

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS  
SOLAR SECTION



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Here is some modern art work from Kim Hay – who does the Solar Bulletin visual observer reports.

White light is the top drawing, and H-alpha the lower drawing. Here are the details:

Both drawings are done on November 9th, 2015 between 1552-1620 UT.

Water Color Pencils are used on Paper Canson XL Series 9816 Mixed Media 98lb

The upper White Light is drawn with Deep Vermillion #14  
Orange Chrome #10  
Black Ivory #67,

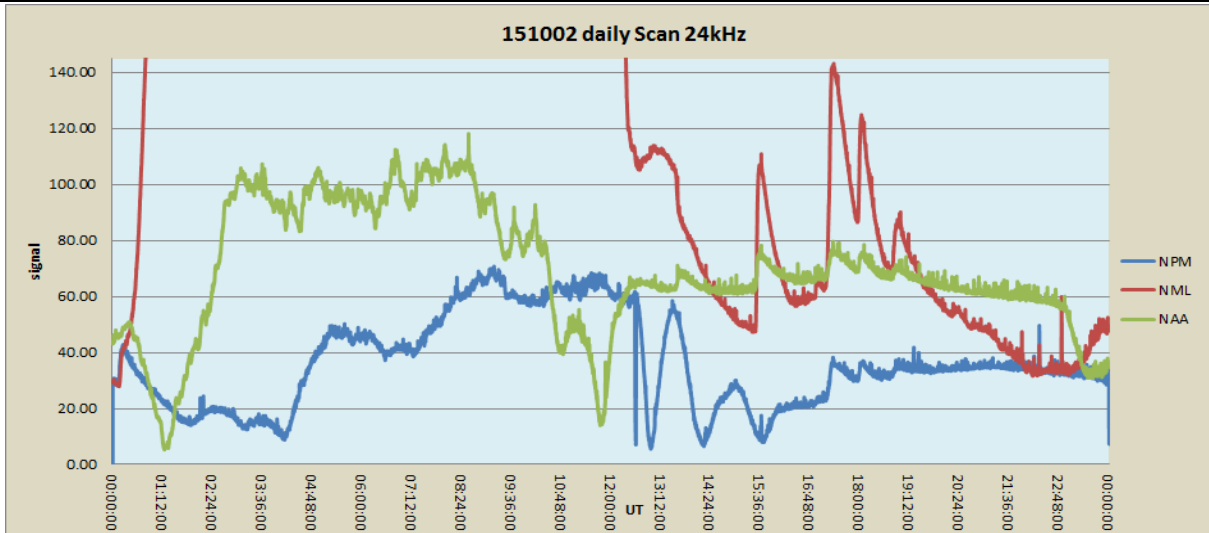
The telescope used for white light is a SCT 100 mm with a 26 mm eyepiece-1000 Oakes Solar Filter.

The H-alpha is drawn with Deep Vermillion #14  
Orange Chrome #10  
Crimson lake #20  
Black Ivory #67

The telescope is a SolarMax 60 mm refractor with 25 mm Cemax eyepiece.

Kim Hay  
HAYK

# Sudden Ionospheric Disturbance Report



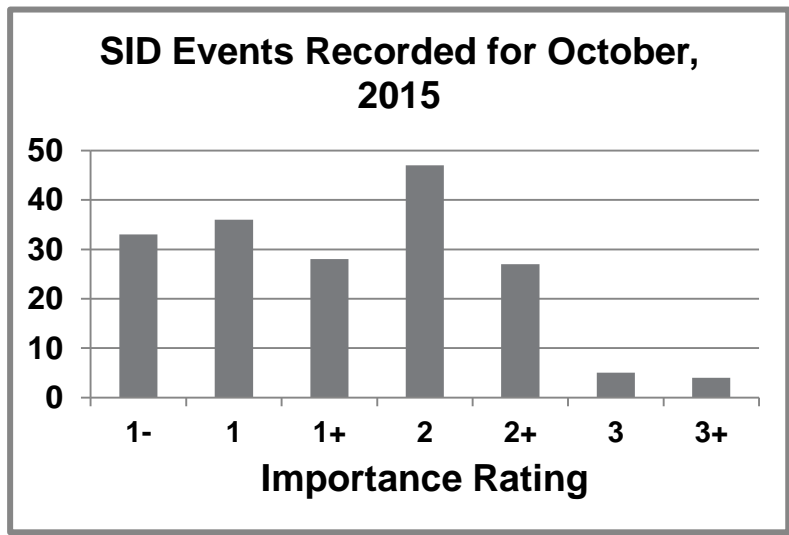
There were 5 flares on October 2, 2015. This graph shows SID events coming from AR2422.  
Graph recorded in Fort Collins, Colorado

## Sudden Ionospheric Disturbances (SID) Records During October, 2015

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
151001	0837	2	151003	1139	2	151021	0209	2+
151001	2207	3	151003	1434	2	151022	2035	3
151001	0215	2+	151004	0238	2	151022	0319	3+
151001	0929	2+	151006	2050	2	151023	2056	2+
151001	0937	2+	151006	1940	2+	151024	2044	3
151001	1259	2+	151009	2056	2	151026	1031	2
151001	1310	2+	151009	2103	2	151026	1616	2+
151001	2123	2+	151012	1715	2	151027	2126	2
151002	0425	2	151013	1411	2	151030	0419	2
151002	0705	2	151013	0116	2+	151030	0459	2
151002	0715	2	151014	1338	2+	151030	1007	2
151002	0839	2	151015	1811	2	151030	2014	2
151002	1146	2	151015	0135	3	151030	0050	2+
151002	1227	2	151015	2306	2+	151030	0432	2+
151002	1706	2	151016	0618	2	151030	1737	3+
151002	1716	2	151017	1848	2	151031	0028	2
151002	2151	2	151017	0139	2+	151031	1346	2
151002	1337	2+	151017	1822	2+	151031	1745	2
151002	1522	2+	151017	2335	2+	151031	1928	2
151002	1533	2+	151020	1400	3	151031	2140	2
151002	0013	3+	151020	1945	2+	151031	2303	2
151003	0019	2	151021	0433	2	151031	0631	3+
151003	0638	2	151021	1227	2			

\*This is a truncated list of importance ratings greater than 1+, see the full SID report here:  
<http://www.aavso.org/sid-database>

# Solar Events

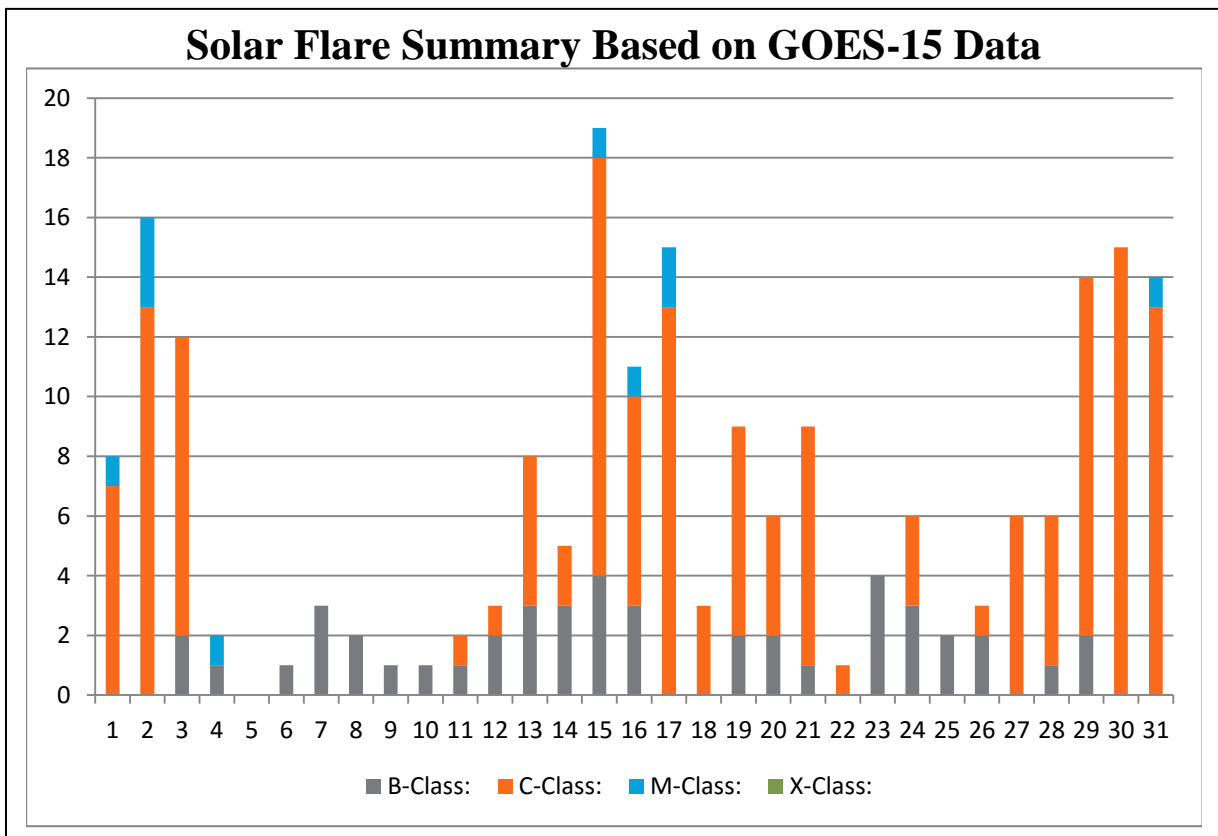


Importance rating: Duration (min)	1-: <19	1: 19-25	1+: 26-32	2: 33-45	2+: 46-85	3: 86-125	3+: 125
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### Sudden Ionospheric Disturbances (SID) Observers During October, 2015

Observer	Code	Station(s) monitored	Observer	Code	Station(s) monitored
A McWilliams	A94	NML	J Karlovsky	A131	DHO NSY
R Battaiola	A96	ICV	R Green	A134	NWC
J Wallace	A97	NAA	R Mrlak	A136	GQD NSY
L Loudet	A118	GQD	G Silvis	A141	NAA NLK NPM
J Godet	A119	GBZ GQD ICV	I Ryumshin	A142	DHO GQD
B Terrill	A120	NWC	R Rogge	A143	DHO GQD ICV
F Adamson	A122	NWC	K Menzies	A146	NAA
S Oatney	A125	NML NAA NLK	R Russel	A147	NML

There were 207 GOES XRA events recorded for October, 2015. Ten M class flares, 151 C class flares and 46 B class flares. There were almost twice as many flares this month, but only half as many M class flares compared to last. There were 16 AAVSO SID observers who submitted reports this month.



American Relative Sunspot Numbers (Ra) for  
 October, 2015 [**boldface = maximum, minimum**]

DAY	NumObs	RAW	Ra
1	26	74	55
2	23	49	36
3	21	33	25
4	30	19	16
5	32	17	13
6	31	19	15
7	39	22	17
8	39	21	16
9	38	16	12
10	36	12	<b>10</b>
11	36	26	20
12	36	43	33
13	31	52	40
14	33	50	38
15	34	45	35
16	31	50	38
17	25	65	50
18	35	66	52
19	30	84	65
20	28	75	58
21	26	77	60
22	29	91	<b>68</b>
23	27	74	60
24	16	65	51
25	26	57	45
26	34	55	42
27	32	51	37
28	24	72	54
29	31	77	58
30	31	65	49
31	31	64	49
<b>Average</b>	<b>30.4</b>	<b>51.1</b>	<b>39.3</b>

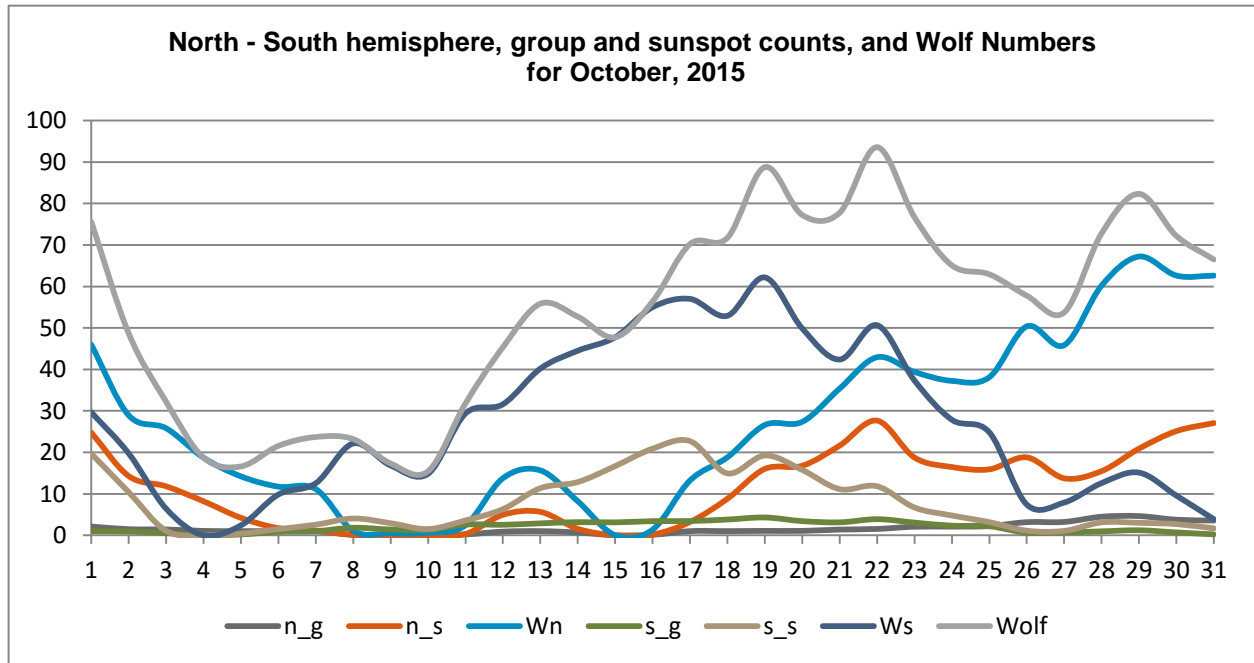
Obs	#Obs	Name
AAX	4	Alexandre Amorim
AJV	13	J. Alonso
ARAG	29	Gema Araujo
ASA	23	Salvador Aguirre
BARH	3	Howard Barnes
BATR	4	Roberto Battaiola
BERJ	19	Jose Alberto Berdejo
BLAJ	1	John A. Blackwell
BMF	20	Michael Boschat
BRAB	31	Brenda Branchett

BRAF	13	Raffaello Braga
BROB	28	Robert Brown
BSAB	26	Santanu Basu
CHAG	31	German Morales Chavez
CIOA	6	Ioannis Chouinavas
CKB	24	Brian Cudnik
CNT	12	Dean Chantiles
DEMF	5	Frank Dempsey
DJOB	5	Jorge del Rosario
DGP	19	Gerald Dyck
DUBF	21	Franky Dubois
FERJ	14	Javier Ruiz Fernandez
FLET	26	Tom Fleming
FLF	1	Fredirico Luiz Funari
FTAA	12	Tadeusz Figiel
FUJK	26	K. Fujimori
HAYK	15	Kim Hay
HMQ	9	Mark Harris
HOWR	18	Rodney Howe
JDAC	13	David Jackson
JGE	4	Gerardo Jimenez Lopez
JJMA	11	Jessica M.Johnson
KAND	19	Kandilli Observatory
KAPJ	20	John Kaplan
KNJS	27	James & Shirley Knight
KROL	25	Larry Krozel
LEVM	8	Monty Leventhal
LKR	15	Kristine Larsen
LRRR	19	Robert Little
MARE	5	Enrico Mariani
MILJ	18	Jay Miller
MJHA	24	John McCammon
MUDG	4	George Mudry
MWU	8	Walter Maluf
OATS	9	Susan Oatney
OBSO	18	IPS Observatory
ONJ	11	John O'Neill
RLM	13	Mat Raymonde
RRO	5	Ralph Rogge
SCGL	23	Gerd-Lutz Schott
SDOH	31	Jan Alvestad (SDO)
SIDM	9	Monika Sidor
SIMC	12	Clyde Simpson
SONA	13	Andries Son
SPIA	5	Piotr Skorupski
STAB	22	Brian Gordon-States
SUZM	27	Miyoshi Suzuki

TESD	24	David Teske
URBP	20	Piotr Urbanski
VARG	21	A. Gonzalo Vargas
VIDD	11	Dan Vidican
WAU	2	Artur Wargin
WILW	21	William M. Wilson

WRP 2 Russell Wheeler

**Total Observers: 64**  
**Total Observations: 977**



There were 32 out of 64 observers who counted northern and southern hemisphere groups and sunspots this month. Neither northern nor southern hemisphere was predominant with days of crossover on the 7<sup>th</sup>, 23<sup>rd</sup>.

**Reporting Addresses:**

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SID Solar Flare Reports – Rodney Howe [ahowe@frii.com](mailto:ahowe@frii.com)