

Solar activity was at very low to low levels during the period. Very low levels were observed during the entire period except on 28 September, when low level activity was observed due to two C-class flares from Region 1110 (N19, L=087, class/area, Dso/50 on 29 September), the largest being a C2.0 X-ray event on 28/2210 UTC. Through the summary period, Region 1110 grew in area, spot count and magnetic complexity until 29 September, then gradually decayed. Region 1109 (N22, L=065, class/area Eki/420 on 27 September) remained stable throughout the period and produced numerous B-class events. Region 1108 (S30, L=141, class/area, Hsx/230 on 27 September) produced a few B-class flares before it rotated off the disk on 28 September. New Region 1111 (N24, L=240, class/area, Cro/30 on 2 October) was numbered on 29 September and showed gradual growth in areal coverage, magnetic complexity, and sunspot number, but remained quiet.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels throughout the period.

Geomagnetic field activity was at quiet to unsettled levels during 27 - 29 September with isolated minor to major storm levels observed at high latitudes on 28 September. Activity decreased to quiet levels early on 29 September, and remained there for the rest of the period. The increase in activity early in the period was associated with a recurrent coronal hole high-speed stream (CH HSS). During this period, the interplanetary magnetic field (IMF) Bt intensity peaked at 9 nT at 28/0712 UTC, with periods of southward IMF Bz (maximum deflection of -8 nT at 28/0707 UTC) and increased velocities (from 440 km/s at 28/0126 UTC to 562 km/s at 28/1933 UTC). Activity levels decreased to predominantly quiet levels by early on 29 September as the effects of the CH HSS waned.

Space Weather Outlook

06 October – 01 November 2010

Solar activity is expected to be at very low levels during 06 – 18 October. Very low to low levels are expected for the remainder of the 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 during the period.

Geomagnetic field activity is expected to be at quiet levels from 06 -10 October. Activity is expected to increase to quiet to unsettled levels on 11 – 14 October due to a solar sector boundary (SSB) crossing in advance of a recurrent CH HSS. Activity is expected to decrease to quiet levels during 15 - 20 October. Activity is expected to increase to quiet to unsettled levels on 21 - 22 October as another recurrent CH HSS begins to disturb the field. Mostly quiet levels are expected for the remainder of the forecast period.



Daily Solar Data

Date	Radio	Sun	Sunspot	X-ray	Flares							
	Flux	spot	Area	Background	X-ray Flux			Optical				
	10.7 cm	No.	(10 ⁻⁶ hemi.)		C	M	X	S	1	2	3	4
27 September	83	52	650	B1.1	0	0	0	2	0	0	0	0
28 September	83	49	430	B1.2	2	0	0	2	0	0	0	0
29 September	91	51	370	B1.4	0	0	0	2	0	0	0	0
30 September	90	45	280	B1.4	0	0	0	2	0	0	0	0
01 October	87	44	280	B1.1	0	0	0	2	0	0	0	0
02 October	85	42	350	A9.9	0	0	0	0	0	0	0	0
03 October	80	28	250	A8.7	0	0	0	0	0	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	>.6 MeV	>2MeV	>4 MeV
27 September	3.7e+05	1.4e+04	3.3e+03		1.9e+07	
28 September	3.6e+05	1.3e+04	3.4e+03		9.8e+06	
29 September	1.4e+05	1.4e+04	3.4e+03		9.9e+06	
30 September	2.2e+05	1.4e+04	3.5e+03		1.1e+07	
01 October	3.0e+05	1.4e+04	3.6e+03		1.1e+07	
02 October	3.4e+05	1.4e+04	3.4e+03		1.2e+07	
03 October	3.9e+05	1.4e+04	3.7e+03		1.1e+07	

Daily Geomagnetic Data

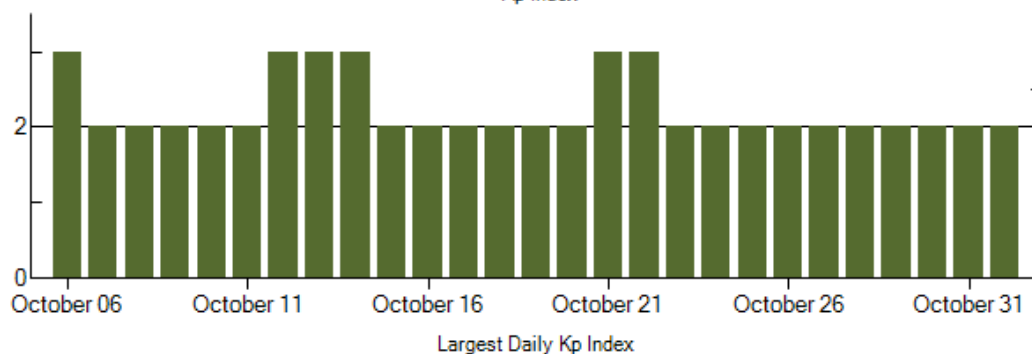
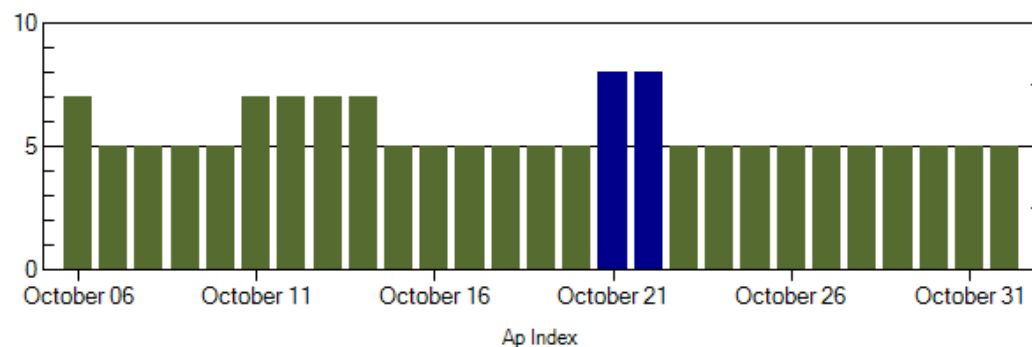
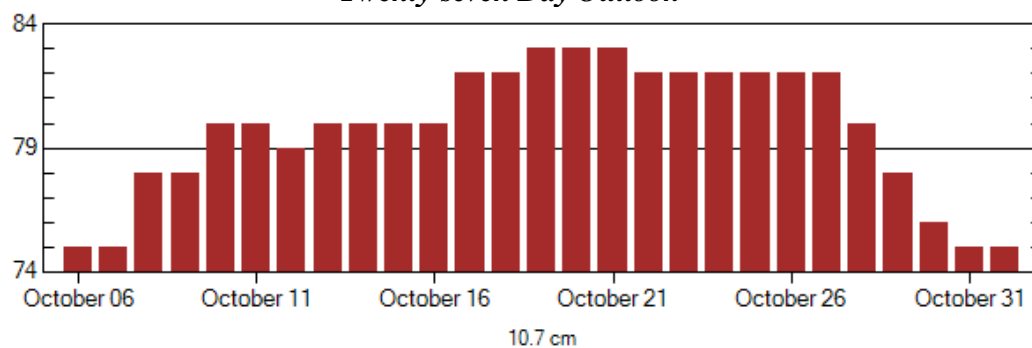
Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
27 September	5	2-0-1-1-2-2-2-2	5	1-1-1-0-2-3-2-1	6	1-0-0-0-2-2-3-2
28 September	7	2-1-3-2-2-2-2-1	22	1-2-6-5-4-2-1-0	7	1-1-3-2-2-2-2-1
29 September	2	1-2-1-0-1-0-0-0	3	1-1-1-1-2-1-0-0	5	1-3-1-0-2-1-1-1
30 September	1	0-0-0-0-1-1-0-0	0	0-0-0-0-0-0-0-0	1	0-0-0-0-1-0-0-1
01 October	0	0-1-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0	3	1-0-0-0-2-1-1-1
02 October	0	0-0-0-0-0-1-0-0	0	0-0-0-0-0-0-0-0	2	0-0-0-0-2-1-1-1
03 October	1	1-1-0-1-0-0-0-0	0	0-0-0-1-0-0-0-0	3	1-0-0-1-1-1-0-1

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UTC
28 Sep 0830	WARNING: Geomagnetic K = 4	28 Sep 0840 - 1600



Twenty-seven Day Outlook



Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index
06 Oct	75	7	3	20 Oct	83	5	2
07	75	5	2	21	83	8	3
08	78	5	2	22	82	8	3
09	78	5	2	23	82	5	2
10	80	5	2	24	82	5	2
11	80	7	2	25	82	5	2
12	79	7	3	26	82	5	2
13	80	7	3	27	82	5	2
14	80	7	3	28	80	5	2
15	80	5	2	29	78	5	2
16	80	5	2	30	76	5	2
17	82	5	2	31	75	5	2
18	82	5	2	01 Nov	75	5	2
19	83	5	2				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq	
	$\frac{1}{2}$		Integ		Imp/	Location	Rgn	Radio Flux		Intensity	
	Begin	Max	Max	Class	Brtns	Lat CMD	#	245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location		Rgn
	Begin	Max	End			Lat	CMD	
27 September	0018	0018	0027	B3.3	SF	N21W2		1110
	1441	1444	1449	B1.6				1109
	2136	2139	2142	B1.9				
	2155	2156	2204	B6.1				1109
28 September	0237	0241	0243	B2.3	SF	N19E3		1108
	0244	0247	0249	B2.1				1108
	0639	0642	0645	B1.4				
	0938	0948	0957	C1.7				1110
	1413	1422	1430	B2.8				1109
	1443	1505	1511	B5.2				1110
	1838	1846	1852	B2.4				
	2112	2113	2119	B6.1			N19W30	1110
	2209	2210	2218	C2.0			N19W31	1110
	2236	2242	2250	B2.5				
29 September	0008	0012	0019	B2.2	SF	N20W30		1110
	0124	0126	0131	B6.6				
	0703	0711	0713	B2.7				
	0833	0834	0836				N21W11	1109
	0934	0937	0941	B4.5				1110
30 September	1311	1315	1318	B2.5	SF	N20W25		
	0502	0503	0508	B5.7				1109
	0547	0558	0612	B7.0				
	0810	0816	0822	B3.7				
	1004	1005	1028	B5.8			N19W29	1109
01 October	1705	1710	1718	B2.4	SF	N19W29		1110
	2316	2320	2323	B2.8				1109
	0452	0456	0458	B2.4				1109
	0743	0759	0802	B3.7				1109
	0757	0757	0804	B3.6			N20W41	1109
02 October	0957	1002	1018	B5.3	SF	N18W61		1110
	0839	0851	0900	B5.0				1109
	2331	2337	2343	B1.9				1109
03 October	0409	0438	0503	B2.3				1110
	1920	1923	1925	B1.2				1111
	2143	2146	2149	B1.7				1111



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 1108															
16 Sep	S28E69	144	290	9	CKO	5	B								
17 Sep	S28E59	141	280	13	EHO	5	B	1				1			
18 Sep	S28E49	138	370	14	ESO	8	B								
19 Sep	S30E36	137	420	18	FHO	13	B								
20 Sep	S30E24	136	380	18	FKO	11	B								
21 Sep	S30E14	133	270	16	FHO	5	B								
22 Sep	S30W09	142	340	4	HHX	2	A								
23 Sep	S30W22	142	260	4	HKX	2	A								
24 Sep	S30W34	141	280	4	HKX	2	A								
25 Sep	S31W46	140	210	4	HHX	2	A								
26 Sep	S31W58	140	220	3	HSX	2	A								
27 Sep	S30W72	141	230	4	HSX	1	A								
28 Sep	S30W83	138	140	4	HSX	1	A								
29 Sep	S30W96	137													
								1	0	0	1	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 142

<i>Region 1109</i>															
20 Sep	N19E89	72						3							
21 Sep	N19E75	72	30	1	HRX	1	A	1							
22 Sep	N22E67	67	200	10	DKO	4	B								
23 Sep	N22E54	67	210	9	DSO	12	B				2				
24 Sep	N22E41	66	280	13	EHO	12	B								
25 Sep	N22E27	67	280	14	EH1	18	BG								
26 Sep	N21E14	66	360	14	ESI	22	B				2				
27 Sep	N22E02	65	420	13	EK1	20	B				1				
28 Sep	N22W11	65	280	13	EAI	12	B								
29 Sep	N22W24	65	310	13	EH1	13	B				1				
30 Sep	N21W39	67	240	7	DH1	11	B				2				
01 Oct	N21W51	65	270	9	DHO	11	B				1				
02 Oct	N21W65	66	320	10	CKO	8	B								
03 Oct	N20W80	68	220	4	HAX	3	A								
								4	0	0	9	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 65



Region Summary-Continued

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 1110															
26 Sep	N19W05	85	10	2	AXX	3	A					1			
27 Sep	N20W19	86		1	AXX	1	A					1			
28 Sep	N20W31	85	10	6	AXX	6	A	2				2			
29 Sep	N19W45	87	50	6	DSO	7	B					1			
30 Sep	N19W60	90	30	6	BXO	3	B								
01 Oct	N20W71	86		1	AXX	1	A					1			
02 Oct	N21W84	85			AXX	1	A								
									2	0	0	6	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 85

<i>Region 1111</i>															
29 Sep	N23E55	346	10	1	AXX	1	A								
30 Sep	N24E42	345	10	1	AXX	1	A								
01 Oct	N20E30	343	10	6	BXO	2	B								
02 Oct	N24E21	340	30	4	CRO	3	B								
03 Oct	N24E06	341	30	4	DRO	5	B								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 341



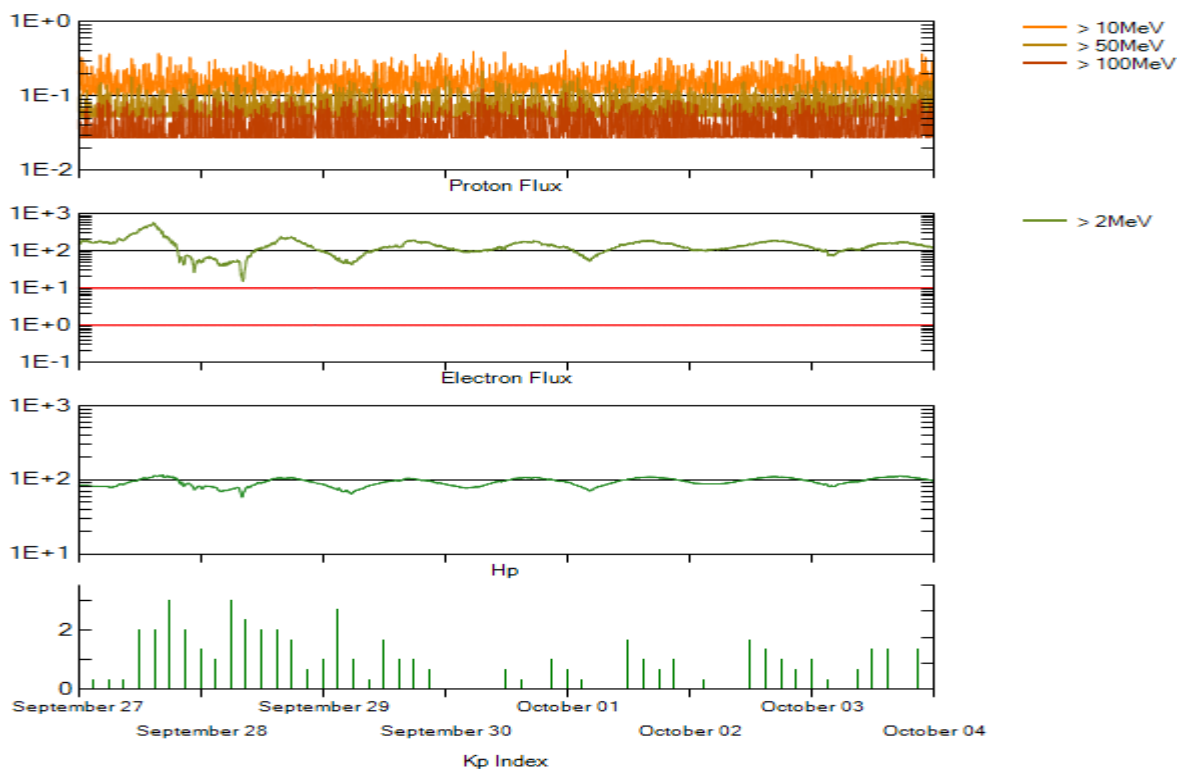
Recent Solar Indices (preliminary)
Of the observed monthly mean values

Month	by the observed monthly mean values					Radio Flux		Geomagnetic	
	Sunspot Numbers								
	Observed values	Ratio	Smooth values			*Penticton	Smooth	Planetary	Smooth
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
2008									
October	5.2	2.9	0.56	2.9	1.8	68.3	68.2	7	5.4
November	6.8	4.1	0.60	2.7	1.7	68.6	68.3	4	5.1
December	1.3	0.8	0.62	2.7	1.7	69.2	68.5	4	4.9
2009									
January	2.8	1.3	0.46	3.0	1.8	69.8	68.7	4	4.7
February	2.5	1.4	0.56	3.1	1.9	70.0	68.8	5	4.7
March	0.7	0.7	1.00	3.4	2.0	69.2	69.0	5	4.6
April	1.2	0.8	1.00	3.7	2.2	69.7	69.3	4	4.3
May	3.9	2.9	0.74	3.8	2.3	70.5	69.7	4	4.1
June	6.6	2.9	0.39	4.4	2.7	68.6	70.2	4	4.0
July	5.0	3.2	0.70	5.8	3.6	68.2	71.0	4	3.9
August	0.3	0.0	0.00	7.7	4.8	67.4	72.1	5	3.8
September	6.6	4.3	0.64	9.9	6.2	70.5	73.3	4	3.8
October	7.0	4.8	0.66	11.3	7.1	72.3	74.1	3	4.1
November	7.7	4.1	0.55	12.4	7.6	73.6	74.5	3	4.5
December	15.7	10.8	0.68	13.6	8.3	76.8	74.9	2	4.8
2010									
January	21.3	13.2	0.62	14.8	9.3	81.1	75.5	3	5.0
February	31.0	18.8	0.60	16.7	10.6	84.7	76.5	5	5.1
March	24.7	15.4	0.62	19.1	12.3	83.3	77.5	5	5.3
April	11.2	7.9	0.71			75.9		10	
May	19.9	8.8	0.44			73.8		8	
June	17.9	13.5	0.75			72.6		7	
July	23.1	16.1	0.70			79.9		5	
August	28.2	19.6	0.70			79.7		8	
September	35.6	25.2	0.71			81.1		5	

NOTE: Values are final except for the most recent 6 months which are considered preliminary. Cycle 23 started in May 1996 with an RI=8.0. Cycle 23 maximum was April 2000 with an RI=120.8.

** SWPC sunspot number was less than RI value, so a ratio could not be computed.





Weekly Geosynchronous Satellite Environment Summary
Week Beginning 27 September 2010

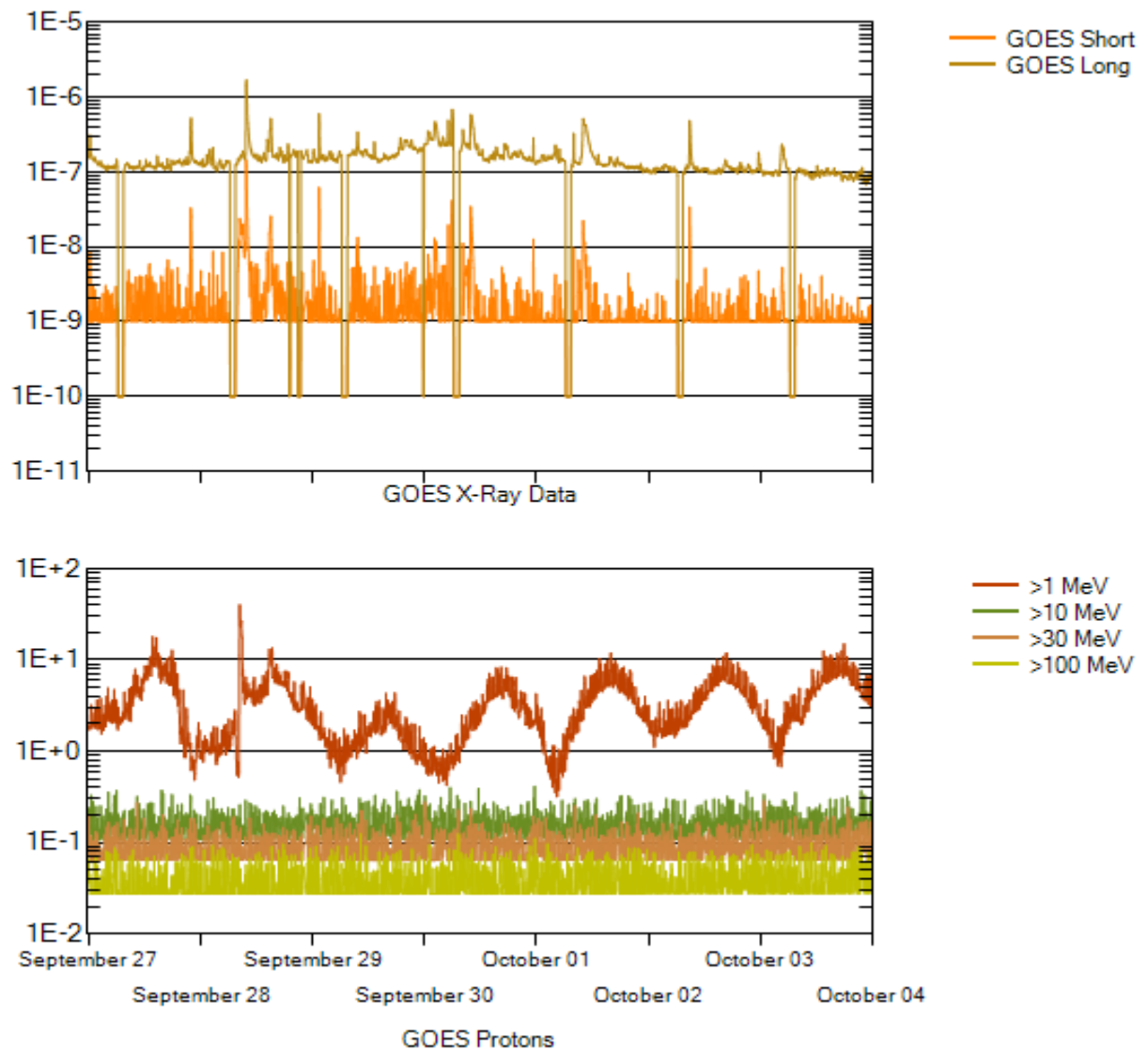
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm²–sec–sr) as measured by GOES-13 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV. The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²–sec–sr) with energies greater than 2 MeV at GOES-13.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as measured by GOES-13. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

Kp plot contains the estimated planetary 3-hour K-index (derived by the Air Force Weather Agency) in real time from magnetometers at Meanook, Canada; Sitka, AK; Glenlea, Canada; St. Johns, Canada; Ottawa, Canada; Newport, WA; Fredericksburg, VA; Boulder, CO; Fresno, CA and Hartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC), British Geological Survey (BGS) and the US Geological Survey. These may differ from the final Kp values derived from a more extensive network of magnetometers.

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

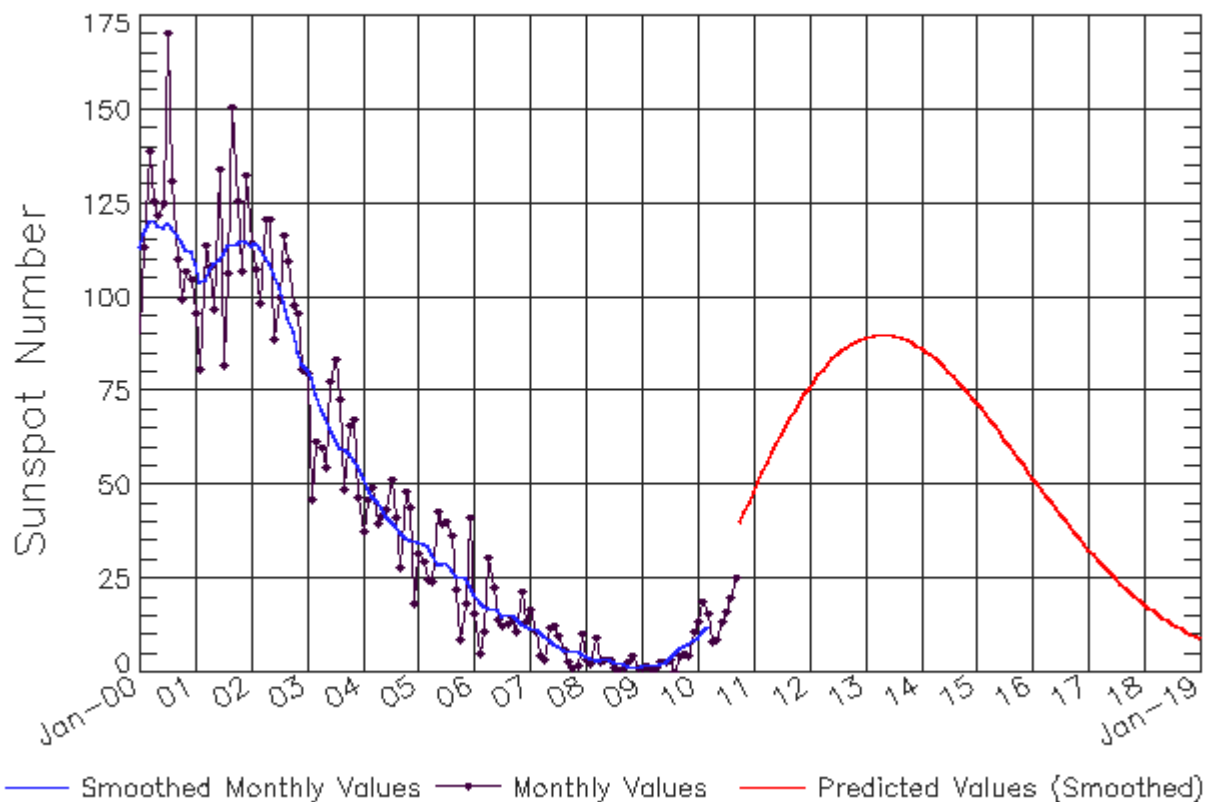
The x-ray plot contains five-minute averaged x-ray flux (Watts/m^2) as measured by GOES 14 (W105) in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged integral proton flux ($\text{protons/cm}^2\text{-sec-sr}$) as measured by GOES-13 for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu ($\text{protons/cm}^2\text{-sec-sr}$) at greater than 10 MeV.



ISES Solar Cycle Sunspot Number Progression

Observed data through Sep 2010



Updated 2010 Oct 5

NOAA/SWPC Boulder, CO USA

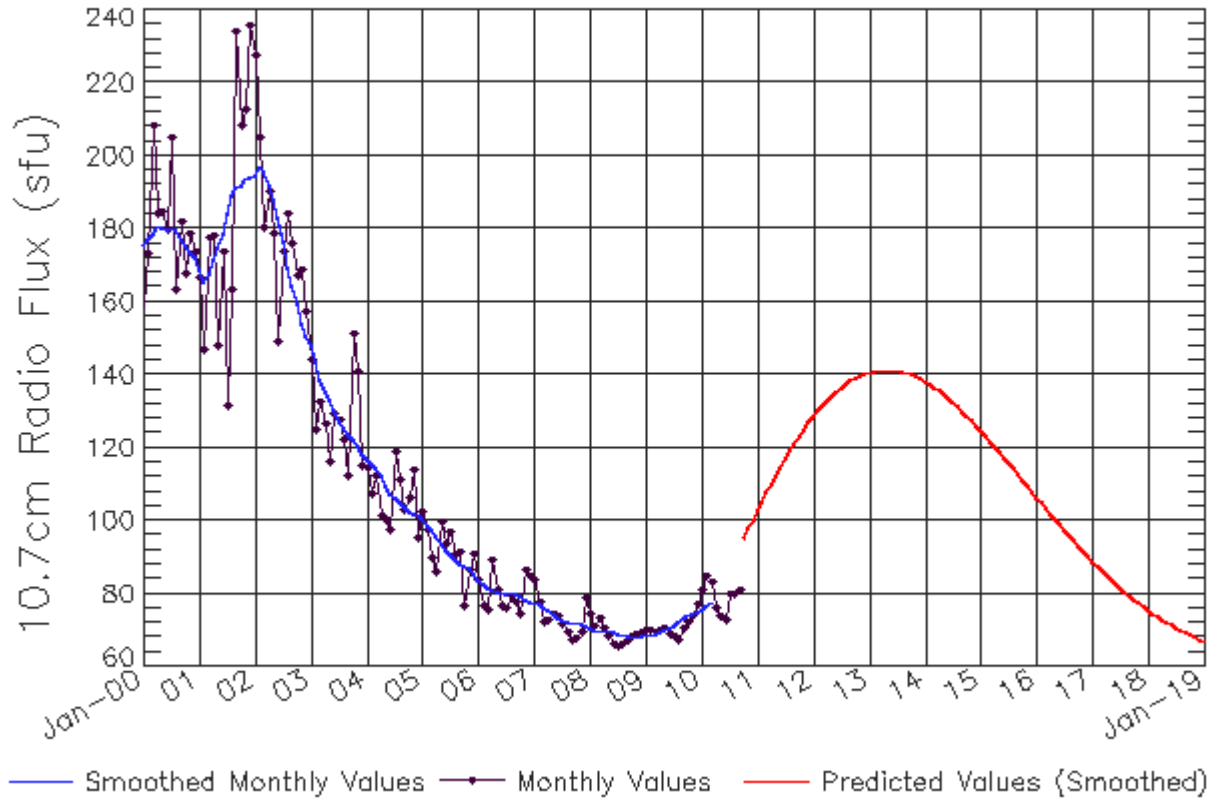
Smoothed Sunspot Number Prediction

2009	2	2	2	2	2	3	4	5	6	7	8	8
	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)	(***)
2010	9	11	12	15	18	21	24	26	29	33	37	41
	(***)	(***)	(***)	(1)	(2)	(3)	(5)	(5)	(6)	(7)	(7)	(8)
2011	45	49	53	56	59	61	63	66	68	70	72	74
	(9)	(9)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2012	76	78	79	81	82	84	85	86	87	88	88	89
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2013	89	90	90	90	90	90	90	89	89	89	88	87
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2014	86	86	85	84	83	81	80	79	78	76	75	73
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2015	72	70	69	67	65	64	62	60	59	57	55	54
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2016	52	50	49	47	45	44	42	40	39	37	36	34
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2017	33	31	30	29	27	26	25	24	23	21	20	19
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2018	18	17	16	15	15	14	13	12	12	11	10	10
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
2019	9	8	8	7	7	6	6	6	5	5	4	4
	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)



ISES Solar Cycle F10.7cm Radio Flux Progression

Observed data through Sep 2010



Updated 2010 Oct 5

NOAA/SWPC Boulder, CO USA

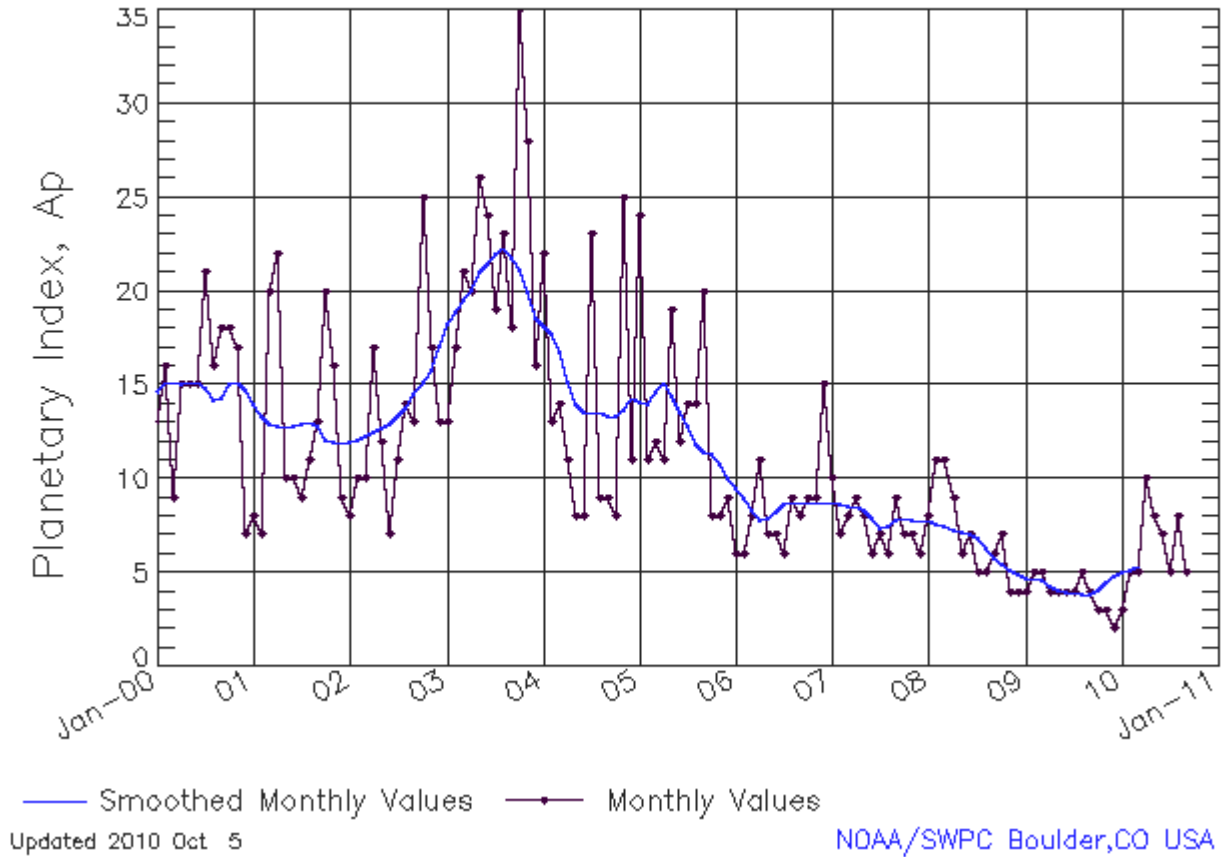
Smoothed F10.7cm Radio Flux Prediction

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2009	69 (***)	69 (***)	69 (***)	69 (***)	70 (***)	70 (***)	71 (***)	72 (***)	73 (***)	74 (***)	75 (***)	75 (***)
2010	76 (***)	77 (***)	78 (***)	79 (1)	81 (1)	83 (2)	85 (3)	86 (4)	88 (4)	91 (5)	94 (6)	97 (7)
2011	100 (8)	104 (8)	107 (9)	110 (9)	112 (9)	115 (9)	117 (9)	119 (9)	121 (9)	123 (9)	125 (9)	127 (9)
2012	128 (9)	130 (9)	132 (9)	133 (9)	134 (9)	135 (9)	136 (9)	137 (9)	138 (9)	139 (9)	140 (9)	140 (9)
2013	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	141 (9)	140 (9)	140 (9)	139 (9)	139 (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 Sep 2010



The Solar Cycle Comparison charts are temporarily unavailable. 2010 charts will be published at a later date. 02 Feb 2010

