

Solar activity was reached high levels. The period began at low levels with several C-class events from Regions 1875 (N07, L=030 class/area Fkc/790 on 27 Oct) and 1877 (S12, L=009 class/area Dkc/440 on 24 Oct) observed on 21 Oct. By 22 Oct moderate levels were reached when Region 1875 produced three M-class events, the largest an M4/1b at 22/2120 UTC associated with a 220 sfu Tenflare and a Type II radio sweep (1955 km/s). Moderate levels continued on 23 Oct with three additional M-class flares from Region 1875 and reached high levels early on 24 Oct when Region 1877 produced an M9/1n at 24/0030 UTC. A faint, full-halo CME was observed with the M9 event, along with Types II (1321 km/s) and IV radio emissions. Model runs indicated potential impacts at Earth on 28 Oct. Region 1875 produced two additional M-class events on 24 Oct as well. High levels continued through 25 Oct with five M flares and two X-class events from Region 1882 (S08, L=292 class/area Dkc/390 on 27 Oct) which had just rotated onto the east limb. The first X-class event was an X1 at 25/0801 UTC accompanied by Types II (1240 km/s) and IV radio emissions, along with a Costelli U radio signature including a 610 sfu Tenflare. The second was an X2 at 25/1503 UTC associated with Types II (2078 km/s) and IV radio emissions with another Costelli U signature including a 370 sfu Tenflare. The WSA-Enlil model indicates the arrival of both of the CMEs associated with the X flares on 28 Oct, around the same time as the CME associated with the M9 flare. Region 1882 produced 4 additional M-class events on 26 Oct. These along with an M3/Sf at 26/1927 UTC from Region 1884 (S13, L=258 class/area Dso/110 on 27 Oct) kept solar activity at high levels meeting the criteria by reaching five flares greater than or equal to the M1 threshold. One of the flares from Region 1882 was an M1/1n observed at 26/1117 UTC. CMEs were associated with this event and the M3 from Region 1884. Model predictions indicated impacts from the arrival of both CMEs on 29 Oct. Moderate activity levels returned on 27 Oct with only a single M-class event, an M3/1f at 27/1248 UTC from Region 1875. Several other Type II and IV radio sweeps along with multiple CMEs were observed during the period, however none of them were determined to be geoeffective.

No proton events were observed at geosynchronous orbit, although slight enhancements were observed following the M9 flare and the two X flares observed on 24 and 25 Oct respectively.

The greater than 2 MeV electron flux at geosynchronous orbit began the period at high levels on 21 Oct but quickly decreased to normal to moderate levels for the remainder of the period.

Geomagnetic field activity was quiet throughout the period. A Sudden Impulse (10 nT measured at the Boulder magnetometer) was observed at 26/2246 UTC. Based on timing, this most likely marked the arrival of the CME associated the M4 flare observed late on 24 Oct.

Space Weather Outlook

28 October - 23 November 2013

Solar activity is likely to be at moderate levels through 06 Nov when Region 1882 is expected to rotate around the west limb. Predominately low levels are expected until Regions 1875 and 1877



return around 11 Nov. Chances for moderate activity increase at that time and will persist until 20 Nov when activity is expected to decrease again to low levels for the remainder of the period.

A chance for a proton event at geosynchronous orbit exists through 06 Nov as Regions 1875, 1877 and 1882 move across the western hemisphere.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels through 10 Nov. An increase to moderate to high levels is expected from 11 - 18 Nov following a recurrent coronal hole high speed stream (CH HSS). Normal to moderate levels are expected for the remainder of the period.

Geomagnetic field activity is expected to be unsettled to active with isolated minor storm intervals on 28 Oct due to a combination of the 24 Oct CME associated with the M9 flare and the CMEs associated with the two X flares observed on 25 Oct. Unsettled to active conditions are expected on 29 Oct with a chance for minor storm periods due to continued CME effects along with the arrival of the CMEs from the 26 Oct M flares. Mostly quiet to unsettled levels are anticipated from 30 - 31 Oct as CME effects wane and only a weak CH HSS. Predominately quiet conditions are expected from 01 - 09 Nov. Quiet to unsettled conditions, with possible isolated active periods, are expected from 10 - 13 Nov with the arrival of a recurrent positive polarity CH HSS. Predominately quiet conditions are expected for the remainder of the period.



Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
21 October	136	179	870	B5.7	10	0	0	9	0	0	0	0
22 October	146	228	990	B7.1	11	3	0	20	2	0	0	0
23 October	153	141	1080	B8.9	9	3	0	12	0	0	0	0
24 October	161	148	1440	B8.9	13	3	0	9	4	1	0	0
25 October	161	148	1500	C1.1	7	5	2	11	1	0	0	0
26 October	165	171	1560	C1.2	15	5	0	24	2	0	0	0
27 October	167	206	1930	C1.1	7	1	0	23	3	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day -sr)			Electron Fluence (electrons/cm ² -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
21 October	2.8e+05	1.1e+04	2.5e+03		1.8e+08	
22 October	7.3e+05	1.1e+04	2.5e+03		1.3e+08	
23 October	3.5e+05	2.2e+04	2.8e+03		3.4e+07	
24 October	4.5e+05	1.1e+04	2.5e+03		3.5e+07	
25 October	3.5e+05	1.2e+04	2.7e+03		3.7e+07	
26 October	6.9e+05	2.8e+04	3.3e+03		3.3e+07	
27 October	2.3e+06	2.8e+04	2.6e+03		3.6e+07	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
21 October	2	0-0-1-0-2-1-1-1	0	0-0-0-0-0-0-0-0	2	0-0-0-0-1-1-0-0
22 October	3	0-0-2-1-1-1-2-1	1	0-0-0-2-0-0-1-0	5	0-0-2-2-1-1-2-2
23 October	3	0-1-1-1-1-1-1-1	4	0-2-2-3-0-0-0-0	4	1-2-1-1-1-1-1-0
24 October	2	0-1-0-1-2-1-1-0	0	0-0-0-0-0-0-0-0	3	1-1-0-1-1-1-0-0
25 October	3	0-0-0-0-2-2-1-1	0	0-0-0-0-0-0-0-0	3	0-0-1-0-1-2-1-1
26 October	3	0-0-0-1-2-1-1-2	0	0-0-0-0-0-0-0-0	3	0-0-0-1-1-1-1-1
27 October	2	0-0-1-1-2-1-1-0	0	0-0-0-0-0-0-0-0	3	0-0-1-1-1-1-1-0



Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
21 Oct 0535	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/0930
22 Oct 0501	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	17/0930
22 Oct 1408	ALERT: Type II Radio Emission	22/1335
22 Oct 1924	ALERT: Type II Radio Emission	22/1848
22 Oct 2134	SUMMARY: 10cm Radio Burst	22/2118 - 2119
22 Oct 2153	ALERT: Type II Radio Emission	22/2122
23 Oct 0145	ALERT: Type II Radio Emission	22/2129
23 Oct 1901	WATCH: Geomagnetic Storm Category G1 predicted	
24 Oct 0030	ALERT: X-ray Flux exceeded M5	24/0026
24 Oct 0114	SUMMARY: X-ray Event exceeded M5	24/0021 - 0035
24 Oct 0226	ALERT: Type II Radio Emission	24/0031
24 Oct 0339	ALERT: Type IV Radio Emission	24/0056
24 Oct 1158	ALERT: Type IV Radio Emission	24/1031
25 Oct 0339	ALERT: Type II Radio Emission	25/0259
25 Oct 0339	ALERT: Type IV Radio Emission	25/0259
25 Oct 0800	ALERT: X-ray Flux exceeded M5	25/0758
25 Oct 0819	SUMMARY: X-ray Event exceeded X1	25/0753 - 0809
25 Oct 0821	ALERT: Type IV Radio Emission	25/0804
25 Oct 0836	SUMMARY: 10cm Radio Burst	25/0757 - 0821
25 Oct 0847	ALERT: Type II Radio Emission	25/0759
25 Oct 0848	SUMMARY: X-ray Event exceeded X1	25/0753 - 0809
25 Oct 1418	ALERT: Type II Radio Emission	25/1336
25 Oct 1457	ALERT: X-ray Flux exceeded M5	25/1456
25 Oct 1528	SUMMARY: X-ray Event exceeded X1	25/1451 - 1512
25 Oct 1532	ALERT: Type IV Radio Emission	25/1458
25 Oct 1537	ALERT: Type II Radio Emission	25/1458
25 Oct 1605	SUMMARY: 10cm Radio Burst	25/1457 - 1541
26 Oct 1005	ALERT: Type II Radio Emission	26/0931

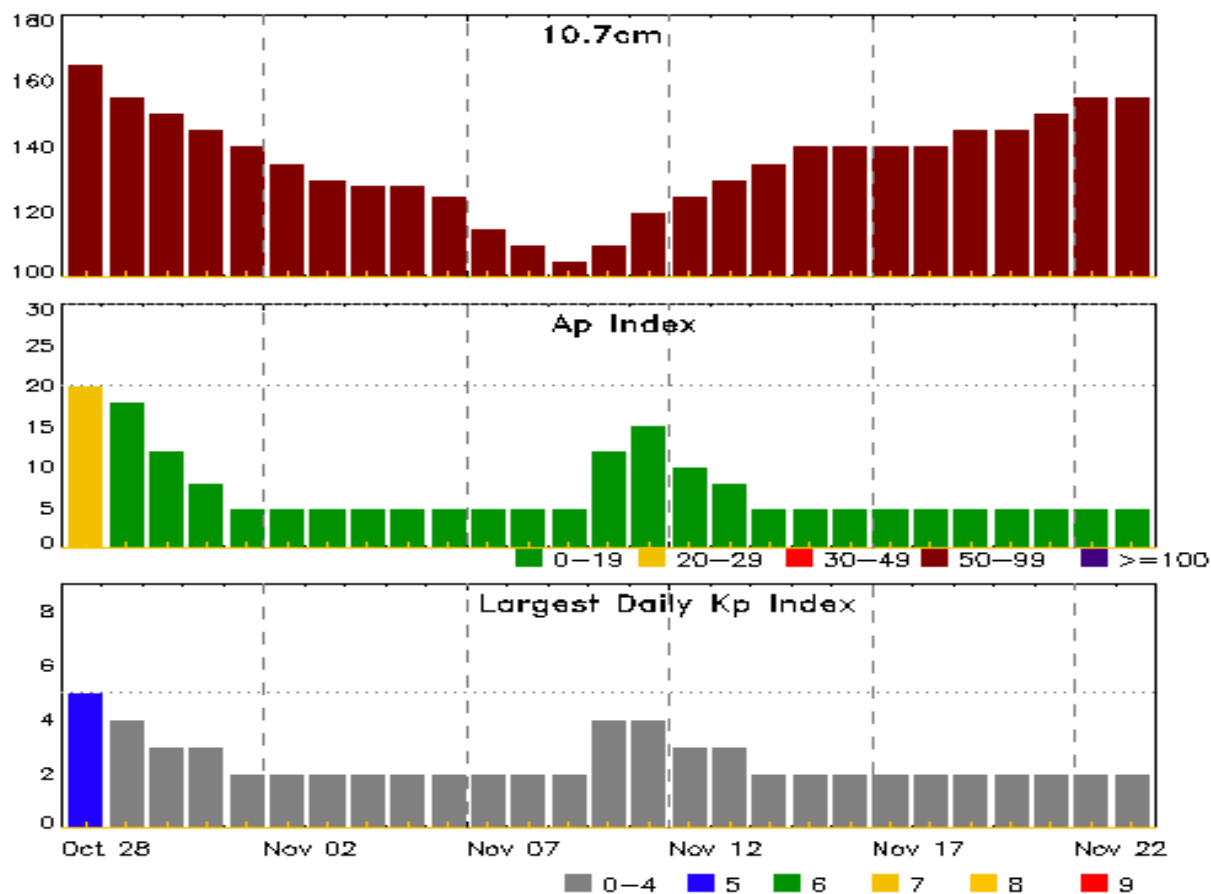


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
26 Oct 1457	WATCH: Geomagnetic Storm Category G1 predicted	
26 Oct 2155	WARNING: Geomagnetic Sudden Impulse expected	26/2230 - 2330
26 Oct 2256	SUMMARY: Geomagnetic Sudden Impulse	26/2246



Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
28 Oct	165	20	5	11 Nov	120	15	4
29	155	18	4	12	125	10	3
30	150	12	3	13	130	8	3
31	145	8	3	14	135	5	2
01 Nov	140	5	2	15	140	5	2
02	135	5	2	16	140	5	2
03	130	5	2	17	140	5	2
04	128	5	2	18	140	5	2
05	128	5	2	19	145	5	2
06	125	5	2	20	145	5	2
07	115	5	2	21	150	5	2
08	110	5	2	22	155	5	2
09	105	5	2	23	155	5	2
10	110	12	4				

Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV
22 Oct	0014	0022	0028	M1.0	0.005	SF	N06E17	1875				
22 Oct	1449	1520	1528	M1.0	0.015	SF	N07E07	1875				
22 Oct	2115	2120	2122	M4.2	0.007	1B	N04W01	1875	3200	220	2	
23 Oct	2041	2053	2059	M2.7	0.017			1875				
23 Oct	2333	2343	2347	M1.4	0.006	SF	N07W07	1875				
23 Oct	2358	0008	0016	M3.1	0.023			1875				
24 Oct	0021	0030	0035	M9.3	0.048	1N	S10E08	1877	470		1	1
24 Oct	0959	1009	1017	M2.5	0.017	1F	N06W14	1875				
24 Oct	1030	1033	1037	M3.5	0.008	2B	N07W13	1875		110		1
25 Oct	0248	0302	0312	M2.9	0.025			1882	420		2	1
25 Oct	0753	0801	0809	X1.7	0.090			1882	52000	610	2	1
25 Oct	0943	1012	1025	M1.0	0.021	SF	S03E68	1882	100			
25 Oct	1451	1503	1512	X2.1	0.160			1882	8800	370	2	2
25 Oct	1702	1709	1716	M1.3	0.008			1882				
25 Oct	1905	1921	1924	M2.3	0.009	SF	S06E66	1882				
25 Oct	2054	2058	2113	M1.9	0.016	1N	S07E64	1882				
26 Oct	0559	0606	0620	M2.3	0.019	1B	S09E61	1882	100			
26 Oct	0917	0937	0948	M1.5	0.017			1882	100	67	2	
26 Oct	1048	1117	1134	M1.8	0.036	1N	S05E58	1882	230	380		
26 Oct	1924	1927	1930	M3.1	0.010	SF	S09E81	1884	830			
26 Oct	1949	1953	1958	M1.0	0.004	SF	S07E53	1882	210			
27 Oct	1236	1248	1252	M3.5	0.016	1F	N06W63	1875	150			

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Optical		Rgn #
	Begin	Max	End			Location Lat CMD		
21 Oct	0706	0714	0718	C1.7				
21 Oct	0809	0813	0817	C1.6				1875
21 Oct	0919	0922	0925	C1.0				1877
21 Oct	0934	0945	0949	B9.8				
21 Oct	1419	U1419	A1423		SF	S12E43		1877
21 Oct	1433	1444	1536	C1.1	SF	S14E43		1877
21 Oct	1436	1441	1515		SF	N09E24		1875
21 Oct	1540	1610	1616	C2.4	SF	N07E24		1875
21 Oct	1928	1940	1943	B9.1				



Flare List

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
21 Oct	2020	2034	2039	C1.6			
21 Oct	2029	2034	2046	C1.6	SF	N08E19	1875
21 Oct	2056	2100	2107	C1.5	SF	N08E19	1875
21 Oct	2231	2246	2258	C2.0	SF	N07E18	1875
21 Oct	2302	2311	2315	C2.7	SF	N07E18	1875
21 Oct	2310	2311	2324		SF	N07E18	1875
22 Oct	0005	0009	0013	C1.0			
22 Oct	0014	0022	0028	M1.0	SF	N06E17	1875
22 Oct	0131	0135	0141	C1.4	SF	N07E17	1875
22 Oct	0159	0203	0207	C1.7	SF	N08E18	1875
22 Oct	0322	0325	0327		SF	N06E14	1875
22 Oct	0331	0337	0345	C4.3	SF	N06E14	1875
22 Oct	0412	0421	0425	C4.0	SF	N07E16	1875
22 Oct	0440	0444	0446	C2.1	SF	N08E15	1875
22 Oct	0909	0914	0918	C1.1	SF	N07E12	1875
22 Oct	B1105	U1112	1202	C1.6	SF	N08E11	1875
22 Oct	1209	1214	1244		SF	N08E10	1875
22 Oct	1255	1258	1301	C1.4	SF	N07E08	1875
22 Oct	1325	1330	1336	C1.8	SF	N06E04	1875
22 Oct	1345	1350	1400		SF	N07E08	1875
22 Oct	1444	1456	1528	M1.0	SF	N07E07	1875
22 Oct	B1645	1645	1655		SF	N07E09	1875
22 Oct	1701	1706	1740		SF	N06E08	1875
22 Oct	1828	1846	1954	C4.0	1F	N06E06	1875
22 Oct	2011	2025	2053		SF	N06E06	1875
22 Oct	2115	2120	2122	M4.2	1B	N04W01	1875
22 Oct	2225	2228	2230		SF	N05E04	1875
22 Oct	2318	2319	2327		SF	S10E23	1877
22 Oct	2334	2335	2338		SF	N04E03	1875
23 Oct	0052	0059	0112		SF	N05E04	1875
23 Oct	0450	0512	0528	C3.3	SF	N06E02	1875
23 Oct	0512	0512	0515		SF	N05E00	1875
23 Oct	0600	0604	0608	C3.6	SF	N07E05	1875
23 Oct	0710	0711	0714		SF	S10E21	1877
23 Oct	B0924	U0950	1047	C1.3	SF	S10E17	1877
23 Oct	1111	1117	1121	C6.5	SN	N05W04	1875
23 Oct	1234	1234	1302		SF	S13E24	1877
23 Oct	1300	1302	1304		SF	N05W03	1875



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
23 Oct	1404	1404	1409		SF	N05W02	1875
23 Oct	1435	1435	1438		SF	N05W03	1875
23 Oct	1538	1543	1559	C1.8			1875
23 Oct	1704	1720	1731	C3.6			1875
23 Oct	1926	1930	1939	C2.2			1875
23 Oct	2041	2053	2059	M2.7			1875
23 Oct	2157	2204	2213	C4.1			1875
23 Oct	2218	2226	2231	C8.7			1877
23 Oct	2330	2341	0049	M1.4	SF	N07W07	1875
23 Oct	2358	0008	0016	M3.1			1875
24 Oct	0020	0028	0048	M9.3	1N	S10E08	1877
24 Oct	0337	0343	0350	C3.1			1875
24 Oct	0412	0415	0418	C2.1			1875
24 Oct	0452	0507	0513	C3.4	SF	N06W10	1875
24 Oct	0522	0527	0532	C3.0	SF	N06W10	1875
24 Oct	0533	0534	0535		SF	N07W10	1875
24 Oct	0537	0542	0545		SF	N06W11	1875
24 Oct	0548	0558	0612	C9.3	1F	N06W11	1875
24 Oct	B0942	U1034	A1157		2B	N07W13	1875
24 Oct	0943	0950	0955	C2.4	1F	S07E05	1877
24 Oct	0959	1009	1017	M2.5	1F	N06W14	1875
24 Oct	1030	1033	1037	M3.5			1875
24 Oct	1126	1127	1130		SF	S09E05	1877
24 Oct	B1224	U1239	A1322		SF	S13E10	1877
24 Oct	1258	1312	1319	C2.4	SF	N06W17	1875
24 Oct	1401	1408	1437	C2.4	SF	S09E02	1877
24 Oct	1703	1707	1715	C2.3			1882
24 Oct	1759	1811	1822	C2.2			1877
24 Oct	1922	1939	1941	C2.4			1875
24 Oct	2109	2114	2122	C3.3			1875
24 Oct	2205	2210	2215	C5.7			1877
24 Oct	2327	2327	2337		SF	S10W05	1877
25 Oct	0248	0302	0312	M2.9			1882
25 Oct	0610	0627	0630	C3.4	SF	N06W24	1875
25 Oct	0649	0701	0710	C3.2			1875
25 Oct	0753	0801	0809	X1.7			1882
25 Oct	B0850	U0851	0901		SF	S04E72	1882
25 Oct	0852	0853	0908		SF	N05W35	1875



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
25 Oct	0912	U0938	0942		SF	S04E72	1882
25 Oct	0943	1012	1025	M1.0	SF	S03E68	1882
25 Oct	B1109	U1127	A1139		SF	S04E70	1882
25 Oct	1306	1314	1319	C1.8			
25 Oct	1330	1337	1342	C2.3			1875
25 Oct	1431	1438	1445	C7.9			1882
25 Oct	1451	1503	1512	X2.1			1882
25 Oct	1702	1709	1716	M1.3			1882
25 Oct	1855	1856	1901		SF	N05W33	1875
25 Oct	1905	1921	1924	M2.3	SF	S06E66	1882
25 Oct	2004	2010	2016		SF	S06E66	1882
25 Oct	2050	2114	2204	M1.9	1N	S07E64	1882
25 Oct	2142	2142	2149		SF	N06W35	1875
25 Oct	2252	2300	2308	C3.2			1875
25 Oct	2255	2257	2317		SF	N05W43	1875
25 Oct	2312	2317	2326	C3.6			1882
26 Oct	0028	0032	0035	C2.3			1882
26 Oct	0051	0054	0057	C1.9			1882
26 Oct	0119	0128	0130		SF	S10E61	1882
26 Oct	0140	0143	0146	C1.7	SF	N08W44	1875
26 Oct	0236	0236	A0240		SF	N06W37	1875
26 Oct	0242	0250	0255	C4.5	SF	N09W44	1875
26 Oct	0303	0307	0310	C2.3			1875
26 Oct	0320	0344	0352	C4.0	SF	S09E60	1882
26 Oct	0353	0418	A0438		SF	S09E61	1882
26 Oct	0547	0609	A0715	M2.3	1B	S09E61	1882
26 Oct	0628	0628	0631		SF	N04W40	1875
26 Oct	0632	0632	0637		SF	N04W40	1875
26 Oct	0837	0846	0849	C5.2			1877
26 Oct	0852	0855	0857	C4.4	SF	S12W23	1877
26 Oct	0917	0937	0948	M1.5			1882
26 Oct	B1011	U1108	A1212	M1.8	1N	S05E58	1882
26 Oct	B1148	U1148	A1154		SF	S12W24	1877
26 Oct	1318	1320	1336	C2.8	SF	S12W25	1877
26 Oct	1545	1549	1553	C2.0			1873
26 Oct	1621	1629	1633		SF	S06E65	1882
26 Oct	1704	1715	1726	C8.8	SF	S12W27	1877
26 Oct	1728	1732	1736	C6.5			1882



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
26 Oct	1756	1800	1809		SF	N05W53	1875
26 Oct	1834	1838	1845	C2.1	SF	S07E53	1882
26 Oct	1850	1920	1923	C7.7			1877
26 Oct	1857	1952	2023		SF	S07E53	1882
26 Oct	1913	1915	1931		SF	S12W28	1877
26 Oct	1924	1931	1938	M3.1	SF	S09E81	1884
26 Oct	1949	1953	1958	M1.0			1882
26 Oct	2120	2121	2128		SF	S12W29	1877
26 Oct	2229	2235	2240	C3.1	SF	N14W76	1873
26 Oct	2243	2245	2253		SF	S12W29	1877
26 Oct	2308	2308	2314		SF	N08W55	1875
26 Oct	2320	2323	2356		SF	N14W76	1873
26 Oct	2343	2343	2353		SF	N08W55	1875
27 Oct	0012	0012	0020		SF	N12W77	1873
27 Oct	0030	0043	0054		SF	N08W55	1875
27 Oct	0113	0121	0127		SF	S10W31	1877
27 Oct	0140	0144	0150	C1.5	SF	S10W31	1877
27 Oct	0212	0215	0216		SF	N12W77	1873
27 Oct	0319	0330	0339	C4.3	SF	N07W57	1875
27 Oct	0751	0755	0800	C1.9	SF	N07W59	1875
27 Oct	0803	0803	0807		SF	S11W32	1877
27 Oct	0930	0936	0958	C3.5			1875
27 Oct	B1159	U1202	A1205		SF	N04W58	1875
27 Oct	B1201	U1203	A1215		SF	S12W37	1877
27 Oct	1233	1238	1246	M3.5	1F	N06W63	1875
27 Oct	1244	1253	1309		SN	S09E71	1884
27 Oct	1255	1300	1312		1F	N07W63	1875
27 Oct	1302	1302	1309		SF	S12W34	1877
27 Oct	1314	1318	1348		SF	S12W38	1877
27 Oct	1331	1335	1344		SF	N09W82	1873
27 Oct	1339	1347	1406	C4.0			1877
27 Oct	1349	1359	1442		SF	S06E42	1882
27 Oct	1402	1403	1410		SF	N09W82	1873
27 Oct	1452	1453	1459		SF	S12W37	1877
27 Oct	1528	1529	1531		SF	S06E42	1882
27 Oct	1532	1536	1541		SF	S12W41	1877
27 Oct	1533	1558	1640		SF	S06E39	1882
27 Oct	1724	1729	1734	C5.7			1873



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
27 Oct	1748	1753	1804	C9.1	1F	N06W70	1875
27 Oct	1822	1833	1844		SF	S06E39	1882
27 Oct	2257	2257	2305		SF	N09W68	1875
27 Oct	2312	2316	2323		SF	N09W68	1875



Region Summary

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
Region 1868															
13 Oct	N18E51	100	10	1	Axx	1	A								
14 Oct	N18E37	101	10	1	Axx	1	A								
15 Oct	N17E23	100	10	1	Axx	1	A								
16 Oct	N17E09	102	plage												
17 Oct	N17W05	103	plage												
18 Oct	N23W17	101	10	2	Bxo	4	B								
19 Oct	N23W30	102	40	2	Cao	3	B								
20 Oct	N23W44	102	plage					2			2				
21 Oct	N23W58	103	plage												
22 Oct	N23W72	104	plage												
23 Oct	N23W86	105	plage												
								2	0	0	2	0	0	0	

Crossed West Limb.

Absolute heliographic longitude: 103

<i>Region 1869</i>															
13 Oct	N19E66	85	40	9	Dso	3	B								
14 Oct	N18E54	82	40	4	Dso	2	B	2							
15 Oct	N20E44	79	30	3	Cro	2	B								
16 Oct	N18E27	82	20	3	Dso	2	B								
17 Oct	N18E16	81	20	5	Cso	2	B								
18 Oct	N19E07	78	20	1	Hsx	1	A								
19 Oct	N20W05	77	20	1	Hrx	1	A								
20 Oct	N19W19	77	plage												
21 Oct	N16W28	74	plage												
22 Oct	N16W42	74	plage												
23 Oct	N16W56	75	plage												
24 Oct	N16W70	76	plage												
25 Oct	N18W84	76	0	1	Axx	1	A								
								2	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 77



Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
<i>Region 1870</i>															
14 Oct	S13W06	143	30	3	Cro	3	B								
15 Oct	S14W21	144	20	4	Cro	8	B								
16 Oct	S13W35	145	10	1	Bxo	2	B	1			1				
17 Oct	S13W49	146	10	1	Axx	1	A								
18 Oct	S15W58	143	30	2	Cao	3	B								
19 Oct	S15W72	144	10	1	Bxo	3	B								
20 Oct	S15W86	144	plage												
								1	0	0	1	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 143

Region 1871															
14 Oct	N16E62	74	30	1	Hsx	1	A								
15 Oct	N17E46	77	20	1	Hrx	1	A								
16 Oct	N17E32	78	10	2	Axx	2	A								
17 Oct	N18E21	75	20	1	Hsx	1	A								
18 Oct	N16E08	77	plage												
19 Oct	N16W06	78	plage												
20 Oct	N16W20	78	plage												
21 Oct	N16W34	79	plage												
22 Oct	N16W48	80	plage												
23 Oct	N16W62	81	plage												
24 Oct	N16W76	82	plage												
25 Oct	N16W90	82	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 78



Region Summary - continued

Date	Location	Sunspot Characteristics						Flares							
	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical					
	Lat CMD	Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 1872															
15 Oct	S15E67	55	60	2	Hsx	1	A								
16 Oct	S17E55	55	90	2	Hsx	1	A								
17 Oct	S17E41	56	70	2	Cso	1	B								
18 Oct	S16E28	56	80	2	Hsx	1	A								
19 Oct	S17E15	57	80	2	Hsx	1	A								
20 Oct	S17E01	57	80	2	Hsx	1	A								
21 Oct	S17W11	55	60	2	Hsx	2	A								
22 Oct	S17W26	57	60	3	Cao	4	B								
23 Oct	S18W40	58	50	7	Dso	4	B								
24 Oct	S18W54	60	70	8	Dso	2	B								
25 Oct	S18W67	59	50	9	Cso	4	B								
26 Oct	S18W80	59	10	9	Bxo	2	B								
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 57

Region 1873															
16 Oct	N11E60	49	30	7	Cro	4	B								
17 Oct	N11E48	49	110	7	Cso	10	B								
18 Oct	N12E34	50	40	8	Cso	9	B								
19 Oct	N12E23	49	20	3	Cro	6	B								
20 Oct	N12E09	49	50	9	Dao	12	B	1			3				
21 Oct	N12W05	49	40	9	Dao	9	B								
22 Oct	N12W17	49	10	6	Axx	4	A								
23 Oct	N11W33	51	10	9	Axx	9	A								
24 Oct	N11W47	53	plage												
25 Oct	N11W61	53	plage												
26 Oct	N11W75	54	plage					2			2				
27 Oct	N13W90	56	10	1	Hrx	1	A	1			4				
								4	0	0	9	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 49



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio Lon	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
								C	M	X	S	1	2	3	4

Region 1874

17 Oct	S10E22	75	20	3	Dao	4	B								
18 Oct	S10E07	77	50	5	Dao	8	B								
19 Oct	S11W06	78	40	5	Dao	6	B								
20 Oct	S11W20	78	40	6	Cao	10	B								
21 Oct	S11W32	76	40	6	Csi	9	B								
22 Oct	S11W47	78	30	8	Dro	13	B								
23 Oct	S11W61	80	plage												
24 Oct	S11W75	81	plage												
25 Oct	S11W89	81	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 78

Region 1875

17 Oct	N07E69	27	50	3	Cao	2	B								
18 Oct	N07E60	24	150	10	Dao	10	BG	5			3				
19 Oct	N08E46	26	150	12	Esi	15	BG								
20 Oct	N07E32	26	150	11	Eai	24	BG	1			3				
21 Oct	N06E19	25	250	11	Ekc	61	BGD	6			7				
22 Oct	N07E04	27	420	14	Ekc	123	BGD	10	3		19	2			
23 Oct	N08W11	28	610	14	Ekc	50	BGD	7	3		9				
24 Oct	N08W23	29	720	15	Ekc	50	BGD	8	2		5	2	1		
25 Oct	N07W36	28	660	15	Ekc	39	BGD	4			5				
26 Oct	N07W51	30	660	15	Ekc	38	BGD	3			8				
27 Oct	N07W64	30	790	16	Fkc	40	BGD	4	1		6	3			
								48	9	0	65	7	1	0	0

Still on Disk.

Absolute heliographic longitude: 27



Region Summary - continued

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 1877															
18 Oct	S11E75	9	120	2	Hsx	1	A								
19 Oct	S12E61	11	260	4	Cko	4	B								
20 Oct	S13E55	3	390	16	Fho	8	BG								
21 Oct	S13E38	6	400	8	Cho	10	B	2			2				
22 Oct	S13E23	8	390	7	Dki	15	B				1				
23 Oct	S12E09	8	320	8	Dki	17	BGD	2			3				
24 Oct	S12W03	9	440	9	Dkc	19	BG	4	1		4	2			
25 Oct	S12W16	8	390	8	Dhi	16	BG								
26 Oct	S12W30	9	320	9	Chi	15	BG	5			7				
27 Oct	S12W43	9	330	9	Dhi	20	BGD	2			8				
								15	1	0	25	2	0	0	0

Still on Disk.

Absolute heliographic longitude: 9

Region 1878

20 Oct	S10W54	112	10	5	Bxo	2	B								
21 Oct	S09W67	111	10	6	Bxo	2	B								
22 Oct	S09W81	113	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 112

Region 1879

21 Oct	S13E52	352	60	6	Dso	4	B								
22 Oct	S13E37	354	80	9	Cso	9	B								
23 Oct	S13E22	356	90	9	Cso	11	B								
24 Oct	S12E10	356	100	7	Cai	11	B								
25 Oct	S13W03	355	110	8	Cai	11	B								
26 Oct	S12W15	354	100	5	Cao	6	B								
27 Oct	S12W28	354	100	5	Cao	8	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 355



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio Lon	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
								C	M	X	S	1	2	3	4

Region 1880

21 Oct	N12W16	60	10	3	Bxo	2	B								
22 Oct	N12W30	62	plage												
23 Oct	N12W44	63	plage												
24 Oct	N12W58	61	plage												
25 Oct	N12W72	64	plage												
26 Oct	N12W86	65	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 60

Region 1881

24 Oct	S22E37	329	10	3	Bxo	4	B								
25 Oct	S22E21	331	10	1	Bxo	2	B								
26 Oct	S22E09	330	10	4	Bxo	4	B								
27 Oct	S22W05	331	10	5	Bxo	2	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 331

Region 1882

24 Oct	S08E73	293	100	9	Dso	2	B	1							
25 Oct	S08E59	293	280	7	Dko	5	BGD	2	5	2	6	1			
26 Oct	S08E47	292	300	8	Dki	11	BGD	5	4		6	2			
27 Oct	S08E34	292	390	8	Dkc	31	BGD				4				
								8	9	2	16	3	0	0	0

Still on Disk.

Absolute heliographic longitude: 292

Region 1883

26 Oct	N04E74	265	40	2	Hax	2	A								
27 Oct	N04E59	267	60	1	Hax	2	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 267



Region Summary - continued

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio Lon	Area 10 ⁻⁶ hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
								C	M	X	S	1	2	3	4

Region 1884

26 Oct	S09E78	261	50	3	Hax	2	A		1		1				
27 Oct	S13E68	258	110	9	Dso	11	BGD				1				
								0	1	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 258

Region 1885

26 Oct	S17E75	264	70	2	Hsx	1	A								
27 Oct	S18E63	263	130	3	Hsx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 263

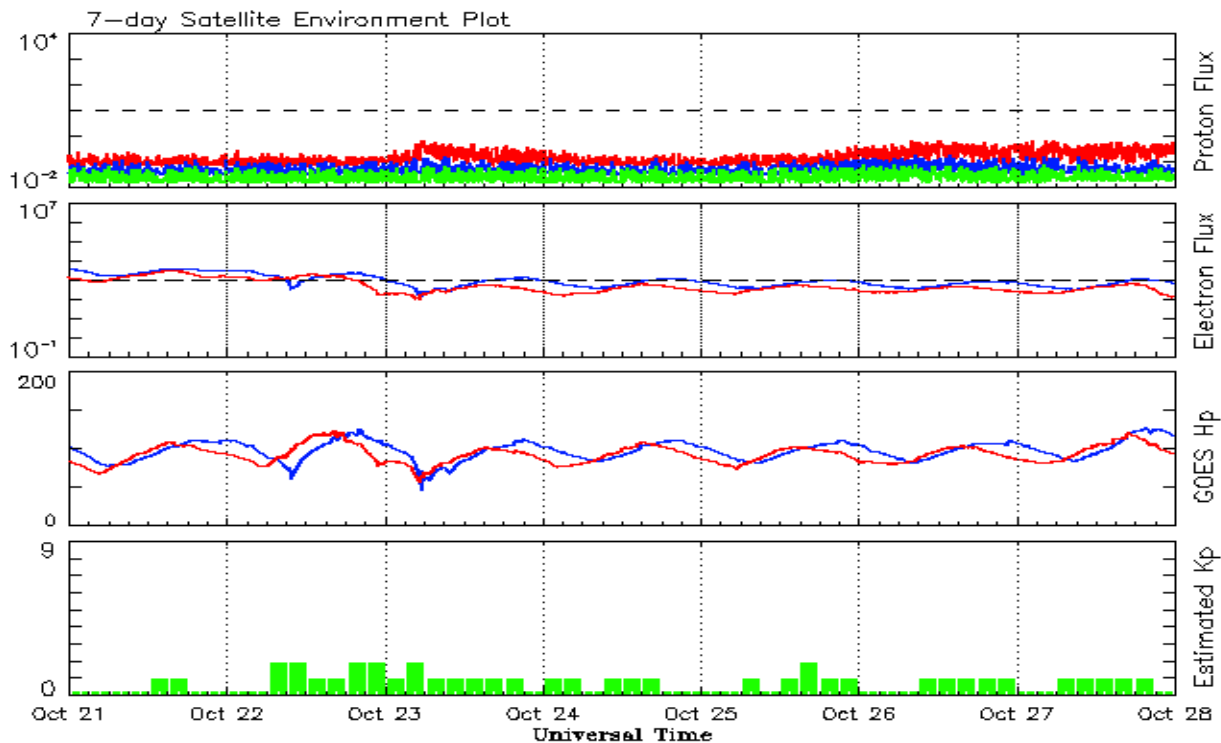


Recent Solar Indices (preliminary)
Observed monthly mean values

Month	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
2011									
October	116.8	88.0	0.75	84.6	59.9	137.2	118.4	7	8.0
November	133.1	96.7	0.73	86.3	61.1	153.1	119.5	3	8.0
December	106.3	73.0	0.69	89.2	63.4	141.2	121.6	3	8.0
2012									
January	91.3	58.3	0.64	92.0	65.5	133.1	124.4	6	8.3
February	50.1	32.9	0.66	94.2	66.9	106.7	126.7	7	8.4
March	77.9	64.3	0.82	94.1	66.8	115.1	126.8	14	8.1
April	84.4	55.2	0.65	91.3	64.6	113.1	125.8	9	8.0
May	99.5	69.0	0.69	87.7	61.7	121.5	123.8	8	8.2
June	88.6	64.5	0.73	83.9	58.9	120.5	121.1	10	8.3
July	99.6	66.5	0.67	82.4	57.8	135.6	119.5	13	8.3
August	85.8	63.0	0.74	83.1	58.2	115.7	119.2	7	8.1
September	84.0	61.4	0.73	83.7	58.1	123.2	118.9	8	7.8
October	73.5	53.3	0.73	85.0	58.6	123.3	119.2	9	7.4
November	89.2	61.8	0.69	87.3	59.7	120.9	120.1	6	7.3
December	60.4	40.8	0.68	88.0	59.6	108.4	120.1	3	7.5
2013									
January	99.8	62.9	0.63	87.1	58.7	127.1	118.9	4	7.5
February	60.0	38.1	0.63	86.7	58.4	104.4	118.0	5	7.4
March	81.0	57.9	0.71	85.7	57.5	111.2	117.1	9	7.4
April	112.8	72.4	0.64			125.0		5	
May	125.5	78.7	0.63			131.3		10	
June	80.1	52.5	0.66			110.2		13	
July	86.1	57.0	0.66			115.6		9	
August	90.2	66.0	0.73			114.7		9	
September	55.0	36.9	0.67			102.7		5	

Note: Values are final except for the most recent 6 months which are considered preliminary.
Cycle 24 started in Dec 2008 with an RI=1.7.





*Weekly Geosynchronous Satellite Environment Summary
Week Beginning 21 October 2013*

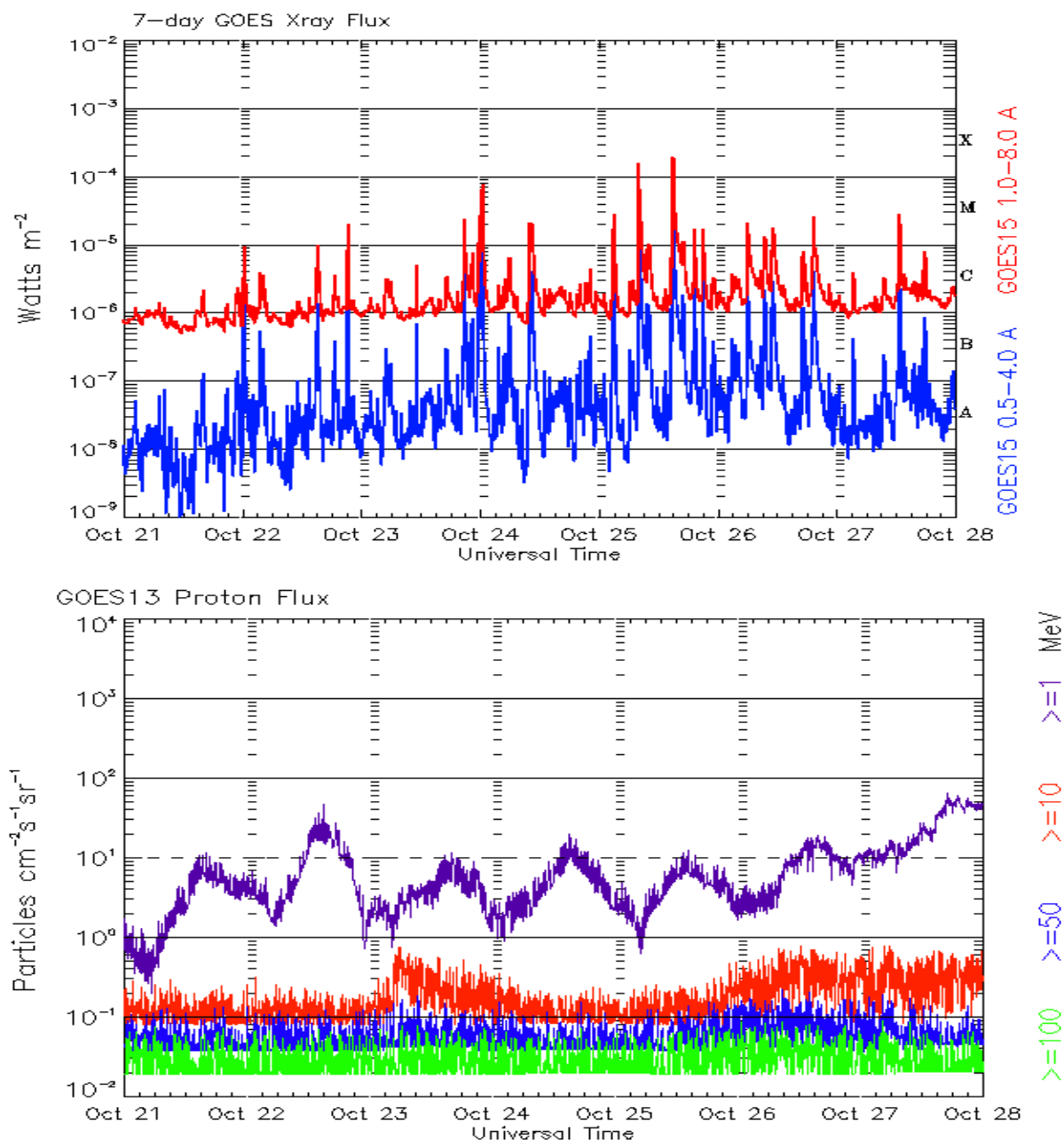
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



*Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 21 October 2013*

The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged integral flux units (pfu = protons/ cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1 , >10 , >30 , and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.

Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

Published every Monday by the Space Weather Prediction Center.

U.S. Department of Commerce
NOAA / National Weather Service
Space Weather Prediction Center
325 Broadway, Boulder CO 80305

Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned.
Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

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