

Solar activity ranged from very low to moderate. The summary period began with very low levels on 06 September, increased to low on 07 – 11 September, and finished the period with moderate activity. Region 672 (N05, L=350, class/area, Eai/260 on 12 September) produced a majority of the activity, as well as the largest event of the period. Early on 12 September, at 0056 UTC, Region 672 produced an M4.8/2n long duration event with multiple flare centers. Associated with this event were Type II and Type IV radio sweeps as well as a large 10cm radio burst (2400 sfu). SOHO/LASCO imagery indicated a full halo CME accompanied the flare. At 12/0139 UTC, Region 667 (S11, L=095, class/area, Cao/230 on 12 September) produced a very impulsive M3.2/Sn flare with an associated Type II radio sweep and a possible CME.

Solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft during most of the summary period. The period began with wind speed near 350 km/s. Midday on 06 September, wind velocity gradually increased and peaked near 470 km/s late on the 06th. The north/south component of the IMF fluctuated between -10 and +8 nT through 07 September; those signatures were suggestive of a co-rotating interactive region followed by a weak coronal hole wind stream. Thereafter, and through the end of the summary period, wind speed slowly decayed and generally remained below 400 km/s. The IMF Bz did not vary much beyond +/- 5 nT and remained weak through the remainder of the summary period.

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

The greater than 2 MeV electron flux at geosynchronous orbit was below event threshold the entire summary period.

The geomagnetic field was at quiet to active levels. On 06 - 08 September, activity levels were predominately quiet to active due to a geoeffective coronal hole wind stream. Thereafter, and through the end of the summary period, the field was mostly quiet with only isolated unsettled periods.

Space Weather Outlook **15 September - 11 October 2004**

Solar activity levels are expected to be predominately very low to low with isolated moderate activity possible through 22 September from Region 672.

No greater than 10 MeV proton events are expected.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high levels on 15 – 19 September and on 11 October.

The geomagnetic field is expected to range from mostly quiet to unsettled levels. Midday on 16 September, and through 17 September, activity levels are expected to increase to active levels with isolated periods of minor to major storming due to effects from a CME on 14 September. From 16 – 18 September, a recurrent high speed coronal hole stream is expected to become geoeffective. Resulting levels should remain mostly active on the 16th and decay to unsettled to active on 18 September. The geomagnetic field is expected to be predominately quiet to unsettled from 18 September through 09 October. Toward the end of the forecast period, from 10 - 11 October, levels are expected to increase to unsettled to active as another recurrent coronal hole stream is expected to be in a geoeffective position.



Daily Solar Data

Date	Radio Flux 10.7 cm	Sun spot No.	Sunspot Area (10 ⁻⁶ hemi.)	X-ray Background	Flares								
					X-ray Flux			Optical					
					C	M	X	S	1	2	3	4	
06 September	107	82	390	B1.7	0	0	0	0	0	0	0	0	0
07 September	119	95	480	B3.2	2	0	0	1	0	0	0	0	0
08 September	125	85	550	B4.0	3	0	0	2	0	0	0	0	0
09 September	131	82	950	B5.3	2	0	0	4	0	0	0	0	0
10 September	130	87	1010	B4.3	7	0	0	0	0	0	0	0	0
11 September	116	87	700	B3.1	1	0	0	0	0	0	0	0	0
12 September	115	85	570	B2.8	2	2	0	2	0	1	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ² -day-sr)			Electron Fluence (electrons/cm ² -day-sr)		
	>1MeV	>10MeV	>100MeV	>.6MeV	>2MeV	>4MeV
	06 September	2.1E+5	1.4E+4	3.4E+3		5.4E+6
07 September	1.5E+5	1.4E+4	3.1E+3		1.2E+7	
08 September	2.1E+5	1.5E+4	3.3E+3		2.1E+7	
09 September	2.4E+5	1.4E+4	3.3E+3		4.7E+7	
10 September	1.5E+5	1.4E+4	3.2E+3		2.8E+7	
11 September	1.8E+5	1.4E+4	3.2E+3		2.7E+7	
12 September	1.9E+5	1.9E+4	3.4E+3		1.5E+7	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg			High Latitude College			Estimated Planetary		
	A	K-indices		A	K-indices		A	K-indices	
	06 September	9	1-1-2-2-3-3-2-3	28	2-2-5-5-5-5-2-2	14	2-2-4-4-3-3-2-3		
07 September	11	3-3-3-3-2-1-2-2	27	2-3-6-5-5-3-1-1	16	3-4-4-4-3-3-2-2			
08 September	4	2-2-3-1-1-0-0-0	16	2-3-5-4-4-1-0-0	9	2-3-4-2-3-2-2-2			
09 September	3	0-2-0-1-1-0-1-2	2	0-1-0-2-0-0-1-1	4	1-1-0-1-2-1-2-2			
10 September	1	0-1-0-1-1-0-0-0	3	0-0-1-3-1-0-0-0	5	2-1-1-2-2-2-2-2			
11 September	1	0-0-0-0-1-0-1-1	1	0-0-0-0-2-1-0-0	6	2-0-0-1-3-2-3-2			
12 September	1	1-1-0-0-0-1-0-0	1	1-1-0-0-0-0-0-0	4	1-1-0-0-2-2-2-2			

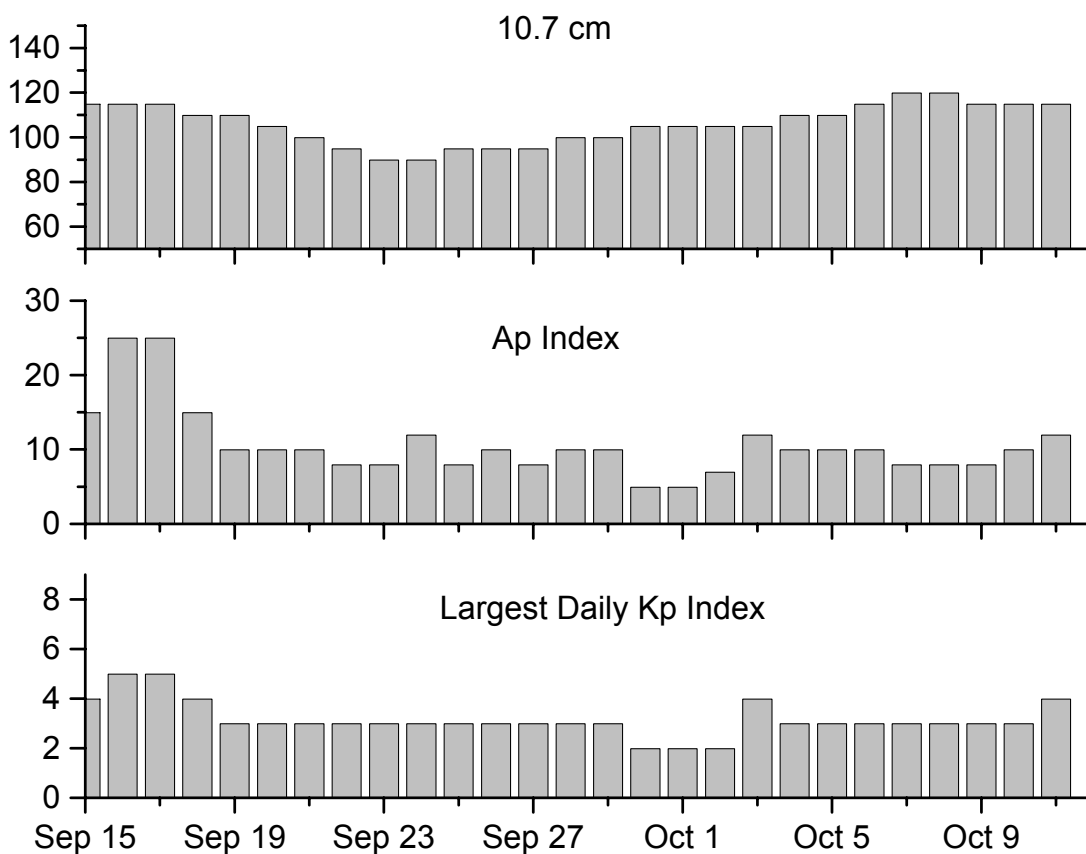


Alerts and Warnings Issued

<u>Date & Time of Issue</u>	<u>Type of Alert or Warning</u>	<u>Date & Time of Event UT</u>
06 Sep 1101	WARNING: Geomagnetic K= 4	06 Sep 1100 - 1500
06 Sep 1204	ALERT: Geomagnetic K= 4	06 Sep 1159
07 Sep 0245	ALERT: Geomagnetic K= 4	07 Sep 0239
07 Sep 0455	WARNING: Geomagnetic K= 4	07 Sep 0455 - 1500
07 Sep 0502	ALERT: Geomagnetic K=4	07 Sep 0500
08 Sep 0801	ALERT: Geomagnetic K= 4	08 Sep 0800
08 Sep 0921	ALERT: Type II Radio Emission	08 Sep 0728
08 Sep 1443	ALERT: Type II Radio Emission	08 Sep 1405
09 Sep 0011	2 – 245 MHz Radio Bursts	08 Sep
10 Sep 0022	1 – 245 MHz Radio Burst	09 Sep
12 Sep 0121	ALERT: Type II Radio Emission	12 Sep 0024
12 Sep 0123	ALERT: Type IV Radio Emission	12 Sep 0027
12 Sep 0222	ALERT: Type II Radio Emission	12 Sep 0142
12 Sep 0306	SUMMARY: 10cm Radio Burst	12 Sep 0026
12 Sep 2133	WATCH: Geomagnetic A \geq 30	15 Sep



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
15 Sep	115	15	4	29 Sep	100	10	3
16	115	25	5	30	105	8	2
17	115	25	5	01 Oct	105	5	2
18	110	15	4	02	105	7	2
19	110	10	3	03	105	12	4
20	105	10	3	04	110	10	3
21	100	10	3	05	110	10	3
22	95	8	3	06	115	10	3
23	90	8	3	07	120	8	3
24	90	8	3	08	120	8	3
25	95	8	3	09	115	8	3
26	95	10	3	10	115	10	3
27	95	8	3	11	115	12	4
28	100	10	3				



Energetic Events

Date	Time		X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	Max	Class	Flux	Imp/	Location	Rgn	Radio Flux		Intensity	
						Brtns	Lat CMD	#	245	2695	II	IV
12 Sep	0004	0056	0133	M4.8	.150	2n	N04E42	672	390	2400	3	2
12 Sep	0136	0139	0141	M3.2	.008	Sn	S14W61	667	860		3	

Flare List

Date	Time			X-ray Class.	Imp / Brtns	Optical Location Lat CMD	Rgn	
	Begin	Max	End					
06 September	0229	0249	0307	B6.9			667	
	1530	1539	1549	B8.2			667	
07 September	0706	0738	0803	C1.1			669	
	1340	1529	1643	C2.8				
08 September	1636	1636	1646		Sf	S10W38	671	
	0059	0110	0126	C1.5				
	0345	0345	0349	B9.0	Sf	S06E02	669	
	1453	1458	1505	B9.7			669	
	2001	2001	2005	C1.0	Sf	S05W05	669	
09 September	2205	2222	2247	C1.2			672	
	0450	0601	0640	C3.2			672	
	0629	0629	0633		Sf	S10W60	671	
	0735	0736	0739		Sf	S11W53	671	
	0801	0802	0805		Sf	S11W53	671	
	1049	1050	1053		Sf	S13W61	671	
	1755	1800	1813	B9.3			671	
	2159	2216	2226	C1.0			672	
	10 September	0203	0207	0214	C1.0			672
		0630	0726	0746	C1.7			672
1249		1256	1302	C2.1			672	
1457		1505	1514	C1.0			672	
1523		1525	1530	B5.9				
1602		1613	1626	C6.9			672	
1911		1945	2003	C1.7			672	
2359		0006	0014	C1.6			672	
11 September	0608	0613	0627	B9.5			672	
	0629	0634	0639	C1.1			672	
	1607	1612	1616	B4.5			672	
12 September	0008	0035	A0109	M4.8	2n	N04E42	672	
	0137	0138	0145	M3.2	Sn	S14W61	667	
	1149	1157	1201	B7.1				
	1528	1536	1540	B7.9				
	1832	1832	1835	C2.0	Sf	S08W64	669	
	2007	2010	2012	B4.9				
	2014	2017	2020	B6.1				
	2057	2102	2106	B8.8			672	
	2222	2227	2230	C1.1			667	



Flare List – continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
12 September	2238	2243	2248	B6.6	669		
	2311	2314	2317	B6.0			672

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

Region 666

29 Aug N16E31	178	0000	01	Axx	001	A												
30 Aug N17E17	179	0000	01	Axx	001	A												
31 Aug N17E04	179																	
01 Sep N17W09	179																	
02 Sep N16W22	177	0010	01	Axx	002	A												
03 Sep N16W35	177																	
04 Sep N16W48	177																	
05 Sep N16W61	177																	
06 Sep N16W74	177																	
07 Sep N16W87	177																	

0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude:179

Region 667

01 Sep S09E76	093	0180	04	Hax	002	A												
02 Sep S10E62	093	0250	04	Hkx	003	A												
03 Sep S11E48	094	0250	04	Hhx	001	A												
04 Sep S10E36	093	0340	04	Hkx	002	A												
05 Sep S11E23	093	0250	05	Hkx	004	A												
06 Sep S11E09	094	0240	05	Dao	010	B												
07 Sep S11W04	093	0290	03	Hkx	004	A												
08 Sep S11W17	093	0260	04	Hkx	003	A												
09 Sep S11W32	095	0250	04	Hkx	007	A												
10 Sep S11W45	095	0250	03	Hhx	005	A												
11 Sep S11W58	095	0180	05	Dao	007	B												
12 Sep S11W72	095	0230	06	Cao	004	B												

1 1 1
1 1 0 1 0 0 0 0

Still on Disk.

Absolute heliographic longitude:093



Region Summary - continued.

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

Region 668

03 Sep	S11W34	176	0020	03	Cso	004	B											
04 Sep	S10W49	178	0050	04	Cao	006	B											
05 Sep	S11W64	179	0050	05	Cao	006	B											
06 Sep	S10W76	179	0050	01	Hsx	001	A											
07 Sep	S09W90	179	0010	02	Axx	001	A											
										0	0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude:176

Region 669

05 Sep	S06E35	081	0030	03	Bxo	007	B											
06 Sep	S07E19	084	0050	06	Dso	012	B											
07 Sep	S06E06	083	0090	05	Dai	015	B	1										
08 Sep	S05W09	085	0090	06	Dai	021	B	1			2							
09 Sep	S06W24	087	0100	07	Dao	017	B											
10 Sep	S06W78	087	0130	07	Dsi	018	B											
11 Sep	S06W51	088	0080	07	Cso	008	B											
12 Sep	S06W66	089	0080	02	Hsx	002	A	1			1							
								3	0	0	3	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude:083

Region 670

05 Sep	S14E34	082	0010	02	Axx	002	A											
06 Sep	S13E19	084	0010	01	Axx	004	A											
07 Sep	S14E04	085	0010	08	Bxo	014	B											
08 Sep	S14W07	083	0010	02	Axx	004	A											
09 Sep	S14W20	083																
10 Sep	S14W33	083																
11 Sep	S14W46	083																
12 Sep	S14W59	083																
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude:085



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		
<i>Region 671</i>																	
06 Sep	S10W29	132	0040	04	Dsi	005	B										
07 Sep	S11W42	131	0080	06	Dso	011	B						1				
08 Sep	S10W55	131	0190	08	Dai	017	B										
09 Sep	S09W68	131	0300	10	Dao	013	B						4				
10 Sep	S09W81	131	0370	08	Dki	011	B										
11 Sep	S09W94	131	0170	02	Hsx	002	A										
								0	0	0	5	0	0	0	0	0	
Crossed West Limb.																	
Absolute heliographic longitude:132																	
<i>Region 672</i>																	
09 Sep	N05E73	350	0300	07	Dai	005	B	2									
10 Sep	N05E60	350	0260	08	Dai	013	B	7									
11 Sep	N05E47	350	0270	13	Eai	030	Bg	1									
12 Sep	N05E33	350	0260	11	Eai	049	Bg		1					1			
								10	1	0	0	0	1	0	0		
Still on Disk.																	
Absolute heliographic longitude:350																	

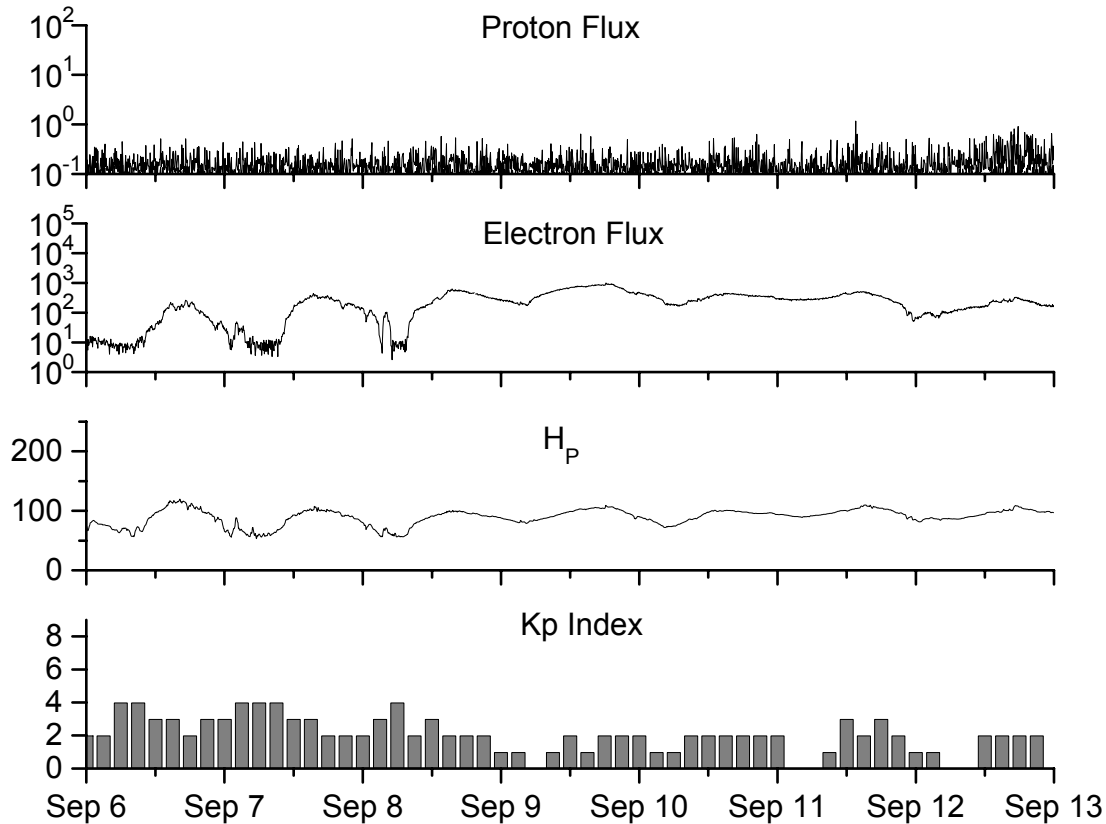


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers			Radio Flux		Geomagnetic			
	Observed SWO	values RI	Ratio RI/SWO	Smooth SWO	values RI	*Penticton 10.7 cm	Smooth Value	Planetary Ap	Smooth Value
2002									
September	206.4	109.6	0.53	163.4	94.6	175.8	164.1	14	15.0
October	153.9	97.5	0.63	158.8	90.5	167.0	159.4	23	15.6
November	159.8	95.5	0.60	150.9	85.2	168.7	154.8	16	16.3
December	147.9	80.8	0.55	144.6	82.1	158.6	150.9	13	17.0
2003									
January	149.3	79.7	0.53	141.7	81.0	144.0	149.2	13	18.2
February	87.0	46.0	0.53	136.4	78.5	124.5	144.7	17	18.9
March	119.7	61.1	0.51	128.1	74.2	132.2	139.5	21	19.4
April	119.7	60.0	0.50	121.5	70.3	126.3	135.0	20	20.1
May	89.6	55.2	0.62	118.3	67.8	129.3	133.1	26	21.0
June	118.4	77.4	0.65	113.6	65.2	129.4	130.2	24	21.5
July	132.8	85.0	0.64	106.9	62.0	127.8	127.2	19	22.0
August	114.3	72.7	0.64	102.8	60.3	122.1	125.2	23	22.2
September	82.6	48.8	0.59	100.7	59.8	112.3	123.7	18	21.8
October	118.9	65.6	0.55	96.6	58.4	153.1	121.8	35	21.1
November	118.9	67.2	0.57	93.6	57.0	153.1	120.1	28	20.0
December	75.4	47.0	0.62	91.4	55.0	115.1	118.0	16	18.6
2004									
January	62.3	37.2	0.60	87.9	52.0	114.1	116.3	22	18.1
February	75.6	46.0	0.61	84.2	49.4	107.0	115.5	13	17.7
March	81.0	48.9	0.60			112.2		14	
April	59.3	39.3	0.66			101.2		11	
May	77.3	41.5	0.54			99.8		8	
June	78.9	43.2	0.55			97.4		8	
July	87.8	51.0	0.58			118.5		23	
August	69.5	40.9	0.59			110.1		10	

NOTE: All smoothed values after September 2002 and monthly values after March 2003 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 23, RI= 120.8, occurred April 2000. *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 06 September 2004*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec-sr) as measured by GOES-11 (W98) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

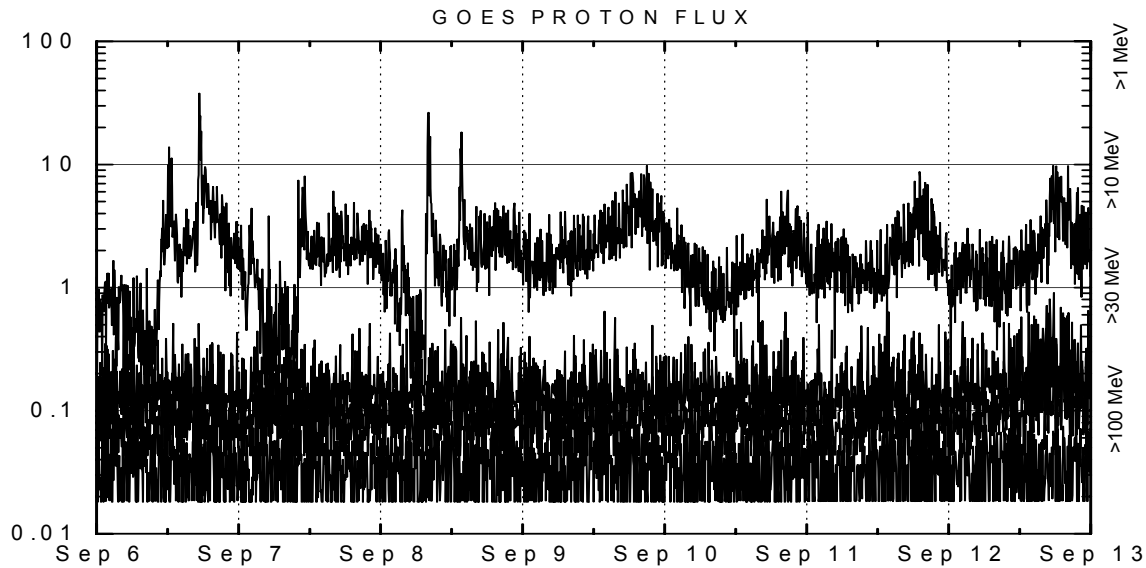
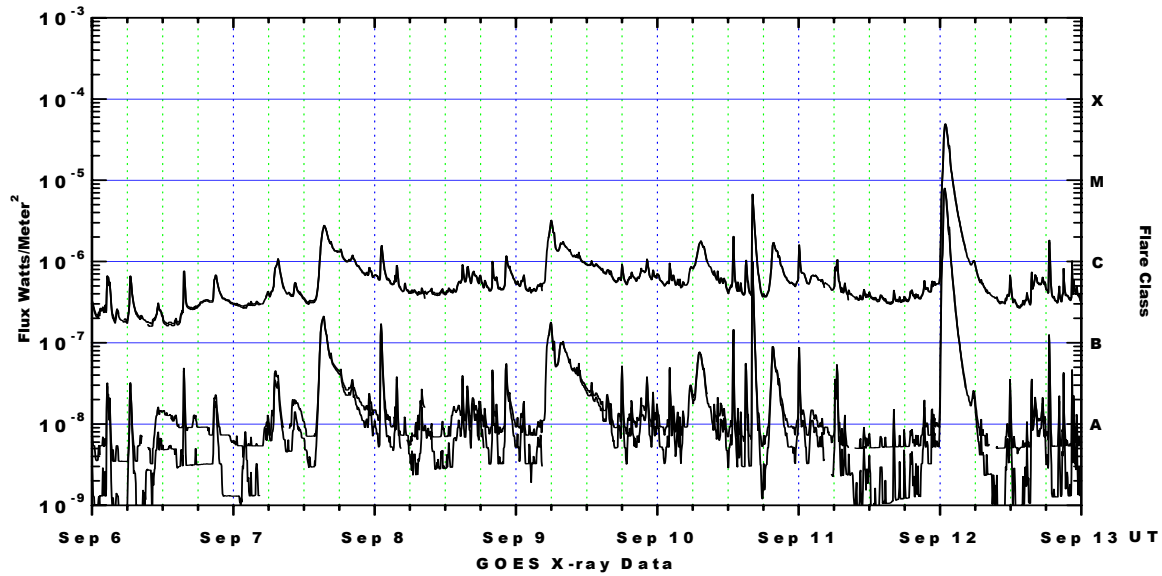
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec-sr) with energies greater than 2 MeV at GOES-12 (W75).

H_p plot contains the five minute averaged magnetic field H - component in nanoteslas (nT) as measured by GOES-12. The H component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

K_p 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 K_p 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 K_p are "global" parameters that are applicable to a first order approximation over large areas. H_p 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/m²) as measured by GOES 12 (W75) and GOES 10 (W135) 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/cm²-sec-sr) as measured by GOES-11 (W98) for each of the energy thresholds: >1, >10, >30 and >100 MeV. P10 event threshold is 10 pfu (protons/cm²-sec-sr) at greater than 10 MeV.



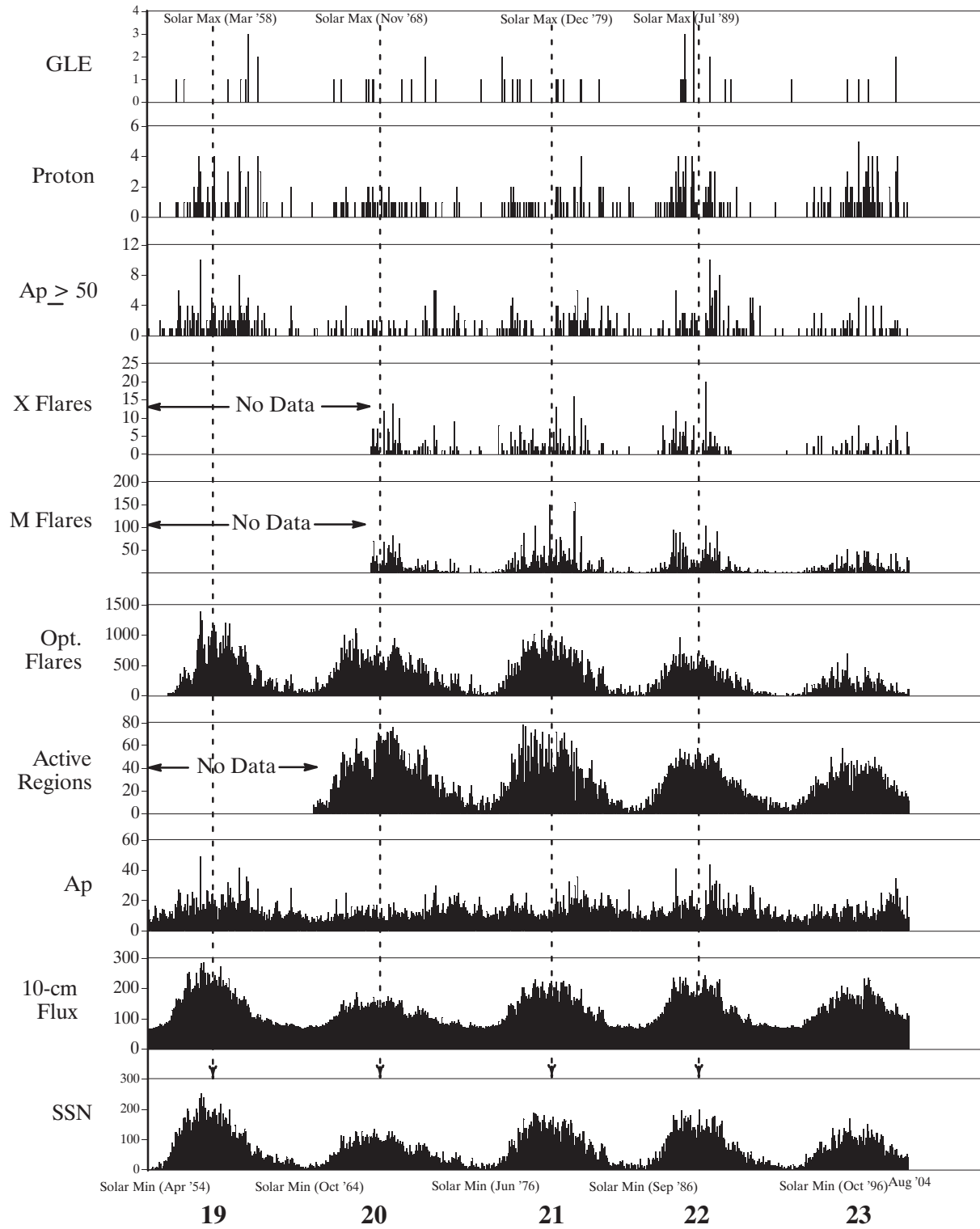


Space
Environment
Center

Solar-Terrestrial Indices

Monthly Values

August 2004 Month 95 STI 605



Solar Cycle

K. Tegnell