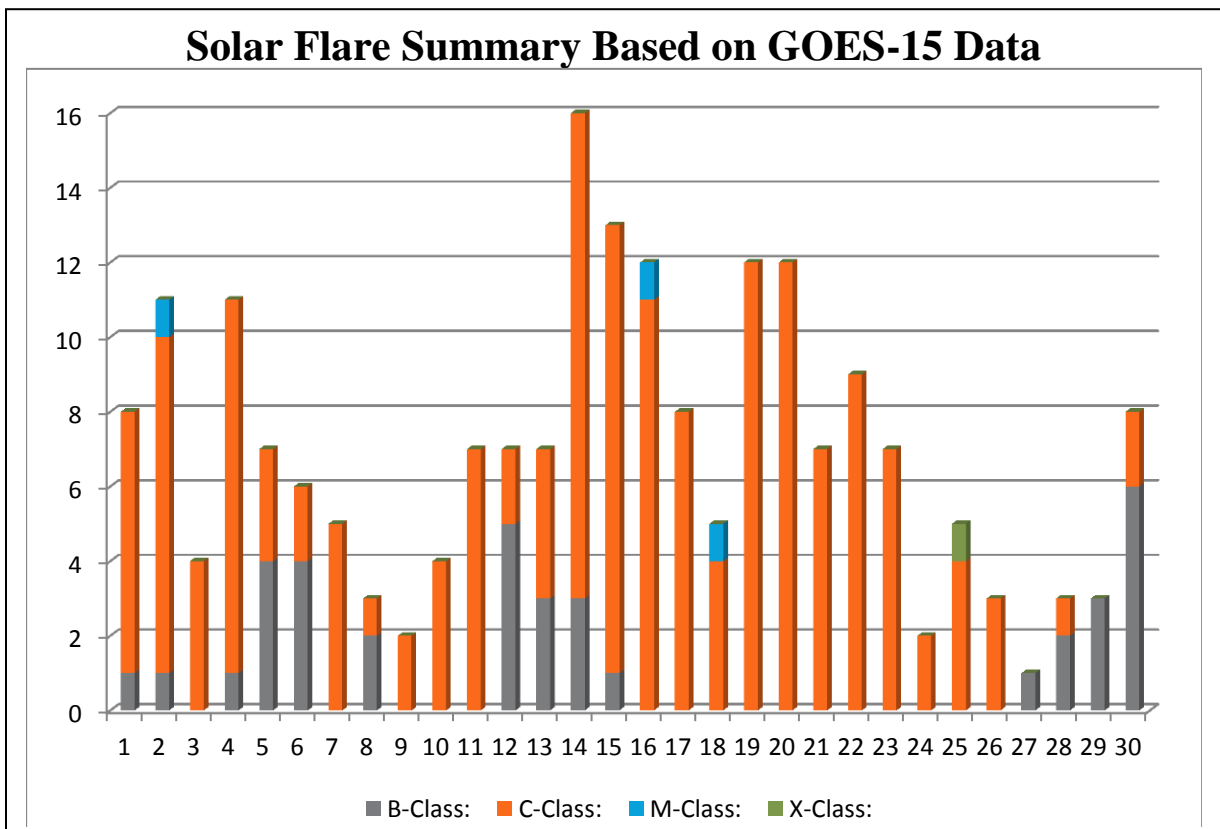


Importance rating: Duration (min)	1-: <19	1: 19-25	1+: 26-32	2: 33-45	2+: 46-85	3: 86-125	3+: >125
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Sudden Ionospheric Disturbances (SID) Observers During April, 2014

Observer	Code	Station(s) monitored	Observer	Code	Station(s) monitored
A McWilliams	A94	NML	J Karlovsky	A131	DHO NSY
R Battaiola	A96	HWU	R Green	A134	JJI NWC
J Wallace	A97	NAA	R Mrlak	A136	GQD NSY
L Loudet	A118	DHO GQD NAA	D Koawl	A137	DHO NPM
B Terrill	A120	NWC	F Francione & C Re	A139	HWU NAA NSY
F Adamson	A122	NWC	I Ryumshin	A142	DHO GQD HWU
S Oatney	A125	NLK NML	R Rogge	A143	DHO GQD ICV
K Cotar	A129	DHO GBZ			

There were 208 solar flares measured by GOES-15 for April, 2014: 1 X class, 3 M class, 167 C class and 37 B class flare. About the same this month as compared to last, with many small C class and a few M class flares. There were 15 AAVSO SID observers who submitted reports this month.



American Relative Sunspot Numbers (Ra) for April, 2014 [**boldface = maximum, minimum**]

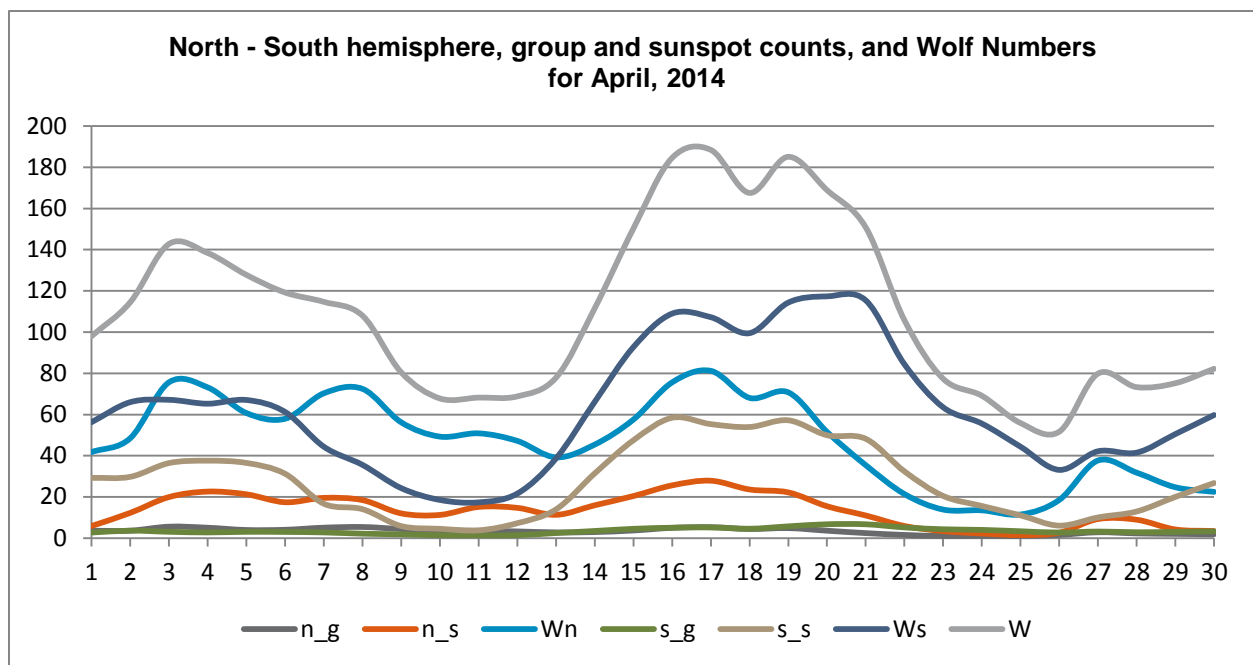
DAY	NumObs	RAW	Ra
1	35	92	69
2	31	112	83
3	27	128	95
4	31	130	98
5	37	117	88
6	44	115	87
7	26	109	77
8	35	105	80
9	42	71	52
10	34	59	43
11	35	62	47
12	35	67	47
13	35	76	56
14	31	110	82
15	37	142	102
16	38	165	124
17	41	176	128
18	36	160	124
19	40	170	124
20	38	164	124
21	35	134	102
22	37	104	76
23	41	74	55
24	35	66	49
25	37	52	37
26	37	44	31
27	35	70	52
28	28	73	56
29	30	75	57
30	28	80	61
Average	35	103.4	76.9

Obs	#Obs	Name
AAP	6	A. Patrick Abbott
AAX	14	Alexandre Amorim
AJV	22	J. Alonso
ARAG	30	Gema Araujo
ASA	20	Salvador Aguirre
BARH	9	Howard Barnes
BDDA	11	Diego Bastiani
BERJ	19	Jose Alberto Berdejo
BMF	13	Michael Boschat

BRAB	6	Brenda Branchett
BRAF	19	Raffaello Braga
BROB	27	Robert Brown
BSAB	30	Santanu Basu
BXD	12	Alexandru Burda
CHAG	29	German Morales Chavez
CIOA	10	Ioannis Chouinavas
CKB	23	Brian Cudnik
CNT	13	Dean Chantiles
CVJ	8	Jose Carvajal
DEMF	2	Frank Dempsey
DGP	21	Gerald Dyck
DJOB	11	Jorge del Rosario
DUBF	29	Franky Dubois
FAM	5	Fabio Mariuzza
FERJ	18	Javier Ruiz Fernandez
FJAE	7	Dr.John Alan Freeman
FLET	22	Tom Fleming
FLF	10	Fredirico Luiz Funari
FTAA	6	Tadeusz Figiel
FUJK	18	K. Fujimori
HALB	5	Brian Halls
HAYK	15	Kim Hay
HMQ	5	Mark Harris
HOWR	25	Rodney Howe
JASK	25	Krystyna Wirkus
JENJ	14	Jamey Jenkins
JGE	6	Gerardo Jimenez Lopez
JJMA	9	Jessica M.Johnson
KAND	21	Kandilli Observatory
KAPJ	19	John Kaplan
KNJS	24	James & Shirley Knight
KROL	23	Larry Krozel
LEVM	14	Monty Leventhal
LKR	9	Kristine Larsen
LRLA	3	Richard Lovison
MARE	11	Enrico Mariani
MCE	24	Etsuiku Mochizuki
MGAA	6	Gael Mariani
MILJ	9	Jay Miller
MJHA	22	John McCammon
MMI	24	Michael Moeller
MUDG	7	George Mudry
OATS	7	Susan Oatney
OBSO	16	IPS Observatory
ONJ	7	John O'Neill
RLM	9	Mat Raymonde

RRO	1	Ralph Rogge	WAU	4	Artur Wargin
SCGL	26	Gerd-Lutz Schott	WILW	18	William M. Wilson
SDOH	30	SDO-Jan Alvestad	WKM	2	Michael Wiskirken
SIMC	12	Clyde Simpson			
SMNA	3	Michael Stephanou			
SONA	18	Andries Son			
STAB	29	Brian Gordon-States			
SUZM	22	Miyoshi Suzuki	Total	Observers: 71	
TESD	23	David Teske	Total	Observations: 1084	
URBP	25	Piotr Urbanski			
VARG	28	A. Gonzalo Vargas			
VIDD	14	Daniel Vidican			

31 of our 71 observers submitted data on the sunspot and group counts for the Sun's north and south hemispheres. It is interesting to note how the Wolf numbers of group and sunspot counts cross over on days 2, 6, and 13 this month; the southern hemisphere is predominant.



Reporting Addresses:

Sunspot Reports – Kim Hay

solar.aavso@gmail.com

SID Solar Flare Reports – Rodney Howe

ahowe@frii.com

If you are a new VLF observer, please add your name to the SID list!!
<http://www.aavso.org/aavso-sudden-ionospheric-disturbance-program-observers>