

Solar activity was at low to moderate levels. Low levels were observed on 01 - 02 July, predominately from new Region 1785 (S11, L=006, class/area Ekc/680 on 05 July). Activity briefly increased to moderate levels on 03 July when new Region 1787 (S15, L=349, class/area Eai/170 on 05 July) produced an M1/Sf at 03/0708 UTC. Weak, low frequency radio emissions accompanied this event including a Type II spectral sweep with an estimated shock velocity of 1033 km/s. Activity levels returned to low on 04 July and remained there for the balance of the period. Numerous C-class activity, ranging from C1 to C8, was observed from Regions 1785 and 1787 during this time frame. At 06/1601 UTC, a faint, slow-moving coronal mass ejection (CME) was detected in SOHO/LASCO C2 imagery. WSA-ENLIL model output suggested the CME had an Earth-directed component with an arrival time expected for early on 10 July. The source location of this CME was uncertain.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels on 01 - 05 Jul and at moderate levels on 06 - 07 Jul. A maximum flux of 6,620 pfu was observed at 04/1620 UTC.

Geomagnetic field activity ranged from quiet to active levels. The period began with unsettled periods early on 01 July and relaxed to quiet levels through late on 05 July. During this time frame, ACE wind measurements indicated a gradual decay in speed from about 550 km/s to near 350 km/s. The interplanetary magnetic field (IMF) Bt ranged from 3 to 5 nT while the Bz component varied between +3 to -5 nT. The Phi component was in a predominately positive (away) orientation through late on the 5th. At about 05/1900 UTC, Bz gradually turned southward and remained so through about 07/0200 UTC. Bz reached a maximum of -13 nT at 06/0253 UTC while Bt peaked at 13 nT. The Phi angle switched to a predominately negative (toward) orientation at about 06/0500 UTC and remained negative through about 07/1600 UTC. The geomagnetic field responded with unsettled to active conditions with minor to major high latitude storming through early on 07 July. This discontinuity in ACE, and the related geomagnetic activity, was possibly due to effects from the 30 June CME. For the balance of the period, the geomagnetic field returned to quiet levels as Bz turned mostly positive to about +5 nT and wind speed further decayed to end-of-period values near 300 km/s.

Space Weather Outlook

08 July - 03 August 2013

Solar activity is expected to be at predominately low levels with a chance for M-class activity through the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to



moderate levels from 08 - 19 July and moderate to high levels from 20 July - 03 Aug.

Geomagnetic field activity is expected to be unsettled to active levels from 08 - 11 July due to combined effects from a positive coronal hole high speed stream (CH HSS) and effects from the 06 July CME. Predominately quiet conditions are expected from 12 - 16 July. Unsettled to active conditions are expected from 17 - 21 July as a recurrent, negative CH HSS rotates into a geoeffective position. Mostly quiet conditions are expected from 22 July - 03 August.



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
01 July	108	102	430	B3.3	3	0	0	0	0	0	0	0
02 July	114	101	620	B5.0	4	0	0	16	1	0	0	0
03 July	125	94	700	B6.1	10	1	0	16	0	0	0	0
04 July	138	109	870	B7.7	14	0	0	11	2	0	0	0
05 July	141	113	970	B7.9	14	0	0	35	3	0	0	0
06 July	134	115	870	B5.1	6	0	0	17	0	0	0	0
07 July	126	112	850	B4.1	6	0	0	8	1	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
01 July	2.1e+05	1.0e+04	2.5e+03		2.4e+08	
02 July	1.7e+05	1.1e+04	2.6e+03		2.7e+08	
03 July	1.8e+05	1.1e+04	2.6e+03		2.9e+08	
04 July	3.8e+05	1.0e+04	2.6e+03		3.5e+08	
05 July	7.8e+04	1.0e+04	2.5e+03		3.6e+07	
06 July	5.3e+04	9.9e+03	2.5e+03		1.8e+06	
07 July	2.2e+05	1.0e+04	2.5e+03		7.2e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
01 July	10	2-3-3-2-3-2-2-1	11	3-2-4-4-2-0-1-1	8	3-3-3-2-1-1-1-1
02 July	5	1-1-1-2-2-2-1-1	2	0-1-1-0-0-1-1-0	4	1-1-1-1-1-1-1-1
03 July	4	1-0-1-1-2-2-1-2	2	2-0-1-0-0-1-1-1	4	1-1-1-1-1-1-1-2
04 July	4	1-0-0-1-2-2-1-2	2	1-1-0-0-0-2-1-1	5	1-1-1-1-2-2-2-2
05 July	10	2-3-2-2-3-2-3-1	9	2-3-3-3-1-1-2-1	9	2-2-2-2-2-2-3-2
06 July	20	3-4-4-5-3-2-2-3	52	5-5-5-5-5-6-6-3	21	3-4-4-4-4-3-3-4
07 July	7	3-2-1-1-2-2-2-1	6	4-2-1-1-2-0-0-0	8	4-2-1-1-1-2-1-1

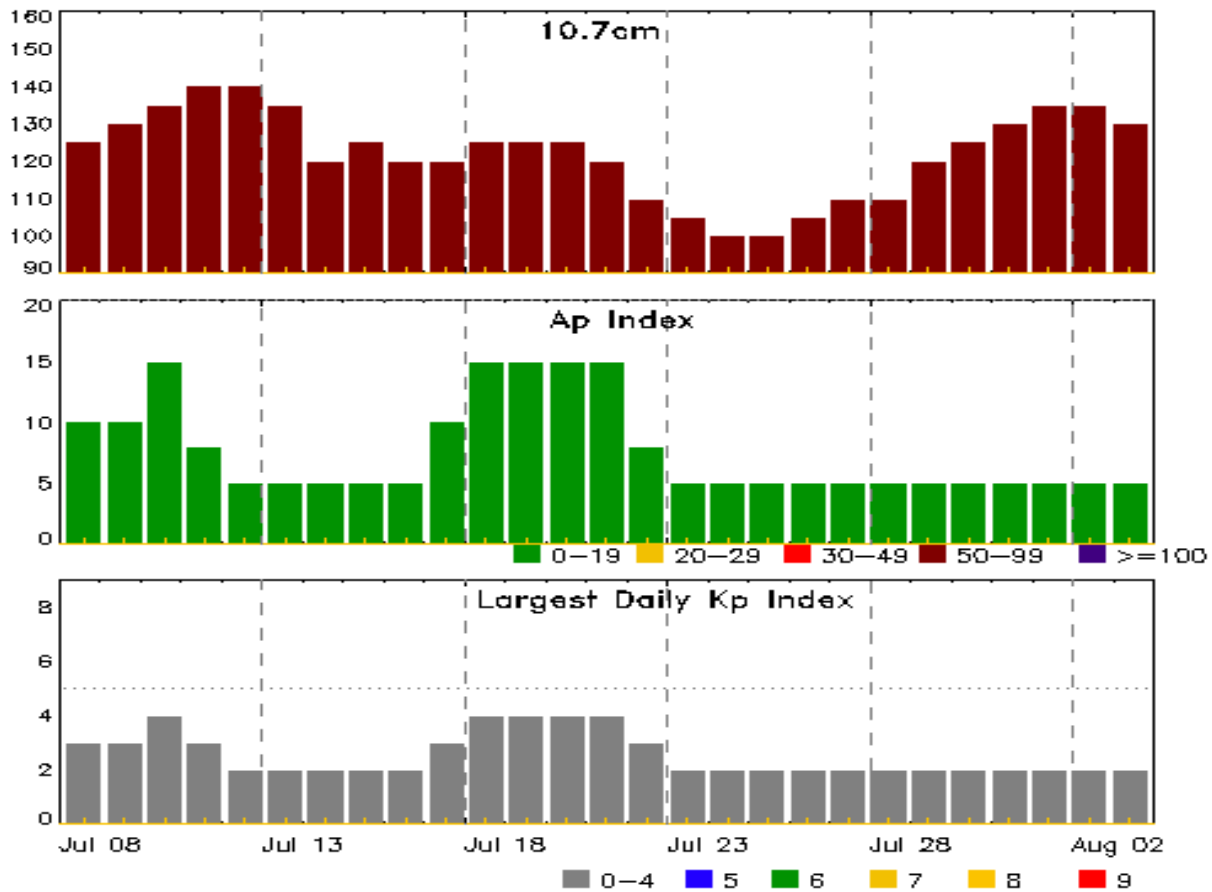


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
01 Jul 0858	ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/0840
02 Jul 0506	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/0840
03 Jul 0513	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/0840
03 Jul 0954	ALERT: Type II Radio Emission	03/0709
03 Jul 1632	WATCH: Geomagnetic Storm Category G1 predicted	
04 Jul 0503	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/0840
05 Jul 0328	ALERT: Type IV Radio Emission	05/0253
05 Jul 1612	CONTINUED ALERT: Electron 2MeV Integral Flux \geq 1000pfu	01/0840
05 Jul 1711	ALERT: Type IV Radio Emission	05/1627
05 Jul 2103	CANCELLATION: Geomagnetic Storm Category G1 predicted	
06 Jul 0053	WARNING: Geomagnetic K = 4	06/0100 - 1300
06 Jul 0501	ALERT: Geomagnetic K = 4	06/0458
06 Jul 1217	EXTENDED WARNING: Geomagnetic K = 4	06/0100 - 1900
06 Jul 1855	EXTENDED WARNING: Geomagnetic K = 4	06/0100 - 07/1200



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
08 Jul	125	10	3	22 Jul	110	8	3
09	130	10	3	23	105	5	2
10	135	15	4	24	100	5	2
11	140	8	3	25	100	5	2
12	140	5	2	26	105	5	2
13	135	5	2	27	110	5	2
14	120	5	2	28	110	5	2
15	125	5	2	29	120	5	2
16	120	5	2	30	125	5	2
17	120	10	3	31	130	5	2
18	125	15	4	01 Aug	135	5	2
19	125	15	4	02	135	5	2
20	125	15	4	03	130	5	2
21	120	15	4				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
			Max						245	2695	II	IV
03 Jul	0700	0708	0718	M1.5	0.009	SF	S11E82	1787		58		2

Flare List

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
01 Jul	0657	0700	0703	B6.9			1785
01 Jul	1003	1006	1010	B5.5			1785
01 Jul	1233	1239	1243	C1.2			1785
01 Jul	1446	1457	1502	C1.1			1785
01 Jul	1510	1516	1519	C1.8			1785
01 Jul	1600	1605	1609	B9.7			1785
01 Jul	2006	2018	2029	B7.1			1785
01 Jul	2101	2150	2259	B7.6			1785
02 Jul	0017	0025	0033	B7.6			1785
02 Jul	0046	0102	0108	B6.6			1785
02 Jul	B0456	U0457	0554		SF	S14W64	1780
02 Jul	0612	0612	0617		SF	S14W66	1780
02 Jul	0727	0802	0813		SF	S14W66	1780
02 Jul	0743	0748	0752	B7.6			
02 Jul	0754	0757	0802	B7.8	SF	S06E81	1785
02 Jul	0829	0836	0842		SF	S14W66	1780
02 Jul	0853	0856	0909		SF	S14W66	1780
02 Jul	0912	0916	0945		SF	S14W66	1780
02 Jul	0924	0927	0932	B7.7	SF	S06E81	1785
02 Jul	0947	0954	1005		SF	S14W66	1780
02 Jul	1008	1012	1043		SF	S14W66	1780
02 Jul	1045	1049	1052		SF	S14W68	1780
02 Jul	1212	1212	1217		SF	S14W68	1780
02 Jul	1240	1247	1254	C1.1			
02 Jul	1308	1311	1318	B8.6			
02 Jul	1552	1553	1606		SF	S09E76	1785
02 Jul	1557	1557	1601		SF	S14W71	1780
02 Jul	1745	1749	1752	C7.1	1F	S10E75	1785
02 Jul	1849	1927	1938	C1.2	SF	S12W72	1780
02 Jul	1959	2014	2020	B9.5	SF	S12W71	1780



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/Brtns	Location Lat CMD	Rgn #
02 Jul	2125	2130	2137	B8.7			1785
02 Jul	2215	2226	2231	B7.6			1785
02 Jul	2306	2317	2327	B8.7			1785
02 Jul	2345	2358	0007	C7.2			1787
03 Jul	0331	0339	0342	C5.4			1780
03 Jul	0700	0708	0718	M1.5	SF	S11E82	1787
03 Jul	0720	0722	0736		SF	S04E60	1785
03 Jul	0854	0910	0916	C1.7			
03 Jul	1045	1049	1058	C1.3			
03 Jul	1156	1205	1211	C2.6	SF	S09E80	1787
03 Jul	1221	1223	1230		SF	S04E61	1785
03 Jul	1236	1239	1246		SF	S04E62	1785
03 Jul	1306	1312	1327	C1.4	SF	S09E79	1787
03 Jul	1351	1355	1357	B9.3			
03 Jul	1400	1403	1405	C1.1	SF	S05E62	1785
03 Jul	1413	1413	1417		SF	S09E79	1787
03 Jul	1432	1439	1447		SF	S04E60	1785
03 Jul	1453	1453	1511	B8.9	SF	S04E60	1785
03 Jul	1509	1511	1519		SF	S09E78	1787
03 Jul	1528	1529	1545		SF	S04E60	1785
03 Jul	1610	1610	1615		SF	S04E60	1785
03 Jul	1630	1636	1700	C1.6	SF	S09E75	1787
03 Jul	1736	1754	1807	C2.1	SF	S12E54	1785
03 Jul	1852	1911	1916	C1.1			1787
03 Jul	1959	2004	2008	C6.0	SF	S06E52	1785
04 Jul	0004	0008	0013	C8.9	SF	S10E55	1785
04 Jul	0022	0025	0032	C1.9			
04 Jul	0153	0204	0208	C3.0	SF	S09E54	1785
04 Jul	0250	0253	0255	C1.1			
04 Jul	0459	0523	0540	C1.0	SF	S06E52	1785
04 Jul	0520	0523	0526	C3.9	SF	S09E49	1785
04 Jul	0602	0604	0608		SF	S07E50	1785
04 Jul	B0724	U0725	0729		SF	S07E50	1785
04 Jul	0814	0817	0825	C1.3			
04 Jul	1134	1141	1150	C1.8			1787
04 Jul	1212	1217	1222	C1.5			
04 Jul	1527	1610	1630	C1.0	SF	S13E61	1787
04 Jul	1709	1715	1721		SF	S13E62	1787



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
04 Jul	1815	1815	1819		SF	S14E63	1787
04 Jul	1842	1854	1902	C5.9	1N	S15E62	1787
04 Jul	1935	1944	1957	C6.8	1F	S14E62	1787
04 Jul	2057	2102	2109		SF	S14E62	1787
04 Jul	2122	2125	2127	C2.7	SF	S13E61	1787
04 Jul	2317	2322	2326	C1.1			1785
05 Jul	0024	0025	0028		SF	S09E35	1785
05 Jul	0051	0057	0101	C3.8	SF	S14E57	1787
05 Jul	0246	0250	0253	C3.3			1787
05 Jul	0249	0250	0253		SF	S09E33	1785
05 Jul	0251	0252	0254		SF	S14E58	1787
05 Jul	0342	0349	0354	C1.5			1787
05 Jul	0421	0426	0431	C1.8			1785
05 Jul	B0525	U0534	A0545		SF	S06E38	1785
05 Jul	B0533	U0534	A0542		SF	S12E56	1787
05 Jul	0601	0605	0611	C2.2	SF	S12E57	1787
05 Jul	0608	0608	0611		SF	S07E35	1785
05 Jul	0624	0626	0631		SF	S15W11	1784
05 Jul	0626	0627	0632		SF	S07E31	1785
05 Jul	0657	0701	0728		SF	S11E55	1787
05 Jul	0658	0700	0730		SF	S07E31	1785
05 Jul	0658	0703	0705	C1.9	SF	S09E33	1785
05 Jul	0729	0732	0735		SF	S14E56	1787
05 Jul	0743	0744	0745		SF	S08E36	1785
05 Jul	0747	0749	0750		SF	S08E36	1785
05 Jul	0806	0810	0818		SF	S13E54	1787
05 Jul	0844	0848	0855	C1.5	SF	S15E57	1787
05 Jul	0856	0856	0902		SF	S15E56	1787
05 Jul	0904	0907	0909	C1.2	SF	S09E35	1785
05 Jul	0921	0927	0942		SF	S14E55	1787
05 Jul	1010	1011	1016		SF	S14E53	1787
05 Jul	1030	1031	1042		SF	S15E55	1787
05 Jul	1055	1058	1104		SF	S14E54	1787
05 Jul	1115	1300	1330	C2.8	1N	S11E52	1787
05 Jul	1228	1228	1232		SF	S08E28	1785
05 Jul	1255	1301	1304	C8.5	1N	S10E50	1787
05 Jul	1340	1341	1345		SF	S10E49	1787
05 Jul	1410	1414	1422		SF	S07E30	1785



Flare List

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
05 Jul	1447	1449	1450		SF	S12E52	1787
05 Jul	1456	1501	1503		SF	S07E33	1785
05 Jul	1529	1541	1618	C3.6	SF	S08E48	1787
05 Jul	1533	1542	1608		SF	S12E52	1787
05 Jul	1639	1657	1707		SF	S11E50	1787
05 Jul	1712	1714	1717		SF	S13E51	1787
05 Jul	1747	1752	1758	C1.0			
05 Jul	1803	1803	1806		SF	S07E24	1785
05 Jul	1913	1935	1959	C4.9	1F	S12E48	1787
05 Jul	2130	2135	2139	C3.5	SF	S07E21	1785
05 Jul	2257	2300	2304	B9.6			1787
06 Jul	0002	0008	0012		SF	S12E46	1787
06 Jul	0041	0117	0150	C2.3	SF	S08E26	1785
06 Jul	0229	0233	0236	C4.1	SF	S09E18	1785
06 Jul	0623	0713	0722	C2.9	SF	S08E21	1785
06 Jul	0659	0713	0723		SF	S14E43	1787
06 Jul	0807	0810	0813	C1.0	SF	S09E15	1785
06 Jul	0844	0849	0918		SF	S05E25	1785
06 Jul	0955	0955	0959		SF	S06E14	1785
06 Jul	1104	1104	1107		SF	S14E41	1787
06 Jul	1148	1149	1152		SF	S14E41	1787
06 Jul	1221	1223	1227		SF	S09E13	1785
06 Jul	1256	1303	1305		SF	S09E22	1785
06 Jul	1417	1424	1440		SF	S13E40	1787
06 Jul	1535	1538	1545	B7.6	SF	S08E19	1785
06 Jul	1555	1601	1605		SF	S08E19	1785
06 Jul	1621	1622	1632		SF	S09E19	1785
06 Jul	1731	1738	1750	C1.1	SF	S15W31	1784
06 Jul	2151	2155	2157	C1.8			
07 Jul	0053	0058	0101	C6.1	1N	S08E06	1785
07 Jul	0204	0210	0224	C1.2			1785
07 Jul	0306	0319	0327	C1.5	SF	S07E11	1785
07 Jul	0356	0402	0405	C1.1	SF	S09E12	1785
07 Jul	0729	0741	0752		SF	S08E11	1785
07 Jul	0813	0821	0830		SF	S08E11	1785
07 Jul	1205	1213	1220	C1.7	SF	S08E09	1785
07 Jul	1320	1340	1344	B8.3	SF	S16E01	1788
07 Jul	1522	1531	1535		SF	S08E07	1785



Flare List

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
07 Jul	1551	1551	1600		SF	S08E06	1785
07 Jul	2018	2021	2023	B8.9			
07 Jul	2243	2250	2258	C1.0			1785



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 1777															
20 Jun	S16E66	165	70	3	Hsx	1	A	1							
21 Jun	S15E56	162	130	3	Cao	3	B		1			1			
22 Jun	S15E42	162	200	3	Cso	3	B								
23 Jun	S15E29	162	170	3	Hsx	1	A								
24 Jun	S15E16	160	170	2	Hsx	2	A								
25 Jun	S16E03	161	150	2	Hsx	1	A								
26 Jun	S14W11	161	130	2	Hsx	3	A								
27 Jun	S16W23	161	130	2	Hsx	1	A								
28 Jun	S16W37	161	150	2	Hsx	1	A	1			1				
29 Jun	S17W50	161	130	2	Hsx	1	A								
30 Jun	S18W63	162	130	2	Hsx	1	A								
01 Jul	S17W77	162	90	2	Hsx	1	A								
02 Jul	S17W93	164	100	6	Hsx	1	A								
								2	1	0	1	1	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 161

Region 1778															
22 Jun	S16E75	129	110	2	Hsx	1	A								
23 Jun	S16E61	130	100	3	Cao	4	B		1			1			
24 Jun	S16E49	128	80	7	Cao	4	B	2			4	1			
25 Jun	S16E36	128	80	7	Cao	6	B								
26 Jun	S17E22	128	80	5	Cso	7	B				1				
27 Jun	S17E11	126	80	12	Eso	17	BG	2			3				
28 Jun	S17W01	125	50	12	Eao	23	B	2			3				
29 Jun	S17W14	125	50	12	Cso	14	B								
30 Jun	S18W28	127	20	6	Cro	6	B	2			7				
01 Jul	S18W42	127	10	6	Bxo	3	B								
02 Jul	S18W56	128	plage												
03 Jul	S18W70	129	plage												
04 Jul	S18W84	129	plage												
								8	1	0	18	2	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 125



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 1779

25 Jun	N17E53	111	10	3	Bxo	2	B								
26 Jun	N15E39	111	10	3	Bxo	2	B								
27 Jun	N15E27	110	10	1	Axx	1	A								
28 Jun	N17E14	110	10	2	Axx	3	A								
29 Jun	N17W00	111	plage												
30 Jun	N17W14	112	plage												
01 Jul	N17W28	113	plage												
02 Jul	N17W42	114	plage												
03 Jul	N17W56	115	plage												
04 Jul	N17W70	115	plage												
05 Jul	N17W84	116	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 111

Region 1780

26 Jun	S09E10	140	0	1	Bxo	2	B								
27 Jun	S08W04	141	10	1	Axx	1	A								
28 Jun	S08W18	143	plage												
29 Jun	S08W32	143	plage												
30 Jun	S13W45	144	20	4	Dri	3	BG	3			5				
01 Jul	S12W60	145	60	6	Dso	6	B								
02 Jul	S11W78	148	30	4	Hrx	2	A	1			13				
03 Jul	S13W89	147	10	1	Hrx	1	A	1							
								5	0	0	18	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 141

Region 1781

28 Jun	N22W04	128	10	3	Cro	4	B								
29 Jun	N22W18	129	40	6	Dai	10	BG	1			4				
30 Jun	N19W31	128	90	7	Dai	12	BG								
01 Jul	N22W47	131	140	8	Dai	16	B								
02 Jul	N22W57	129	110	9	Dsi	12	B								
03 Jul	N21W69	128	30	7	Dso	5	B								
04 Jul	N22W81	126	10		Axx	1	A								
								1	0	0	4	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 128



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

Region 1782

28 Jun	S14E48	75	10	1	Hrx	2	A								
29 Jun	S14E34	77	10	2	Hrx	2	A								
30 Jun	S15E18	80	10	1	Axx	1	A								
01 Jul	S15E05	80	plage												
02 Jul	S15W09	81	plage												
03 Jul	S15W23	82	plage												
04 Jul	S15W37	82	plage												
05 Jul	S15W51	83	plage												
06 Jul	S15W65	84	plage												
07 Jul	S15W79	85	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 80

Region 1783

30 Jun	N04E58	38	10	4	Bxo	2	B								
01 Jul	N05E45	40	10	4	Bxo	2	B								
02 Jul	N07E33	37	10		Hrx	1	A								
03 Jul	N07E18	40	plage												
04 Jul	N07E03	42	plage												
05 Jul	N07W12	44	plage												
06 Jul	N07W27	46	plage												
07 Jul	N07W42	48	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 42

Region 1784

01 Jul	S15E32	53	10	2	Bxo	3	B								
02 Jul	S14E17	54	40	4	Cso	5	B								
03 Jul	S15E06	52	20	4	Cso	4	B								
04 Jul	S15W09	55	70	5	Dsi	13	B								
05 Jul	S16W23	55	70	7	Dai	15	B				1				
06 Jul	S15W36	55	80	9	Cai	13	B	1			1				
07 Jul	S15W49	55	80	8	Dao	10	B								
								1	0	0	2	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 52



Region Summary - continued

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
		Lon	10 ⁻⁶ hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 1785															
01 Jul	S09E76	9	110	2	Hax	1	A	3							
02 Jul	S11E62	8	300	19	Fho	8	B	1			3	1			
03 Jul	S11E49	8	570	16	Fkc	20	BG	3			10				
04 Jul	S12E36	9	630	16	Fkc	43	BGD	5			6				
05 Jul	S11E24	8	720	15	Ekc	42	BGD	4			15				
06 Jul	S11E12	7	650	14	Ekc	43	BGD	4			11				
07 Jul	S10W02	8	610	13	Ekc	29	BGD	6			7	1			
								26	0	0	52	2	0	0	0

Still on Disk.

Absolute heliographic longitude: 8

Region 1786															
02 Jul	S31E18	54	30	2	Cro	2	B								
03 Jul	S31E03	55	10	1	Hsx	1	A								
04 Jul	S31W11	56	plage												
05 Jul	S31W25	57	plage												
06 Jul	S31W39	58	plage												
07 Jul	S31W53	59	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 55

Region 1787															
03 Jul	S14E70	348	60	7	Dso	3	B	4	1		6				
04 Jul	S14E56	349	160	9	Dao	12	BG	5			5	2			
05 Jul	S15E43	349	170	11	Eai	14	BG	9			19	3			
06 Jul	S14E31	348	140	10	Dao	17	BG				5				
07 Jul	S14E17	349	140	11	Eai	19	BG								
								19	1	0	35	5	0	0	0

Still on Disk.

Absolute heliographic longitude: 349

Region 1788															
05 Jul	S15E18	14	10	5	Bxo	2	B								
06 Jul	S15E04	15	0	2	Axx	2	A								
07 Jul	S15W10	16	plage								1				
								0	0	0	1	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 15



Region Summary - continued

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

Region 1789

07 Jul	S24E22	344	10	3	Bxo	2	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 344

Region 1790

07 Jul	S15E45	321	10	2	Axx	2	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 321

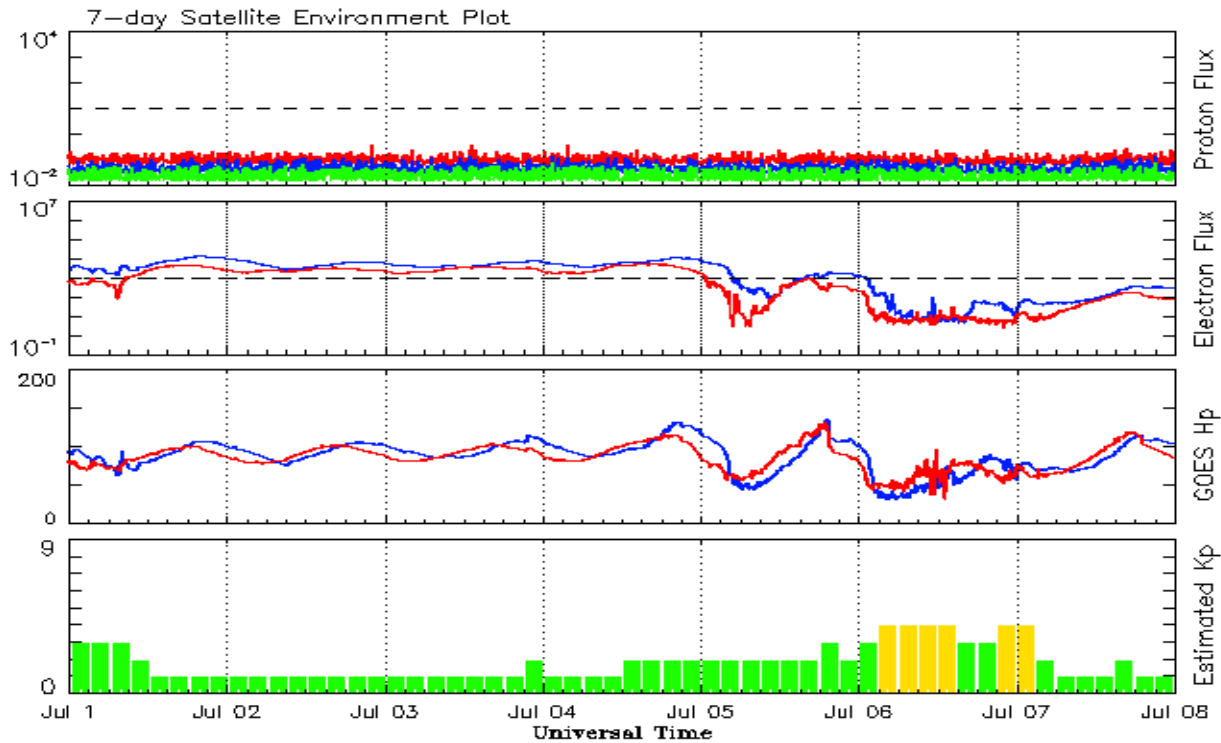


Recent Solar Indices (preliminary)
Observed monthly mean values

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									
July	67.0	43.8	0.66	82.5	57.3	94.2	115.4	9	7.3
August	66.1	50.6	0.77	84.9	59.0	101.7	117.9	8	7.4
September	106.4	78.0	0.73	84.6	59.5	134.5	118.4	13	7.7
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			127.1		4	
February	60.0	38.0	0.63			104.4		5	
March	81.0	57.9	0.71			111.2		9	
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	

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 01 July 2013*

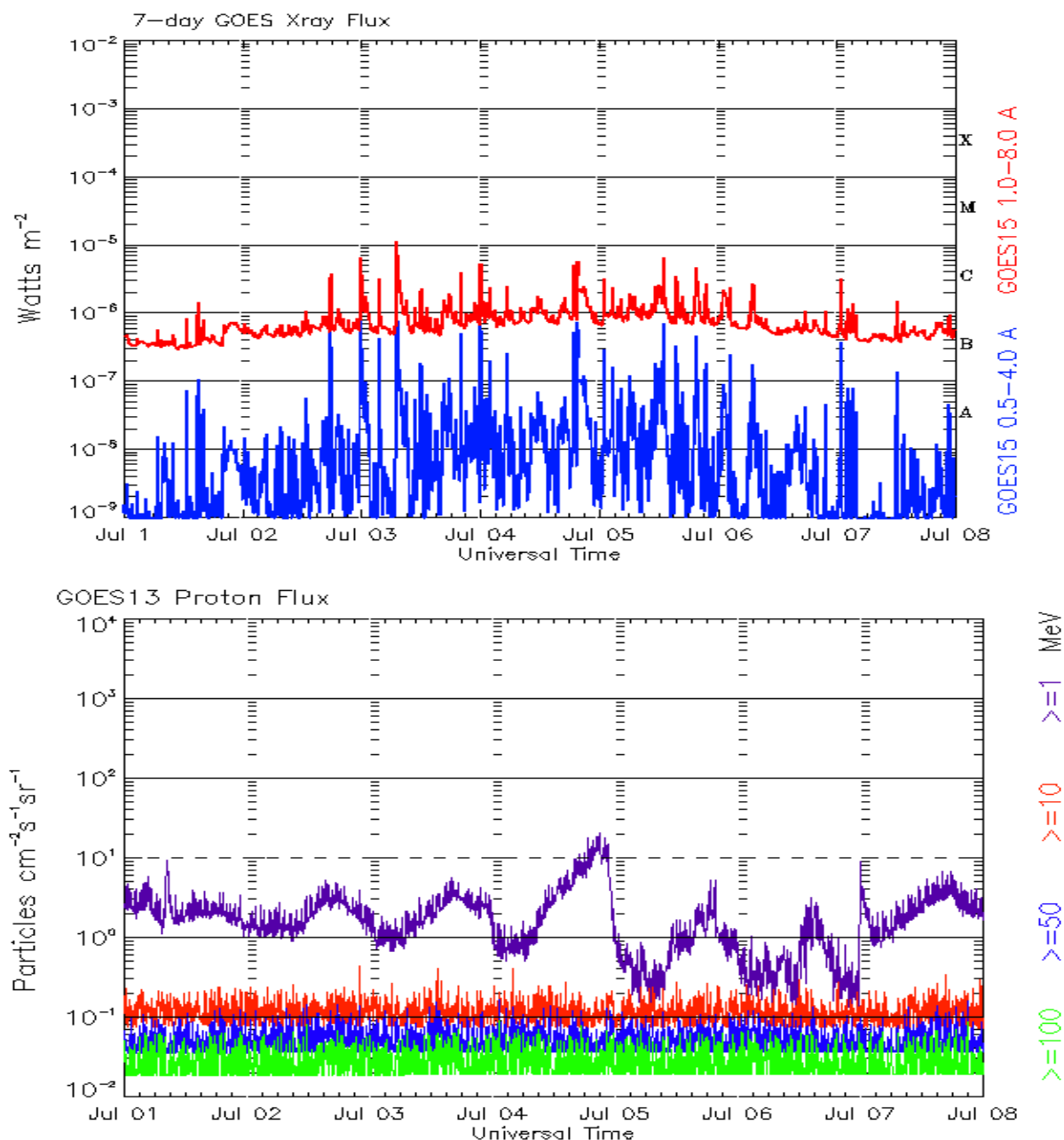
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

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.



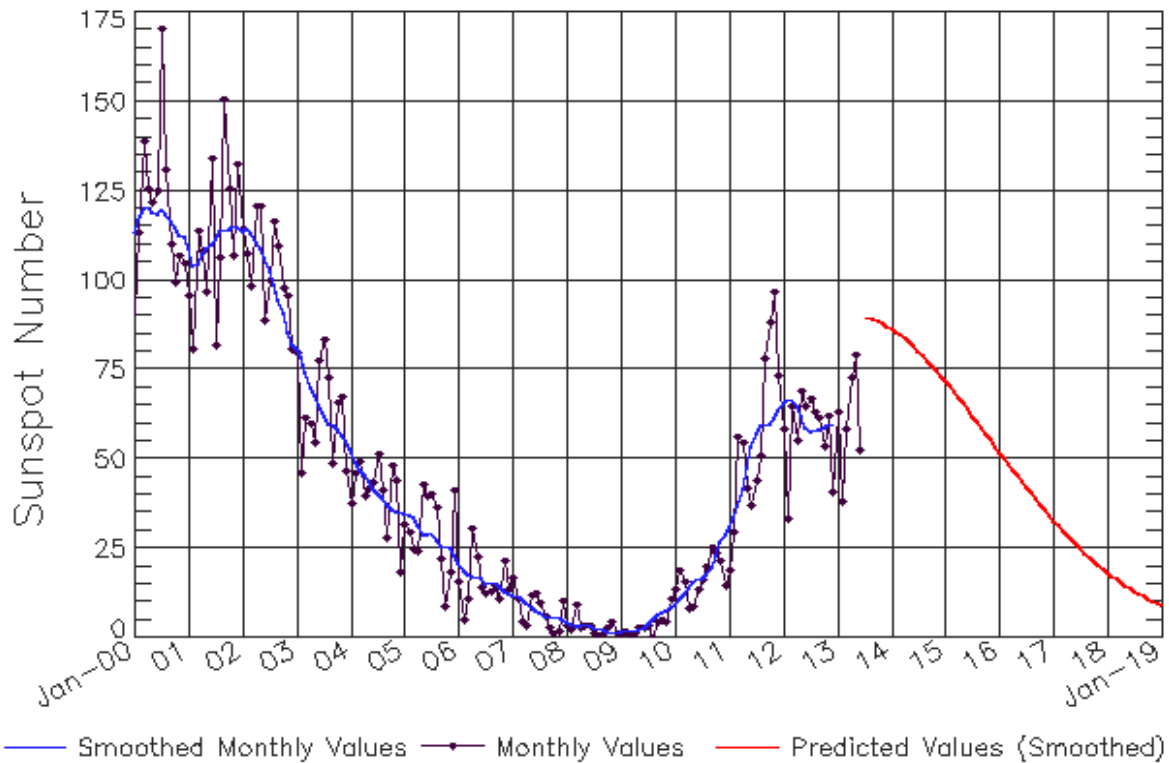
*Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 01 July 2013*

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.

ISES Solar Cycle Sunspot Number Progression

Observed data through Jun 2013



Updated 2013 Jul 8

NOAA/SWPC Boulder, CO USA

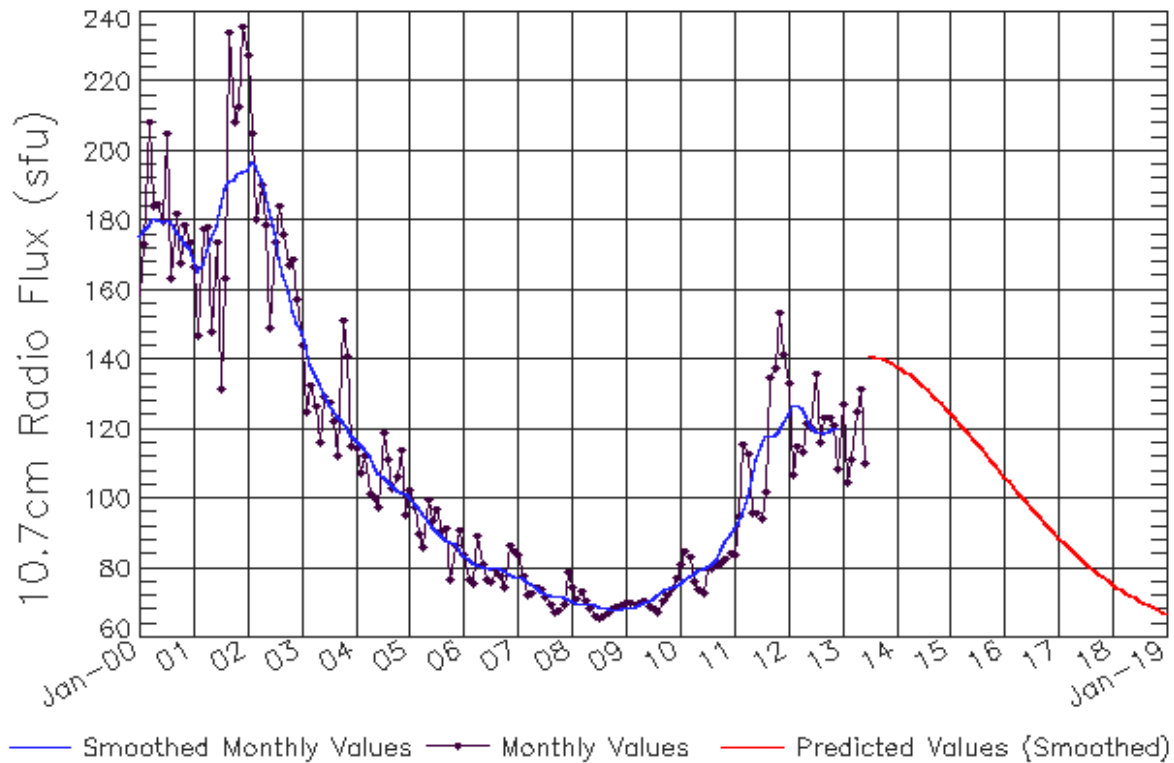
Smoothed Sunspot Number Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	9 (***)	11 (***)	12 (***)	14 (***)	16 (***)	16 (***)	17 (***)	17 (***)	20 (***)	23 (***)	27 (***)	29 (***)
2011	31 (***)	33 (***)	37 (***)	42 (***)	48 (***)	53 (***)	57 (***)	59 (***)	60 (***)	60 (***)	61 (***)	63 (***)
2012	66 (***)	67 (***)	67 (***)	65 (***)	62 (***)	59 (***)	58 (***)	58 (***)	58 (***)	59 (***)	60 (***)	60 (***)
2013	60 (1)	62 (2)	64 (3)	67 (5)	70 (5)	73 (6)	76 (7)	79 (7)	82 (8)	83 (9)	84 (9)	85 (10)
2014	86 (10)	86 (10)	85 (10)	84 (10)	83 (10)	81 (10)	80 (10)	79 (10)	78 (10)	76 (10)	75 (10)	73 (10)
2015	72 (10)	70 (10)	69 (10)	67 (10)	65 (10)	64 (10)	62 (10)	60 (10)	59 (10)	57 (10)	55 (10)	54 (10)
2016	52 (10)	50 (10)	49 (10)	47 (10)	45 (10)	44 (10)	42 (10)	40 (10)	39 (10)	37 (10)	36 (10)	34 (10)
2017	33 (10)	31 (10)	30 (10)	29 (10)	27 (10)	26 (10)	25 (10)	24 (10)	23 (10)	21 (10)	20 (10)	19 (10)
2018	18 (10)	17 (10)	16 (10)	15 (10)	15 (10)	14 (10)	13 (10)	12 (10)	12 (10)	11 (10)	10 (10)	10 (10)
2019	9 (10)	8 (10)	8 (10)	7 (10)	7 (10)	6 (10)	6 (10)	6 (10)	5 (10)	5 (10)	4 (10)	4 (10)



ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Jun 2013



Updated 2013 Jul 8

NOAA/SWPC Boulder, CO USA

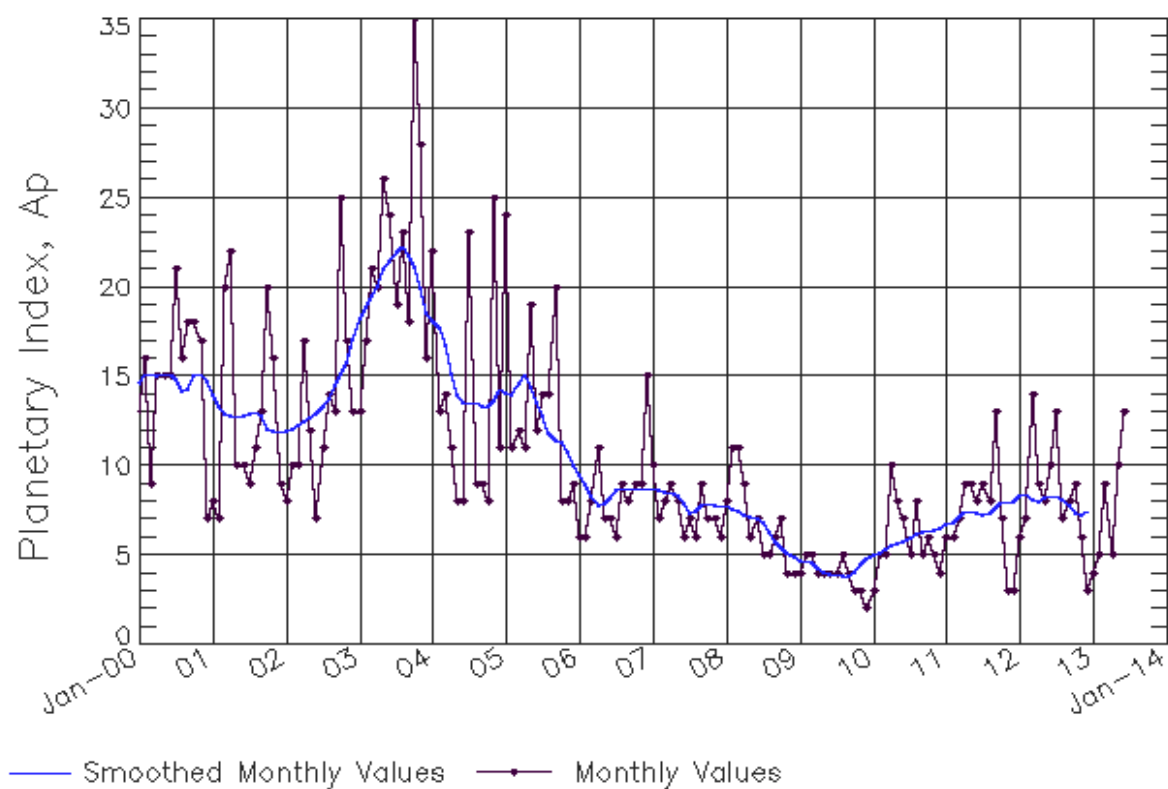
Smoothed F10.7cm Radio Flux Prediction

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	76 (***)	77 (***)	78 (***)	78 (***)	79 (***)	80 (***)	80 (***)	81 (***)	82 (***)	85 (***)	88 (***)	90 (***)
2011	91 (***)	93 (***)	96 (***)	100 (***)	106 (***)	111 (***)	115 (***)	118 (***)	118 (***)	118 (***)	120 (***)	122 (***)
2012	124 (***)	127 (***)	127 (***)	126 (***)	124 (***)	121 (***)	120 (***)	119 (***)	119 (***)	119 (***)	120 (***)	120 (***)
2013	120 (1)	121 (1)	123 (2)	124 (3)	126 (4)	128 (4)	130 (5)	131 (6)	134 (7)	135 (8)	136 (8)	137 (9)
2014	138 (9)	137 (9)	136 (9)	136 (9)	135 (9)	134 (9)	132 (9)	131 (9)	130 (9)	129 (9)	127 (9)	126 (9)
2015	125 (9)	123 (9)	122 (9)	120 (9)	119 (9)	117 (9)	116 (9)	114 (9)	113 (9)	111 (9)	110 (9)	108 (9)
2016	106 (9)	105 (9)	103 (9)	102 (9)	100 (9)	99 (9)	97 (9)	96 (9)	94 (9)	93 (9)	92 (9)	90 (9)
2017	89 (9)	88 (9)	86 (9)	85 (9)	84 (9)	83 (9)	82 (9)	80 (9)	79 (9)	78 (9)	77 (9)	76 (9)
2018	75 (9)	75 (9)	74 (9)	73 (9)	72 (9)	71 (9)	71 (9)	70 (9)	69 (9)	69 (9)	68 (9)	67 (9)
2019	67 (9)	66 (9)	66 (9)	65 (9)	65 (9)	65 (9)	64 (9)	64 (9)	63 (9)	63 (9)	63 (9)	63 (9)



ISES Solar Cycle Ap Progression

Observed data through Jun 2013



Updated 2013 Jul 8

NOAA/SWPC Boulder, CO USA

Solar Cycle Comparison charts are temporarily unavailable.



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

The Weekly has been published continuously since 1951 and is available online since 1997.

<http://spaceweather.gov/weekly/> -- Current and previous year

<http://spaceweather.gov/ftpmenu/warehouse.html> -- Online archive from 1997

<http://spaceweather.gov/ftpmenu/> -- Some content as ascii text

<http://spaceweather.gov/SolarCycle/> -- Solar Cycle Progression web site

<http://spaceweather.gov/contacts.html> -- Contact and Copyright information

http://spaceweather.gov/weekly/Usr_guide.pdf -- User Guide

