

# Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS  
SOLAR COMMITTEE



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

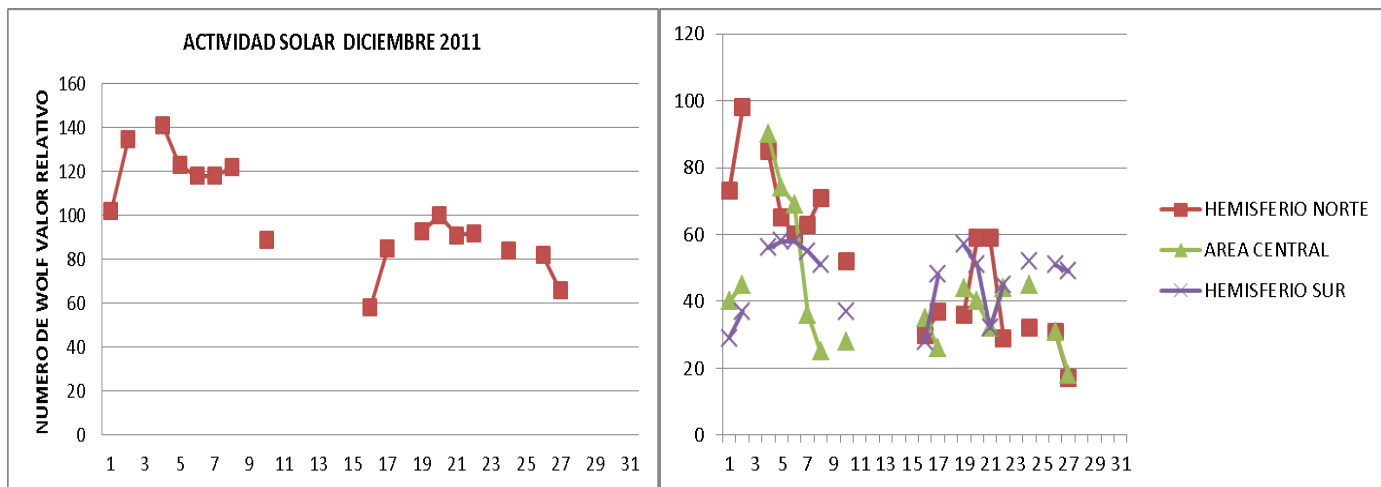
Web: <http://www.aavso.org/solar-bulletin>

Email: [solar.aavso@gmail.com](mailto:solar.aavso@gmail.com)

ISSN 0271-8480

Volume 67 Number 12

December, 2011



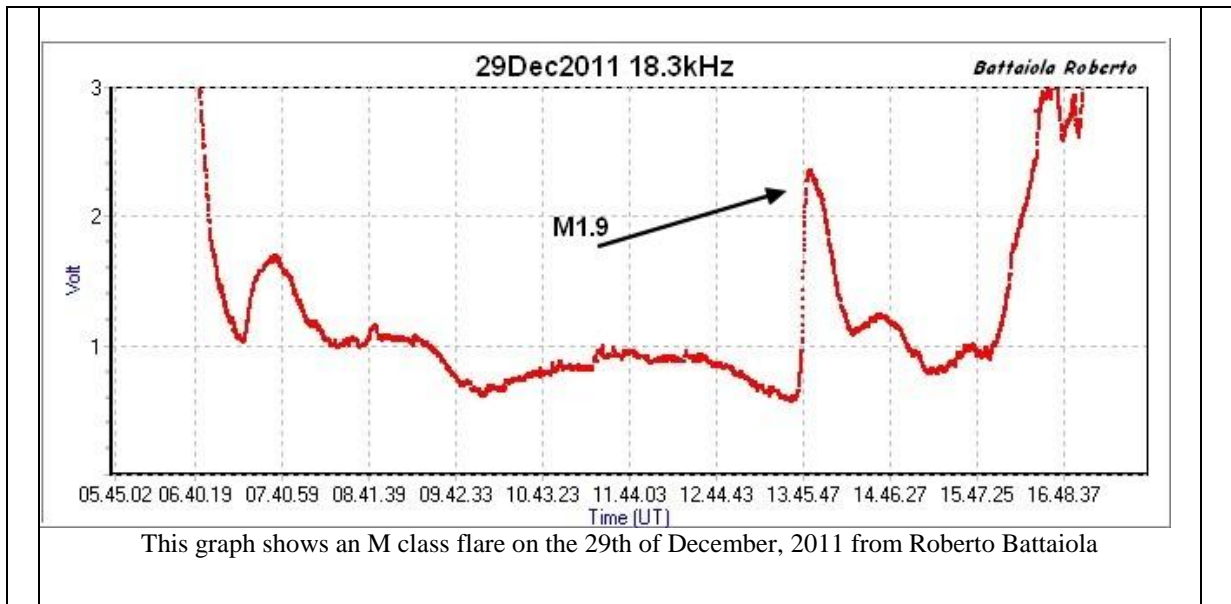
**These graphs were made by Alvaro Gonzalo Vargas Beltrán, Cochabamba Bolivia:**  
**On the left are the Wolf numbers in December, 2011 he recorded; the average Wolf number for December was 100.00 (which is a little higher than the average of 93.9 for all observers, see page 4). On the right Gonzalo also records the North and South solar hemisphere activities in December.**

## Calculating your K-factor

Peter O. Taylor in his book "Observing the Sun", 1991, Cambridge University Press, (page 134) writes: "New sunspot observers are often curious about their K-factors, and seek a simple way to determine them. Although the method is not precisely accurate, an observer can acquire a good estimate of their scaling factor by simply dividing their daily estimates into the appropriate values of final sunspot numbers, and averaging the results. A realistic appraisal of the K-factor will require that at least fifty estimates are compared in this manner. Novices should remember that as they become more experienced in the art of spot counting, their factor is likely to decrease since they will see more of the fainter spots."

<http://books.google.com/books?id=wAq-Cdo6tK4C&printsec=frontcover#v=onepage&q&f=false>

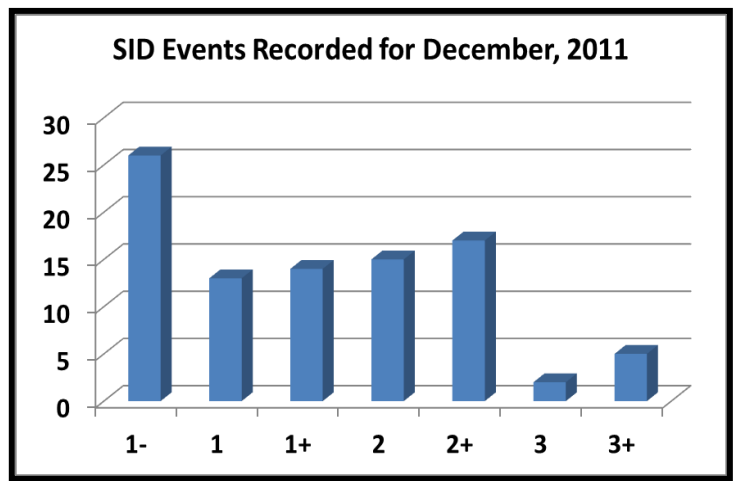
# Sudden Ionospheric Disturbance Report



## Sudden Ionospheric Disturbances (SID) Records During December, 2011

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
111204	1356	3+	111218	0502	1-	111226	0947	1+
111204	1611	2+	111218	0747	1-	111226	1138	3+
111205	1346	1+	111220	1119	1-	111226	1145	3
111205	1518	2+	111221	0316	1+	111226	2027	1
111205	1909	1-	111221	0459	1	111226	2050	2+
111207	0927	2	111221	0736	1-	111227	0420	3
111207	2015	1	111221	1038	2	111227	0924	1-
111208	0017	1-	111221	1105	1+	111227	1206	2+
111209	1320	2	111221	1306	1+	111228	1424	1+
111210	0004	1-	111221	1909	1+	111228	1640	2+
111210	1821	1+	111222	0207	2+	111228	2032	1+
111212	2058	1-	111223	0009	1-	111228	2130	1
111213	0801	1-	111224	0840	1	111229	0323	2
111214	0919	1-	111224	1919	1+	111229	0634	2
111214	1326	1+	111225	0417	1	111229	1349	2
111214	1458	2	111225	0850	1	111229	2107	2+
111214	1945	2	111225	0856	1-	111229	2152	1-
111214	2231	2+	111225	1126	2+	111230	1032	2+
111216	0008	1-	111225	1817	2+	111230	1342	2+
111216	1850	1	111225	2031	2	111231	1314	2+
111218	0130	1-	111226	0223	2	111231	1625	2

# Solar Events

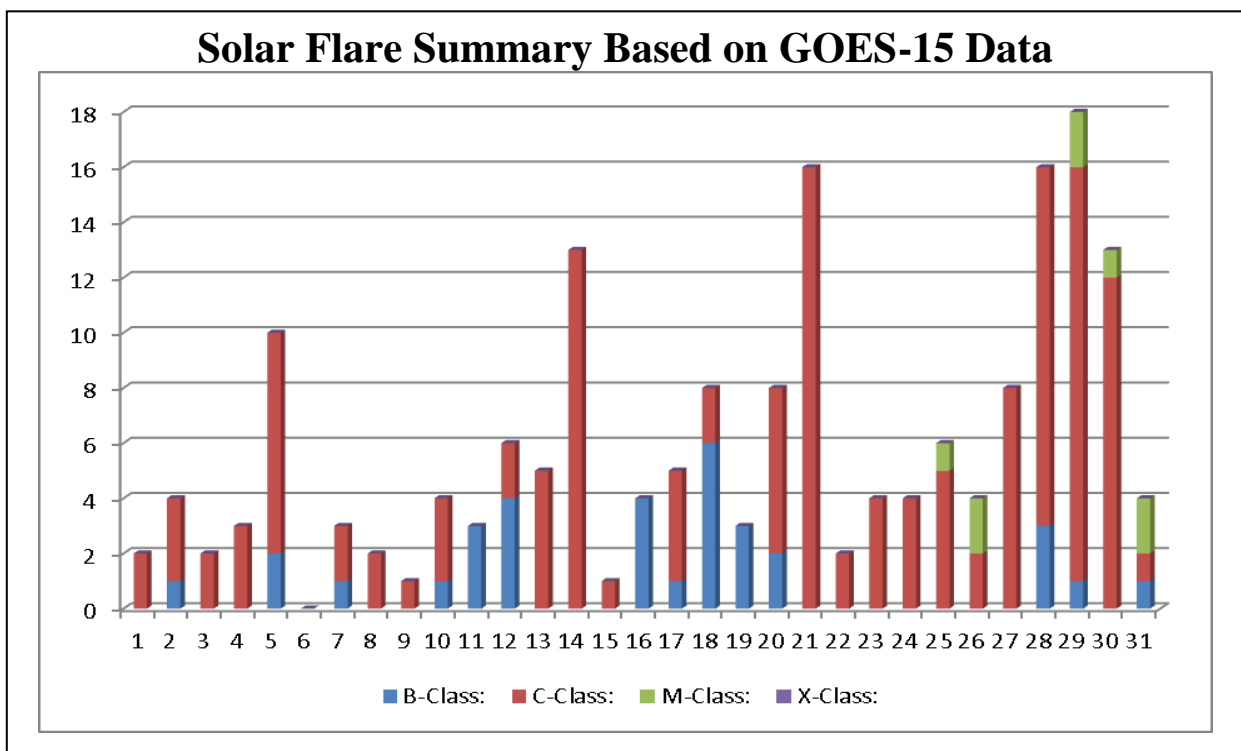


Importance rating: Duration (min)	1-: <19	1: 19-25	1+: 26-32	2: 33-45	2+: 46-85	3: 86-125	3+: >125
-----------------------------------	---------	----------	-----------	----------	-----------	-----------	----------

## Sudden Ionospheric Disturbances (SID) Observers During December, 2011

Observer	Code	Station(s) monitored	Observer	Code	Station(s) monitored
A McWilliams	A94	NML	B Terrill	A120	NWC
R Battaiola	A96	HWU	R Howe	A121	NML
J Wallace	A97	NAA	F Adamson	A122	NWC
A Son	A112	DHO	G Myers	A124	NLK
L Loudet	A118	GQD NAA	S Oatney	A125	NML
J Godet	A119	GBZ GQD ICV	K Cotar	A129	DHO FTA
			P King	A80	No data
			L Anderson	A91	No data

There were 182 solar flares measured by GOES-15 for December, 2011. There were eight M class flares, 140 C class and 34 B class flares. The sun was active with C and M class flares during the later part of the month. There were 14 AAVSO SID Observers who submitted reports this month.



American Relative Sunspot Numbers (Ra) for  
December, 2011 [**boldface = maximum, minimum**]

DAY	NumObs	RAW	Ra
1	24	109	79
2	26	116	87
3	20	133	96
4	19	148	99
5	22	139	<b>97</b>
6	21	119	81
7	22	107	74
8	27	122	84
9	28	99	75
10	27	93	69
11	28	72	53
12	20	66	43
13	21	64	46
14	17	67	48
15	21	57	<b>38</b>
16	20	66	44
17	29	78	58
18	28	88	63
19	20	97	69
20	22	93	65
21	21	104	68
22	14	92	64
23	21	94	62
24	30	77	58
25	21	92	60
26	24	92	64
27	27	80	53
28	29	90	62
29	29	96	67
30	23	84	58
31	22	80	55
<b>Average</b>	<b>23.3</b>	<b>93.9</b>	<b>65.8</b>

Observer	#Obs	Name
AAP	7	A. Patrick Abbott
AAX	18	Alexandre Arorim
AJV	18	J. Alonso
ARAG	31	Gema Araujo
ASA	11	Salvador Aguirre
BARH	7	Howard Barnes
BATR	6	Roberto Battaiola
BEB	4	Ray Berg
BERJ	7	Jose Alberto Berdejo

BMF	12	Michael Boschat
BRAB	31	Brenda Branchett
BRAF	10	Raffaello Braga
BROB	27	Robert Brown
BXD	7	Alexandru Burda
CHAG	25	German Morales Chavas
CKB	12	Brian Cudnik
CLZ	7	Corp Laurent
CNT	11	Dean Chantiles
CVJ	5	Jose Carvajal
DELS	4	Susan Delaney
DEMF	3	Frank Dempsey
DGP	17	Gerald Dyck
DUBF	15	Franky Dubois
FAM	5	Fabio Mariuzza
FLET	12	Tom Fleming
FLF	20	Fredirico Luiz Funari
FUJK	23	K. Fujimori
HALB	4	Brian Halls
HAYK	8	Kim Hay
HMQ	5	Mark Harris
HOWR	23	Rodney Howe
HRUT	7	Timothy Hrutkay
JASK	5	Krystyna Wirkus
JGE	5	Gerado Jinenez Lopez
JJK	3	Jerry Klotz
KAND	23	Kandilli Observatory
KAPJ	21	John Kaplan
KNJS	23	James & Shirley Knight
KROL	11	Larry Krozel
LEVM	19	Monty Leventhal
LKR	12	Kristine Larsen
MILJ	9	Jay Miller
MMI	11	Michael Moeller
MUDG	5	George Mudry
OATS	9	Susan Oatney
OBSO	13	IPS Observatory
RICE	20	E. C. Richardson
SCGL	15	Gerd-Lutz Schott
SIMC	3	Clyde Simpson
SONA	8	Andries Son
STQ	14	Nick Stoikidis
SUZM	27	Miyoshi Suzuki
TESD	15	David Teske
URBP	11	Piotr Urbanski
VARG	16	A.Gonzalo Vargas
VIDD	4	Vidican Dan
WILW	15	William M. Wilson
WIRP	1	Piotr Wirkus
WKM	1	Michael Wiskirken
WRP	2	Russell Wheeler

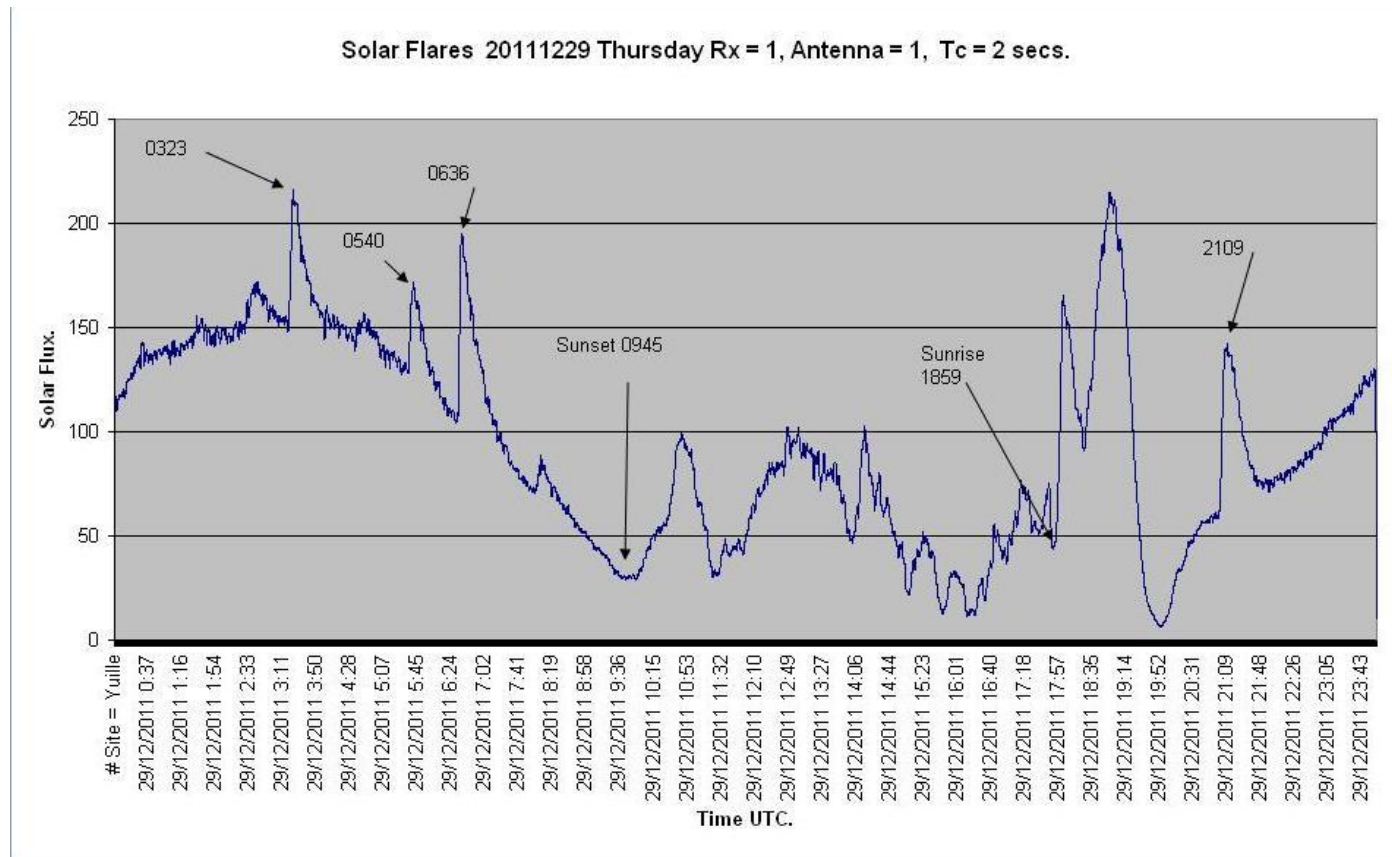
**Total Observers: 60**  
**Total Observations: 723**

Sunspot Reports – Kim Hay

[solar.aavso@gmail.com](mailto:solar.aavso@gmail.com)

SID Solar Flare Reports – Rodney Howe

[ahowe@frii.com](mailto:ahowe@frii.com)



A-120, Bob Terrill in Ballarat City, Victoria State, Australia Sends this SID graph for December, 29, 2011