

Solar Bulletin

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
SOLAR SECTION



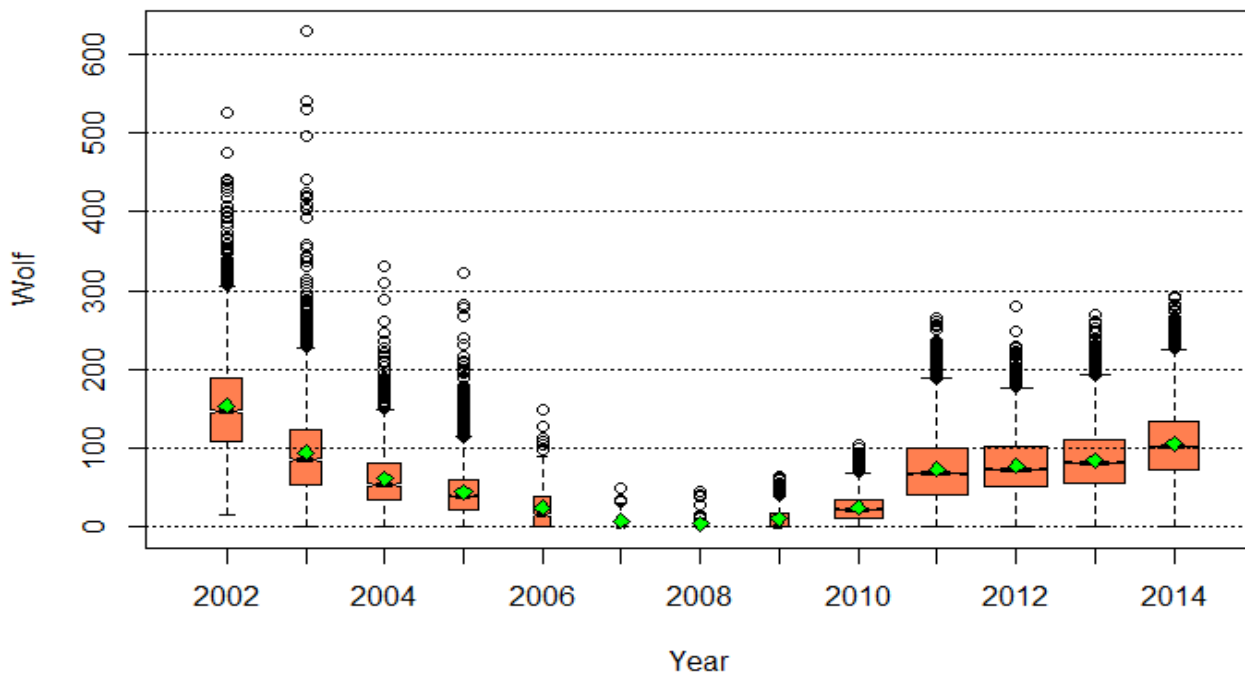
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Wolf vs Year



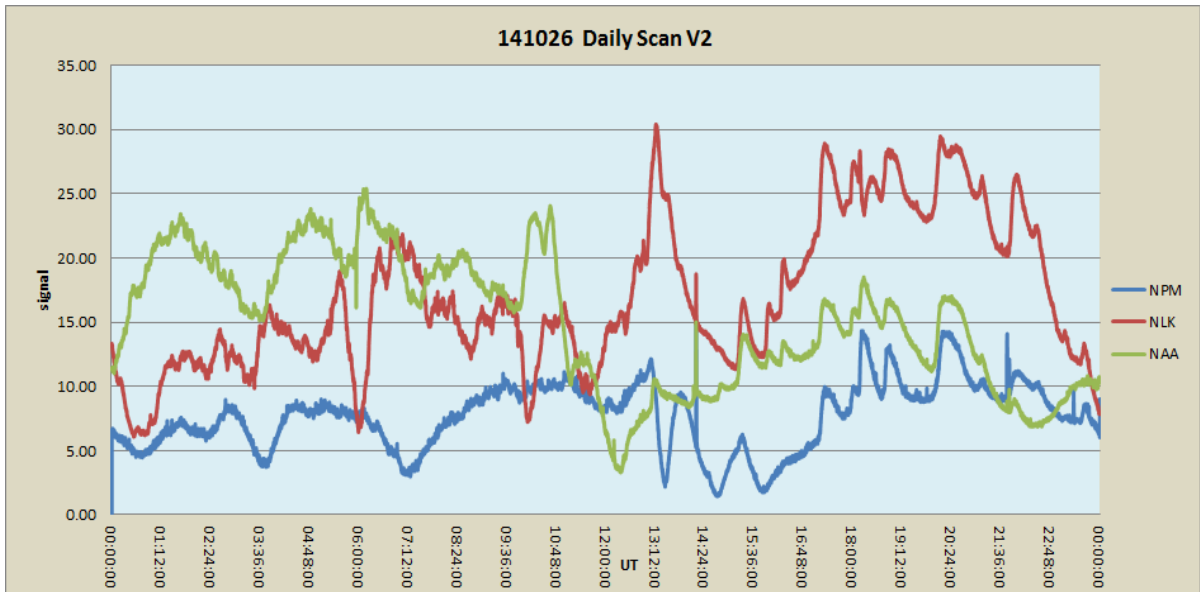
Sample sizes: 2006= 741 , 2007= 140 , 2008= 95 , 2009= 910 , 2010= 6066

Dr. Jamie Riggs (statistician) writes about this graph: “The width of the boxes gives an idea of the number of samples found for each year (mostly for 2002 thru 2005 the average sample size is about 2000 observations), the line through the middle of the box is the median value of the observations, the little green squares are the mean value. The box itself represents 50% of the data from the 25th percentile, through the 50th percentile, to the 75th percentile. The whiskers represent, generally, 1.5 times the Interquartile range (IQR); i.e., $1.5 \times (75\text{th percentile} - 25\text{th percentile})$. If the box plot is skewed, we must be careful about calling the circles outside the whiskers outliers, as, say, for a Poisson distribution, these may be part of the distribution.”

Dear solar observer:

Please note that we now have raw sunspot and group counts (and Wolf numbers) back through 2002, although it might not be complete. If you have any old observer records or files with monthly sunspot counts that are missing from the database, please record these into the SunEntry database directly, or send them to Kim Hay, Sara Beck or myself. Notice that the sample sizes for the solar minimum years are small. Any data during these years, in particular, would be greatly appreciated.

Sudden Ionospheric Disturbance Report



An X class flare (X.2.0 10:00 UT) on October 26, 2014. This graph from a SuperSID radio, Fort Collins, Colorado where NPM, NLK, NAA, shows more SID events than any other day in October.

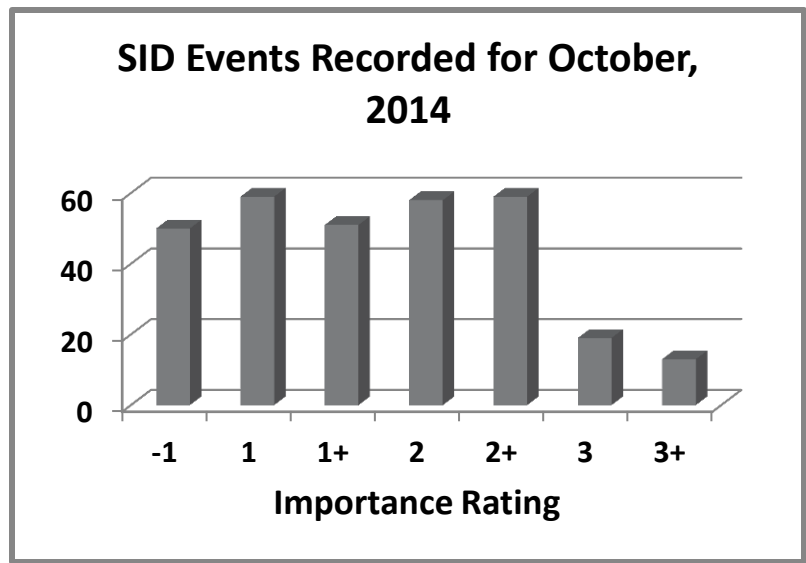
Sudden Ionospheric Disturbances (SID) Records During October, 2014

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
141001	640	2+	141004	840	2	141009	934	1
141001	1303	2	141005	1311	1+	141009	1105	1
141001	1522	2	141005	1946	1+	141009	1948	3+
141001	1755	2	141005	2216	1+	141010	511	-1
141001	1840	1	141005	2350	-1	141010	705	2
141001	2021	-1	141006	1215	2	141010	935	2+
141002	310	2+	141006	1317	1	141011	1410	3
141002	1248	2+	141006	1549	1	141011	1613	1+
141002	1255	2	141006	2010	-1	141011	1754	2+
141002	2255	-1	141006	2152	2+	141012	14	1+
141003	305	1+	141006	2231	2+	141012	519	1+
141003	420	2+	141007	1906	3+	141012	557	2+
141003	648	2+	141008	1743	3	141012	843	1
141003	659	2+	141009	144	1+	141012	1346	2+
141003	1048	1	141009	201	2+	141012	2003	2
141003	1149	2	141009	504	2	141012	2130	3
141003	1157	-1	141009	512	2+	141013	1455	2+
141003	1839	1	141009	700	1+	141013	1519	3+
141003	1938	1	141009	743	1	141013	1606	2+
141003	2058	3+	141009	846	-1	141013	1825	2+
141003	2103	2	141009	928	2	141013	2019	3+

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
141014	1911	3+	141020	403	1+	141022	931	1+
141014	2032	3	141020	602	1+	141022	1058	1
141014	2100	3+	141020	644	-1	141022	1119	1
141016	738	2	141020	909	2	141022	1208	1
141016	753	-1	141020	919	3	141022	1412	2+
141016	850	2+	141020	1035	1	141022	1445	3
141016	859	2+	141020	1052	-1	141022	1557	1
141016	1304	2	141020	1128	1+	141022	1806	2+
141016	1309	2	141020	1408	1	141023	430	2+
141017	320	-1	141020	1444	-1	141023	951	2
141017	1249	2	141020	1507	2	141024	242	2
141017	1256	1	141020	1519	2	141024	355	2
141017	1539	1	141020	1525	2+	141024	631	1+
141017	1935	1	141020	1609	2+	141024	743	2
141018	0	2	141020	1634	2+	141024	749	2+
141018	111	2+	141020	1903	1+	141024	902	-1
141018	651	1	141020	2006	2+	141024	939	-1
141018	743	3	141020	2142	1	141024	1041	2+
141018	800	3	141020	2258	2+	141024	1459	2
141018	1318	1	141021	221	1+	141024	2121	3
141018	1712	-1	141021	700	1	141024	2135	2+
141018	2002	2	141021	811	-1	141025	0	2
141018	2044	1	141021	811	-1	141025	143	-1
141019	154	3	141021	1032	1	141025	243	1
141019	423	1	141021	1057	1+	141025	411	2
141019	457	1+	141021	1101	1+	141025	646	-1
141019	512	3	141021	1230	1	141025	744	2
141019	1120	1+	141021	1321	-1	141025	754	2
141019	1125	2+	141021	1339	1+	141025	809	2+
141019	1216	2	141021	1353	-1	141025	913	-1
141019	1221	-1	141021	1431	1+	141025	950	1
141019	1433	2+	141021	1453	1+	141025	958	-1
141019	1556	1	141021	2022	1	141025	1220	1
141019	1734	-1	141022	134	2+	141025	1412	1
141020	54	1	141022	140	2+	141025	1505	-1
141020	228	2	141022	159	3	141025	1549	1
141020	236	1+	141022	515	2+	141025	1640	1
141020	357	2	141022	914	1+	141025	1730	3+

Date	Max	Imp	Date	Max	Imp	Date	Max	Imp
141025	2025	2	141027	715	-1	141029	618	2+
141025	2050	3	141027	735	-1	141029	820	2
141025	2323	2	141027	816	1+	141029	1002	1+
141026	113	2	141027	904	1	141029	1030	3+
141026	138	1	141027	929	1+	141029	1137	1+
141026	514	1	141027	1009	2+	141029	1223	-1
141026	548	1+	141027	1038	3+	141029	1315	-1
141026	619	1+	141027	1122	2	141029	1323	-1
141026	1007	-1	141027	1207	2	141029	1338	-1
141026	1017	1	141027	1323	1+	141029	1400	-1
141026	1046	3	141027	1422	2	141029	1422	-1
141026	1053	2+	141027	1443	3	141029	1428	2+
141026	1102	2	141027	1503	3	141029	1438	2
141026	1215	-1	141027	1703	1+	141029	1710	1
141026	1232	1	141027	1736	1+	141029	1850	1
141026	1310	1	141027	2122	2	141029	2124	1+
141026	1326	1+	141027	2303	2	141029	2246	1+
141026	1409	1	141028	215	2	141029	2303	3
141026	1447	1	141028	241	2+	141029	2326	1
141026	1517	1+	141028	332	2	141030	38	1
141026	1555	-1	141028	616	1+	141030	132	2
141026	1617	1	141028	824	-1	141030	427	2+
141026	1718	1	141028	941	-1	141030	546	-1
141026	1758	-1	141028	1030	-1	141030	1245	1
141026	1813	1+	141028	1107	-1	141030	1253	1+
141026	1849	1+	141028	1116	-1	141030	1314	1+
141026	1945	2	141028	1138	-1	141030	1435	1+
141026	2016	2+	141028	1251	-1	141030	1528	1+
141026	2158	1+	141028	1309	1	141030	1539	2
141026	2233	-1	141028	1336	-1	141030	2117	2
141026	2331	2+	141028	1404	1+	141030	2300	2+
141026	2338	1+	141028	1519	1	141031	41	1
141027	30	2+	141029	117	2	141031	100	2+
141027	200	2	141029	345	2+	141031	825	1
141027	703	-1	141029	358	2+	141031	1622	3+
						141031	1927	1

Solar Events

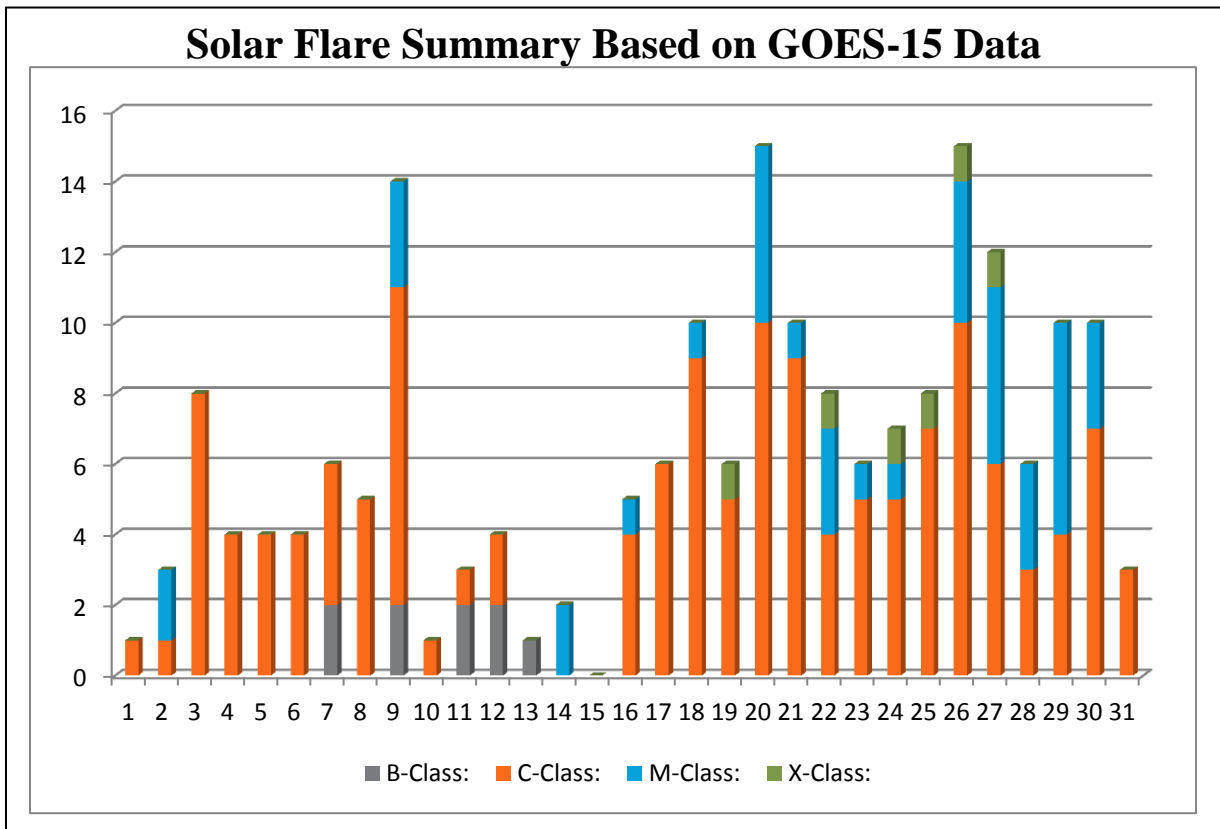


Importance rating: Duration (min)	1-: <19	1: 19-25	1+: 26-32	2: 33-45	2+: 46-85	3: 86-125	3+: >125
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Sudden Ionospheric Disturbances (SID) Observers During October, 2014

Observer	Code	Station(s) monitored	Observer	Code	Station(s) monitored
A McWilliams	A94	NLK	R Green	A134	NWC
R Battaiola	A96	HWU	R Mrlak	A136	GQD NSY
L Loudet	A118	GBZ GQD NAA	D Koawl	A137	DHO NPM
B Terrill	A120	NWC	S Aguirre	A138	NLK NML
F Adamson	A122	NWC	F Francione & C Re	A139	HWU NAA NSY
S Oatney	A125	NAA NLK	I Ryumshin	A142	DHO GQD
J Karlovsky	A131	DHO NSY	R Rogge	A143	DHO GQD ICV

There were 197 solar flares measured by GOES-15 for October, 2014: Six X class flares, 41 M class, 141 C class and 9 B class flares. Far more flares this month compared to last due to the huge active region AR2192. There were 13 AAVSO SID observers who submitted reports this month, however Jon Wallace, A97 had no data this month.



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

DAY	NumObs	RAW	Ra
1	31	126	91
2	32	106	77
3	34	106	77
4	35	92	67
5	39	77	59
6	34	63	47
7	34	61	45
8	31	60	44
9	31	50	36
10	28	34	25
11	34	25	17
12	32	28	21
13	30	35	27
14	29	70	53
15	31	62	46
16	27	41	30
17	32	52	40
18	38	56	44
19	44	79	61
20	32	98	73
21	30	99	75
22	26	118	90
23	32	126	93
24	33	132	98
25	35	129	99
26	35	119	86
27	36	96	72
28	37	89	66
29	27	83	66
30	34	92	68
31	25	74	53
Average	32.5	79.9	59.5

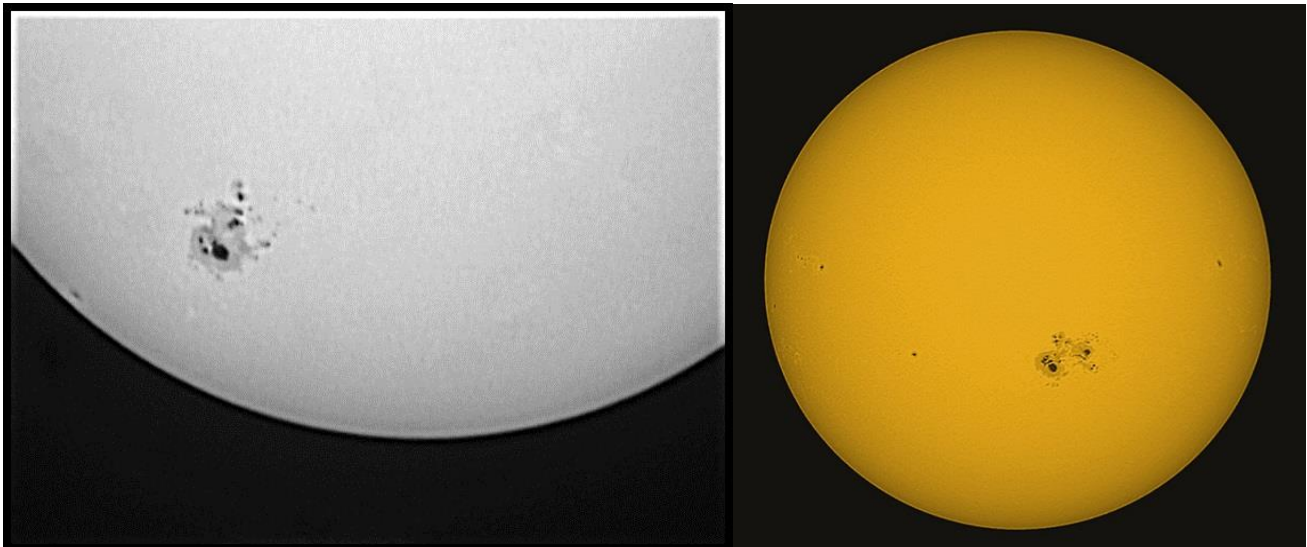
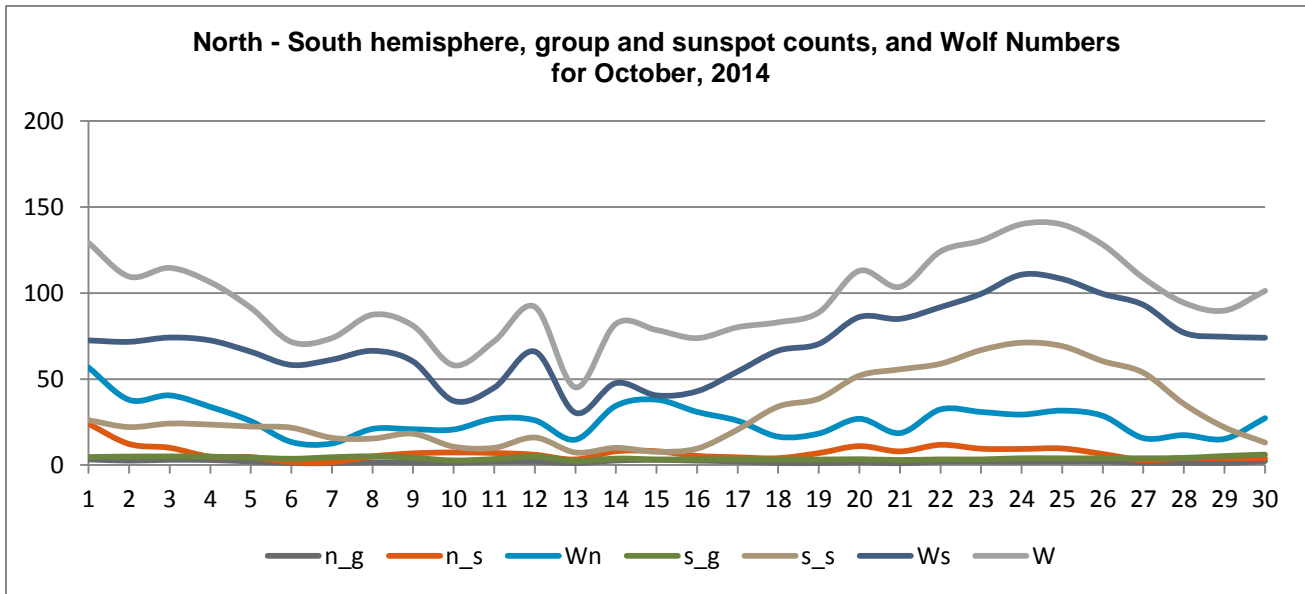
Obs	#Obs	Name
AAX	14	Alexandre Amorim
AJV	25	J. Alonso
ARAG	31	Gema Araujo
ASA	20	Salvador Aguirre
BARH	5	Howard Barnes
BATR	1	Roberto Battaiola
BERJ	21	Jose Alberto Berdejo
BMF	16	Michael Boschat
BRAB	31	Brenda Branchett
BRAF	17	Raffaello Braga

BROB	29	Robert Brown
BSAB	22	Santanu Basu
CHAG	30	German Morales Chavez
CIOA	9	Ioannis Chouinavas
CKB	27	Brian Cudnik
CNT	14	Dean Chantiles
CVJ	8	Jose Carvajal
DGP	16	Gerald Dyck
DJOB	8	Jorge del Rosario
DUBF	27	Franky Dubois
FAM	7	Fabio Mariuzza
FERJ	16	Javier Ruiz Fernandez
FJAE	6	Dr.John Alan Freeman
FLET	30	Tom Fleming
FLF	16	Fredirico Luiz Funari
FTAA	5	Tadeusz Figiel
FUJK	20	K. Fujimori
HALB	4	Brian Halls
HAYK	13	Kim Hay
HMQ	5	Mark Harris
HOWR	27	Rodney Howe
JGE	9	Gerardo Jimenez Lopez
JJMA	15	Jessica M.Johnson
KAND	21	Kandilli Observatory
KAPJ	23	John Kaplan
KNJS	28	James & Shirley Knight
KROL	20	Larry Krozel
LEVM	19	Monty Leventhal
LKR	15	Kristine Larsen
MARE	6	Enrico Mariani
MCE	21	Etsuiku Mochizuki
MILJ	14	Jay Miller
MJHA	23	John McCammon
MMI	21	Michael Moeller
MUDG	5	George Mudry
OATS	14	Susan Oatney
ONJ	5	John O'Neill
RLM	17	Mat Raymonde
SCGL	22	Gerd-Lutz Schott
SDOH	31	Jon Alvestad(SDO)
SIDM	12	Monika Sidor
SIMC	7	Clyde Simpson
SMNA	2	Michael Stephanou
SONA	11	Andries Son
SPIA	8	Piotr Skorupski
STAB	26	Brian Gordon-States
SUZM	18	Miyoshi Suzuki

TESD	31	David Teske
URBP	19	Piotr Urbanski
VARG	17	A. Gonzalo Vargas
VIDD	8	Dan Vidican
WAU	2	Artur Wargin
WGI	3	Guido Wollenhaupt
WILW	22	William M. Wilson
WKM	1	Michael Wiskirken
WRP	3	Russell Wheeler

Total Observers: 66
Total Observations: 1039

There were 40 out of 66 observers who submitted North and Southern hemisphere group and sunspot counts this month. The Southern hemisphere seems predominate with no days of crossover.



On the left: Dan Vidican (Romania) on 20-October-2014, 11:46 UT. It is a combination of the 12 best images taken with IRIS Program and processed with ASTROSTAK. On the right: Gerardo Jimenez from Avila, Spain sends his image of the Sun, of the same group AR 2192. This image was taken with a 250 mm Newton telescope with a Dobsonian mount: MILAR filter; Canon Eos 300 D, 1/500 set at 100 ASA; the result of 30 photos processed with RegiStax 6. 24-Oct-2014. 11:48 UT.



On the left, from Fort Collins, Colorado, I took my first image of a partial eclipse on October 23, 2014, 4:15 local time (22:15 UT). I also got the AR 2192 group in there. This is putting a SONY Cyber-shot camera at the 12 mm eyepiece of a 60 mm LUNT tilt-etalon H-alpha telescope. On the right, Salvador Aguirre takes a video image of the partial solar eclipse: video de los momentos mas interesantes del Eclipse Solar Parcial del 23 de October, 2014, 15:27 local, 22:27 UT desde Hermosillo, Sonora, Mexico por Salvador Aguirre:
<http://drsaguirremexico.blogspot.mx/2014/10/eclipse-solar-parcial-en-video-2014-10.html>

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