Space Weather Highlights
24 – 30 Jan 2000

Solar activity varied between very low and low levels. Isolated B- and C-class subflares were the order of the day. By and large, the visible regions were small and simply structured.

Real-time solar wind data were available from the NASA Advanced Composition Explorer (ACE) spacecraft for most of the period. Recurrent, positive-polarity coronal hole effects began on 27 January and continued through the rest of the period. The transition to the coronal hole wind stream was accompanied by increased velocities, which reached a peak of 830 km/sec on 28 January; low densities, increased IMF Bz variability with southerly deflections to minus 30 nT (GSM), and a shift to an away (positive polarity) solar sector.

There were no proton events detected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit increased to moderate to high levels during 29 - 30 January.

The geomagnetic field was briefly disturbed on 24 and 26 January with active to minor storm levels. A recurrent coronal hole-related disturbance occurred during 27 - 29 January. Active to major storm levels were detected during this disturbance. Field activity declined to quiet to unsettled levels on 30 January.

Space Weather Outlook
02 - 28 February 2000

Solar activity is expected to range from low to moderate levels during the period. Occasional C-class flares are likely throughout the period. Increased activity is expected during 05 - 20 February with isolated M-class flares possible due to the anticipated return of previously active longitudes. Activity is expected to return to low levels beginning 21 February.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at moderate to high levels through 03 February. Normal to moderate fluxes are expected during 04 - 22 February. Moderate to high fluxes are expected for the remainder of the period.

Geomagnetic field activity is expected to be at mostly quiet to unsettled levels through 22 February. However, active periods will be possible around 06 February due to coronal hole effects. Active to minor storm levels will be possible during 23 - 25 February due to coronal hole effects. Quiet to unsettled levels are expected for the balance of the period, barring an Earth-directed CME.

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
24 January	141	133	440	B4.1	3	0	0	3	0	0	0	0
25 January	137	141	490	B4.0	4	0	0	8	0	0	0	0
26 January	141	151	550	B4.0	4	0	0	3	0	0	0	0
27 January	132	110	420	B3.5	0	0	0	3	0	0	0	0
28 January	126	96	580	B3.2	2	0	0	5	0	0	0	0
29 January	128	81	490	B4.3	0	0	0	1	0	0	0	0
30 January	133	90	260	B2.7	1	0	0	1	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
24 January	1.3E+5	1.3E+4	2.4E+3		5.4E+6	
25 January	5.4E+4	1.2E+4	2.6E+3		1.0E+7	
26 January	7.8E+4	1.3E+4	2.8E+3		5.5E+6	
27 January	4.3E+5	1.4E+4	2.9E+3		2.3E+6	
28 January	8.2E+6	2.5E+4	2.9E+3		7.4E+6	
29 January	1.5E+7	3.2E+4	2.8E+3		1.4E+8	
30 January	4.6E+6	1.8E+4	2.8E+3		3.1E+8	

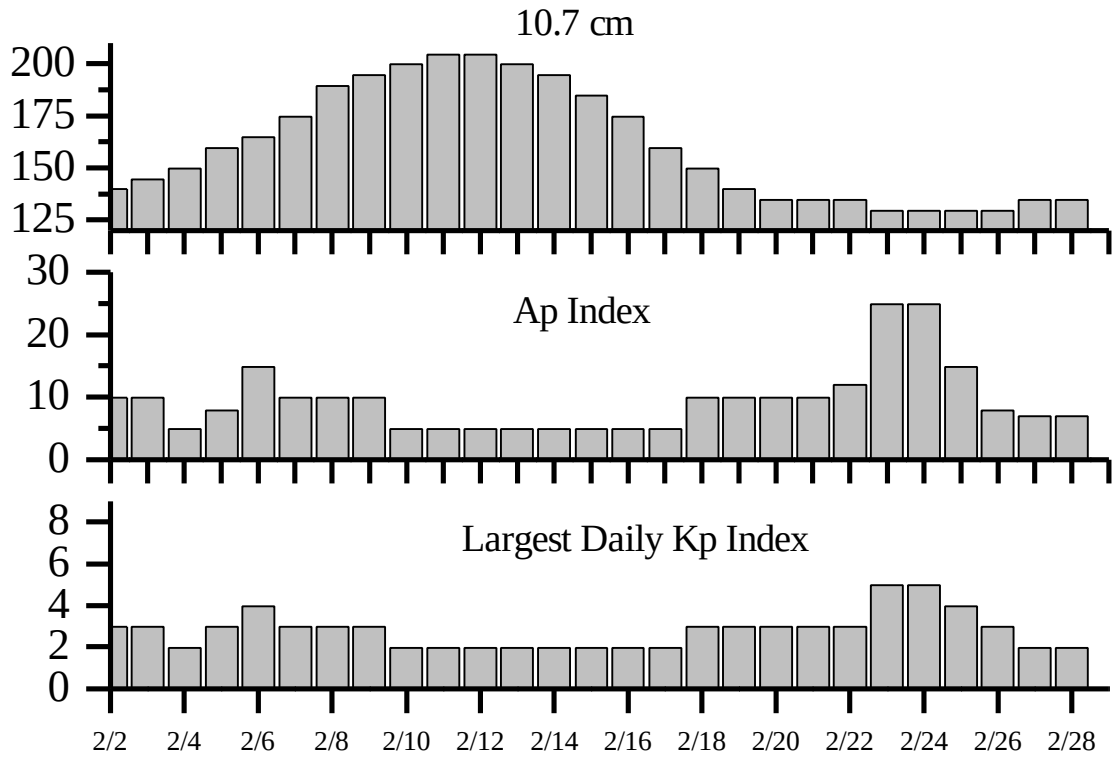
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg A	K-indices	High Latitude College A	K-indices	Estimated Planetary A	K-indices
24 January	12	1-2-4-4-2-2-2-2	27	1-2-4-6-5-4-3-2	17	1-3-4-4-3-3-3-2
25 January	4	1-2-1-1-1-1-2-1	12	2-3-3-3-4-2-2-1	7	2-3-2-2-1-2-2-2
26 January	7	1-3-3-2-1-1-1-2	*	1-4-2-0-*-1-1-2	7	2-4-2-0-1-2-2-2
27 January	10	2-1-2-2-1-2-4-3	22	2-1-2-4-6-2-4-3	12	2-2-2-3-3-3-4-4
28 January	22	4-4-4-3-4-3-3-4	62	6-5-5-6-7-5-4-4	29	4-5-4-4-5-3-3-4
29 January	22	3-3-4-3-4-4-4-4	*	4-5-*-*-*-*-*-*	25	3-4-4-4-5-4-4-3
30 January	12	2-3-4-2-3-2-3-1	*	*-*-*-*-*-*-*-*	11	2-2-3-2-3-2-4-1

Alerts and Warnings Issued

Date & Time of Issue (UT)	Type of Alert or Warning	Date & Time of Event (UT)
24 Jan 0000	A ≥ 20 Observed ENDED	23 Jan 0307
24 Jan 0702	K= 4 Warning	24 Jan 09 - 15
24 Jan 0857	K= 4 Observed	24 Jan 06 - 09
24 Jan 1021	K= 5 Warning	24 Jan 12 - 15
24 Jan 1156	K= 5 Observed	24 Jan 09 - 12
25 Jan 0017	1 – 245 MHz Radio Burst	24 Jan
25 Jan 2039	A≥20 Watch	28 Jan
26 Jan 0600	K= 4 Observed	26 Jan 03 - 06
26 Jan 2025	A≥20 Watch	29 Jan
27 Jan 0025	1 – 245 MHz Radio Noise Storm	26 Jan
27 Jan 1531	Sudden Impulse Observed at Boulder 10 nT	27 Jan 1455
27 Jan 1629	K= 4 Warning	27/1630 – 28/1500 Jan
27 Jan 1857	K= 5 Warning	27/1856 – 28/0600 Jan
27 Jan 2113	K= 4 Observed	27 Jan 18 - 21
28 Jan 0011	1 – 245 MHz Radio Burst	27 Jan
28 Jan 0559	A ≥ 20 Observed	28 Jan 0600
28 Jan 0559	K= 6 Observed	28 Jan 03 - 06
28 Jan 0559	K= 5 Warning CONTINUED	28 Jan 1500
28 Jan 1458	A ≥ 30 Observed	28 Jan 1500
28 Jan 1557	K= 4 Warning	28/1500 – 29/1500 Jan
29 Jan 0015	2 – 245 MHz Radio Bursts	28 Jan
29 Jan 0640	A ≥ 30 Observed ENDED	28 Jan 1500
29 Jan 1210	>2MeV Electron Event ≥1000pfu	29 Jan 1115
29 Jan 1500	K= 4 Warning valid	29/1500 – 30/1200 Jan
29 Jan 1640	A ≥ 20 Watch	30 Jan
30 Jan 0041	3 – 245 MHz Radio Bursts	29 Jan
30 Jan 0057	>2MeV Electron Event ≥1000pfu CONTINUED	29 Jan 1115
30 Jan 1159	A ≥ 20 Observed ENDED	28 Jan 0600

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
02 Feb	140	10	3	16 Feb	175	5	2
03	145	10	3	17	160	5	2
04	150	5	2	18	150	10	3
05	160	8	3	19	140	10	3
06	165	15	4	20	135	10	3
07	175	10	3	21	135	10	3
08	190	10	3	22	135	12	3
09	195	10	3	23	130	25	5
10	200	5	2	24	130	25	5
11	205	5	2	25	130	15	4
12	205	5	2	26	130	8	3
13	200	5	2	27	135	7	2
14	195	5	2	28	135	7	2
15	185	5	2				

Energetic Events

Date	Time (UT) Begin	Max	½ Max	X-ray Class	Integ Flux	Optical Information Imp/ Brtns	Location Lat	CMD	Rgn #	Peak Radio Flux 245	2695	Sweep Freq Intensity II	IV
No Events Observed													

Flare List

Date	Time Begin	Max	End	X-ray Class.	Optical Imp / Brtns	Location Lat CMD	Rgn #
24 January	1554	1602	1608	C1.8			
	B1612	1614	1618		SF	S18W20	8842
	1922	1932	1936	B9.4			
	2034	2038	2058	B6.3			
	2133	2133	2140	C5.3	SF	S18W22	8842
	2209	2212	2217	C1.3	SF	S30E35	8841
25 January	0143	0145	0150	C1.1	SF	S32E34	8841
	0250	0255	0300	B7.6			
	0344	0350	0355	C1.9			
	0622	0624	0630	C6.8	SF	S17W28	8842
	1132	1136	1140	B6.3			
	1443	1522	1559		SF	N04W28	8844
	1533	1534	1542	C1.2	SF	S31E25	8841
	1602	1603	1608		SF	N04W29	8844
	1627	1631	1634		SF	N05W30	8844
	1854	1924	2022		SF	N05W30	8844
	1920	1927	1931		SF	S31E24	8841
26 January	0421	0432	0544	C1.1			
	0504	0504	0510		SF	S14E22	8845
	0604	0605	0616	C1.1	SF	S14E21	8845
	1106	1157	1247	C1.0			
	1802	1813	1817	C1.0			
	2025	2025	2028		SF	N04W47	8844
27 January	0234	0238	0244	B6.3			
	0507	0509	0513		SF	N04W51	8844
	1948	1955	2000		SF	S09E71	8848
	2235	2238	2240		SF	S09E69	8848
28 January	0622	0624	0634		SF	S11E69	8848
	0655	0658	0717	C1.1	SF	S13E71	8848
	0957	1012	1024		SF	S08E62	8848
	1803	1808	1812	B7.3			
	1836	1837	1839		SF	N03W70	8844
	1945	1952	2154	C4.7	SF	S31W17	8841

Flare List-continued

Date	Time Begin	Time Max	Time End	X-ray Class.	Optical Imp / Brtns	Optical Location Lat CMD	Rgn #
29 January	0026	0030	0036	B7.8			
	1250	1253	1256	B5.5			
	2222	2223	2234	B6.2	SF	S16W31	8845
30 January	0010	0016	0025	B7.9			
	1817	1820	1834	C2.2	SF	S08E29	8848

Region Summary

Date	Location (° Lat ° CMD)	Location 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 8831														
12 Jan	S15E78	132	0020	02	HSX	001	A								
13 Jan	S17E66	131	0070	09	CSO	005	B								
14 Jan	S17E53	131	0080	08	CSO	006	B								
15 Jan	S18E40	130	0100	09	DAO	018	B								
16 Jan	S17E27	130	0160	08	DAO	023	B				1				
17 Jan	S18E14	130	0270	11	EAO	023	B				1				
18 Jan	S18E01	130	0220	11	EAI	017	B		1		2	1			
19 Jan	S18W12	130	0200	11	EAO	023	B								
20 Jan	S18W25	129	0210	12	EAO	018	B								
21 Jan	S18W38	129	0180	13	EAO	011	B								
22 Jan	S17W53	131	0110	06	DSO	004	B		1		1				
23 Jan	S17W67	132	0090	07	CSO	004	B								
24 Jan	S17W81	133	0060	02	HSX	001	A								
25 Jan	S16W93	131	0060	01	HSX	001	A								
								0	2	0	5	1	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 130

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 8833														
13 Jan	N19E78	119	0080	02	HSX	001	A								
14 Jan	N18E66	118	0130	02	HSX	001	A								
15 Jan	N18E54	116	0140	02	HAX	001	A								
16 Jan	N19E39	118	0180	02	HSX	001	A								
17 Jan	N17E26	118	0120	03	CSO	005	B								
18 Jan	N17E14	117	0150	06	CSO	007	B								
19 Jan	N17E02	116	0160	05	CSO	008	B	1			1				
20 Jan	N17W11	115	0170	05	CSO	009	B								
21 Jan	N18W24	115	0180	07	CSO	006	B								
22 Jan	N18W38	116	0130	02	HSX	001	A								
23 Jan	N18W51	116	0110	02	HSX	001	A								
24 Jan	N19W64	116	0100	02	HSX	001	A								
25 Jan	N19W76	114	0110	02	HSX	001	A								
26 Jan	N20W88	113	0120	03	HSX	001	A								
								1	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 116

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 8835														
15 Jan	N08E57	113	0000	05	BXO	004	B								
16 Jan	N09E42	115	0010	03	BXO	002	B								
17 Jan	N09E30	114	0000	03	BXO	002	B								
18 Jan	N09E17	114													
19 Jan	N08E02	116	0010	01	AXX	001	A								
20 Jan	N08W11	116													
21 Jan	N08W24	116													
22 Jan	N11W38	116	0000	00	AXX	001	A								
23 Jan	N11W51	116													
24 Jan	N11W64	116													
25 Jan	N11W77	116													
26 Jan	N11W90	116													
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 116

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 8836														
16 Jan	S12E49	108	0010	06	BXO	002	B								
17 Jan	S12E37	107	0010	04	BXO	004	B								
18 Jan	S12E24	107	0010	03	BXO	005	B				1				
19 Jan	S13E12	106	0000	01	AXX	002	A								
20 Jan	S13W01	106													
21 Jan	S13W15	106	0000	01	AXX	002	A								
22 Jan	S13W28	106													
23 Jan	S13W41	106													
24 Jan	S13W54	106													
25 Jan	S13W67	106													
26 Jan	S13W80	106													
27 Jan	S13W93	106													
								0	0	0	1	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 106

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 8838														
18 Jan	N12E66	065	0050	08	CAO	003	B								
19 Jan	N12E53	065	0080	06	CAO	006	B								
20 Jan	N12E40	064	0070	06	CAO	005	B								
21 Jan	N13E27	064	0050	06	DAO	009	B								
22 Jan	N12E14	064	0030	05	CAO	006	B								
23 Jan	N12E00	065	0020	04	CSO	004	B								
24 Jan	N12W15	067	0020	04	CSO	006	B								
25 Jan	N12W28	067													
26 Jan	N12W41	067													
27 Jan	N12W54	067													
28 Jan	N12W67	067													
29 Jan	N12W80	067													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 065

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 8839														
20 Jan	N11E06	098	0010	03	BXO	002	B								
21 Jan	N12W07	098	0060	06	DAO	011	B								
22 Jan	N12W20	098	0060	07	DRO	011	B								
23 Jan	N11W34	099	0060	07	DSO	011	B								
24 Jan	N12W47	099	0050	07	CSO	010	B								
25 Jan	N11W64	104	0000	00	AXX	001	A								
26 Jan	N14W78	103	0000	00	AXX	001	A								
27 Jan	N14W91	103													
								0	0	0	0	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		098													
	Region 8840														
21 Jan	S24E22	069	0000	04	BXO	004	B								
22 Jan	S24E09	069	0010	04	BXO	003	B								
23 Jan	S24W06	071	0020	04	DSO	003	B								
24 Jan	S24W21	073	0010	02	AXX	003	A								
25 Jan	S24W34	072	0010	05	BXO	003	B								
26 Jan	S25W50	075	0000	00	AXX	001	A								
27 Jan	S24W63	075	0000	00	AXX	001	A								
28 Jan	S24W76	075													
29 Jan	S24W89	075													
								0	0	0	0	0	0	0	0
Crossed West Limb.															
Absolute heliographic longitude:		071													
	Region 8841														
21 Jan	S28E70	021	0030	08	CAO	003	B								
22 Jan	S30E57	021	0060	08	CAO	005	B								
23 Jan	S29E43	022	0080	09	CSO	004	B								
24 Jan	S29E30	022	0120	10	DSO	007	B	1			1				
25 Jan	S29E18	020	0150	10	DSO	010	B	2			3				
26 Jan	S30E05	020	0150	09	CSO	005	B								
27 Jan	S30W09	021	0140	09	CSO	009	B								
28 Jan	S30W22	021	0180	10	CAO	008	B	1			1				
29 Jan	S30W33	019	0130	07	CAO	003	B								
30 Jan	S30W47	020	0090	05	DAO	004	B								
								4	0	0	5	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		020													

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 8842												
23 Jan	S17W10	075	0010	04	BXO	003	B								
24 Jan	S16W23	075	0050	06	DSO	008	B	1			2				
25 Jan	S17W37	075	0040	08	DSO	012	B	1			1				
26 Jan	S17W52	077	0020	06	BXO	006	B								
27 Jan	S16W66	078	0000	03	BXO	002	B								
28 Jan	S16W79	078													
29 Jan	S16W92	078													
								2	0	0	3	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 075

			Region 8843												
23 Jan	N14E14	051	0010	03	BXO	003	B								
24 Jan	N15E02	050	0010	03	BXO	004	B								
25 Jan	N14W11	049	0010	04	BXO	005	B								
26 Jan	N14W27	052	0000	00	AXX	001	A								
27 Jan	N14W40	052													
28 Jan	N14W53	052													
29 Jan	N14W66	052													
30 Jan	N14W79	052													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 050

			Region 8844												
24 Jan	N07W20	072	0020	04	DRO	003	B								
25 Jan	N05W32	070	0090	06	DAO	014	B				4				
26 Jan	N04W47	072	0210	09	DAI	016	B				1				
27 Jan	N05W60	072	0200	10	DAI	014	B				1				
28 Jan	N05W73	072	0280	13	EAI	013	B				1				
29 Jan	N05W83	069	0200	07	DSO	003	B								
								0	0	0	7	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 072

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 8845												
25 Jan	S14E24	014	0020	04	CSO	004	B								
26 Jan	S15E09	016	0040	06	CAO	006	B	1			2				
27 Jan	S16W06	018	0040	07	CAO	009	B								
28 Jan	S16W20	019	0030	04	CSO	004	B								
29 Jan	S17W33	019	0020	08	BXO	005	B				1				
30 Jan	S16W48	021	0020	01	HSX	001	A								
								1	0	0	3	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 018

			Region 8846												
26 Jan	N37E51	334	0000	02	AXX	002	A								
27 Jan	N38E39	333	0010	10	BXO	002	B								
28 Jan	N37E25	334	0000	03	BXO	003	B								
29 Jan	N37E12	334													
30 Jan	N37W01	334													
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 334

			Region 8847												
26 Jan	S26W28	053	0000	00	AXX	001	A								
27 Jan	S26W41	053													
28 Jan	S26W54	053													
29 Jan	S26W71	057	0030	04	BXO	002	B								
30 Jan	S25W84	057	0030	03	BXO	002	B								
								0	0	0	0	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 053

			Region 8848												
26 Jan	S07E78	307	0010	00	AXX	001	A								
27 Jan	S08E66	306	0030	06	CAO	003	B				2				
28 Jan	S09E54	305	0080	08	CAO	005	B	1			3				
29 Jan	S09E41	305	0100	08	CSO	006	B								
30 Jan	S09E27	306	0070	08	CSO	005	B	1			1				
								2	0	0	6	0	0	0	0

Still on Disk.
Absolute heliographic longitude: 306

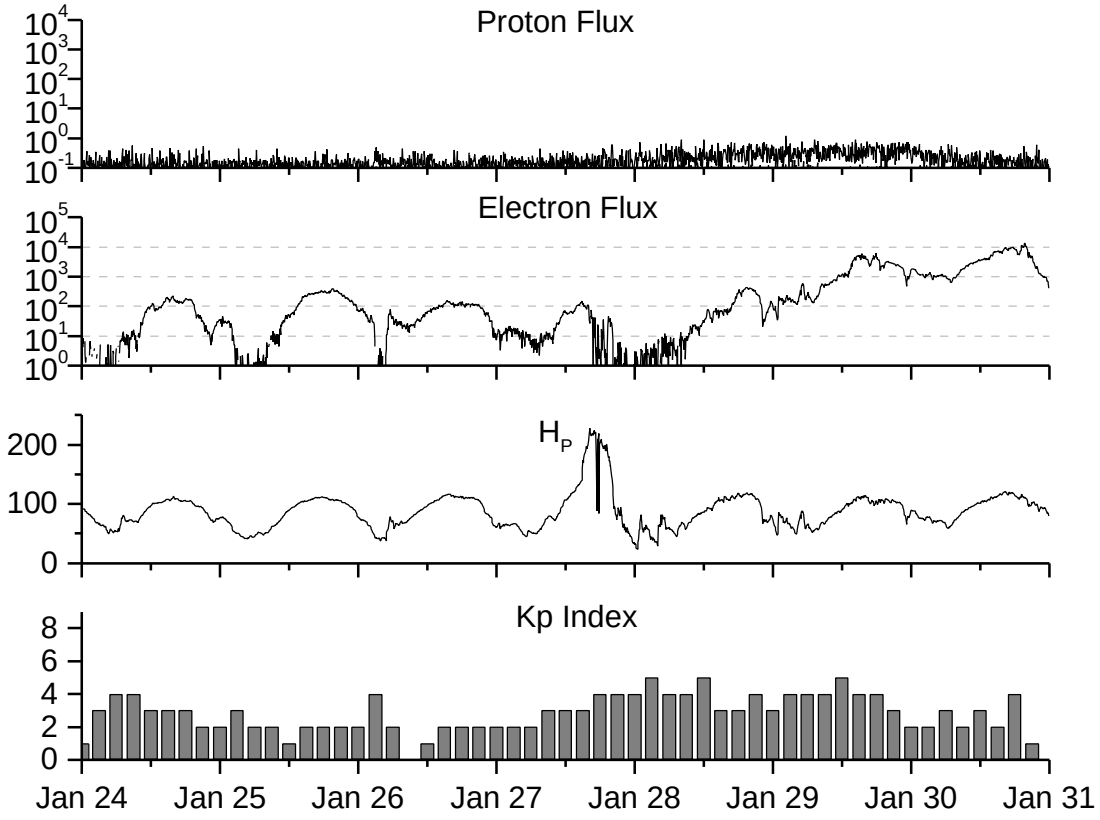
Region Summary-continued

Date	Location (° Lat ° CMD)	Helio Lon	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 8849														
28 Jan	S16E19	340	0010	03	BXO	003	B								
29 Jan	S17E07	339	0010	04	CRO	002	B								
30 Jan	S17W06	339	0020	05	BXO	003	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		339													
	Region 8850														
30 Jan	S18E25	308	0010	02	BXO	002	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		308													
	Region 8851														
30 Jan	N27E42	291	0020	05	BXO	003	B								
								0	0	0	0	0	0	0	0
Still on Disk.															
Absolute heliographic longitude:		291													

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
				1998					
January	51.8	31.9	0.62	60.6	43.7	93.4	97.5	08	09.9
February	54.4	40.3	0.74	67.4	48.8	93.4	101.7	08	10.5
March	81.8	54.8	0.67	73.3	53.4	109.1	105.8	13	11.1
April	73.6	53.4	0.73	77.7	56.5	108.3	109.1	10	11.3
May	74.3	56.3	0.76	81.4	59.3	106.7	112.4	18	11.6
June	93.6	70.7	0.76	85.9	62.4	108.4	116.2	10	11.9
July	98.3	66.2	0.67	90.3	65.4	114.0	120.3	11	12.2
August	118.6	91.7	0.77	93.7	67.8	136.0	124.1	18	12.4
September	119.0	92.9	0.78	96.1	69.4	138.4	126.8	13	12.5
October	77.0	55.5	0.72	97.7	70.5	117.3	127.9	13	12.5
November	99.5	74.0	0.74	101.3	73.0	140.2	130.0	16	12.3
December	120.8	81.9	0.69	108.8	77.9	150.1	134.3	08	11.9
				1999					
January	94.3	62.4	0.66	116.5	82.6	142.6	139.0	10	11.7
February	93.4	66.3	0.71	120.2	84.6	142.0	142.6	12	11.6
March	100.5	68.8	0.68	120.5	83.8	126.3	144.0	14	11.6
April	092.9	063.9	0.69	123.8	85.4	117.2	145.8	12	12.1
May	140.5	106.3	0.76	131.7	90.4	148.6	150.0	08	12.1
June	208.3	137.4	0.66	136.0	93.0	169.8	152.9	07	12.0
July	169.2	113.5	0.67			165.6		10	
August	136.1	93.7	0.69			170.8		15	
September	107.4	70.9	0.66			135.7		18	
October	167.7	116.4	0.69			164.9		18	
November	199.3	132.7	0.67			191.7		12	
December	123.5	86.4	0.70			169.8		09	

NOTE: All smoothed values after January 1998 and monthly values after September 1998 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 24 January 1999

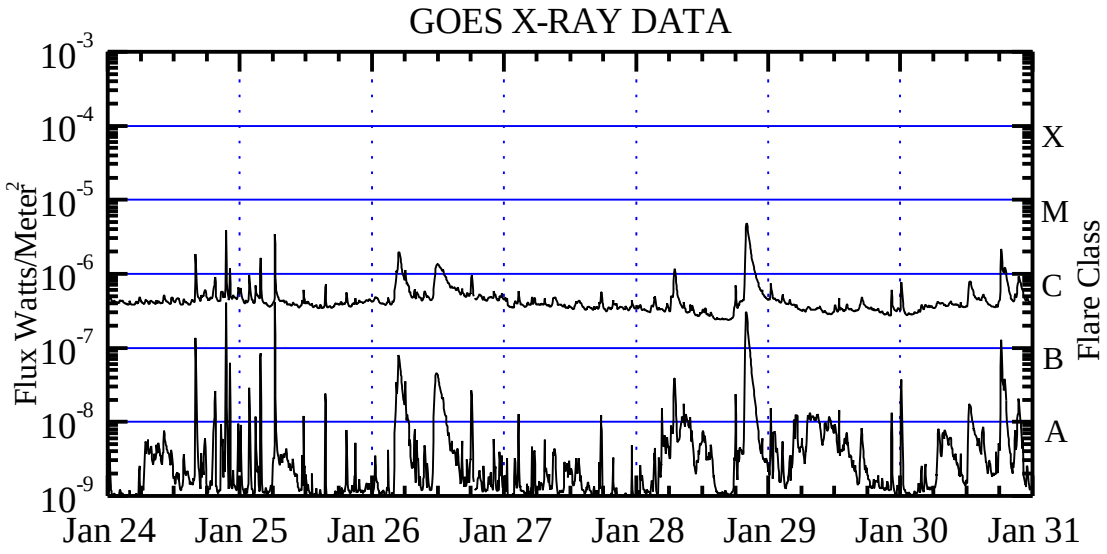
Protons plot contains the five-minute averaged integral proton flux (protons/cm^2–sec –sr) as measured by GOES-8 (W75) for each of three energy thresholds: greater than 10, 50, and 100 MeV.

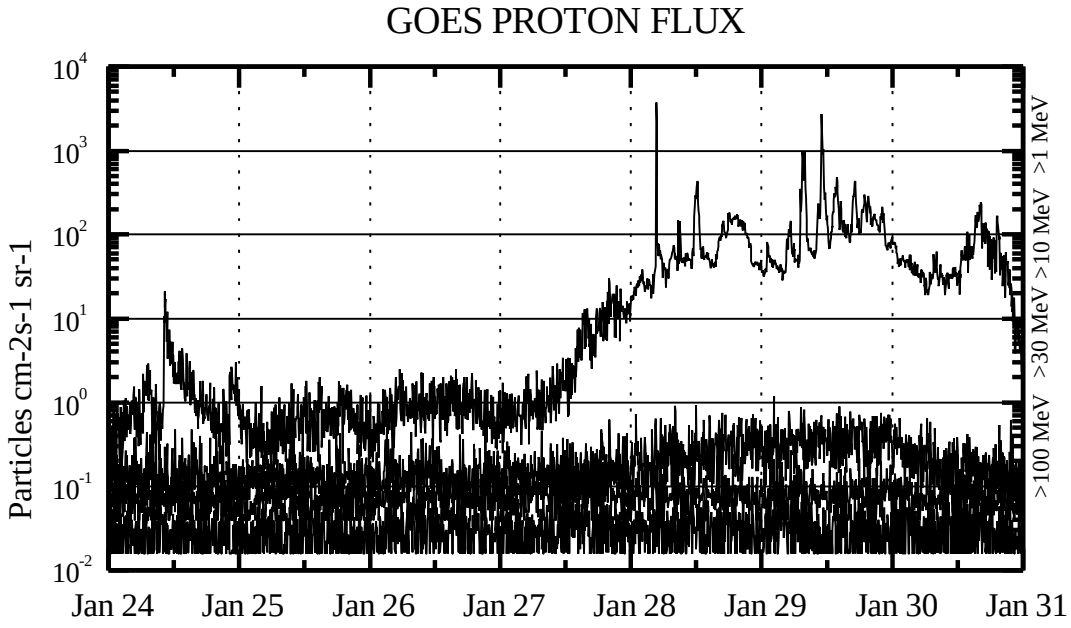
Electrons plot contains the five-minute averaged integral electron flux (electrons/cm^2 –sec –sr) with energies greater than 2 MeV at GOES-8.

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 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 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.





W*eekly 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/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/cm^2-sec-sr) at greater than 10 MeV.