Space Weather Highlights **SWO PRF 1411**
09 - 15 September 2002 **17 September 2002**

Solar activity was at low to moderate levels. Moderate levels were observed on 09-11 September and 15 September. The largest event was an M2.9/1n on 10 September from Region 105 (S08, L=297, class/area Fki/1520 on 10 September). This event was associated with a Type II and Type IV radio sweep. For flare times and magnitudes, please refer to the Energetic Events or Optical Flare lists. Region 105 produced all the M-class activity during the period. This large magnetically complex spot group appeared to be two separate regions when viewed in white light, however, magnetogram data indicated a single bi-polar region with a common negative polarity field between the main leader spot and large trailing spot. This condition changed on 14 September when a positive polarity field developed between the two main spots. On 14 September the region was split and the trailing spot was designated Region 114 (S12, L=288 class/area Dkc/470 on 14 September).

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the summary period. A persistent negative Bz was observed on 10 September with solar wind velocities near 450 km/s. At 11/0800 UTC, solar wind velocities began to increase and reached peak velocities around 550 km/s. This increase was due to a large, equatorial extension of the south polar coronal hole. Coronal hole effects continued until 13 September when solar wind velocity began a steady decline and stabilized on 15 September near 350 km/s.

There were no greater than 10 MeV proton events at geo-synchronous orbit during the summary period.

The greater than 2 MeV electron flux at geo-synchronous orbit was at normal to high during the period. Electron flux reached high levels on 13-15 September due to the coronal hole effects mentioned above.

The geomagnetic field was at quiet to major storm levels. Minor storm levels were observed on 10 September mainly due to the persistent period of negative Bz mentioned above. Major storm levels occurred on 11 September due to the onset of coronal hole effects. Active conditions were observed on 12-14 September due to the continued coronal hole effects.

Space Weather Outlook
18 September - 14 October 2002

Solar activity is expected to be low to moderate. Activity is expected to be at moderate levels through 21 September, due to the Region 105/114 complex. Continued moderate conditions may accompany the return of old Region 95 (N08, L=061) after 23 September.

A slight chance for a proton event exists in association with any significant flare activity from the Region 105/114 complex, until it rotates beyond the west limb on 21 September.

The greater than 2 MeV electron flux at geo-synchronous orbit may remain at event thresholds on 18 September, due to the coronal hole effects of the past few days. Recurring electron events are possible on 02-03 October and 09-10 October, due to expected rotation of persistent coronal holes.

The geomagnetic field may reach active levels on 19-20 September, in response to potential transient effects from recent CME activity observed on 17-18 September. Quiet to unsettled conditions are expected for most of the remaining forecast period, with the possibility of isolated active conditions on 01-02 October and 08-09 October in response to recurrent coronal hole effects.

Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background	Flares: X-ray Flux C	M	X	Flares: Optical S	1	2	3	4
09 September	206	194	1920	B9.6	4	1	0	7	0	1	0	0
10 September	221	226	2570	B9.3	13	1	0	10	1	0	0	0
11 September	216	213	2240	B8.7	7	1	0	6	0	1	0	0
12 September	212	258	1850	B7.0	8	0	0	8	0	0	0	0
13 September	206	246	1760	B7.5	1	0	0	1	0	0	0	0
14 September	207	256	1770	B6.5	8	0	0	5	0	0	0	0
15 September	188	168	1460	B7.7	10	1	0	6	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm^2-day-sr) >1MeV	>10MeV	>100MeV	Electron Fluence (electrons/cm^2-day-sr) >6MeV	>2MeV	>4MeV
09 September	4.1E+6	5.4E+4	2.3E+3		2.7E+5	
10 September	2.3E+6	2.5E+4	2.4E+3		2.3E+6	
11 September	1.0E+6	1.7E+4	2.4E+3		6.4E+6	
12 September	3.9E+5	1.4E+4	2.3E+3		2.1E+7	
13 September	2.4E+5	1.2E+4	2.3E+3		3.7E+7	
14 September	1.4E+5	1.1E+4	2.6E+3		6.8E+7	
15 September	9.5E+4	1.2E+4	2.8E+3		9.5E+7	

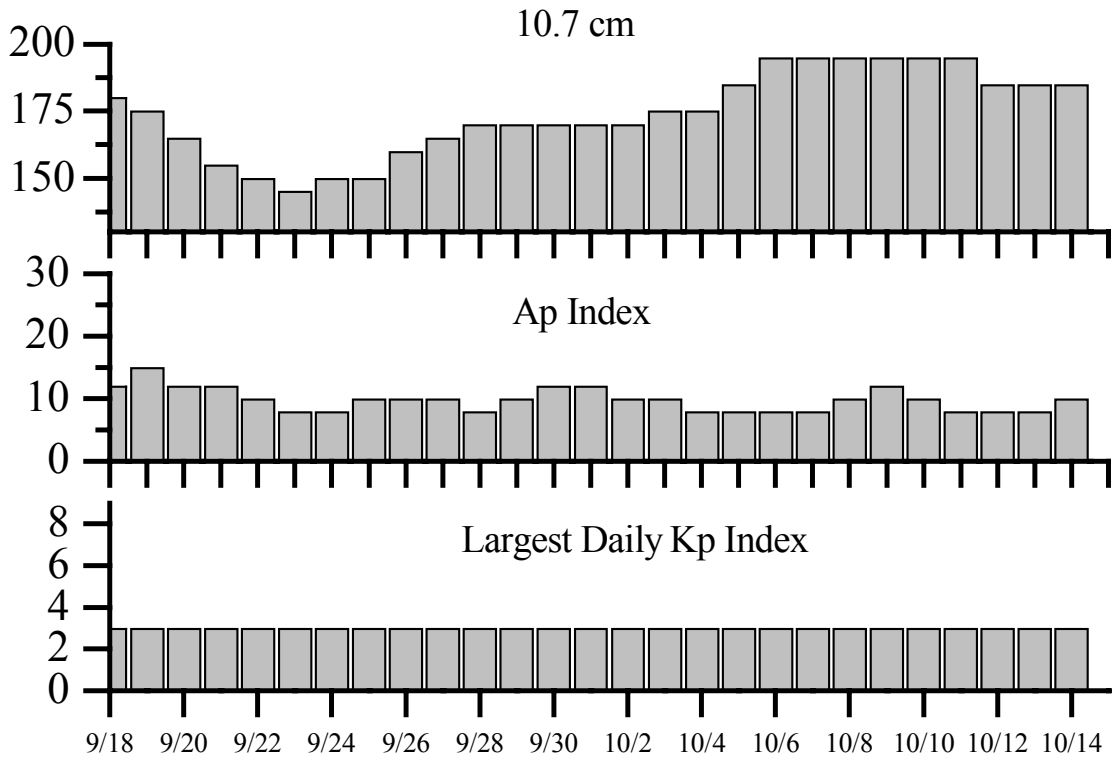
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	K-indices	High Latitude College A	K-indices	Estimated Planetary A	K-indices
09 September	7	1-1-0-1-2-2-3-3	13	2-1-0-1-2-2-5-4	10	2-2-1-1-2-3-4-3
10 September	14	3-2-1-3-4-3-3-3	43	3-2-3-5-7-6-4-3	24	3-2-3-4-5-4-4-4
11 September	16	1-2-3-5-2-3-3-3	43	2-2-6-6-4-6-5-3	28	2-3-5-6-4-4-4-4
12 September	9	2-3-2-2-3-2-2-1	34	3-3-6-5-6-3-3-1	17	4-3-4-3-4-3-3-2
13 September	9	3-3-3-2-2-1-2-1	21	2-4-4-6-3-1-2-1	16	3-3-4-4-3-2-3-2
14 September	7	3-2-2-2-2-1-1-1	14	2-2-4-5-3-1-1-0	11	3-3-2-4-3-2-3-2
15 September	5	1-1-2-1-2-1-2-1	9	1-1-3-3-3-2-2-1	8	2-2-3-3-2-2-3-2

Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
09 Sep 0010	2 - 245 MHz Radio Bursts	08 Sep
09 Sep 0010	1 - 245 MHz Radio Noise Storm	08 Sep
10 Sep 0056	4 - 245 MHz Radio Bursts	09 Sep
10 Sep 0056	1 - 245 MHz Radio Noise Storm	09 Sep
10 Sep 1528	ALERT: Type II Radio Emission	10 Sep 1456
10 Sep 1537	ALERT: Type IV Radio Emission	10 Sep 1524
10 Sep 1554	WARNING: Geomagnetic K= 4 expected	10 Sep 1555 - 2359
10 Sep 1612	ALERT: Geomagnetic K= 4	10 Sep 1609
11 Sep 0023	15 - 245 MHz Radio Bursts	10 Sep
11 Sep 0023	1 - 245 MHz Radio Noise Storm	10 Sep
11 Sep 0738	WARNING: Geomagnetic K= 4 expected	11 Sep 0740 - 1500
11 Sep 0859	ALERT: Geomagnetic K= 4	11 Sep 0858
11 Sep 0901	SUMMARY: 10cm Radio Burst	11 Sep 0734
11 Sep 0933	ALERT: Geomagnetic K= 5	11 Sep 0932
11 Sep 1500	EXTENDED WARNING: Geomagnetic K= 4 expected	11 Sep 0740 - 2359
11 Sep 1724	ALERT: Geomagnetic K= 5	11 Sep 1720
11 Sep 1726	WARNING: Geomagnetic K= 5 expected	11 Sep 1730 - 2359
11 Sep 2355	EXTENDED WARNING: Geomagnetic K= 4	11 Sep 0740 - 12 Sep 1800
12 Sep 0053	9 - 245 MHz Radio Bursts	11 Sep
12 Sep 0053	2 - 245 MHz Radio Noise Storm	11 Sep
12 Sep 1755	EXTENDED WARNING: Geomagnetic K= 4	11 Sep 0740 - 12 Sep 2359
12 Sep 2359	EXTENDED WARNING: Geomagnetic K= 4	11 Sep 0740 -13 Sep 1500
13 Sep 0027	4 - 245 MHz Radio Bursts	12 Sep
13 Sep 0027	2 - 245 MHz Radio Noise Storm	12 Sep
13 Sep 0701	ALERT: Geomagnetic K= 5	13 Sep 0655
13 Sep 1500	EXTENDED WARNING: Geomagnetic K= 4	11 Sep 0740 - 13 Sep 2359
13 Sep 1642	ALERT: Electron 2MeV Integral Flux > 1000pfu	13 Sep 1620
13 Sep 2354	EXTENDED WARNING: Geomagnetic K= 4	11 Sep 0740 -14 Sep 1500
14 Sep 0100	5 - 245 MHz Radio Bursts	13 Sep
14 Sep 0100	1 - 245 MHz Radio Noise Storm	13 Sep
14 Sep 0612	SUMMARY: 10cm Radio Burst	14 Sep 0558
14 Sep 1155	ALERT: Electron 2MeV Integral Flux > 1000pfu	14 Sep 1130
15 Sep 0046	7 - 245 MHz Radio Bursts	14 Sep
15 Sep 0046	1 - 245 MHz Radio Noise Storm	14 Sep
15 Sep 1158	ALERT: Electron 2MeV Integral Flux > 1000pfu	15 Sep 1140

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
18 Sep	180	12	3	02 Oct	170	10	3
19	175	15	3	03	175	10	3
20	165	12	3	04	175	8	3
21	155	12	3	05	185	8	3
22	150	10	3	06	195	8	3
23	145	8	3	07	195	8	3
24	150	8	3	08	195	10	3
25	150	10	3	09	195	12	3
26	160	10	3	10	195	10	3
27	165	10	3	11	195	8	3
28	170	8	3	12	185	8	3
29	170	10	3	13	185	8	3
30	170	12	3	14	185	10	3
01 Oct	170	12	3				

Energetic Events

Date	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
	Begin	Max	½ Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV
09 Sep	1740	1752	1801	M2.1	.017	2n	S09E54	105	480			
10 Sep	1449	1456	1500	M2.9	.010	1n	S10E43	105	2800	110	2	1
11 Sep	0726	0735	0742	M2.2	.011	2b	S10E30	105	68	230		
15 Sep	1729	1738	1745	M1.0	.006	Sf	S05W29	105				

Flare List

Date	Time			X-ray	Optical		Rgn
	Begin	Max	End	Class.	Imp / Brtns	Location Lat CMD	
09 September	0227	0239	0257	C3.6			
	0309	0309	0318		Sf	N16E02	0103
	1545	1546	1551		Sf	S20W30	0100
	1628	1632	A1704	C2.1	Sf	S18W49	0096
	1718	1729	1733		Sf	S06E49	0105
	1742	1752	1828	M2.1	2n	S09E54	0105
	1753	1753	1757		Sf	N14W03	0103
	1800	1803	1808		Sf	S14W55	0096
	2126	2131	2135	C2.1			
	2332	2332	2337	C1.2	Sf	N16W08	0103
10 September	0911	0916	0920	C1.6			
	1021	1023	1030	C3.6	Sf	S13E50	0105
	1157	1200	1202	C1.7			
	1336	1336	1341	C2.1	Sf	N11E51	0107
	1433	1436	1438	C1.6	Sf	N15W14	0103
	1452	1453	1514	M2.9	1n	S10E43	0105
	1547	1606	1615	C2.5	Sf	N11E49	0107
	1712	1718	1731	C5.6	Sf	S09E38	0105
	1721	1725	1734		Sf	N12E48	0107
	1737	1737	1743	C6.5	Sf	S10E41	0105
	1738	1741	1744		Sf	N12E49	0107
	1812	1813	1816		Sf	N10E45	0107
	1936	1939	1942	C1.8			
	1948	1955	2006	C3.7			
	B2046	U2050	A2109	C3.6	Sf	N12E46	0107
	2154	2204	2208	C9.1			
	2252	2258	2301	C3.4			
11 September	0137	0143	0148	C2.2			
	0156	0156	0200		Sf	S17W51	0100
	0507	0511	0516	C2.1	Sf	N11E40	0107
	0552	0552	0558	C1.5	Sf	N10E39	0107
	0728	0734	A0903	M2.2	2b	S10E30	0105
	B0817	U0817	A0831		Sf	S10E26	0105
	1038	1051	1056	C4.5			
	1502	1503	1507	C1.3	Sf	N12E35	0107

Flare List - continued.

Date	Time Begin	Time Max	Time End	X-ray Class.	Optical Imp / Brtns	Optical Location Lat CMD	Rgn
11 September	1746	1749	1752	C1.9			
	2300	2300	2304	C1.2	Sf	N11E31	0107
12 September	0014	0016	0029	C4.1	Sf	N10E30	0107
	0343	0350	0357		Sf	S06E16	0105
	0435	0443	0450		Sf	S05E15	0105
	0626	0630	0633	C1.4			
	0709	0713	0733	C2.8	Sf	N10E24	0107
	0751	0755	0758	C1.1			
	1149	1152	1212	C2.5	Sf	N12E23	0107
	1338	1338	1342	C1.0	Sf	S11E19	0105
	2059	2104	2146	C3.1	Sf	S12E16	0105
	2336	2337	2346	C1.4	Sf	S06E04	0114
13 September	0211	0213	0222		Sf	S07E03	0114
	0657	0717	0740	C2.8			0105
14 September	0029	0034	0045	B9.2	Sf	S02W02	0114
	0157	0203	0207	C1.1			0105
	0437	0440	0443	C1.7			0105
	0556	0600	0612	C1.2			
	1101	1106	1109	C1.8			0105
	1223	1223	1236		Sf	S12E01	0114
	1440	1440	1444		Sf	S09W13	0105
	1445	1452	1505	C4.1	Sf	S10W13	0105
	1730	1816	1915	C4.5	Sf	S09E03	0114
	2125	2136	2148	C2.4			
	2310	2313	2317	C1.2			
15 September	0411	0417	0419	C1.7			
	0441	0450	0458	C3.9			
	0749	0752	A0815	C3.7	Sf	S04W26	0105
	0922	0923	0930	C1.3	Sf	N17W79	0103
	1255	1259	1303	C1.2			
	1356	1400	1404	C1.3			
	1534	1538	1545	C3.1	Sf	S08W12	0114
	1734	1736	1756	M1.0	Sf	S05W29	0105
	1900	1904	1909	C1.2			
	2034	2039	2042	C2.9			
	B2334	U2336	A2346	C1.7	Sf	S16W13	0114
	2357	2358	0001		Sf	S07W36	0105

Region Summary

Date	Location (° Lat ° CMD)	Helio Lon	Area (10^{-6} hemi)	Extent (helio)	Sunspot Characteristics Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
	Region 94														
29 Aug	S17E67	070	0040	06	Cso	003	B				3				
30 Aug	S17E54	070	0160	06	Dso	009	B								
31 Aug	S17E40	070	0200	06	Dso	005	B								
01 Sep	S18E27	070	0170	07	Dao	009	B								
02 Sep	S18E13	071	0160	06	Dho	008	B	1			1				
03 Sep	S18E01	070	0140	07	Cho	005	B								
04 Sep	S18W14	072	0130	06	Cso	002	B	1			1				
05 Sep	S19W27	072	0120	05	Cao	006	B								
06 Sep	S19W41	072	0110	05	Cso	005	B								
07 Sep	S19W55	073	0110	03	Hsx	001	A								
08 Sep	S18W69	074	0110	02	Hsx	001	A								
09 Sep	S18W83	075	0080	02	Hsx	001	A								
								2	0	0	5	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 070

Date	Location (° Lat ° CMD)	Helio Lon	Area (10^{-6} hemi)	Extent (helio)	Sunspot Characteristics Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
	Region 95														
29 Aug	N07E76	061	0180	12	Eao	011	B	1	1		4	1			
30 Aug	N07E65	059	0450	17	Fki	024	Bg	2		1	10				
31 Aug	N07E51	059	0810	20	Fkc	028	Bgd	4			4				
01 Sep	N08E38	059	0730	21	Fki	034	Bg				1				
02 Sep	N08E24	060	0840	20	Fki	053	Bg								
03 Sep	N08E11	060	0750	22	Fki	064	Bg				1				
04 Sep	N08W03	061	0550	20	Fkc	039	Bg	3			4				
05 Sep	N08W17	062	0500	20	Fki	046	Bg	1			1				
06 Sep	N08W31	062	0360	20	Fki	033	B								
07 Sep	N07W43	061	0210	20	Fao	015	B								
08 Sep	N08W56	061	0160	16	Fso	011	B								
09 Sep	N08W71	063	0120	10	Dao	004	B								
10 Sep	N07W84	063	0110	10	Dao	003	B								
								11	1	1	25	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 061

Region Summary - continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 96												
30 Aug	S14E75	049	0080	02	Hax	001	A								
31 Aug	S14E62	049	0140	07	Dao	003	B				1				
01 Sep	S15E50	047	0140	07	Dso	004	B								
02 Sep	S15E38	046	0170	10	Dso	010	B								
03 Sep	S14E25	046	0120	08	Dso	017	B								
04 Sep	S16E13	045	0160	10	Dai	020	Bg	4			4				
05 Sep	S16W02	047	0220	11	Eai	022	B	2			3				
06 Sep	S16W15	046	0160	13	Eai	022	B								
07 Sep	S16W30	048	0070	11	Eso	011	B								
08 Sep	S16W44	049	0080	11	Eao	014	B				1				
09 Sep	S14W57	049	0030	08	Cso	006	B	1			2				
10 Sep	S14W70	049	0030	03	Hsx	002	A								
11 Sep	S14W82	048													
								7	0	0	11	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 047

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 97												
31 Aug	N13E36	074	0020	05	Dro	003	B								
01 Sep	N10E21	076	0030	06	Dso	008	B								
02 Sep	N13E08	076	0110	08	Dai	019	B								
03 Sep	N12W06	077	0070	08	Dao	019	B	1			2				
04 Sep	N13W19	077	0080	08	Dao	015	B								
05 Sep	N12W34	079	0110	08	Dao	013	B								
06 Sep	N12W47	078	0050	08	Dso	007	B								
07 Sep	N12W62	080	0040	07	Cso	004	B				1				
08 Sep	N13W72	077	0030	05	Cso	002	B								
09 Sep	N13W85	077													
10 Sep	N13W98	077													
								1	0	0	3	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 077

Region Summary - continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 98												
31 Aug	S10E76	034	0030	01	Axx	002	A								
01 Sep	S12E65	032	0030	01	Hsx	001	A								
02 Sep	S09E51	033	0030	02	Cro	002	B								
03 Sep	S10E38	033	0040	02	Axx	003	A								
04 Sep	S10E25	033	0020	04	Cao	004	B								
05 Sep	S10E11	034	0010	03	Bxo	002	B								
06 Sep	S10W02	034													
07 Sep	S10W15	034													
08 Sep	S10W28	034													
09 Sep	S10W41	034													
10 Sep	S10W54	034													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 034

			Region 99												
01 Sep	S03E27	070	0040	04	Dao	006	B								
02 Sep	S04E12	072	0070	06	Dso	008	B								
03 Sep	S05W02	073	0080	07	Dao	014	B								
04 Sep	S04W15	073	0040	07	Cso	005	B								
05 Sep	S05W30	075	0030	08	Cso	004	B								
06 Sep	S05W43	075	0030	08	Cso	005	B								
07 Sep	S03W61	079	0020	02	Axx	006	A								
08 Sep	S03W75	080	0000	00	Axx	001	A								
09 Sep	S03W88	080													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 073

Region Summary - continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 100												
01 Sep	S20E67	030	0130	02	Hsx	001	A								
02 Sep	S19E56	028	0210	09	Dao	006	B								
03 Sep	S15E43	028	0160	10	Dao	008	B								
04 Sep	S20E31	027	0190	09	Cao	007	B								
05 Sep	S20E18	027	0130	09	Cso	010	B								
06 Sep	S19E06	025	0130	09	Dao	009	B								
07 Sep	S19W08	026	0090	06	Cao	006	B								
08 Sep	S19W23	028	0050	03	Dso	004	B								
09 Sep	S19W37	029	0040	03	Cao	003	B				1				
10 Sep	S19W50	029	0040	03	Cso	004	B								
11 Sep	S19W64	029	0030	01	Hrx	002	A				1				
12 Sep	S16W75	027	0030	03	Cao	003	B								
13 Sep	S16W88	027													
								0	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 025

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 101												
01 Sep	N03E71	026	0050	01	Hsx	001	A								
02 Sep	N02E56	028	0040	02	Hax	001	A								
03 Sep	S03E44	027	0070	02	Hax	003	A								
04 Sep	N02E30	028	0040	02	Cao	003	B								
05 Sep	N02E17	028	0010	01	Hsx	001	A								
06 Sep	N02E05	026	0010	03	Bxo	008	B								
07 Sep	N03W11	029	0020	06	Bxo	007	B								
08 Sep	N04W26	031	0040	04	Dso	007	B				1				
09 Sep	N05W38	030	0030	04	Dso	005	B								
10 Sep	N05W51	030	0010	03	Bxo	002	B								
11 Sep	N02W63	028	0010	03	Bxo	003	B								
12 Sep	N02W75	027													
13 Sep	N02W88	027													
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 026

Region Summary - continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	M	X	Optical S	1	2	3	4
		Region 102													
02 Sep	N09E65	019	0050	01	Hsx	001	A								
03 Sep	N08E53	018	0040	01	Hsx	002	A								
04 Sep	N08E39	019	0020	01	Hax	001	A								
05 Sep	N08E26	019	0010	01	Hsx	001	A	1			2				
06 Sep	N08E13	019													
07 Sep	N08E00	019													
08 Sep	N08W13	019													
09 Sep	N08W26	019													
10 Sep	N08W39	019													
13 Sep	N08W78	019	0010	02	Axx	002	A								
14 Sep	N08W94	020	0030	01	Hsx	001	A								
								1	0	0	2	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 019

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	M	X	Optical S	1	2	3	4
		Region 103													
03 Sep	N15E73	358	0130	06	Dai	009	B								
04 Sep	N14E60	358	0110	09	Dao	008	B				1				
05 Sep	N15E46	359	0120	09	Dao	020	B								
06 Sep	N15E31	000	0140	08	Dao	020	B								
07 Sep	N15E20	358	0180	09	Dao	025	B								
08 Sep	N16E06	359	0200	09	Dai	027	B				1				
09 Sep	N15W07	359	0240	09	Dai	034	B	1			3				
10 Sep	N15W20	359	0590	11	Eki	037	Bg	1			1				
11 Sep	N15W33	358	0490	12	Ekc	035	Bg								
12 Sep	N16W45	357	0330	13	Eai	028	B								
13 Sep	N16W58	357	0290	13	Eai	023	B								
14 Sep	N16W71	357	0200	13	Eao	011	B								
15 Sep	N16W84	357	0100	14	Eao	008	B	1			1				
								3	0	0	7	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 359

Region Summary - continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 104												
07 Sep	N11E59	319	0030	01	Hsx	001	A								
08 Sep	N10E44	321	0030	01	Hsx	001	A								
09 Sep	N10E30	322	0010	01	Hsx	001	A								
10 Sep	N10E15	324	0020	02	Bxo	004	B								
11 Sep	N10E02	324													
12 Sep	N09W10	322	0000	02	Axx	002	A								
13 Sep	N09W23	322	0000	03	Bxo	004	B								
14 Sep	N09W36	322													
15 Sep	N09W49	322													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		324													
			**Region 105*												
07 Sep	S06E77	301	0290	10	Dko	004	B								
08 Sep	S07E66	299	0850	22	Fko	025	Bg		1		1				
09 Sep	S08E54	298	1270	21	Fki	032	Bgd		1		1		1		
10 Sep	S08E42	297	1520	23	Fki	040	Bgd	3	1		3	1			
11 Sep	S09E28	297	1370	24	Fki	056	Bgd		1		1		1		
12 Sep	S08E16	296	1180	23	Fki	058	Bgd	3			5				
13 Sep	S08E03	296	1180	25	Fki	076	Bgd	1			1				
14 Sep	S07W18	304	0670	14	Eko	043	Bg	4			2				
15 Sep	S07W31	304	0670	09	Dki	022	Bg	1	1		3				
								12	5	0	17	1	2	0	0
Still on Disk.															
Absolute heliographic longitude:		296													
			Region 106												
08 Sep	N28E50	315	0010	04	Bxo	003	B								
09 Sep	N27E36	316	0020	03	Bxo	003	B								
10 Sep	N27E23	316													
11 Sep	N27E10	316													
12 Sep	N27W03	316													
13 Sep	N27W16	316													
14 Sep	N27W29	316													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		316													

Region Summary - continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	M	X	Optical S	1	2	3	4
			Region 107												
08 Sep	N11E70	295	0060	08	Cso	005	B	1			3				
09 Sep	N11E56	296	0080	06	Dso	005	B								
10 Sep	N11E43	296	0150	07	Dao	009	B	3			6				
11 Sep	N11E30	295	0170	09	Dao	015	B	4			4				
12 Sep	N11E16	296	0190	08	Dai	020	B	3			3				
13 Sep	N11E03	296	0190	08	Dai	023	B								
14 Sep	N11W10	296	0190	09	Dai	023	B								
15 Sep	N11W23	296	0100	08	Dao	011	B								
								11	0	0	16	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		296													
			Region 108												
10 Sep	S23E49	290	0020	03	Bxo	003	B								
11 Sep	S24E36	289	0010	03	Bxo	002	B								
12 Sep	S24E20	292	0000	00	Axx	001	A								
13 Sep	S24E07	292													
14 Sep	S24W06	292													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		292													
			Region 109												
10 Sep	S08E18	321	0030	03	Cso	004	B								
11 Sep	S08E05	320	0060	06	Dso	011	B								
12 Sep	S08W10	322	0060	06	Dao	015	B								
13 Sep	S08W23	322	0040	06	Dao	009	B								
14 Sep	S08W36	322	0030	04	Bxo	005	B								
15 Sep	S08W49	322													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		320													
			Region 110												
10 Sep	N20E18	321	0050	05	Cso	008	B								
11 Sep	N20E05	320	0100	07	Dao	009	B								
12 Sep	N19W09	321	0030	06	Dso	009	B								
13 Sep	N19W22	321	0020	06	Dro	006	B								
14 Sep	N19W35	321	0040	05	Dro	009	B								
15 Sep	N19W48	321	0020	04	Cro	003	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		320													

Region Summary - continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares X-ray C	X-ray M	X-ray X	Optical S	Optical 1	Optical 2	Optical 3	Optical 4
			Region 111												
12 Sep	N11E01	311	0010	05	Bxo	006	B								
13 Sep	N11W12	311	0020	04	Bxo	009	B								
14 Sep	N11W25	311	0020	04	Bxo	009	B								
15 Sep	N10W38	311													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		311													
			Region 112												
12 Sep	N00E04	308	0010	02	Axx	005	A								
13 Sep	N00W09	308	0010	03	Bxo	004	B								
14 Sep	N02W20	306													
15 Sep	N02W33	306													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		308													
			Region 113												
12 Sep	N30W38	350	0010	01	Axx	001	A								
13 Sep	N30W51	350													
14 Sep	N30W64	350													
15 Sep	N30W77	350													
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		350													
			**Region 114*												
14 Sep	S12W02	288	0470	09	Dkc	051	Bgd	1			3				
15 Sep	S12W15	288	0300	08	Dai	025	Bg	2			2				
								3	0	0	5	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		288													
			Region 115												
14 Sep	S03E45	241	0120	06	Dao	014	B								
15 Sep	S03E32	241	0120	08	Dso	014	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		241													

Region Summary - continued.

Date	Location (° Lat ° CMD)	Helio Lon	Sunspot Characteristics: Area (10^{-6} hemi)	Extent (helio)	Spot Class	Spot Count	Mag Class	Flares: X-ray C	M	X	Optical S	1	2	3	4
		Region 116													
15 Sep	N15E05	268	0020	03	Cso	004	B	0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 268

		Region 117													
15 Sep	S09E72	201	0130	02	Hsx	001	A	0	0	0	0	0	0	0	0

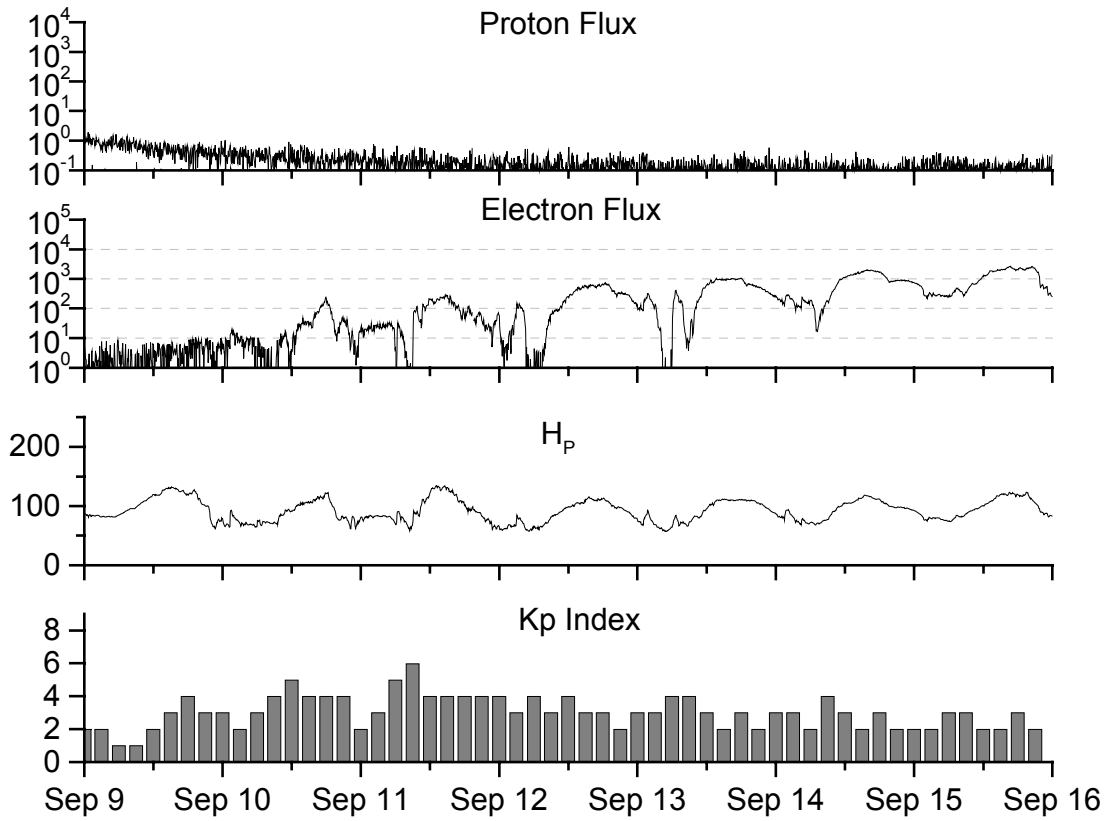
Still on Disk.
Absolute heliographic longitude: 201

**** See comments on Regions 105 & 114 in the Solar Summary text on page one.***

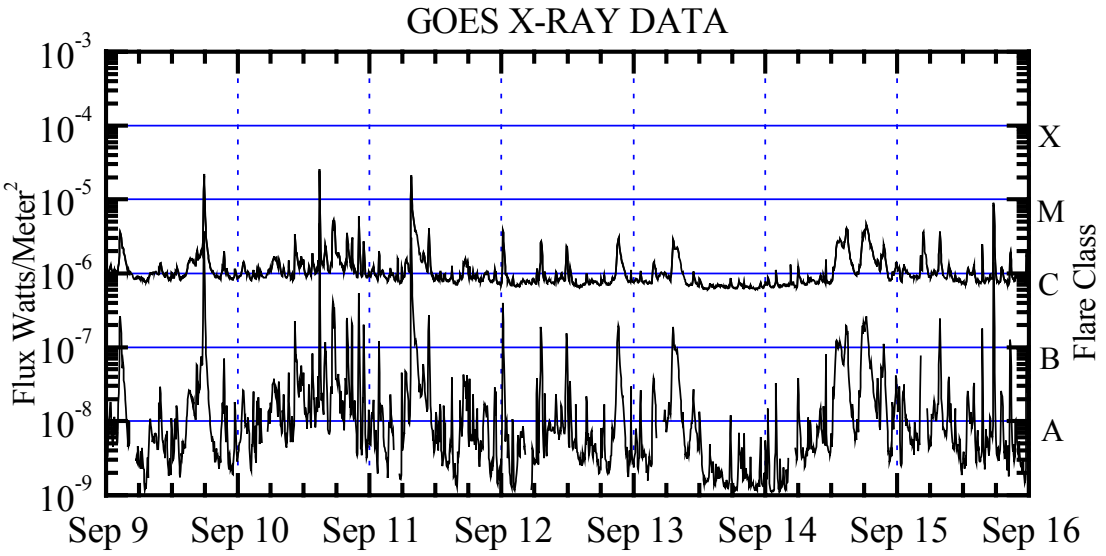
Recent Solar Indices (preliminary)
of the observed monthly mean values

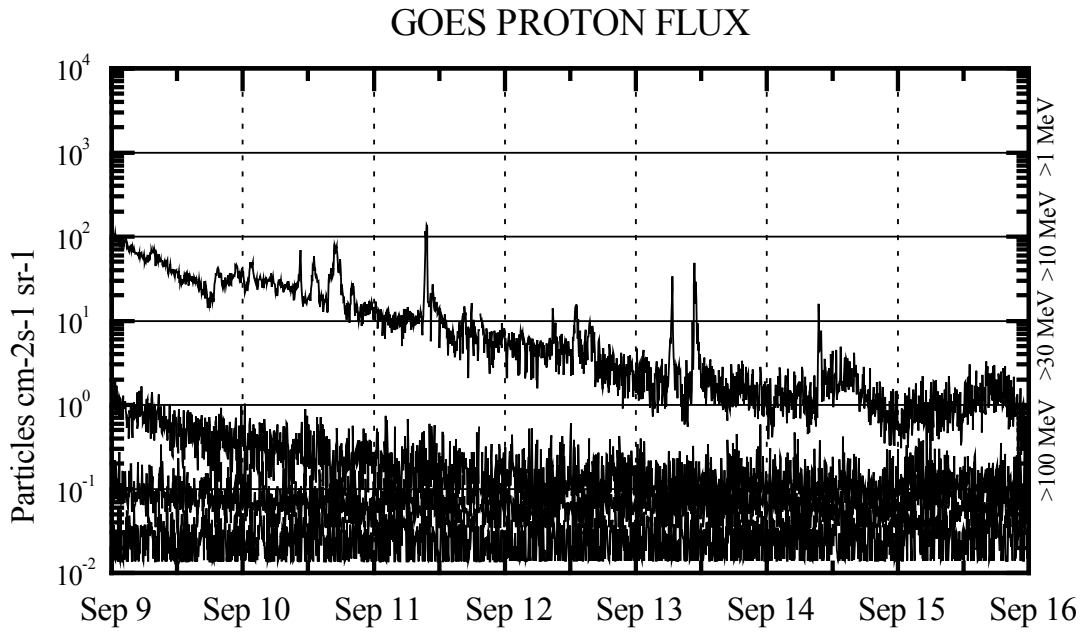
	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		*Penticton	Smooth	Planetary	Smooth
Month	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
				2000					
September	157.9	109.9	0.70	169.0	116.2	182.1	177.1	18	14.2
October	138.9	100.1	0.72	166.2	114.4	167.7	175.6	18	14.6
November	149.9	106.5	0.71	162.7	112.7	178.8	173.6	17	14.6
December	146.4	104.5	0.71	160.8	112.1	173.6	172.0	08	14.4
				2001					
January	142.7	95.1	0.67	156.3	108.8	166.7	168.8	08	13.8
February	131.0	80.1	0.61	151.4	104.2	147.3	165.8	06	13.3
March	166.7	114.2	0.69	154.0	104.9	177.7	167.9	17	12.9
April	163.6	108.2	0.66	159.4	107.7	178.3	171.7	18	12.7
May	135.1	97.3	0.72	163.1	108.8	148.7	174.8	12	12.5
June	196.7	134.0	0.68	167.2	109.9	173.7	178.8	12	12.4
July	124.6	82.2	0.66	172.1	111.8	131.3	183.9	11	12.4
August	159.4	106.8	0.67	176.7	113.8	163.2	188.8	13	12.5
September	229.1	150.7	0.66	178.8	114.3	233.3	191.3	12	12.3
October	197.4	125.6	0.64	179.5	114.1	208.2	191.9	18	11.9
November	178.6	106.5	0.60	183.7	115.6	212.5	193.6	14	11.9
December	217.5	131.8	0.61	184.5	114.7	236.6	193.8	08	12.0
				2002					
January	189.0	113.9	0.60	184.8	113.5	226.4	194.6	07	12.0
February	194.5	108.0	0.56	188.6	114.7	205.1	197.2	09	12.2
March	153.1	98.1	0.64			179.5		10	
April	194.9	120.4	0.62			189.7		15	
May	204.1	120.8	0.59			178.4		15	
June	146.0	88.5	0.61			148.8		11	
July	183.5	99.9	0.54			174.5		13	
August	191.0	116.4	0.61			184.0		16	

NOTE: All smoothed values after June 1999 and monthly values after December 2000 are preliminary estimates. The lowest smoothed sunspot index number for Cycle 22, RI = 8.0, occurred in May 1996. The highest smoothed sunspot number for Cycle 22, RI= 158.5, occurred July 1989. *After June 1991, the 10.7 cm radio flux data source is Penticton, B.C. Canada. Prior to that, it was Ottawa.



Weekly Geosynchronous Satellite Environment Summary
Week Beginning 09 September 2002
Protons plot contains the five-minute averaged integral proton flux (protons/cm^2 –sec –sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm^2 –sec –sr) with energies greater than 2 MeV at GOES-8.
Hp plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-8. The H 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 Heartland, UK. These data are made available through cooperation from the Geological Survey of Canada (GSC) 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 SWO 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. Hparallel 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

X-ray plot contains five-minute averaged x-ray flux (watts/m$^{2)}$ as measured by GOES 8 and 10 in two wavelength bands, .05 -. 4 and .1 - .8 nm. The letters A, B, C, M and X refer to x-ray event levels for the .1 - .8 nm band.

Proton plot contains the five-minute averaged integral proton flux (protons/cm^2 –sec-sr) as measured by GOES-8 (W75) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm^2-sec-sr) at greater than 10 MeV.