

Space Weather Highlights

14 - 20 May 2001

SWO PRF 1342
22 May 2001

Solar activity reached high levels during the period. Activity was low as the period began, then increased to moderate levels during 15 - 17 May by virtue of isolated, low-level M-class flares from Region 9455 (S17, l = 273, class/area Fai/230 on 17 May) (please refer to the Energetic Events list for flare specifics). Region 9455 was a moderate-sized spot group, which changed little during the period, but maintained a minor degree of magnetic complexity until it crossed the west limb on 19 May. Activity decreased to low levels during 18 - 19 May with occasional C-class x-ray flares. Activity increased to high levels on 20 May with an M6 x-ray flare at 20/0603 UTC from beyond the southwest limb associated with a 360 SFU Tenflare, a Type II radio sweep, and a coronal mass ejection that did not appear to be Earth-directed. An M1 x-ray flare occurred at 20/0920 UTC associated with a Type II radio sweep. (Old) Region 9455 appeared to be the source for both of these flares. Region 9461 (N18, L = 161, class/area Dao/170 on 19 May) rotated into view on 15 May. It appeared to be the return of old Region 9433, which produced major flares during its previous two rotations. Region 9461 was a relatively simple D-type spot group with a mild mixing of polarities within its intermediate spots. It produced isolated C-class subflares during the period.

Data were available from the Advanced Composition Explorer (ACE) spacecraft for most of the period. Periods of elevated solar wind speeds and proton temperatures, relatively low densities, and variable IMF Bz occurred during 14 - 16 May, suggesting high-speed streams associated with a negative-polarity coronal hole. A weak interplanetary structure passed the spacecraft beginning about 18/0900 UTC with effects extending into 19 May. The most notable change associated with this passage was a southward turning of IMF Bz during approximately 18/2000 - 19/0400 UTC with maximum deflections to minus 08 nT (GSM). No disturbances were detected during the rest of the period.

There were no proton events detected during the period. However, proton flux enhancements at greater than 100 MeV and greater than 10 MeV began around 20/0700 UTC in the wake of the M6 x-ray flare mentioned above.

The greater than 2 MeV electron flux at geosynchronous orbit ranged from normal to high levels. High flux levels occurred during 14 - 18 May.

The geomagnetic field was disturbed during 14 - 15 May with intermittent active conditions and brief storm periods at high latitudes. This disturbance may have been due to coronal hole effects. Activity decreased to quiet to unsettled levels during 16 - 17 May. Quiet to unsettled conditions continued through most of 18 May. Activity increased to unsettled to active levels during 18/2100 - 19/0600 UTC, probably due to a weak interplanetary transient passage. Activity decreased to quiet to unsettled levels after 19/0600 UTC and remained so for the balance of the period.

Space Weather Outlook

23 May -18 June 2001

Solar activity is expected to range from low to moderate levels during the period. Isolated M-class flares will be possible during the period.

No proton events are expected during the period.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at normal to moderate levels during most of the period. However, high flux levels will be possible around 24 - 27 May and 12 - 15 June.

The geomagnetic field is expected to be at quiet to unsettled levels during most of the period, barring an Earth-directed CME. However, active levels will be possible around 23 May and 11 June.



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
14 May	138	149	720	B3.0	4	0	0	5	0	0	0	0
15 May	142	146	690	B4.2	5	1	0	4	1	0	0	0
16 May	138	125	680	C1.0	7	1	0	7	0	0	0	0
17 May	147	137	760	B5.7	16	1	0	9	3	0	0	0
18 May	138	109	490	B6.4	6	0	0	0	0	0	0	0
19 May	141	92	620	B6.3	8	0	0	0	0	0	0	0
20 May	142	99	800	B8.0	8	2	0	0	0	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	>4Me
	14 May	3.4E+5	1.2E+4	2.8E+3		5.5E+7
15 May	5.7E+5	1.2E+4	2.7E+3		8.4E+7	
16 May	3.1E+5	1.1E+4	2.8E+3		5.2E+7	
17 May	2.0E+5	1.2E+4	2.9E+3		1.5E+8	
18 May	2.6E+5	1.1E+4	3.1E+3		5.4E+7	
19 May	1.4E+5	1.1E+4	3.1E+3		3.6E+7	
20 May	6.1E+5	2.5E+5	1.8E+4		5.2E+7	

Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
	14 May	10	4-3-3-0-1-2-1-2	*	4-3-5-0-0-2-2-*	12
15 May	10	2-1-4-3-2-1-2-2	27	2-2-5-6-5-3-2-1	16	2-2-4-4-2-4-4-3
16 May	7	3-2-2-1-1-2-1-2	*	3-2-6-5-*-1-1-*	12	3-3-3-3-2-3-2-2
17 May	7	1-3-1-1-1-2-2-3	7	2-3-1-3-0-1-1-2	9	2-3-1-3-2-3-2-3
18 May	11	3-2-1-2-2-2-3-4	12	3-2-1-4-4-1-2-2	11	3-3-2-2-3-3-3-3
19 May	10	4-4-2-1-1-0-2-1	9	3-4-2-3-2-0-1-0	12	4-4-2-2-3-3-3-2
20 May	6	1-2-2-2-2-1-1-2	2	1-2-1-1-1-0-0-0	10	2-3-3-2-3-3-2-2

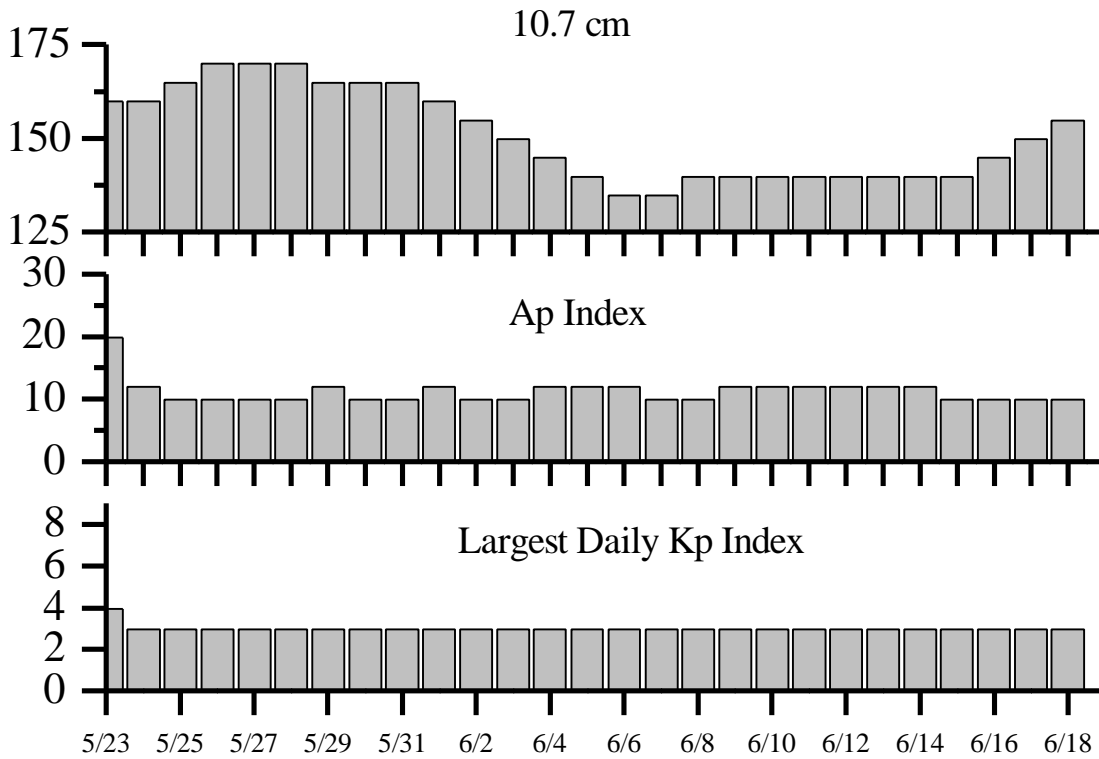


Alerts and Warnings Issued

Date & Time of Issue	Type of Alert or Warning	Date & Time of Event UT
14 May 0009	4 – 245 MHz Radio Bursts	13 May
14 May 0009	245 MHz Radio Noise Storm	13 May
14 May 0100	CONTINUED Electron Event >2MeV >=1000pfu	13 May 1600
14 May 0300	ENDED A >=20 Observed	12 May 1500
14 May 0739	K= 4 Warning	14 May 0740 - 1500
14 May 0959	K-Index of 4 Observed	14 May 0600 - 0900
14 May 1312	Electron Event >2MeV >=1000pfu	14 May 1240
15 May 0031	1 - 245 MHz Radio Burst	14 May
15 May 0100	CONTINUED Electron Event >2MeV >=1000pfu	14 May 1240
15 May 0318	Type II Radio Emission	15 May 0300
15 May 0537	Type IV Radio Emission	15 May 0311
15 May 0858	K= 4 Observed	15 May 0600 - 0900
15 May 1201	K= 4 Observed	15 May 0900 - 1200
15 May 1739	K= 4 Warning	15 May 1745 - 16 May 0000
16 May 0006	3 – 245 MHz Radio Bursts	15 May
16 May 0100	CONTINUED Electron Event >2MeV >=1000pfu	14 May 1240
16 May 1646	Type II Radio Emission	16 May 1555
17 May 0100	CONTINUED Electron Event >2MeV >=1000pfu	14 May 1240
18 May 0059	1 – 245 MHz Radio Burst	17 May
18 May 0100	CONTINUED Electron Event >2MeV >=1000pfu	14 May 1240
18 May 2354	K= 4 Warning	18 May 2355 - 19 May 0600
18 May 2358	K-Index of 4 Observed	18 May 2100 - 0000
19 May 0100	CONTINUED Electron Event >2MeV >=1000pfu	14 May 1240
19 May 1644	Type II Radio Emission	19 May 1441
20 May 0045	1 – 245 MHz Radio Burst	19 May
20 May 0610	X-Ray event M6.4	20 May 0603
20 May 0620	10cm Radio Burst 360 F.U.	20 May 0602
20 May 0638	Type II Radio Emission	20 May 0604
20 May 1002	Type II Radio Emission	20 May 0928



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
23 May	160	20	3	06	155	10	3
24	155	12	3	07	150	10	3
25	165	10	3	08	145	12	3
26	175	10	3	09	140	12	3
27	180	10	3	10	135	12	3
28	180	10	3	11	130	12	3
29	180	10	3	12	130	12	3
30	180	12	3	13	130	12	3
31	180	10	3	14	135	12	3
01 June	180	12	3	15	140	10	3
02	180	10	3	16	140	10	3
03	180	10	3	17	140	10	3
04	175	10	3	18	145	10	3
05	165	12	3				



Energetic Events

Date	Time			X-ray		Optical Information			Peak		Sweep Freq		
	Begin	Max	½	Class	Integ Flux	Imp/ Brtns	Location		Rgn #	Radio Flux		Intensity	
			Max				Lat	CMD		245	2695	II	IV
15 May	0253	0300	0308	M1.0	.006	1N	S17W29		9455	780	2	1	
16 May	1035	1042	1045	M1.3	.004	SF	S17W47		9455				
17 May	1646	1652	1657	M1.2	.005	1F	S16W64		9455				
20 May	0600	0603	0606	M6.4	.012					390	360	3	
20 May	0912	0920	0923	M1.5	.004					240			

Flare List

Date	Time			X-ray Class.	Optical Imp / Brtns	Location Lat CMD	Rgn
	Begin	Max	End				
14 May	0221	0224	0229	B4.3			
	0322	0324	0337	C5.1	SF	S15W13	9455
	0524	0525	0536	C1.7	SF	S17W17	9455
	1112	1112	1119	C1.0	SF	S17W21	9455
	1216	1227	1238	C2.3	SF	S18W22	9455
	1503	1507	1514	B9.7	SF	S15W21	9455
15 May	2232	2237	2250	B8.8			
	0257	0300	0316	M1.0	1N	S17W29	9455
	0604	0611	0620	C1.3			
	0837	0844	0857	C3.5	SF	S17W34	9455
	0912	0913	0920	C2.1	SF	S18W33	9455
	1316	1325	1344	C3.4			
	1717	1717	1722		SF	N06W42	9456
16 May	1752	1940	2219	C4.0			
	2103	2107	2109		SF	S16W40	9455
	0206	0210	0217		SF	S16W38	9455
	0631	0633	0647	C4.2	SF	S17W45	9455
	0829	0840	0853	C1.1	SF	N17E58	9461
	0937	0944	0949	C1.5			
	1039	1042	1103	M1.3	SF	S17W47	9455
	1435	1442	1448	C2.1			
	1547	1549	1554	C2.7	SF	S11W69	9458
	1838	1838	1842	C1.5	SF	S17W54	9455
	1917	1922	1934	B8.5			
	2012	2016	2021	B7.5			
17 May	2348	2353	0003	C2.3	SF	N14W10	9454
	0026	0030	0032	C1.1			
	0059	0104	0107	C1.0			
	0123	0124	0129	C2.7	SF	S16W56	9455
	0404	0414	0425	C1.1			
	0533	0537	0540	B9.3			
	B0550	U0559	0605	C1.8	SF	S19W87	9451



Flare List – continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
17 May	0647	0653	0658	C2.2			
	0845	0849	0853	C1.2			
	0957	1001	1006	C4.0			
	1122	1123	1127		SF	N16W07	9454
	1309	1314	1318	B9.8			
	1351	1356	1405	C1.9	SF	S13W60	9455
	1431	1431	1437		SF	S17W63	9455
	1439	1443	1448	C1.4			
	1634	1635	1645	C3.2	SF	S17W64	9455
	1648	1652	1704	M1.2	1F	S16W64	9455
	1730	1733	1735	C1.6			
	1940	1957	2028	C7.0	1F	N13W19	9454
	2044	2045	2111	C9.1	1F	N13W19	9454
	2138	2141	2145	C4.0	SF	N22E52	9461
	18 May	2324	2328	2335	C2.2	SF	N20E54
2354		2354	2358		SF	S16W68	9455
0215		0219	0222	C2.2			
0235		0238	0240	C1.2			
0629		0640	0656	C6.4			
0813		0816	0819	B8.5			
0820		0824	0827	B9.7			
1454		1501	1509	C2.4			
1539		1549	1553	C2.5			
1824		1835	1845	C5.7			
19 May	0144	0148	0152	C1.0			
	0520	0524	0526	C1.9			
	0741	0745	0747	C1.5			
	0933	0937	0939	C1.9			
	1433	1438	1441	C6.7			
	2102	2107	2111	C1.3			
	2148	2155	2204	C2.1			
	2350	0019	0025	C3.5			



Flare List – continued.

Date	Time			X-ray Class.	Optical		Rgn
	Begin	Max	End		Imp / Brtns	Location Lat CMD	
20 May	0220	0225	0228	C2.0			
	0319	0323	0327	C1.0			
	0543	0548	0554	C2.5			
	0600	0603	0606	M6.4			
	0912	0920	0923	M1.5			
	0943	0947	0950	B9.7			
	1031	1035	1042	C1.0			
	1135	1140	1143	C6.1			
	1150	1154	1203	C1.1			
	1319	1323	1335	B8.0			
	1432	1441	1446	C2.9			
	1907	1916	1923	B9.2			
	1930	1940	1945	C1.3			

Region Summary

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 9449

02 May	S15E69	340	0110	02	HSX	001	A											
03 May	S16E57	339	0070	02	HSX	001	A											
04 May	S17E44	339	0080	02	HSX	001	A											
05 May	S17E31	339	0090	02	HAX	002	A											
06 May	S17E17	339	0080	02	HAX	002	A											
07 May	S17E04	338	0090	02	CAO	002	B											
08 May	S16W07	336	0070	05	CSO	005	B											
09 May	S16W21	337	0060	03	CAO	005	B											
10 May	S17W34	337	0060	04	CSO	005	B	1			1							
11 May	S16W48	337	0020	02	CSO	002	B											
12 May	S16W61	337	0010	01	AXX	002	A											
13 May	S16W74	337																
14 May	S16W87	337																
								1	0	0	1	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 338



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 9451</i>																			
04 May	S22E76	307	0080	03	HAX	001	A												
05 May	S22E65	305	0160	03	HAX	001	A												
06 May	S20E52	304	0070	02	HAX	001	A												
07 May	S21E38	304	0120	03	HSX	002	A												
08 May	S21E26	303	0120	03	HAX	003	A												
09 May	S21E13	303	0140	06	CAO	006	B												
10 May	S21E00	303	0130	04	CAO	006	B												
11 May	S22W12	301	0130	05	CKO	007	B												
12 May	S21W26	302	0130	04	CSO	004	B												
13 May	S22W39	302	0120	06	DSO	006	B												2
14 May	S22W52	302	0120	07	DSO	005	B												
15 May	S21W68	305	0120	03	HSX	001	A												
16 May	S20W81	305	0110	02	HAX	001	A												
17 May	S20W93	303	0060	01	HAX	001	A	1						1					
								1	0	0	0	3	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 303

Region 9452

07 May	S09E67	275	0020	01	HSX	001	A												
08 May	S09E54	275	0020	01	HSX	001	A												
09 May	S09E41	275	0020	01	AXX	001	A												
10 May	S09E27	276	0010	00	HRX	001	A												
11 May	S09E14	275	0010	00	AXX	001	A												
12 May	S10E02	274	0000	06	BXO	002	B												
13 May	S10W11	274																	
14 May	S10W24	274																	
15 May	S10W37	274																	
16 May	S10W50	274																	
17 May	S10W63	274																	
18 May	S10W76	274																	
19 May	S10W89	274																	
																			0 0 0 0 0 0 0 0

Crossed West Limb.

Absolute heliographic longitude: 274



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 9454

10 May N15E74	229	0300	13	EAO	008	B	1										
11 May N13E58	231	0430	11	EKO	013	B											
12 May N13E46	230	0410	12	EAO	016	BG	1			3							
13 May N12E32	231	0400	13	EAO	018	BG											
14 May N12E18	232	0320	13	EAO	021	BG											
15 May N12E05	232	0280	14	EAO	023	BG											
16 May N13W08	232	0220	13	EAO	022	BG	1			1							
17 May N14W22	232	0140	12	EAI	025	BG	2			1	2						
18 May N14W33	230	0070	11	ESO	010	B											
19 May N14W47	231	0040	10	DSO	005	B											
20 May N15W60	231	0030	04	AXX	004	A											
										5	0	0	5	2	0	0	0

Still on Disk.

Absolute heliographic longitude: 232

Region 9455

11 May S18E17	272	0100	06	DAO	012	B	1			1							
12 May S16E03	273	0190	10	DAO	022	B	4	1		5	2						
13 May S18W11	274	0160	12	EAI	021	BG	4	1		5	1						
14 May S17W24	274	0180	15	EAI	029	BG	4			5							
15 May S17W38	275	0180	16	FAI	022	BG	2	1		3	1						
16 May S17W52	276	0140	17	FAI	028	BG	2	1		4							
17 May S16W66	276	0230	17	FAI	026	BG	3	1		5	1						
18 May S17W80	277	0210	15	EAO	018	B											
19 May S17W91	275	0060	06	CSO	002	B											
										20	5	0	28	5	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 273

Region 9456

12 May N06W04	280	0060	06	DAO	010	B											
13 May N06W18	281	0050	07	DAO	011	B											
14 May N06W32	282	0060	07	DSO	007	B											
15 May N07W45	282	0050	07	DSO	009	B				1							
16 May N06W60	284	0090	08	DAO	005	B											
17 May N07W73	283	0070	09	DAO	005	B											
18 May N07W86	283																
										0	0	0	1	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 280



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

Region 9457

13 May	S19E03	260	0000	01	AXX	002	A											
14 May	S21W07	257	0000	00	AXX	001	A											
15 May	S21W20	257																
16 May	S21W33	257																
17 May	S21W46	257																
18 May	S21W59	257																
19 May	S21W72	257																
20 May	S21W85	257																
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 260

Region 9458

14 May	S11W45	295	0020	02	CSO	003	B											
15 May	S12W60	297	0040	04	CSO	006	B											
16 May	S12W72	296	0030	06	DAO	005	B	1			1							
17 May	S11W84	294	0050	02	HSX	001	A											
										1	0	0	1	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 295

Region 9459

14 May	N26W09	259	0020	03	CRO	002	B											
15 May	N26W24	261	0010	03	BXO	002	B											
16 May	N26W37	261	0000	00		000												
17 May	N26W50	261	0000	00		000												
18 May	N27W60	257	0010	03	BXO	002	B											
19 May	N27W73	257	0000	00		000												
20 May	N27W86	257	0000	00		000												
										0	0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 259



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

Region 9460

14 May S24E60	190	0000	00	AXX	001	A												
15 May S24E48	189	0000	00	AXX	001	A												
16 May S24E35	189																	
17 May S24E22	189																	
18 May S24E09	189																	
19 May S24W04	189																	
20 May S24W17	189																	

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 189

Region 9461

15 May N15E76	161	0010	04	BXO	002	B												
16 May N16E63	161	0090	05	DAO	004	B	1			1								
17 May N18E49	161	0110	08	DAO	008	B	2			2								
18 May N19E39	158	0100	09	DAO	016	B												
19 May N19E25	159	0170	09	DAO	015	B												
20 May N22E10	161	0130	09	DSO	012	B												

3 0 0 3 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 161

Region 9462

17 May N18E73	137	0100	02	HAX	001	A												
18 May N20E62	135	0050	02	HSX	001	A												
19 May N19E48	136	0050	02	HSX	001	A												
20 May N20E36	135	0060	02	HAX	001	A												

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 135

Region 9463

18 May N07E72	125	0050	05	DSO	002	B												
19 May N07E59	125	0230	09	DAO	006	B												
20 May N09E46	125	0400	11	EKO	014	B												

0 0 0 0 0 0 0 0

Still on Disk.

Absolute heliographic longitude: 125



Region Summary - continued.

Location		Sunspot Characteristics					Flares							
Date	(° 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
<i>Region 9464</i>														
19 May	S11E70	114	0070	10	CAO	003	B							
20 May	S07E53	118	0070	06	DAO	004	B							
								0	0	0	0	0	0	0
Still on Disk.														
Absolute heliographic longitude: 118														
<i>Region 9465</i>														
20 May	S08E63	108	0110	10	DAO	004	B							
								0	0	0	0	0	0	0
Still on Disk.														
Absolute heliographic longitude: 108														

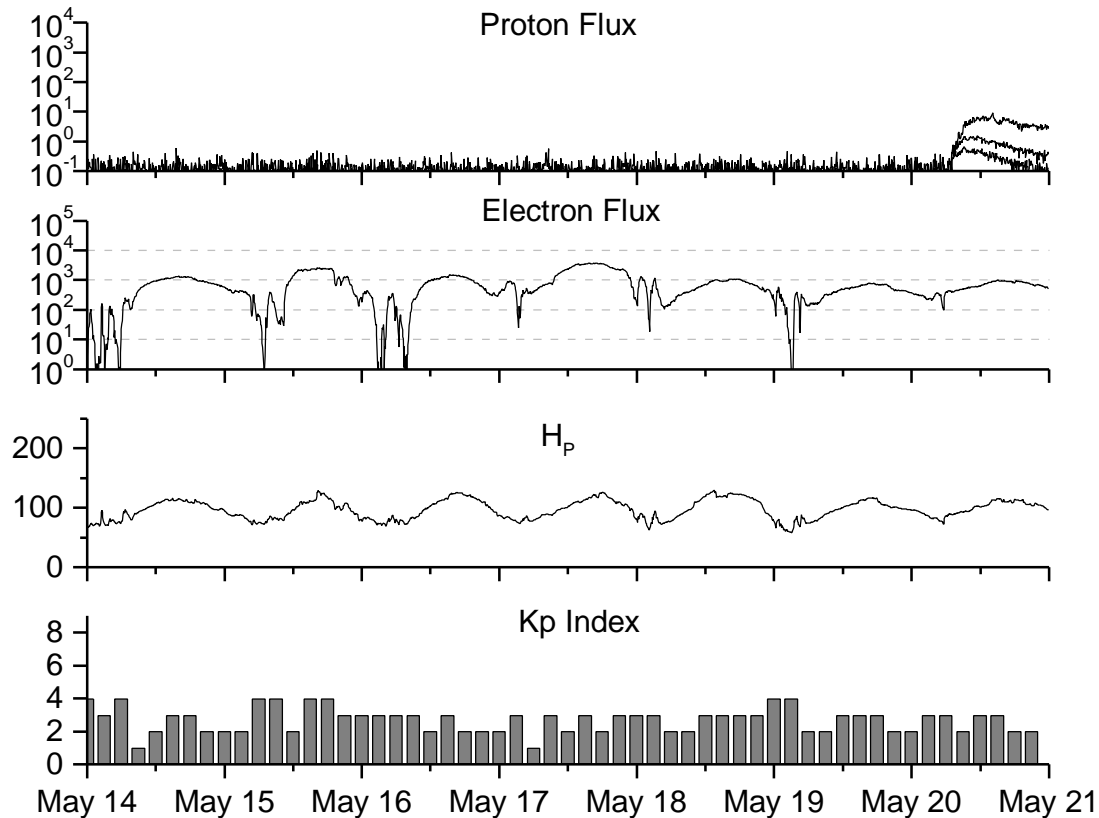


**Recent Solar Indices (preliminary)
of the observed monthly mean values**

Month	Sunspot Numbers					Radio Flux		Geomagnetic	
	<u>Observed values</u>		<u>Ratio</u>	<u>Smooth values</u>		<u>*Penticton</u>	<u>Smooth</u>	<u>Planetary</u>	<u>Smooth</u>
	SWO	RI	RI/SWO	SWO	RI	10.7 cm	Value	Ap	Value
1999									
May	140.5	106.4	0.76	131.7	90.5	148.6	149.9	08	12.4
June	208.3	137.7	0.66	136.0	93.1	169.8	152.9	07	12.4
July	169.2	113.5	0.67	138.0	94.3	165.6	154.4	10	12.6
August	136.1	93.7	0.69	142.8	97.5	170.8	156.3	15	12.9
September	107.4	71.5	0.67	150.0	102.3	135.7	161.0	19	12.8
October	167.7	116.7	0.70	158.5	107.8	164.8	167.2	19	12.7
November	199.3	133.2	0.67	164.7	110.0	191.5	171.5	14	13.1
December	123.5	86.4	0.69	165.9	111.1	169.8	173.4	10	13.8
2000									
January	140.8	90.1	0.64	168.0	112.9	158.1	175.5	13	14.5
February	161.9	112.9	0.70	172.1	116.7	173.2	176.8	15	15.0
March	203.6	138.5	0.68	175.4	119.9	208.2	178.4	09	15.0
April	193.4	125.5	0.65	176.3	120.8	184.2	180.5	15	15.0
May	188.8	121.6	0.64	173.1	119.0	184.5	180.0	15	15.0
June	190.3	124.9	0.66	172.0	118.7	179.8	179.7	15	15.1
July	236.7	169.1	0.71	173.0	119.7	204.7	180.2	21	14.8
August	166.6	130.5	0.78	171.8	118.6	163.1	179.5	16	14.2
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			178.8		17	
December	146.4	104.5	0.71			173.6		08	
2001									
January	142.7	95.1	0.67			166.7		08	
February	131.0	80.1	0.61			147.3		06	
March	166.7	114.2	0.69			177.7		17	
April	163.6	108.2	0.66			178.3		18	

NOTE: All smoothed values after December 1999 and monthly values after June 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 14 May 2001*

Protons plot contains the five-minute averaged integral proton flux (protons/cm²-sec -sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

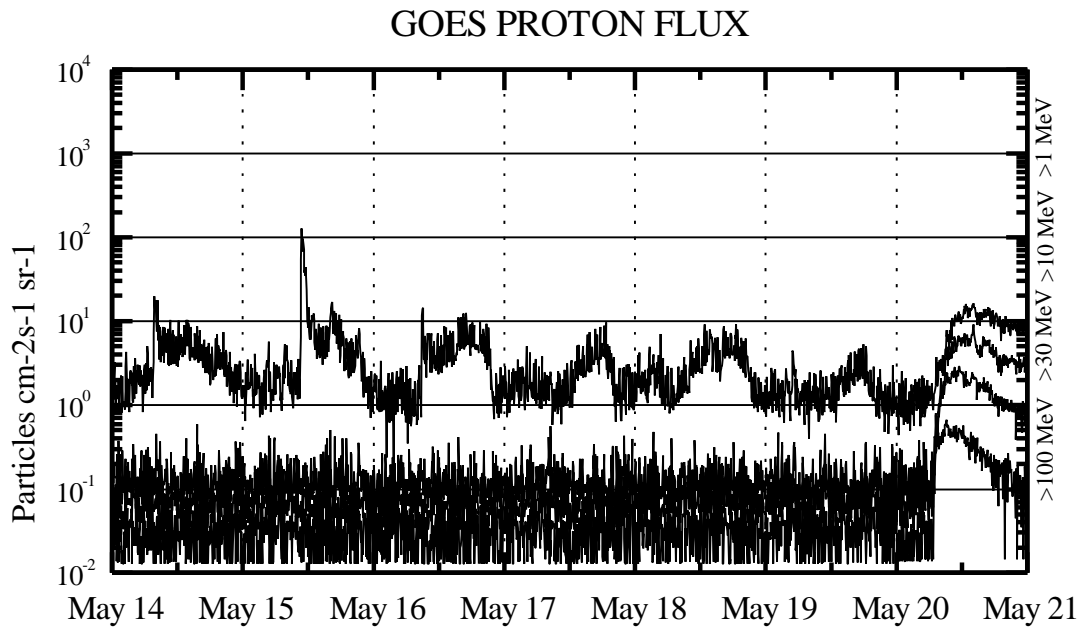
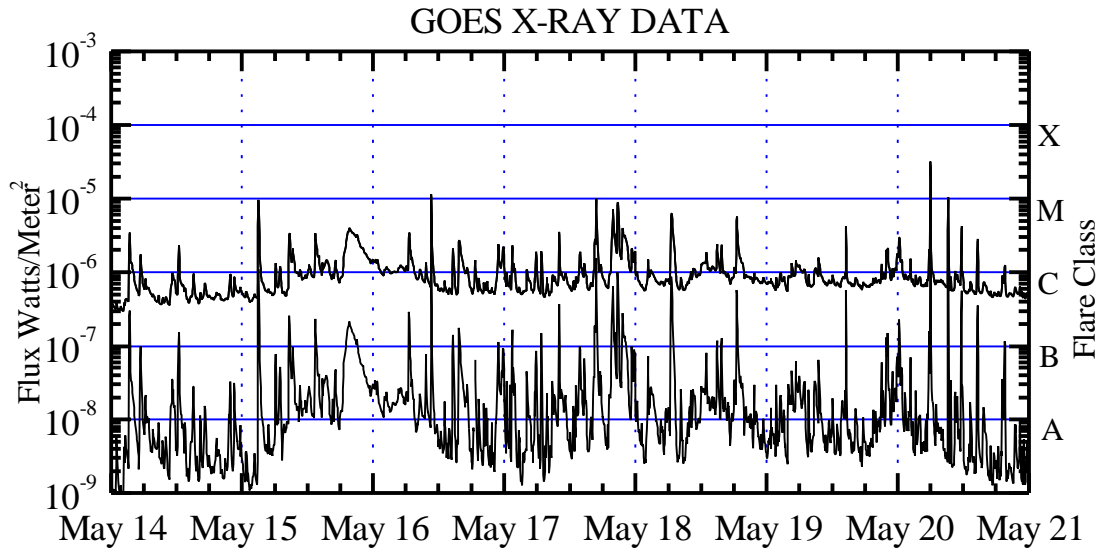
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm²-sec -sr) with energies greater than 2 MeV at GOES-8.

H_p 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.

K_p plot contains the estimated planetary 3-hour K-index (derived by the USAF 55th Space Weather Squadron) 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 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_{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

X-ray plot contains five-minute averaged x-ray flux (watts/m²) 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/cm²-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/cm²-sec-sr) at greater than 10 MeV.

