Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
SOLAR COMMITTEE

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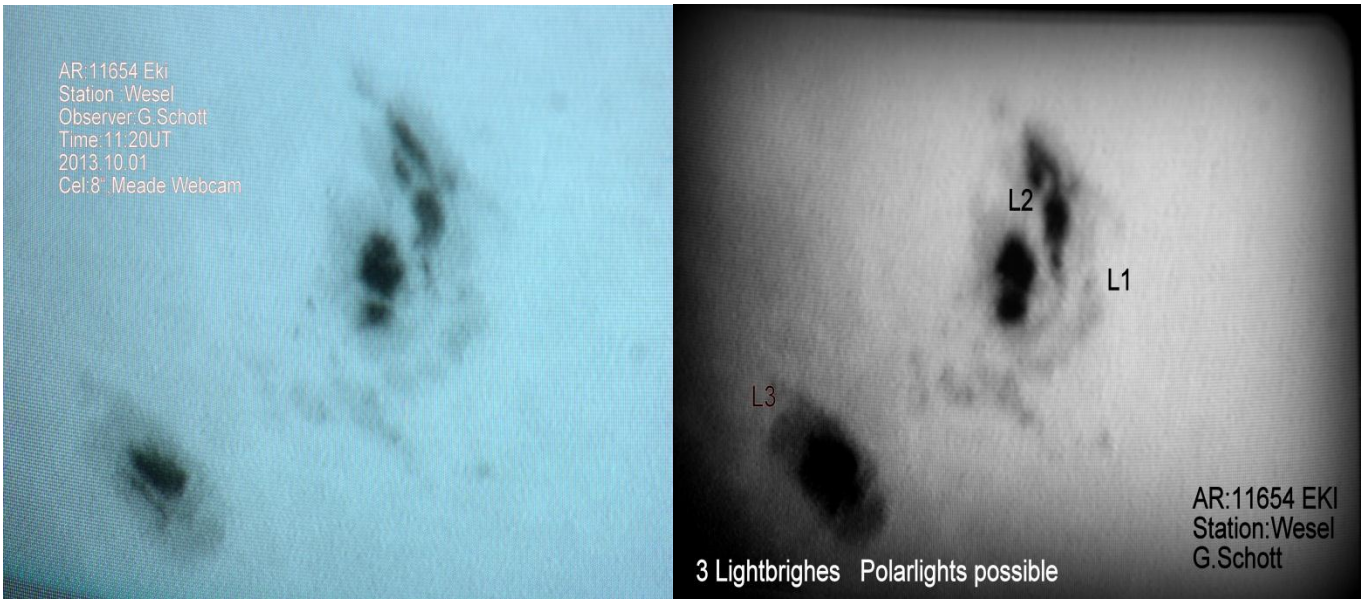
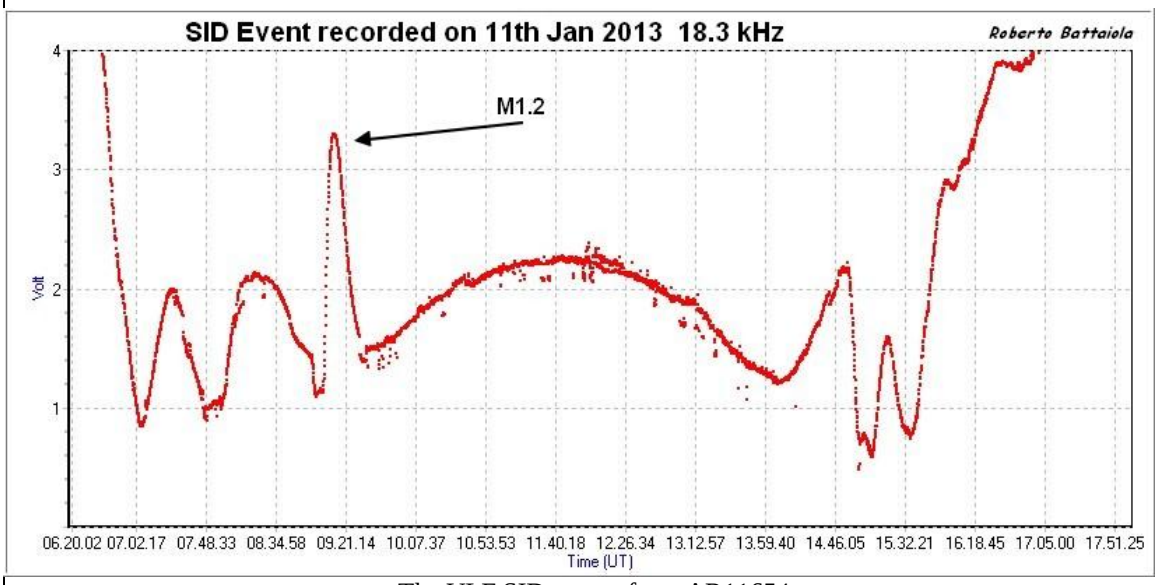


Gerd-Lutz Schott takes an image from a Meade Webcam of AR11654, on January 10, 2013. What is interesting is he has identified 3 light bridges where sunspot polarization is possible. "During the lifetime of a sunspot its umbra may be crossed by one or more narrow, bright bands known as "light bridges". *The photospheric structure of a solar pore with light bridge*, 2008, S. Giordano, et al. http://arxiv.org/ftp/astro-ph/papers/0701/0701674.pdf And, "Light bridges and the umbral dots have significantly weaker magnetic fields associated with up flows relative to the core of the umbra, which implies that there is hot gas with weak field strength penetrating from sub photosphere to near the visible surface inside those structures." *Formation Process of a Light Bridge Revealed with the Hinode Solar Optical Telescope*, 2007, Yukio Katsukawa et al.
1 http://arxiv.org/pdf/0709.2527.pdf

Sudden Ionospheric Disturbance Report

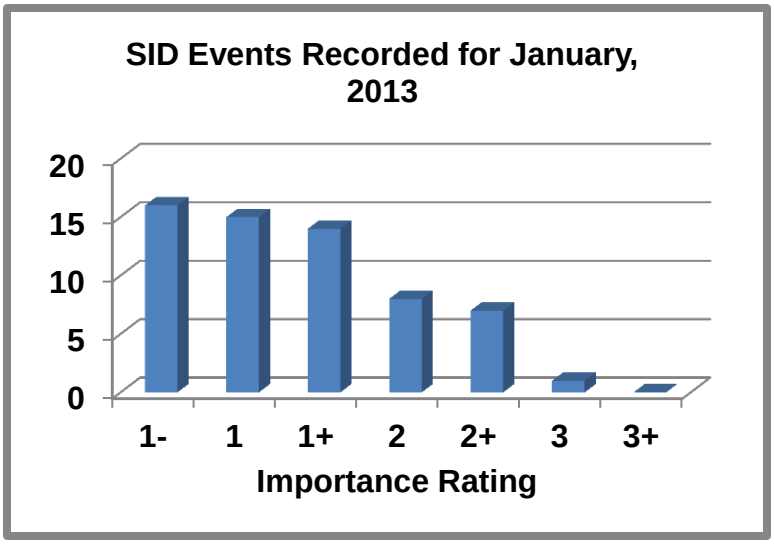


The VLF SID events from AR11654

Sudden Ionospheric Disturbances (SID) Records During January, 2013

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
130103	1720	1+	130109	1124	1+	130112	0209	2+
130103	1903	2	130110	0329	1-	130112	0224	2+
130105	0130	2	130110	0912	1+	130112	0318	2+
130105	0442	1+	130110	0931	2	130112	0403	1
130105	0449	1	130110	1510	2	130112	0442	1+
130105	0559	1+	130110	1603	1	130112	1930	1-
130105	0700	1-	130110	1743	1+	130113	0028	1
130105	0933	2	130110	1954	1+	130113	0050	2+
130105	0939	2+	130111	0049	1-	130113	0449	1
130106	0256	1+	130111	0230	2+	130113	0814	2
130106	0303	2+	130111	0245	3	130113	0838	1-
130106	0955	1	130111	0519	1	130113	0858	2
130106	1253	1	130111	0536	1+	130113	1144	1-
130106	1638	1-	130111	0556	1+	130113	1552	1-
130106	2121	1	130111	0614	1	130114	1544	1-
130107	0852	1	130111	0909	1+	130115	1206	1-
130108	0725	1-	130111	0923	1	130116	0802	1-
130108	1915	1+	130111	1502	1+	130118	0943	1-
130109	1001	2	130111	1525	2	130118	1313	1-
			130111	1946	1	130118	1705	1-
						130131	2250	1

Solar Events

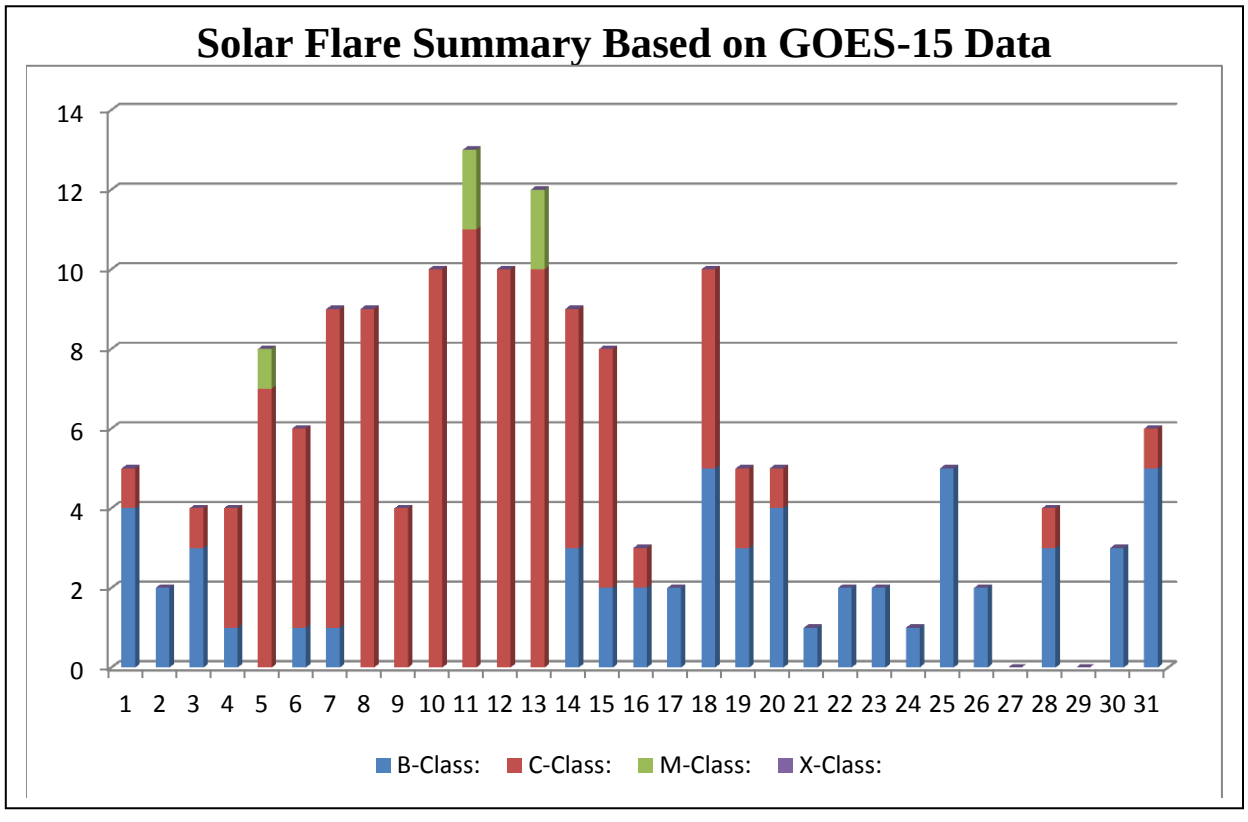


Importance rating: Duration (min)	1-: <19	1: 19-25	1+: 26-32	2: 33-45	2+: 46-85	3: 86-125	3+: >125

Sudden Ionospheric Disturbances (SID) Observers During January, 2013

Observer	Code	Station(s) monitored	Observer	Code	Station(s) monitored
A McWilliams	A94	NML	F Adamson	A122	NWC
R Battaiola	A96	HWU	S Oatney	A125	NML, NLK
J Wallace	A97	NAA	K Cotar	A129	DHO GBZ
L Loudet	A118	GQD NAA	J Karlovsky	A131	DHO
J Godet	A119	GBZ GQD ICV	E Soubrouillard	A132	HWU
B Terrill	A120	NWC	R Mrllak	A136	GQD, NSY

There were 164 solar flares measured by GOES-15 for January, 2013, 5 M class, 100 C class and 57 B class flares. The sun slightly more active with M and C class flares this month. There were 13 AAVSO SID Observers who submitted reports this month (Rod Green, A134, had no data).



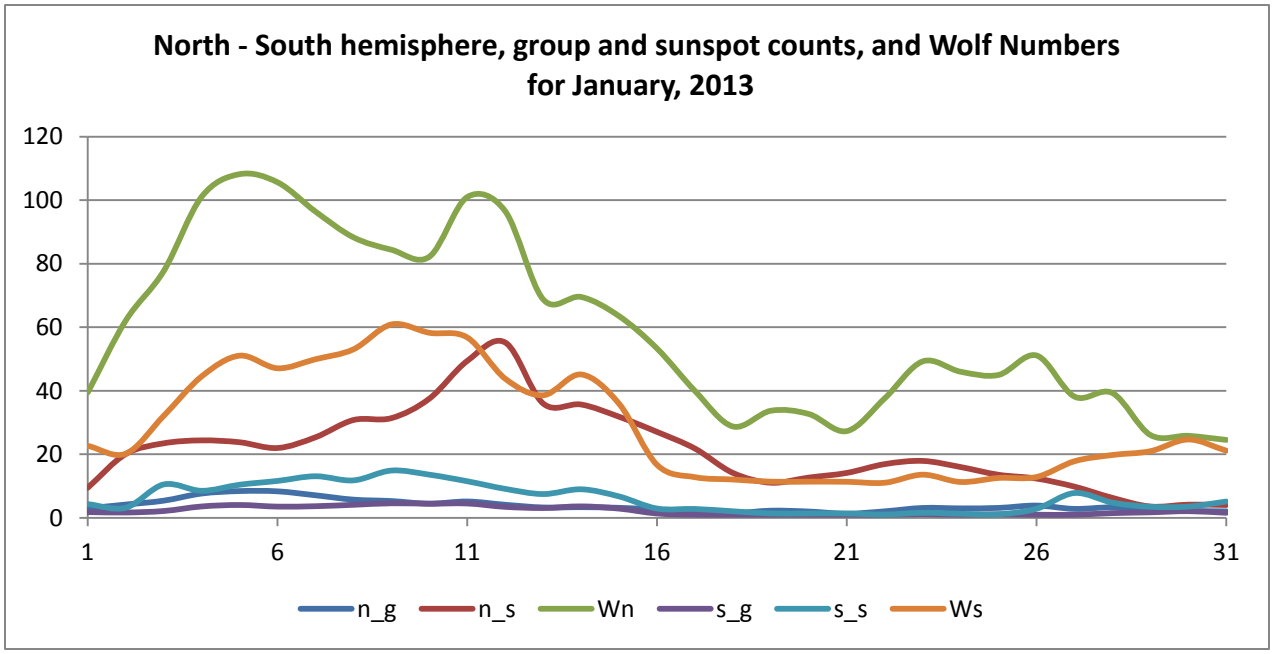
American Relative Sunspot Numbers (Ra) for January, 2013 [**boldface = maximum, minimum**]

DAY	NumObs	RAW	Ra
1	23	88	65
2	27	82	59
3	31	111	81
4	31	140	108
5	33	148	**114**
6	26	145	110
7	33	142	107
8	28	140	101
9	19	137	100
10	28	138	105
11	29	157	110
12	26	135	96
13	29	116	83
14	21	112	80
15	19	103	72
16	21	76	52
17	28	56	40
18	28	45	34
19	32	47	35
20	24	42	31
21	30	39	**26**
22	25	48	35
23	28	61	44
24	24	53	36
25	19	49	34
26	23	56	41
27	27	55	40
28	23	54	40
29	24	48	32
30	27	50	34
31	33	44	32
Average	**26.4**	**87.7**	**63.8**

Obs	#Obs	Name
AAP	1	A. Patrick Abbott
AAX	22	Alexandre Amorim
AJV	14	J. Alonso
AMG	9	Margarete J. Amorim
ARAG	27	Gema Araujo
ASA	20	Salvador Aguirre
BARH	8	Howard Barnes
BATR	1	Roberto Battaiola
BDDA	27	Diego Bastiani
BERJ	13	Jose Alberto Berdejo
BMF	17	Michael Boschat
BRAB	29	Brenda Branchett
BRAF	11	Raffaello Braga
BROB	26	Robert Brown
BXD	13	Alexandru Burda
CADA	1	Adair Cardoso
CHAG	27	German Morales Chavez
CIOA	15	Ioannis Chouinavas
CKB	17	Brian Cudnik
CNT	10	Dean Chantiles
CVJ	6	Jose Carvajal
DELS	1	Susan Delaney
DEMF	2	Frank Dempsey
DGP	17	Gerald Dyck
DJOB	8	Jorge del Rosario
DUBF	17	Franky Dubois
FAM	6	Fabio Mariuzza
FERJ	16	Javier Ruiz Fernandez
FLET	18	Tom Fleming
FLF	9	Fredirico Luiz Funari
FTAA	3	Tadeusz Figiel
FUJK	25	K. Fujimori
HAYK	11	Kim Hay
HOWR	19	Rodney Howe
HRUT	5	Timothy Hrutkay
JASK	5	Krystyna Wirkus
JGE	3	Gerardo Jimenez Lopez
JJK	2	Jerry Klotz
KAND	17	Kandilli Observatory
KAPJ	18	John Kaplan
KNJS	24	James & Shirley Knight
KROL	16	Larry Krozel
LEVM	17	Monty Leventhal
LKR	8	Kristine Larsen
MARE	4	Enrico Mariani
MCE	29	Etsuiku Mochizuki
MILJ	13	Jay Miller
MJHA	20	John McCammon
MMI	15	Michael Moeller
MUDG	6	George Mudry
OATS	14	Susan Oatney
OBSO	20	IPS Observatory
RICE	3	E. C. Richardson
RLM	9	Mat Raymonde
SCGL	13	Gerd-Lutz Schott
SIMC	4	Clyde Simpson

SMNA	1	Michael Stephanou	WRP	3	Russell Wheeler
SONA	6	Andries Son			
STAB	17	Brian Gordon-States			
SUZM	27	M Suzuki			
TESD	14	David Teske	**Total**	**Observers:**	**66**
URBP	6	Piotr Urbanski	**Total**	**Observations:**	**846**
VARG	18	A. Gonzalo Vargas			
VIDD	7	Daniel Vidican			
WILW	16	William M. Wilson			

Thirty six of our sixty five 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 groups and Sunspots counts do not cross over at all this month.



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