

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
SOLAR COMMITTEE



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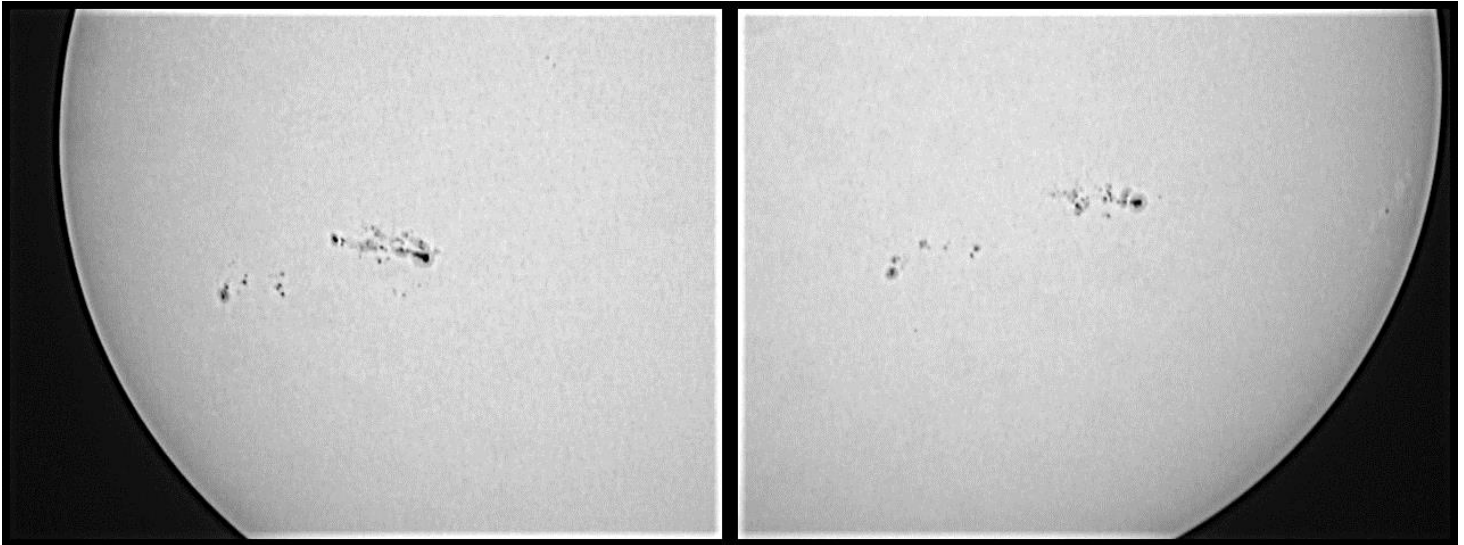
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Dan Vidican (VIDD) took these images of the evolution of a couple of large sunspot groups, going from left (130706), to right (130709), over three days these groups are beginning to decay. At what point do they go from being a Zurich D and E group to G group?

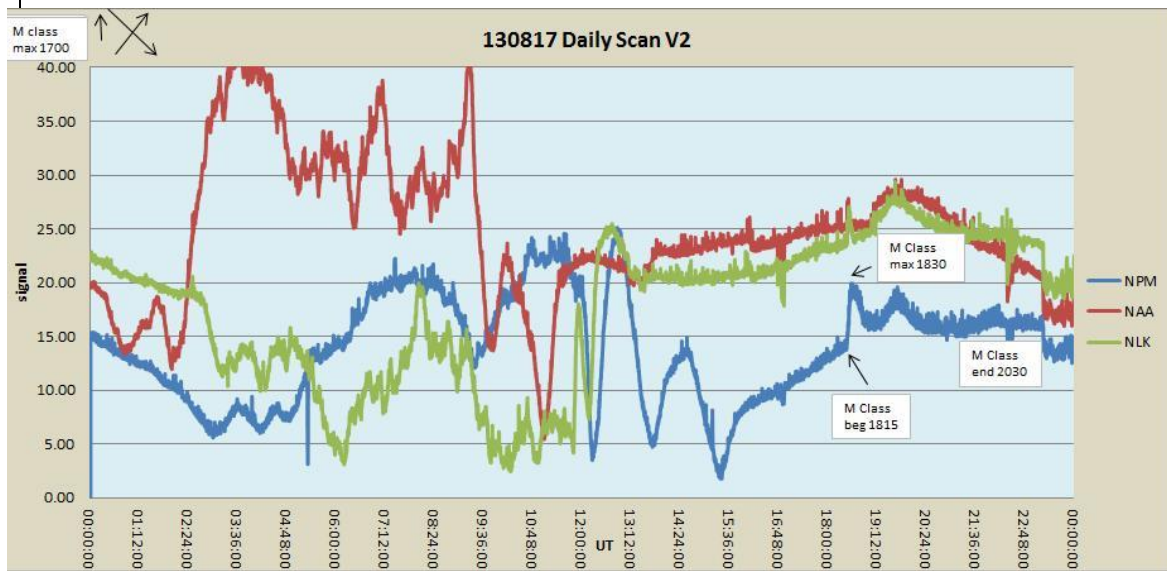
“The decay process is similar for all spot clusters. The smaller C and D class groups usually dissolve into a rather long-lasting single spot with penumbra. The larger D, E or F class complexes frequently decay into two spots, each with penumbrae. A decayed bipolar group of this kind is classified as G. These clusters have no small spots between their primary spots and exceed ten degrees in length. They generally continue to dissolve into a single spot which is most likely to be the preceding one.”

“Professor Waldmeier (1955) has provided the following rule-of-thumb for determining the approximate lifetime of a spot cluster in days, t , according to its area: $t = 0.1 A_{max}$, in this case A_{max} represents the maximum area attained during the growth process, expressed in millionths of the Sun’s visible hemisphere.”

“All sunspot groups have one thing in common: their growth is far more rapid than their decay. A large, complex cluster generally passes through classes A to E in twelve days or less, and then spends the majority of its lifetime in a slow disintegration process (Bray and Loughhead, 1965). A group’s maximum growth can frequently be recognized by a lack of continued spread in longitude. When the many small sunspots which are characteristically associated with developing clusters start to disappear, it is almost always a sure sign that decay has begun.”

Peter O. Taylor, 1991, Observing the Sun, Cambridge Press

Sudden Ionospheric Disturbance Report

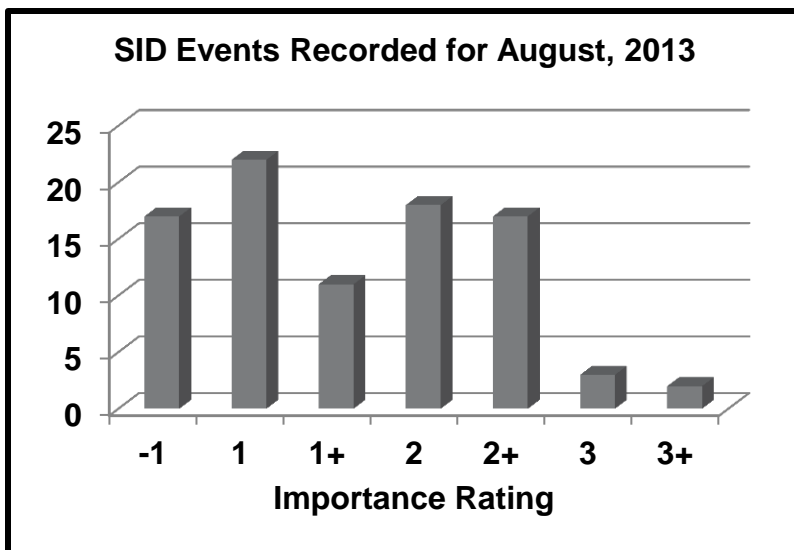


There were two M class flares for August, 17, one right after the other.

Sudden Ionospheric Disturbances (SID) Records During August, 2013

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
130801	0828	1-	130813	1614	2	130818	1445	2
130801	1323	1-	130813	1701	1	130819	0444	1
130801	1538	1-	130813	1850	1	130819	0900	1
130801	2236	1	130813	1932	1+	130819	0919	1
130802	0727	1-	130814	0028	1	130820	0127	1-
130802	1506	1-	130814	0206	2	130820	0459	2
130803	0554	1-	130814	1030	2+	130820	0559	2+
130805	1951	2+	130814	1150	2+	130821	0736	2
130806	1840	1	130814	1655	1+	130821	0743	1+
130807	0400	1	130815	1718	1+	130822	0505	1+
130809	1305	2+	130815	1755	1	130822	1323	2
130810	2327	2	130816	0324	1	130822	1343	3+
130810	2351	1-	130816	0404	2+	130827	0158	1
130811	0133	1-	130816	1247	1	130827	0824	1-
130811	0142	2+	130816	1318	1	130828	0117	2
130811	1433	2	130816	1530	2	130829	0448	2
130811	1502	2+	130817	1342	2	130829	0644	1
130811	2130	1	130817	1347	1+	130830	0242	2+
130811	2251	3	130817	1825	2	130830	0304	3+
130812	1041	2	130817	1842	2+	130830	1113	2+
130813	1146	1+	130817	2026	2+	130831	1705	2+
130813	1554	1	130817	2310	1-	130831	1737	1

Solar Events

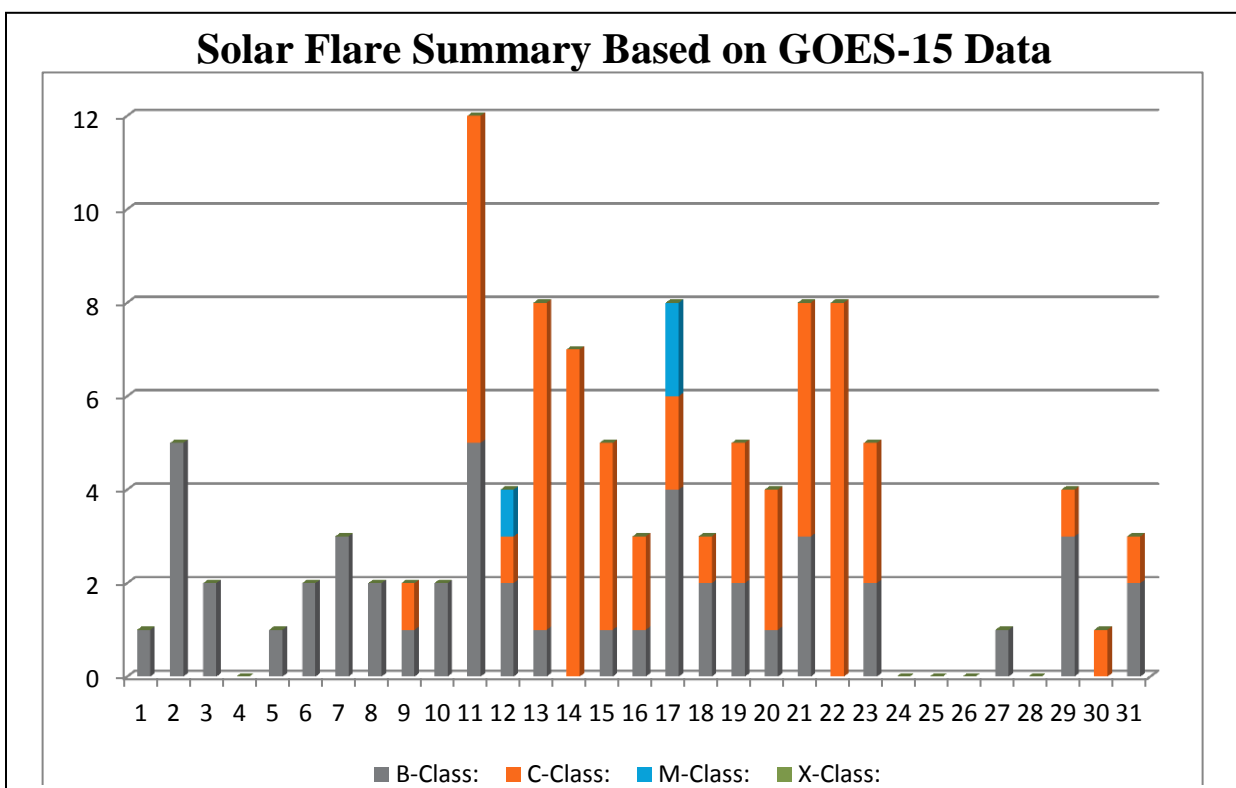


Importance rating: Duration (min)	1-: <19	1: 19-25	1+: 26-32	2: 33-45	2+: 46-85	3: 86-125	3+: >125
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Sudden Ionospheric Disturbances (SID) Observers During August, 2013

Observer	Code	Station(s) monitored	Observer	Code	Station(s) monitored
A McWilliams	A94	NML	J Karlovsky	A131	DHO
R Battaiola	A96	ICV	E Soubrouillard	A132	DHO FTA HWU
J Wallace	A97	NAA	R Green	A134	NWC
L Loudet	A118	GQD NAA	R Mrlak	A136	GQD NSY
J Godet	A119	GBZ GQD	D Koawl	A137	NAA NML NWC
F Adamson	A122	NWC	S Aguirre	A138	NWC
S Oatney	A125	NLK NML	F Francione, C Re	A139	HWU NAA NSY
			L Corp	A140	DHO

There were 109 solar flares measured by GOES-15 for August, 2013, three M class, 57 C class and 49 B class flares. The sun had half the C class flares this month compared to last. There were 16 AAVSO SID observers who submitted reports this month, although B Terrill had no data.



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

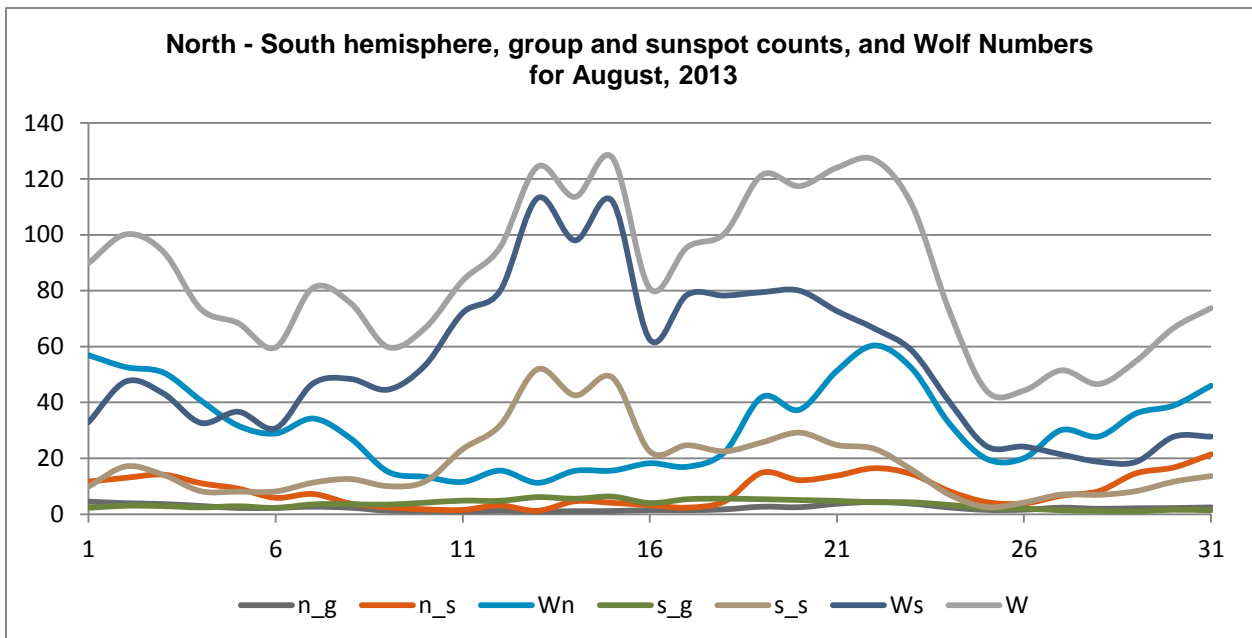
DAY	NumObs	RAW	Ra
1	37	88	66
2	40	98	74
3	40	91	68
4	44	73	54
5	43	66	48
6	43	59	44
7	36	74	53
8	36	77	55
9	34	58	42
10	40	66	47
11	45	72	53
12	44	86	64
13	39	86	62
14	45	98	73
15	46	107	79
16	41	86	66
17	43	87	64
18	47	93	69
19	41	120	86
20	41	120	91
21	40	126	96
22	42	128	92
23	36	110	81
24	37	71	54
25	37	43	34
26	34	46	34
27	37	51	38
28	38	47	36
29	33	53	39
30	34	64	46
31	37	69	52
Average	39.7	81	59.9

Obs	#Obs	Name
AAP	3	A. Patrick Abbott
AAX	10	Alexandre Amorim
AJV	27	J. Alonso
ARAG	31	Gema Araujo
ASA	20	Salvador Aguirre
BARH	9	Howard Barnes
BATR	8	Roberto Battaola
BDDA	14	Diego Bastiani
BERJ	18	Jose Alberto Berdejo

BMF	24	Michael Boschat
BRAB	31	Brenda Branchett
BRAF	29	Raffaello Braga
BROB	31	Robert Brown
BXD	25	Alexandru Burda
CFO	10	Jean F. Coliac
CHAG	30	German Morales Chavez
CIOA	10	Ioannis Chouinavas
CKB	25	Brian Cudnik
CLZ	2	Laurent Corp
CNT	5	Dean Chantiles
CVJ	23	Jose Carvajal
DEMF	7	Frank Dempsey
DGP	27	Gerald Dyck
DJOB	11	Jorge del Rosario
DUBF	28	Franky Dubois
FAM	11	Fabio Mariuzza
FERJ	23	Javier Ruiz Fernandez
FLET	29	Tom Fleming
FLF	18	Fredirico Luiz Funari
FTAA	11	Tadeusz Figiel
FUJK	25	K. Fujimori
HALB	10	Brian Halls
HAYK	20	Kim Hay
HMQ	7	Mark Harris
HOWR	29	Rodney Howe
JASK	26	Krystyna Wirkus
JGE	10	Gerardo Jimenez Lopez
JJMA	7	Jessica M.Johnson
KAND	19	Kandilli Observatory
KAPJ	21	John Kaplan
KNJS	23	James & Shirley Knight
KROL	18	Larry Krozel
LEVM	13	Monty Leventhal
LKR	15	Kristine Larsen
MARE	19	Enrico Mariani
MCE	28	Etsuiku Mochizuki
MGAA	1	Gael Mariani
MILJ	13	Jay Miller
MJHA	28	John McCammon
MMI	31	Michael Moeller
MUDG	21	George Mudry
OATS	18	Susan Oatney
OBSO	22	IPS Observatory
RICE	18	E. C. Richardson
RLM	12	Mat Raymonde
SCGL	23	Gerd-Lutz Schott

SIMC	10	Clyde Simpson	WILW	22	William M. Wilson
SMNA	8	Michael Stephanou	WKM	2	Michael Wiskirken
SONA	24	Andries Son	WRP	3	Russell Wheeler
STAB	31	Brian Gordon-States			
SUZM	27	Miyoshi Suzuki			
TESD	25	David Teske	Total	Observers:	69
URBP	22	Piotr Urbanski	Total	Observations:	1230
VARG	16	A. Gonzalo Vargas			
VIDD	11	Dan Vidican			
WAU	2	Artur Wargin			

38 of our 69 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 cross over on the 5th and 26th days this month, and the southern hemisphere is predominant.



Reporting Addresses:

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