

Space Weather Highlights
12 December - 18 December 2011

SWPC PRF 1894
20 December 2011

Solar activity was at very low to low levels. Region 1367 (S19, L=076, class/area Cso/030 on 08 December) was the most active region and produced occasional to frequent C-class flares near and beyond the west limb during 13-15 December. Region 1376 (N20, L=306, class/area Dro/020 on 18 December) was also responsible for producing multiple C-class flares during 17-18 December. There were no Earth-directed coronal mass ejections observed during the period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal levels.

Geomagnetic field activity was at mostly quiet levels during most of the period, with isolated periods of unsettled levels observed at high latitudes.

Space Weather Outlook
21 December - 16 January 2012

Solar activity is expected to be at low levels during 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 during 21-27 December. Activity is expected to increase to quiet to unsettled levels during 28-29 December and 5-6 January due to recurrent coronal hole high-speed streams. Quiet levels will prevail 30 December - 4 January and 7-16 January.



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
12 December	132	70	530	B5.0	2	0	0	4	0	0	0	0
13 December	133	77	280	B5.1	5	0	0	1	0	0	0	0
14 December	132	65	280	B8.3	13	0	0	3	0	0	0	0
15 December	124	44	280	B3.2	1	0	0	0	0	0	0	0
16 December	121	60	250	B2.5	0	0	0	0	0	0	0	0
17 December	120	95	250	B2.3	3	0	0	1	0	0	0	0
18 December	128	103	270	B3.2	2	0	0	3	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	>0.6 MeV	>2MeV	>4 MeV
	12 December	3.1e+05	1.2e+04	3.0e+03		3.8e+06
13 December	1.9e+05	1.3e+04	3.2e+03		3.2e+06	
14 December	1.7e+05	1.2e+04	3.2e+03		3.8e+06	
15 December	2.3e+05	1.3e+04	3.3e+03		4.4e+06	
16 December	3.0e+05	1.3e+04	3.3e+03		4.8e+06	
17 December	3.4e+05	1.3e+04	3.4e+03		5.1e+06	
18 December	6.2e+05	1.3e+04	3.2e+03		3.6e+06	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	12 December	4	1-0-1-1-1-2-2-1	4	0-0-1-2-1-2-2-1	3
13 December	5	1-1-1-2-2-1-2-1	5	1-0-1-3-3-0-1-0	3	1-0-1-1-1-0-0-0
14 December	2	1-1-0-0-1-1-2-0	0	0-0-0-0-0-0-0-0	1	0-1-0-0-0-0-0-0
15 December	2	0-1-1-0-1-1-1-0	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0
16 December	2	1-0-0-0-1-1-1-0	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0
17 December	2	0-0-0-0-2-1-2-0	0	0-0-0-0-0-0-0-0	0	0-0-0-0-0-0-0-0
18 December	3	0-0-0-2-2-2-1-1	2	0-0-0-3-0-0-0-0	1	0-0-0-1-0-0-0-0

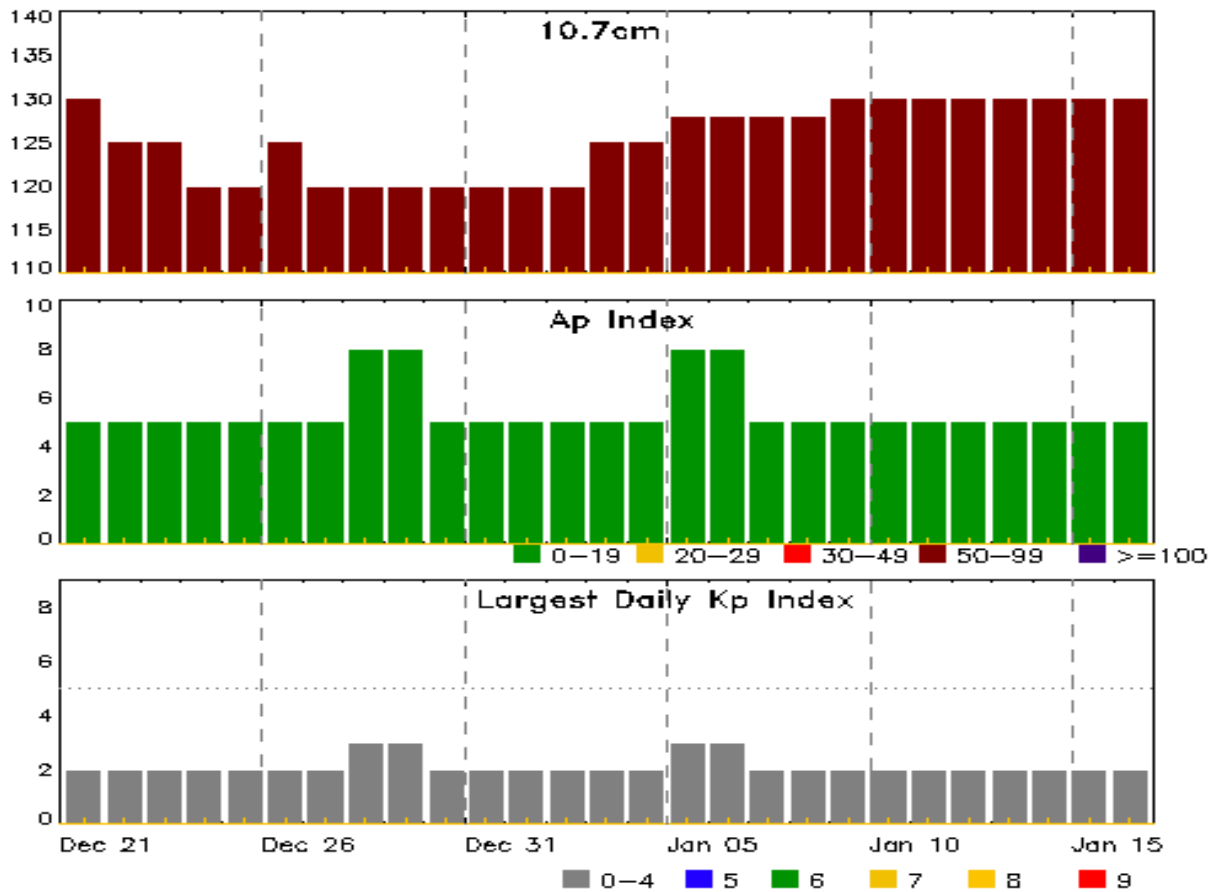


Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
No Alerts or Warnings Issued		



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
21 Dec	130	5	2	04 Jan	125	5	2
22	125	5	2	05	128	8	3
23	125	5	2	06	128	8	3
24	120	5	2	07	128	5	2
25	120	5	2	08	128	5	2
26	125	5	2	09	130	5	2
27	120	5	2	10	130	5	2
28	120	8	3	11	130	5	2
29	120	8	3	12	130	5	2
30	120	5	2	13	130	5	2
31	120	5	2	14	130	5	2
01 Jan	120	5	2	15	130	5	2
02	120	5	2	16	130	5	2
03	125	5	2				



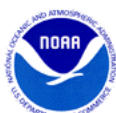
Energetic Events

Date	Time			X-ray Class	Integ Flux	Optical Information			Peak		Sweep Freq	
	Begin	Max	Half Max			Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV

No Events Observed

Flare List

Date	Time			X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
	Begin	Max	End				
12 Dec	0406	0406	0410		SF	S20E25	1374
12 Dec	0830	0837	0847	C1.2	SF	S15E26	1374
12 Dec	1008	1013	1017	B9.2			
12 Dec	1335	1340	1345	B8.0			
12 Dec	1855	1859	1902	B9.3			
12 Dec	2036	2042	2054	B8.6			
12 Dec	2254	2256	2300		SF	S18W71	1367
12 Dec	2331	2339	2352	C1.7	SF	S20W73	1367
13 Dec	0746	0800	0807	C1.4			1367
13 Dec	1411	1414	1417	C1.1			1367
13 Dec	2159	2202	2204	C1.0			1376
13 Dec	B2330	2334	2342	C4.8	SF	S19W84	1367
13 Dec	2353	2357	0000	C3.1			1367
14 Dec	0110	0114	0119	C1.9			1367
14 Dec	0147	0151	0159	C1.9	SF	S19W90	1367
14 Dec	0206	0209	0211		SF	S19W89	1367
14 Dec	0301	0315	0331	C3.5			1367
14 Dec	0450	0456	0459	C3.3			1367
14 Dec	0512	0517	0525	C2.9			1367
14 Dec	0618	0622	0625	C1.6	SF	S19W88	1367
14 Dec	0913	0919	0924	C2.3			
14 Dec	1318	1327	1330	C5.8			1367
14 Dec	1451	1459	1501	C7.5			
14 Dec	1601	1606	1612	C1.5			1367
14 Dec	1643	1647	1649	C2.5			1367
14 Dec	1936	1946	1956	C7.0			1367
14 Dec	2238	2247	2256	C1.9			1367
15 Dec	0531	0636	0700	C1.3			
16 Dec	0814	0820	0827	B5.0			1377
16 Dec	2052	2058	2104	B4.5			
16 Dec	2313	2315	2317	B3.9			



Flare List

Date	Time			X-ray Class	Optical		Rgn #
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	
17 Dec	0449	0501	0508	C1.2			1376
17 Dec	2135	2138	2140	B4.3			
17 Dec	2247	2255	2258	C3.2	SN	N19W03	1376
17 Dec	2337	2344	2349	C1.2			1381
18 Dec	0121	0126	0132	B7.5			1381
18 Dec	0200	0205	0208	C1.9	SN	N19W04	1376
18 Dec	0318	0322	0329	B4.9			1381
18 Dec	0459	0504	0507	C1.8	SN	N19W07	1376
18 Dec	0708	0713	0720	B5.5			
18 Dec	0743	0747	0752	B7.0	SF	N19W08	1376
18 Dec	1138	1145	1153	B7.8			1376
18 Dec	1335	1338	1340	B5.4			1376



Region Summary

Date	Location		Sunspot Characteristics				Flares																
	Lat CMD	Lon	Helio 10 ⁶ hemi.	Area	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical											
									C	M	X	S	1	2	3	4							
Region 1362																							
27 Nov	N08E76	130	90	2	Cso	3	B						2										
28 Nov	N07E60	132	70	8	Cao	9	B	1					3	1									
29 Nov	N08E49	129	110	8	Dso	8	B	1					2										
30 Nov	N07E36	129	130	7	Dsi	7	B	1															
01 Dec	N08E22	130	180	9	Dai	10	B																
02 Dec	N08E08	130	170	10	Dsi	12	B																
03 Dec	N08W06	131	220	11	Eso	16	B																
04 Dec	N08W18	131	180	11	Eso	17	B	1															
05 Dec	N07W32	130	170	10	Dso	19	B	2					1										
06 Dec	N06W46	132	110	11	Eso	7	BG																
07 Dec	N06W59	132	180	11	Eso	3	B																
08 Dec	N07W72	131	60	9	Cso	3	B																
09 Dec	N07W85	131	60	7	Hsx	1	A																
								6	0	0		8	1	0	0	0							

Crossed West Limb.

Absolute heliographic longitude: 131

Region 1363																							
29 Nov	S18E67	111	40	2	Hsx	1	A	1															
30 Nov	S19E55	111	110	6	Dso	3	B	2					2										
01 Dec	S20E42	110	120	8	Dsi	5	B																
02 Dec	S20E29	110	250	11	Ehi	15	B																
03 Dec	S22E16	109	330	11	Ehi	29	BG	2					2										
04 Dec	S21E04	108	430	11	Eki	30	BGD																
05 Dec	S21W09	108	620	11	Eki	35	BG	3					1										
06 Dec	S22W20	106	340	11	Ehi	19	BG																
07 Dec	S22W32	105	400	11	Ehi	12	B																
08 Dec	S21W47	107	270	10	Dho	7	B																
09 Dec	S20W62	109	280	8	Dho	3	B																
10 Dec	S20W74	108	250	6	Hhx	1	A																
11 Dec	S24W85	106	250	3	Hhx	3	A																
								8	0	0		5	0	0	0	0							

Crossed West Limb.

Absolute heliographic longitude: 108



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 1364																	
29 Nov	N17E73		106	30	2	Hsx	1	A									
30 Nov	N18E60		105	60	2	Hsx	1	A	1				1				
01 Dec	N18E48		104	40	2	Hsx	1	A									
02 Dec	N19E34		104	40	2	Cso	4	B									
03 Dec	N18E20		105	60	2	Cso	1	B									
04 Dec	N18E08		105	50	1	Hsx	1	A									
05 Dec	N18W05		104	60	2	Hsx	1	A									
06 Dec	N19W15		102	40	1	Hsx	1	A									
07 Dec	N18W30		103	60	2	Hsx	1	A	1				2				
08 Dec	N17W43		103	60	4	Dso	5	B									
09 Dec	N17W57		104	80	4	Cso	3	B									
10 Dec	N18W71		105	50	4	Cso	2	B									
11 Dec	N18W82		103	50	2	Hsx	1	A									
									2	0	0		3	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 104

Region 1365																	
02 Dec	N20E13		125	20	2	Cso	5	B									
03 Dec	N20E01		124	60	5	Dai	7	B					1				
04 Dec	N20W12		125	120	7	Dai	12	B									
05 Dec	N19W26		125	110	6	Dai	16	B									
06 Dec	N21W38		124	20	7	Cso	13	B									
07 Dec	N17W48		121	10	1	Axx	1	A									
08 Dec	N16W77		124	70	2	Cso	2	B									
09 Dec	N16W91		138	120	10	Hsx	1	A									
									0	0	0		1	0	0	0	0

Crossed West Limb.
 Absolute heliographic longitude: 124



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 1366																		
03 Dec	N17E65	60	60	2	Hsx	1	A											
04 Dec	N17E51	61	80	2	Hsx	1	A											
05 Dec	N18E38	61	70	2	Hsx	1	A	1				1						
06 Dec	N18E25	61	80	5	Dso	2	B											
07 Dec	N17E13	60	70	5	Cso	2	B											
08 Dec	N18E01	59	40	5	Cso	2	B											
09 Dec	N18W13	60	50	7	Cso	2	B											
10 Dec	N18W27	61	50	3	Hsx	1	A											
11 Dec	N18W40	61	60	3	Hsx	1	A											
12 Dec	N18W55	62	50	2	Hsx	1	A											
13 Dec	N17W67	61	50	1	Hsx	1	A											
14 Dec	N18W81	62	50	2	Hsx	1	A											
								1	0	0	1	0	0	0	0	0		

Crossed West Limb.
 Absolute heliographic longitude: 59

Region 1367																		
04 Dec	S18E36	77	0		Bxo	3	B	1										
05 Dec	S18E22	77	15	2	Dao	4	B	1										
06 Dec	S18E09	77	10	5	Bxo	3	B											
07 Dec	S26W03	76	10	4	Bxo	4	B											
08 Dec	S26W15	75	30	5	Cso	3	B											
09 Dec	S18W33	80	plage															
10 Dec	S18W47	81	10	2	Hsx	1	A											
11 Dec	S18W61	82	10	4	Bxo	4	B											
12 Dec	S18W75	83	plage					1				2						
13 Dec	S18W89	83	20	1	Hrx	1	A	4				1						
								7	0	0	3	0	0	0	0	0		

Crossed West Limb.
 Absolute heliographic longitude: 76



Region Summary - continued

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

Region 1368

05 Dec	S18E58	42	20	2	Cao	5	B	1									
06 Dec	S16E41	45	10	3	Bxo	3	B										
07 Dec	S16E27	47	plage														
08 Dec	S16E13	48	plage														
09 Dec	S16W01	49	plage														
10 Dec	S16W15	49	plage														
11 Dec	S16W29	50	plage														
12 Dec	S16W43	51	plage														
13 Dec	S16W57	52	plage														
									1	0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 49

Region 1369

05 Dec	N22E43	57	20	2	Cao	4	B										
06 Dec	N22E29	58	10	3	Bxo	3	B										
07 Dec	N22E15	59	plage														
08 Dec	N22E01	60	plage														
09 Dec	N22W13	61	plage														
10 Dec	N22W27	61	plage														
11 Dec	N22W41	62	plage														
									0	0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 60

Region 1370

07 Dec	S24W03	76	10	3	Bxo	6	B										
08 Dec	S24W17	78	plage														
09 Dec	S24W31	79	plage														
10 Dec	S24W45	79	plage														
11 Dec	S24W59	80	plage														
12 Dec	S24W73	81	plage														
13 Dec	S24W87	82	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 76



Region Summary - continued

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

Region 1371

07 Dec	N09E13	60	10		Hrx	1	A										
08 Dec	N09W01	62	10		Hrx	1	A										
09 Dec	N09W15	63	plage														
10 Dec	N09W29	63	plage														
11 Dec	N09W43	64	plage														
12 Dec	N09W57	65	plage														
13 Dec	N09W71	66	plage														
14 Dec	N09W85	67	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 62

Region 1372

07 Dec	N10E28	45	0	9	Bxo	2	B										
08 Dec	N10E14	47	0	9	Bxo	2	B										
09 Dec	N08E03	43	40	4	Dso	6	B										
10 Dec	N08W10	44	40	6	Dso	9	B										
11 Dec	N08W22	43	10	7	Bxo	6	B										
12 Dec	N10W36	43	10	6	Bxo	6	B										
13 Dec	N08W49	43	10	3	Bxo	2	B										
14 Dec	N08W63	45	plage														
15 Dec	N08W77	46	plage														
									0	0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 43

Region 1373

08 Dec	S30W39	99	20	4	Dro	2	B										
09 Dec	S31W51	98	20	6	Bxo	5	B										
10 Dec	S31W65	99	plage														
11 Dec	S31W79	100	plage														
									0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 99



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 1374																		
08 Dec	S16E68	351	150	3	Cso	2	B	1										
09 Dec	S17E54	353	160	3	Hsx	2	A	1				2						
10 Dec	S17E41	353	140	3	Hsx	2	A	2				1						
11 Dec	S17E29	352	210	3	Dso	9	B					2						
12 Dec	S17E15	352	150	4	Dso	6	BD	1				2						
13 Dec	S18E01	353	140	4	Cao	7	B											
14 Dec	S18W11	352	120	3	Dso	4	B											
15 Dec	S18W25	352	160	3	Dso	5	B											
16 Dec	S18W37	351	100	3	Dso	4	B											
17 Dec	S18W50	352	100	3	Cao	4	B											
18 Dec	S18W63	351	80	2	Hsx	1	A											
								5	0	0	7	0	0	0	0	0		

Still on Disk.
 Absolute heliographic longitude: 353

Region 1375																		
07 Dec	N08E84	354	plage					1										
08 Dec	N08E70	354	10	3	Bxo	3	B	1										
09 Dec	N09E52	356	70	6	Cso	3	B					1						
10 Dec	N09E39	355	80	7	Cso	4	B	1										
11 Dec	N09E25	356	140	5	Cso	9	B											
12 Dec	N08E11	356	70	4	Cso	4	B											
13 Dec	N08W03	357	50	3	Cso	3	B											
14 Dec	N08W16	357	40	1	Hsx	2	A											
15 Dec	N08W30	358	50	2	Hsx	1	A											
16 Dec	N08W43	358	40	1	Hsx	1	A											
17 Dec	N09W57	358	30	2	Hsx	1	A											
18 Dec	N09W70	358	20	1	Hrx	1	A											
								3	0	0	1	0	0	0	0	0		

Still on Disk.
 Absolute heliographic longitude: 357



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 1376																		
13 Dec	N21E52	302	10	10	Bxo	3	B	1										
14 Dec	N20E39	301	10	5	Bxo	4	B											
15 Dec	N20E25	304	plage															
16 Dec	N20E11	304	plage															
17 Dec	N21W04	306	0		Axx	1	A	2			1							
18 Dec	N20W18	306	20	2	Dro	3	B	2			3							
								5	0	0	4	0	0	0	0	0		

Still on Disk.
 Absolute heliographic longitude: 306

Region 1377																		
14 Dec	N12E43	297	60	5	Dro	4	B											
15 Dec	N11E29	298	70	6	Dso	8	B											
16 Dec	N12E15	299	70	7	Dso	9	B											
17 Dec	N12E03	298	50	8	Dso	9	B											
18 Dec	N12W11	299	40	8	Dao	4	B											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 298

Region 1378																		
16 Dec	S17W09	324	40	5	Dso	6	B											
17 Dec	S17W21	323	10	4	Bxo	4	B											
18 Dec	S17W35	324	plage															
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 324

Region 1379																		
17 Dec	S29W22	324	30	3	Cro	5	B											
18 Dec	S29W33	321	10	1	Axx	2	A											
								0	0	0	0	0	0	0	0	0	0	0

Still on Disk.
 Absolute heliographic longitude: 324



Region Summary - continued

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

Region 1380

17 Dec	S20E70	232	30	1	Hrx	1	A										
18 Dec	S20E55	233	30	2	Hrx	2	A										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 233

Region 1381

17 Dec	S18E37	265	plage					1									
18 Dec	S18E19	268	40	3	Dao	5	B										
								1	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 268

Region 1382

18 Dec	S18E25	263	30	3	Dro	5	B										
								0	0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 263

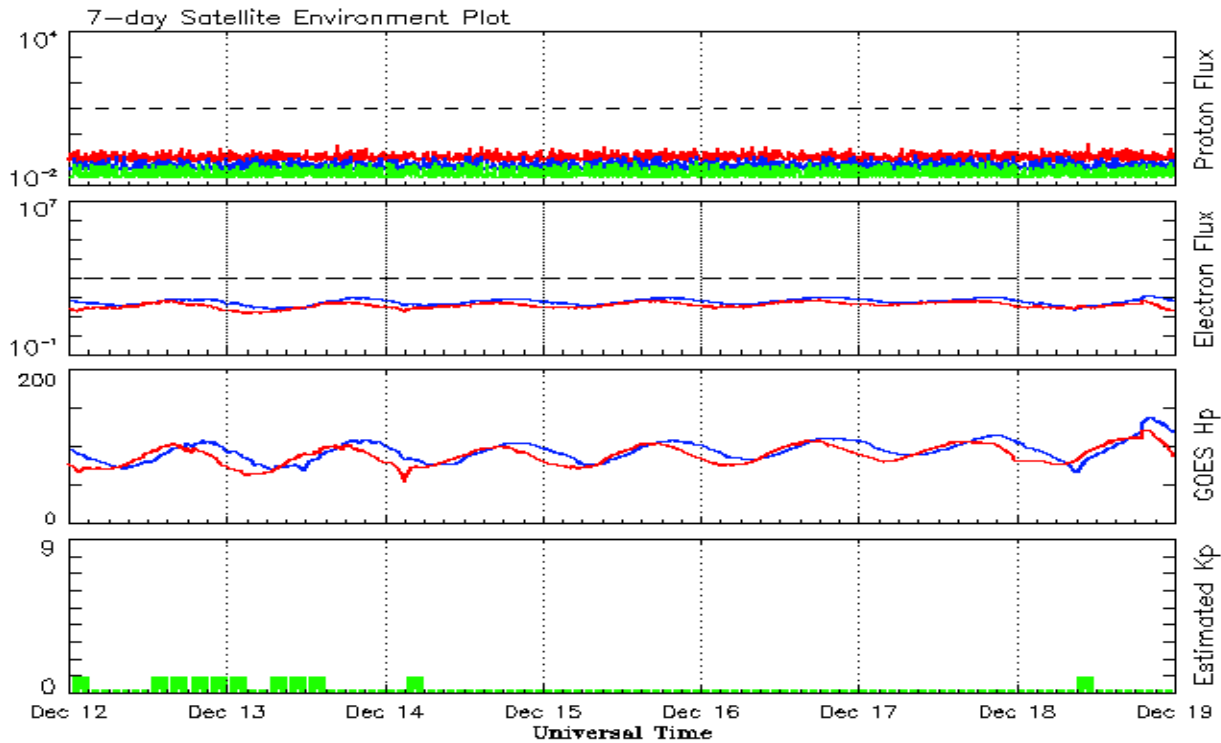


Recent Solar Indices (preliminary)
Observed monthly mean values

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
2009									
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	8.0	0.71	21.4	14.0	75.9	78.3	10	5.5
May	19.9	8.7	0.44	23.8	15.5	73.8	79.0	8	5.7
June	17.9	13.6	0.75	25.2	16.4	72.6	79.7	7	5.8
July	23.1	16.1	0.70	25.9	16.7	79.9	80.1	5	6.0
August	28.2	19.6	0.70	27.3	17.4	79.7	80.7	8	6.2
September	35.6	25.2	0.71	30.6	19.6	81.1	82.4	5	6.3
October	35.0	23.5	0.67	35.9	23.2	81.6	85.3	6	6.4
November	36.1	21.5	0.60	40.5	26.5	82.5	87.7	5	6.4
December	22.0	14.4	0.66	43.8	28.8	84.3	89.6	4	6.5
2011									
January	32.1	18.8	0.59	47.2	30.9	83.7	91.2	6	6.7
February	53.2	29.6	0.55	50.6	33.4	94.5	92.7	6	6.8
March	81.0	55.8	0.69	55.2	36.9	115.3	95.8	7	7.2
April	81.7	54.4	0.67	61.5	41.8	112.6	100.4	9	7.5
May	61.4	41.5	0.68	69.0	47.6	95.9	105.6	9	7.5
June	55.5	37.0	0.67			95.8		8	
July	67.0	43.9	0.66			94.2		9	
August	66.1	50.6	0.77			101.7		8	
September	106.4	78.0	0.73			134.5		13	
October	116.8	88.0	0.75			137.2		7	
November	133.1	96.7	0.73			153.1		3	

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 12 December 2011*

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.

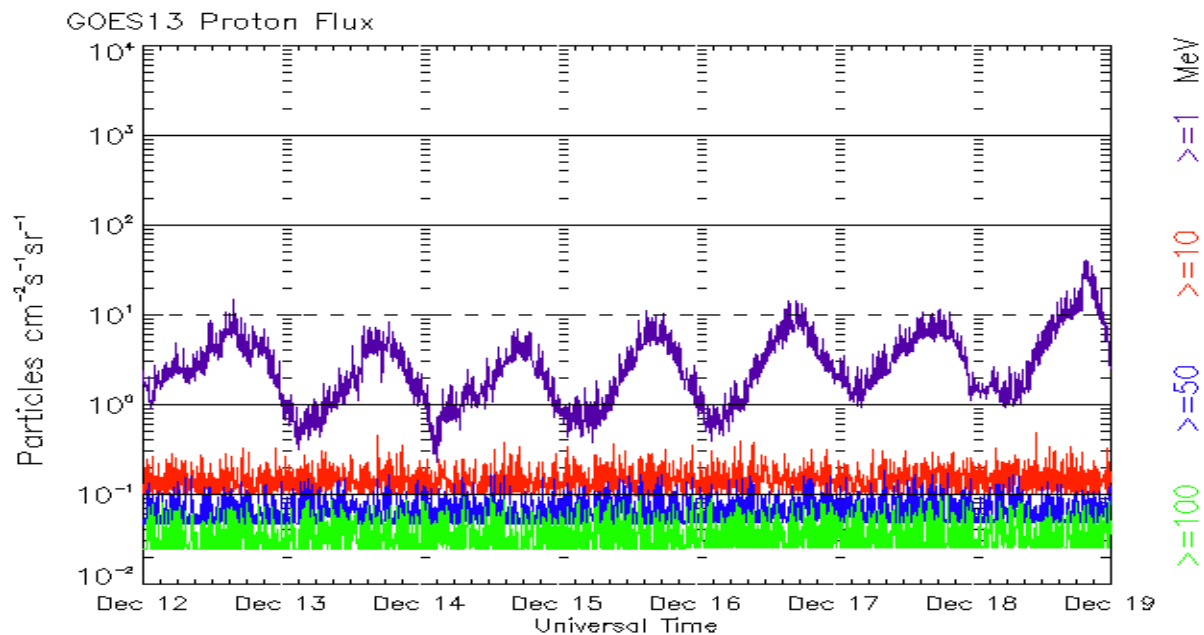
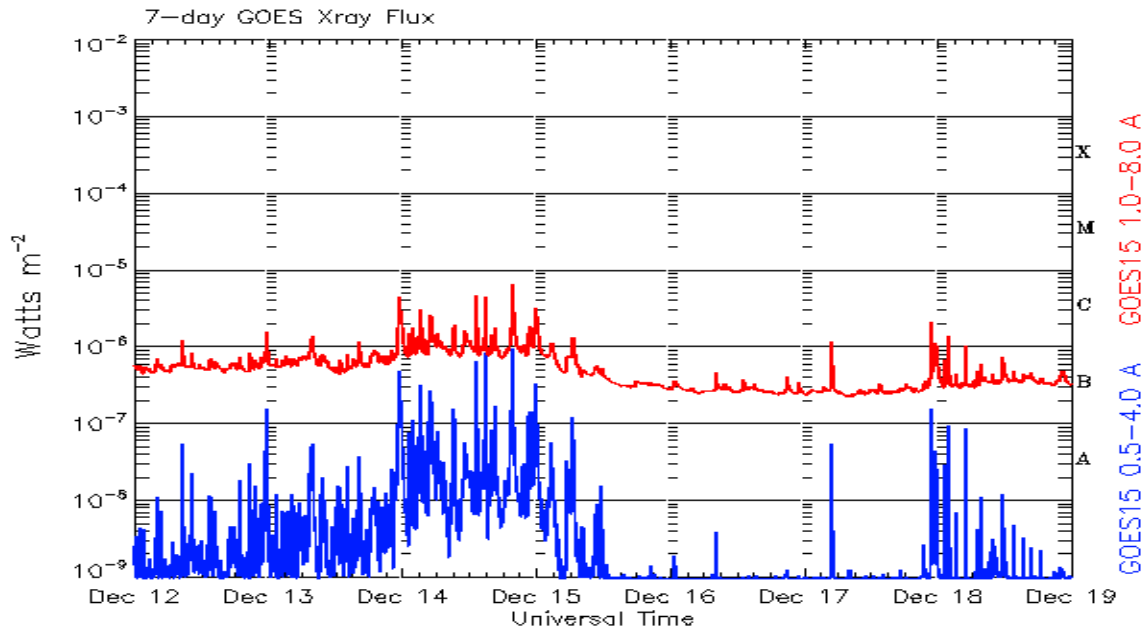
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

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.

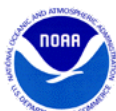




Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 12 December 2011

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 Tuesday 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

