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Solar - Geophysical Data

NO. 394 JUNE 1977

Part II (Comprehensive Reports)

**DATA FOR
DECEMBER 1976
NOVEMBER 1976
& MISCELLANEA**

**NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO**

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SOLAR - GEOPHYSICAL DATA

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No. 394

Issued in two parts

Helen E. Coffey, Editor

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Solar - Terrestrial Data Services Division

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Neutron Monitors Daily Values -

Calgary, Sulphur Mt. - February-March 1977

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Note: A = Part I, B = Part II.

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ACTIVE REGIONS

CARRINGTON ROTATION 1648

(November 7 - December 4, 1976)

Region No.	Coordinates		Age at CMP	IMP.	Spot- less Region	Region No. in Rotation 1647	Activity at West Limb
	Lat.	Long.					
1	22°N	295°	-4	1	x	(6)	increasing
2	5 S	240	>6	1	x		dispersed
3	30 N	183	>6	1	x		dispersed
4	10 N	145	>6	3			decreasing
5	30 N	127	>6	1	x		dispersed

ACTIVE REGIONS

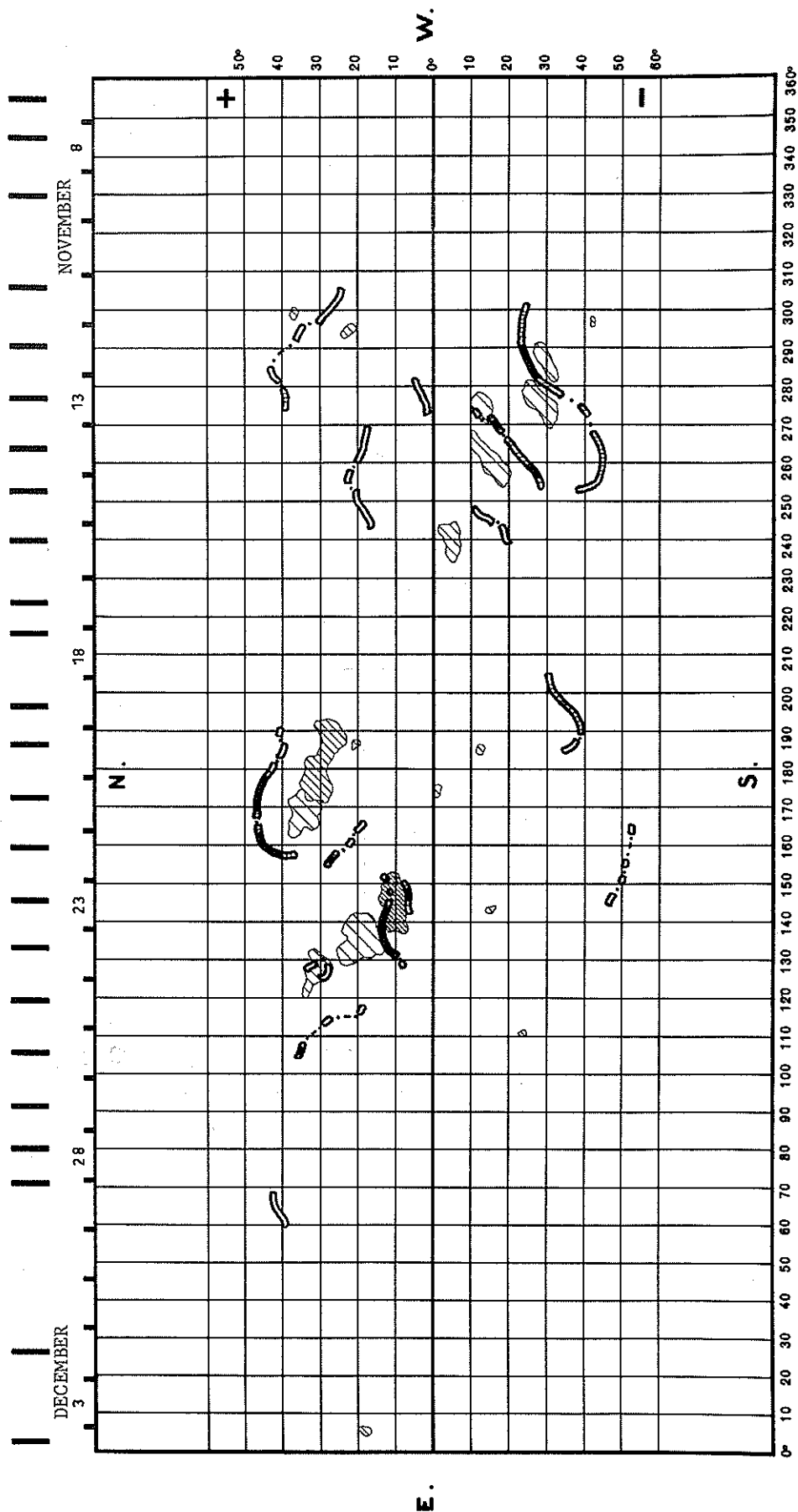
CARRINGTON ROTATION 1649

(December 4 - December 31, 1976)

Region No.	Coordinates		Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1648	Activity at West Limb
	Lat.	Long.					
1	35°N	308°	+6	1	x		disappeared
2	32 N	305	>6	1	x		disappeared
3	24 N	294	>6	1	x		dispersed
4	6 N	265	+4	3			decreasing
5	29 N	262	>6	1	x		decreasing
6	27 S	235	+2	2			decreasing
7	26 S	232	0	2			dispersed
8	31 S	194	+6	1	x		disappeared
9	25 S	146	+4	1	x		dispersed
10	13 N	145	>6	2		(4)	decreasing
11	29 N	31	-3	1	x		disappeared
12	22 S	27	>6	1	x		disappeared
13	33 N	19	-2	3			stable
14	20 S	11	>6	4			decreasing

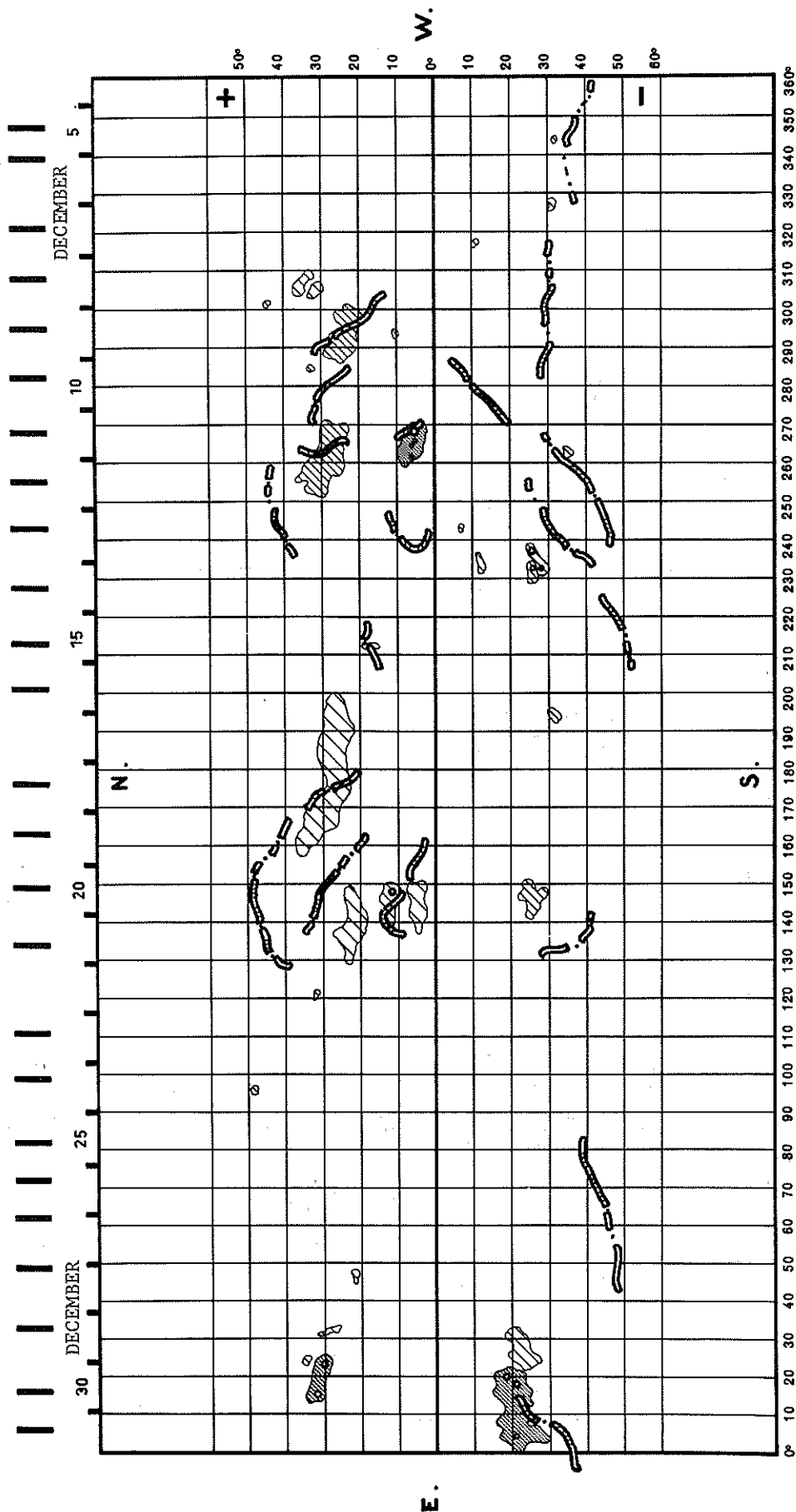
SYNOPTIC SOLAR MAP
CARRINGTON ROTATION 1648
NOVEMBER 7 TO DECEMBER 4, 1976

MEUDON OBSERVATORY



SYNOPTIC SOLAR MAP
CARRINGTON ROTATION 1649
DECEMBER 4 TO DECEMBER 31, 1976

MEUDON OBSERVATORY



8
Dec 76

H α SOLAR FLARES

DECEMBER 1976

OBSERVATORY	OBSERVED UT				LOCATION					DURATION MIN	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE DEC	START	MAX PHASE	END	APPROX		CENTRAL DISTANCE	McMATH FLARE REGION	CNR DAY			COND	TYPE	TIME UT	MEAS. AREA MIN. of Disk	CORR AREA Sq. Deg		
					LAT.	MER. DIST.												
	01	0325	0403	NO FLARE	PATROL													
	01	0616	0635	NO FLARE	PATROL													
	01	0845	0900	NO FLARE	PATROL													
	01	0910	0955	NO FLARE	PATROL													
	01	1005	1015	NO FLARE	PATROL													
	01	1025	1141	NO FLARE	PATROL													
	01	1152	1210	NO FLARE	PATROL													
	01	1551	1744	NO FLARE	PATROL													
	02	0328	0329	NO FLARE	PATROL													
	02	0334	0339	NO FLARE	PATROL													
	02	0347	0357	NO FLARE	PATROL													
	02	0823	0836	NO FLARE	PATROL													
	02	1222	1223	NO FLARE	PATROL													
	02	1227	1238	NO FLARE	PATROL													
	02	1247	1345	NO FLARE	PATROL													
	02	1442	1444	NO FLARE	PATROL													
	02	1918	1924	NO FLARE	PATROL													
	02	1944	2007	NO FLARE	PATROL													
	02	2025	2031	NO FLARE	PATROL													
	03	0503	0505	NO FLARE	PATROL													
	03	0530	0556	NO FLARE	PATROL													
	03	0552	0558	NO FLARE	PATROL													
	03	1642	1728	NO FLARE	PATROL													
	03	1743	1823	NO FLARE	PATROL													
	03	2138	2145	NO FLARE	PATROL													
	03	2150	2151	NO FLARE	PATROL													
	03	2201	0020	NO FLARE	PATROL													
	04	0258	0329	NO FLARE	PATROL													
	04	0332	0340	NO FLARE	PATROL													
	04	1817	2011	NO FLARE	PATROL													
	04	2128	2135	NO FLARE	PATROL													
	04	2139	2330	NO FLARE	PATROL													
	05	1456	1500	NO FLARE	PATROL													
	05	1504	1512	NO FLARE	PATROL													
	05	1728	1741	NO FLARE	PATROL													
	05	1858	2215	NO FLARE	PATROL													
	06	1514	1520	NO FLARE	PATROL													
	06	1656	1751	NO FLARE	PATROL													
	06	1801	1837	NO FLARE	PATROL													
	06	1906	2020	NO FLARE	PATROL													
	06	2027	2042	NO FLARE	PATROL													
	06	2055	2108	NO FLARE	PATROL													
	06	2137	2147	NO FLARE	PATROL													
	06	2202	2209	NO FLARE	PATROL													
	07	2204	2209	NO FLARE	PATROL													
	639 CULG	08	0713	0717	0722	N07	E44	.700	14553	11.6	9	-F	C	0718	20	.3		Y5
		08	0821	0830	NO FLARE	PATROL												
	08	0856	0927	NO FLARE	PATROL													
	08	1005	1026	NO FLARE	PATROL													
GRP63640	08	1902	1909+0	1922	N06	E37	.608	14553	11.6	20	-N			110	1.4		H	
RAYH	08	1902	1909	1922	N06	E37	.608	14553	11.6	20	-N	3	C	114			OE H	
RAYH	08	1903E	1909	1922	N06	E38	.621	14553	11.6	190	-N	3	V	114			DE H	
GRP63641	08	1939E	1941+0	19500	N24	E04	.412	14550	9.1	11	-F			100	1.1			
RAYH	08	1939E	1941	19500	N25	E07	.437	14550	9.3	110	-F	3	C	96				
RAYH	08	1939E	1941	19500	N24	E02	.408	14550	9.0	110	-F	3	V	96				
GRP63642	08	2321+1	2324+0	2332	N04	E34	.562	14553	11.5	11	-F			30	.4		H	
PALE	08	2321	2324	2331	N05	E33	.549	14553	11.4	10	-F	3	C	26			DE H	
CULG	08	2322	2324	2332	N03	E35	.575	14553	11.6	10	-F		C	2326	30	.4		
GRP63643	09	0201+1	0203+0	0217	N03	E33	.547	14553	11.6	16	-N			90	1.1		OH	
PALE	09	0201	0203	0219	N04	E33	.548	14553	11.6	18	-N	3	C	90			DE H	
MITK	09	0202	0203	0215	N03	E33	.547	14553	11.6	13	-N		C	0203	90	1.1	OH	
GRP63644	09	0751	0752	0831	N04	E30	.504	14553	11.6	40	-B						FH	
			0810															
ATHN	09	0751	0819	0831	N02	E29	.486	14553	11.5	48	-N		1	0819	82	159.0		
ATHN	09	0751	0752	0831	N02	E29	.486	14553	11.5	40	-B	4	C	95			F H	
CATA	09	0800E	0810	0835	N05	E29	.491	14553	11.5	350	-N	2		0810	28	.3		
ISTA	09	0820E	0825	0825	N06	E32	.538	14553	11.7	50	-N							
645 ATHN	09	0844	0846	0857	N02	E29	.486	14553	11.5	13	-F	4	C		64		F Y5	

Note: Although these flare listings give all reported events, not all possible brightenings are reported. Thresholds of reporting vary from observatory to observatory.

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE DEC	START	MAX. PHASE	END	APPROX		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.	
					LAT.	MER. DIST.											
GRP63646	09	1015+9	1021+5	1045	N04	E28	.474	14553	11.5	30	-F						FH
ATHN	09	1015	1021	1045	N03	E29	.487	14553	11.6	30	-F	4	C		32		F H
HTPR	09	1023	1026	1030	N05	E28	.476	14553	11.5	7	-F		C	1026	10	.1	
CATA	09	1025	1025	10450	N05	E26	.446	14553	11.4	200	-N	2	C	1025	56	.6	
647 HTPR	09	1128	1130	1134	N05	E27	.461	14553	11.5	6	-F		C	1130	20	.2	E Y5
648 HTPR	09	1139	1141	1146	N05	E26	.446	14553	11.4	7	-F		C	1141	30	.3	E Y5
649 HTPR	09	1233	1238	1249	N05	E25	.430	14553	11.4	16	-F		C	1238	10	.1	D Y5
650 ATHN	09	1346	1348	13570	N04	E25	.428	14553	11.4	110	-N	4	C		32		F H Y5
651 RMY	09	1651	1656	1706	N05	E22	.384	14553	11.4	15	-F	4	C		27		H Y5
	09	1818	2240	NO FLARE PATROL													
652 MITK	10	0102	0104	0113	N02	E20	.344	14553	11.5	11	-N		C	0104	100	1.1	DH Y5
653 MITK	10	0305	0307	0325	N02	E19	.328	14553	11.6	20	-F		C	0307	50	.5	DH Y5
GRP63654	10	0835+4	0836	0842	N04	E15	.269	14553	11.5	7	-N				40	.4	H
ATHN	10	0835	0836	0840	N03	E15	.265	14553	11.5	5	-N	3	C		32		F H
BUCA	10	0839	0844	0844	N05	E15	.273	14553	11.5	5	-N		C	0840	53	.6	D
655 ATHN	10	0954	0955	0957	N03	E13	.232	14553	11.4	3	-N		V	0955	33	56.0	Y5
	10	1425	1431	NO FLARE PATROL													
	10	1456	1504	NO FLARE PATROL													
	10	1520	1722	NO FLARE PATROL													
	10	2034	2042	NO FLARE PATROL													
	10	2204	2308	NO FLARE PATROL													
	10	2322	2328	NO FLARE PATROL													
	11	0600	0607	NO FLARE PATROL													
	11	0623	0638	NO FLARE PATROL													
	11	0651	0657	NO FLARE PATROL													
	11	2258	2301	NO FLARE PATROL													
	12	1546	1549	NO FLARE PATROL													
	12	2200	2211	NO FLARE PATROL													
	12	2215	2330	NO FLARE PATROL													
656 HTPR	13	1328	1331	1342	N05	E27	.463	14553	11.5	14	-F		C	1331	20	.2	E Y5
657 HTPR	13	1356	1403	1414	N04	E29	.490	14553	11.4	18	-F		C	1403	20	.2	D Y5
	13	1924	1931	NO FLARE PATROL													
	13	1953	1958	NO FLARE PATROL													
	13	2028	2038	NO FLARE PATROL													
	13	2108	2115	NO FLARE PATROL													
	13	2156	2208	NO FLARE PATROL													
658 CULG	13	2317	2320	2335	S28	E03	.462	14558	14.2	18	-F		C	2325	20	.3	Y5
659 CATA	14	0710E	0715	07550	S29	E02	.474	14558	14.1	450	-N	2		0715	56	.6	Y5
660 ZURI	14	1023	1023	1033	N03	E40	.645	14553	11.4	10	-B		C	1023	80	1.1	Y5
661 MCMA	14	1507	1512	15140	N02	E43	.683	14553	11.4	70	-N		C	1512	50	.7	DH Y5
662 MCMA	14	1734E		17380	N02	E44	.696	14553	11.4	40	-N		C	1734	50	.7	D Y5
GRP63663	14	1917E	1922+0	1938	N04	E46	.722	14553	11.4	21	-N				120	1.7	FH
RMY	14	1917E	1922	1938	N04	E46	.722	14553	11.4	210	-N	3	C		121		F H
RAHY	14	1917E	1922	1938	N04	E46	.722	14553	11.4	210	-N	3	V		121		F H
	14	2126	2222	NO FLARE PATROL													
664 CULG	14	2232	2235	2320	N02	E45	.708	14553	11.6	48	-F		C	2238	100	1.4	Y5
665 CULG	14	2243	2244	2300	N15	E77	.977	14564	20.7	17	-F		C	2248	50		Y5
666 VORO	15	0146	0147	0156	N06	E47	.736	14553	11.5	10	?N		C	0147	161	2.4	CE Y5
	IMP.1	NO	MITK1														

DECEMBER 1976

[illegible]

H α SOLAR FLARES

DECEMBER 1976

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX PHASE	END	APPROX		CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY					TIME UT	MEAS. AREA	CORR. AREA	
					LAT.	MER. DIST.											
DEC																	
674 HTPR	25	1436	1443	1510	S20	E72	.953	14579	31.0	32	-F	C	1443	30		Y5	
	25	1520	1756	NO FLARE PATROL													
	25	2020	2043	NO FLARE PATROL													
	26	0611	0616	NO FLARE PATROL													
	26	1458	1646	NO FLARE PATROL													
	26	1936	1951	NO FLARE PATROL													
675 HTPR	27	1136	1144	1153	S23	E40	.694	14579	30.5	17	-F	C	1144	20	.3	E Y5	
676 HTPR	27	1303	1307	1316	S23	E39	.683	14579	30.5	13	-F	C	1307	10	.1	D Y5	
	27	1627	1638	NO FLARE PATROL													
	27	1758	1814	NO FLARE PATROL													
	27	1817	1822	NO FLARE PATROL													
677 RAMY	27	2012	2015	2020	S20	E35	.623	14579	30.5	8	-N	4 C		35		DE Y5	
	28	1315	1736	NO FLARE PATROL													
678 PALE	28	1801	1809	1820	S21	E27	.532	14579	30.8	19	-F	3 C		65		FOE Y5	
679 RAMY	28	1930E	1940U	2005D	S19	E25	.492	14579	30.7	35D	-F	3 C		65		Y5	
680 VORO	29	0214	0220	0230	S13	E30	.522	14579	31.3	16	-N	C	0221	134	1.6	CDJ Y5	
681 CULG	29	0813	0821	0823D	S22	E25	.516	14579	31.2	100	-N	P	0823	100	1.1	Y5	
682 ATHN	29	1823	0828	0838	S25	E18	.474	14579	30.7	15	-N	V	0828	82	169.0	Y5	
GRP63683	29	0850+1	0852	0915	S22	E21	.472	14579	30.9	25	-F					U	
ATHN	29	0850	0852	0906	S25	E18	.474	14579	30.7	16	-F	V	0852	66	134.0	U	
BUCA	29	0851		0924	S20	E24	.487	14579	31.2	33	-N	C	0900	107	1.3	U	
GRP63684	29	1138	1151	1210D	S20	E16	.397	14579	30.7	32	-F						
			1200														
RAMY	29	1138	1151	1158D	S22	E17	.430	14579	30.8	20D	-F	3 C		53			
RAMY	29	1155E	1200U	1210D	S19	E16	.385	14579	30.7	15D	-F	3 V		70			
685 HTPR	29	1333	1338	1343	S22	E09	.363	14579	30.2	10	-F	C	1338	30	.3	DM Y5	
686 HTPR	29	1350	1359	1411	S23	E21	.482	14579	31.2	21	-F	C	1359	10	.1	D Y5	
687 HTPR	29	1444	1445	1450	S20	E08	.326	14579	30.2	6	-F	C	1445	30	.3	Y5	
688 HTPR	29	1512	1513	1530	S23	E20	.471	14579	31.1	18	-F	C	1513	10	.1	Y5	
	29	1535	1543	NO FLARE PATROL													
	29	1607	1639	NO FLARE PATROL													
	29	1646	1834	NO FLARE PATROL													
GRP63689	30	0501+5	0515+3	0545D	S22	E13	.391	14579	31.2	44	1F			240	2.6	EJL	
MITK	30	0501	0518	0630	S22	E10	.368	14579	31.0	89	1N	C	0518	200	2.2	E	
CULG	30	0506	0515	0545	S22	E13	.391	14579	31.2	39	1F	C	0523	280	2.8	JL	
MITK	30	0510	0514	0524	S29	E16	.505	14579	31.4	14	-F	C	0514	70	.8	E	
690 MITK	30	0605	0614	0650D	S24	E13	.418	14579	31.2	45D	-N	C	0614	50	.6	E Y5	
	30	1800	1822	NO FLARE PATROL													
	30	1834	1950	NO FLARE PATROL													
	30	2205	2211	NO FLARE PATROL													
691 WEND	31	0858		0916	S20	W15	.333	14579	30.2	18	-N					Y5	
	31	1236	1238	NO FLARE PATROL													
	31	1250	1313	NO FLARE PATROL													
692 MCHA	31	1812E		1830D	S23	W20	.469	14579	30.3	18D	-B	C	1821	40	.4	E Y5	
	31	1936	2000	NO FLARE PATROL													
	31	2017	2036	NO FLARE PATROL													
	31	2045	2058	NO FLARE PATROL													
	31	2103	2208	NO FLARE PATROL													
693 CULG	31	2223	2226	2310	S23	W13	.403	14579	31.0	47	1F	C	2235	200	2.0	J Y5	

"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
 B = Probably the end of a more important flare.
 C = Invisible 10 minutes before.
 D = Brilliant point.
 E = Two or more brilliant points.
 F = Several eruptive centers.
 G = No visible spots in the neighborhood.
 H = Flare accompanied by a high speed dark filament.
 I = Active region very extended.
 J = Distinct variations of plage intensity before or after the flare.
 K = Several intensity maxima.
 L = Existing filaments show signs of sudden activity.
 M = White-light flare.

N = Continuous spectrum shows effects of polarization.
 O = Observations have been made in the calcium II lines H and K.
 P = Flare shows helium D₃ in emission.
 Q = Flare shows the Balmer continuum in emission.
 R = Marked asymmetry in H α line suggests ejection of high velocity material.
 S = Brightness follows disappearance of filament (same position).
 T = Region active all day.
 U = Two bright branches, parallel (||) or converging (Y).
 V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
 W = Great increase in area after time of maximum intensity.
 X = Unusually wide H α line.
 Y = System of loop-type prominences.
 Z = Major sunspot umbra covered by flare.

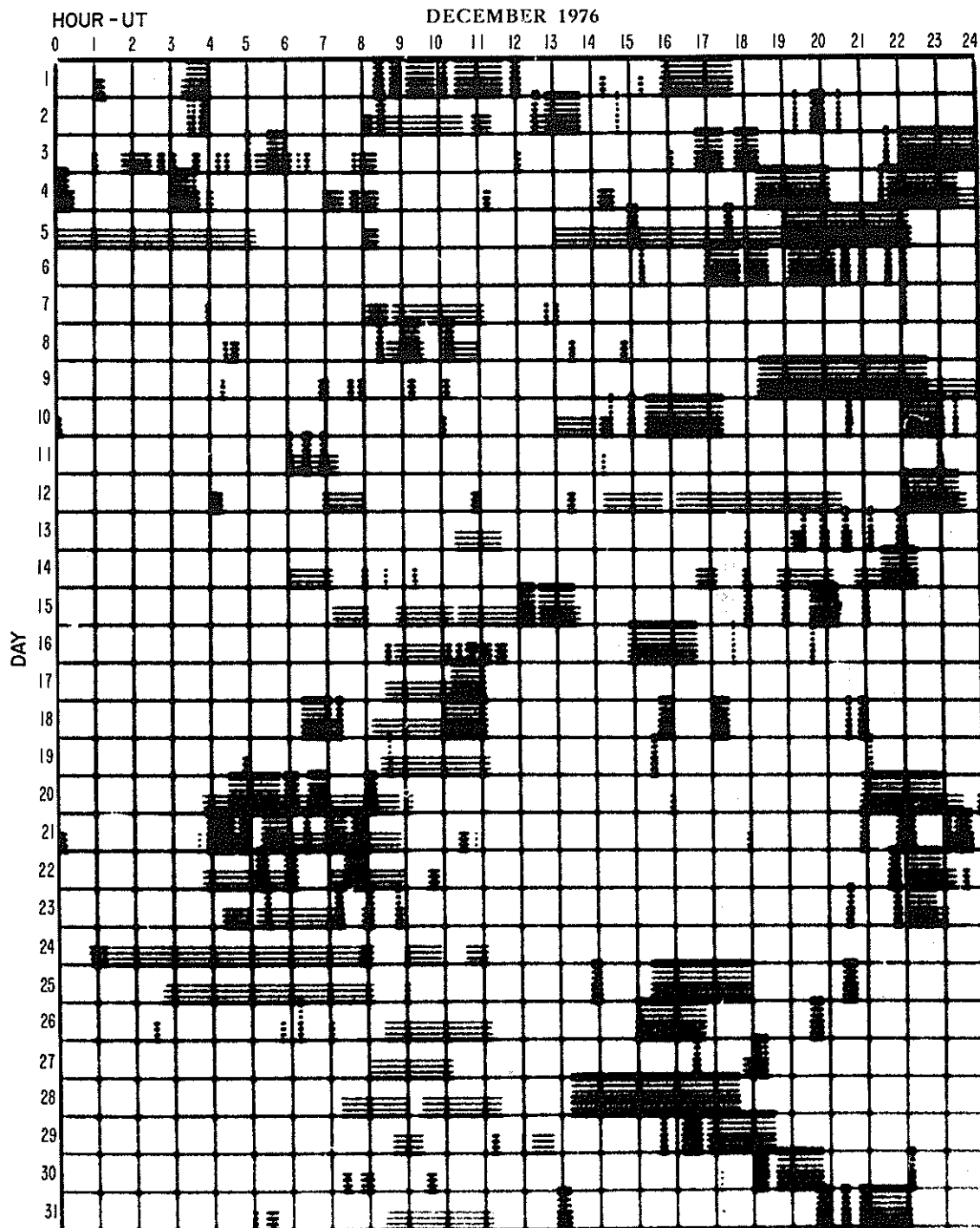
DECEMBER 1976				DAILY FLARE INDICES			
				Includes all Flares			
Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index
761201	0.00	18.5	761211	0.00	23.5	761221	0.00
761202	0.00	21.7	761212	0.00	22.6	761222	0.00
761203	0.00	19.7	761213	10.15	23.2	761223	0.00
761204	0.00	19.5	761214	21.42	23.1	761224	0.00
761205	0.00	20.3	761215	10.29	21.4	761225	1.91
761206	0.00	20.4	761216	4.07	22.0	761226	0.00
761207	0.00	23.9	761217	0.00	23.1	761227	7.23
761208	14.15	23.1	761218	0.00	20.8	761228	8.12
761209	47.27	19.6	761219	0.00	23.8	761229	38.11
761210	18.82	20.4	761220	0.00	19.4	761230	36.49
						761231	34.63

When no Flare Index is given, it is 0 for that day.

Flare Index HR OBS.
Date 761031 0.00 15.5
Errata: The data for Oct. 1976 in SGD issue 392 Part II p. 12 lacked the last day's data. The missing data are: 761031 0.00 15.5

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE



Observatories included in total patrol:

Athènes	Herstmonceux	Kodaikanal	Mitaka	Tehran
Bucharest	Huancayo	Locarno	Monte Mario	Upice
Catania	Hurbanovo	Lvov	Palehua	Voroshilov
Culgoora	Istanbul	Manila	Ramey	Wendelstein
Haute Provence	Kiev	McMath-Hulbert	Tachkent	

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

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Dec 76

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES DECEMBER 1976

DEC 1976	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	930 BORD	8 S	1033.4	1033.4	0.1	24	1		
3	9240 ARCE	23 GRF	1359	1445.5	80 D				AT SUNSET
	9240 ARCE	8 S	1458.5	1458.8	0.8				
	9240 ARCE	45 C	1501.7	1515.7	1.30				
	9240 ARCE		1501.7	1507.2	7.3				
	9240 ARCE		1509	1515.7	14 D				
	2800 OTTA	1 S	1622.5	1625.8	5.2	0.8	0.3		
8	237 TRST	41 F	0845	0845.1	0.2	279			
	237 TRST	41 F	1154.2	1154.3	0.3	38			
	237 TRST	41 F	1234.4	1234.6	1.4	140			
9	1000 TYKH	45 C	0200	0201.8	10	12	0.7		20L WR WRHL
	2000 TYKH	45 C	0201.6	0202.7	3.5	6	2		
	3750 TYKH	5 S	0202	0202.7	2 D	3.5	1 D		
	200 HIRA	45 C	0203.2	0204.4	3.5	900	250		
	100 HIRA	45 C	0204	0206	2.5	1200	100		
10	930 BORD	46 C	0814.3	0814.3	0.4	31	2		
11	260 ONDR	43 NS	0820		320	13			
13	260 ONDR	44 NS	0810 E		470 D	19			AT SUNSET
	9240 ARCE	1 S	1411.7	1411.9	0.6				
	9240 ARCE	3 S	1516.3	1516.6	0.6				
14	260 ONDR	44 NS	0800 E		331 D	54	16		
	127 TORN	43 NS	0930 U	1308.8	270 D	41	10		
	245 SGMR	44 NS	1211 E	1859.9	535 D	15.4			
	9100 GORK	21 GRF	1019	1024.5	9.5	9.9	5		
	9100 GORK	3 S	1022	1022.5	3	37	18		
	650 GORK	4 S/F	1020.3	1024.6	5.4	122			
	536 ONDR	45 C	1020.7	1022.9	3.5	123	7		
	808 ONDR	45 C	1020.7	1023	7	90	5		
	408 TRST	42 SER	1020.9	1023.4	3.6	140			
	930 BORD	46 C	1021	1023	4	70	5		
	950 GORK	46 C	1021	1022.2	5.5	24			
	950 GORK		1021	1023.6		34			
	1470 BERL	46	1021.5	1023.5	3	9.4	3.7		
	1420 ARCE	46 C	1021.6	1021.9	3.2				
	1420 ARCE		1021.6	1021.9	1				
	1420 ARCE		1022.6	1023.3	2.2				
	2950 GORK	21 GRF	1021.9	1024.7	3.9	3.6	2.2		
	260 ONDR	45 C	1021	1022.7	4	155	20		
	2950 GORK	3 S	1022.8	1023.6	1.9	19.8	6.7		
	3000 BERL	4	1022	1023.5	3	20	6.1		
	9500 BERL	4	1023	1023.5	7	75	32		
	9240 ARCE	3 S	1023	1023.7	5				
	2800 OTTA	1A S	1426	1430	10	0.6	0.3		
	2800 OTTA	8 S	1427.5	1427.5	0.5	6.4	1.6		
	2800 OTTA	8 S	1436.8	1436.8	0.5	1.4	0.7		
	2800 OTTA	8 S	1512	1212.2	0.5	1.4	0.7		
	2800 OTTA	22 GRF	1725	1745	55	1	0.6		
	2800 OTTA	20 GRF	1914	1923	40	2	1		
15	2000 TYKH	5 S	0257	0305	26	2	1.2		0L 0R 0R 0L
	3750 TYKH	5 S	0300	0310	40	2	1		
	3750 TYKH	5 S	0307.8	0308.3	1	4	1		
	2000 TYKH	5 S	0307.8	0308.3	1	3.5	1		
	100 GORK	44 NS	0621 E		509 D		5		
	260 ONDR	44 NS	0837 E		333 D	24	3		
	127 TORN	44 NS	0850 E		310 D				
	9240 ARCE	1 S	0859	0859.5	1.1				
	536 ONDR	40 F	1131.6	1136.2	32	8	1		
	808 ONDR	2 S/F	1134.2	1135.3	2.5	12	6		
	127 TORN	45 C	1141	1142.5	3	150	18		
	127 TORN	24 R	1200 U	1213	120 D	14	13		
	408 TRST	41 F	1220.8	1220.8	0.7	320			
	7000 SAOP	28 PRE	1456.8	1457.6	1.6	7.3	2.8		
	7000 SAOP	4 SF	1458.4	1459.2	3.8	40.9	15		
	7000 SAOP	29 PBI	1502.2		6.8		2		
	8800 SGMR	3 S	1458.5	1458.8	1.8	26	14		
	2800 OTTA	1 S	1458.5	1459.2	1.5	9.6	5		
	2800 OTTA	29 PBI	1500	1500	5	1.6	0.8		
	4995 SGMR	3 S	1458.5	1459.1	9.3	34.8	14		
	9400 HUAN	3 S	1458.5	1500	1.5	17.4	8.5		
	9400 HUAN	21 GRF	1458.5	1512.6	4.1	6.3	1.6		
	15400 SGHR	1 S	1458.9	1459.2	2.4	7.2	2.9		
	4995 BOUL	8 S	1458	1458.5	5	31	10		
	2695 BOUL	8 S	1459.5	1500	2	8	2		
	18 MCMA	42 SER	1503	1507	10				
	2800 OTTA	26 FAL	1508	1526	18	-1.4	-0.7	1	
	2800 OTTA	20 GRF	1655	1712	35	0.6	0.3		

SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES DECEMBER 1976

DEC 1976	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
	2695 PENT	20 GRF	2000	2030	120	1.6	1		
16	127 TORN	44 NS	0720 E		400 D				
17	[127 TORN	44 NS	0720 E	0835.9	400 D	45			
	100 GORK	43 NS	0729		61		5		
	127 TORN	45 C	0741	0741.9	2.5	24	10		
	9500 BERL	3	0956.5	1027	109	7.8			
	930 GORD	40 F	1005	1011.4	33	49	4		
	950 GORK	23 GRF	1005 E	1015 U	34	9.5			
	237 TRST	42 SER	1005.1	1005.6	25.5	62			
	100 GORK	41 F	1005.5	1007.1	192	625			
	1000 GORK		1005.5	1012.2		470			
	1000 GORK		1005.5	1024.3		140			
	1470 BERL	4	1005.5	1007.4	115	17			
	408 TRST	27 RF	1005.9	1018.5	23	28			
	950 GORK	46 C	1006	1009.6	8.1	18			
	950 GORK		1006	1011.5		25			
	950 GORK		1006	1013.2		9			
	650 GORK	23 GRF	1006		33.1				
	3000 BERL	4	1006	1007.5	74	10			
	2950 GORK	21 GRF	1006 C	1009	20.8	7.8	2.7		
	650 GORK	46 C	1010.8	1011.6	4.8	62			
	650 GORK		1010.8	1013.3		45			
	127 TORN	45 C	1015.3		10	60 D	30 U		
	3000 BERL	4	1023.5	1024	2	30			
	1470 BERL	4	1023.5	1024.2	1.5	9.8			
	2950 GORK	45 C	1024.2	1024.4	2.8	42	5.8		
	2950 GORK		1024.2	1025.3		19			
	237 TRST	41 F	1026.2	1026.5	0.3	158			
	237 TRST	41 F	1028.6	1028.8	0.4	275			
	1470 BERL	4	1032	1033	8	6.6			
	408 TRST	41 F	1041.4	1041.7	0.6	64			
	7000 SAOP	20 GRF	1451.2		25		0.7		
18	[100 GORK	41 F	0756.2	0756.4	2.3	30			
	100 GORK		0756.2	0757.7		30			
	127 TORN	8 S	0812.4	0812.7	0.9	48	20		
	100 GORK	6 S	0812.8	0812.9	0.7	30			
	18 MCHA	6 S	1350 E	1353	5				
	18 MCHA	6 S	1418	1419	3				
	18 MCHA	6 S	1455	1456	2				
	18 MCHA	42 SER	1503	1507	5				
	18 MCHA	41 F	2210	2218	12				
	18 MCHA	6 S	2231	2233	3				
19	260 ONDR	44 NS	0810 E		396 D	10			
20	260 ONDR	44 NS	0800 E		356 D	5			
	100 GORK	6 S	0849	0849.2	0.5	90			
21	950 GORK	1 S	0745.5	0745.6	0.2	3.3			
	260 ONDR	44 NS	0800 E		369 D	10			
	650 GORK	1 S	0845.6	0845.6	0.5	17.7	8		
	245 SGMR	6 S	1521.2	1521.6	.5	7	1.4		
	2695 BOUL	8 S	1849	1900	2.5	9	3		
	4995 BOUL	45 C	1901	1902.5	2.5	10	3		
22	127 TORN	44 NS	0730 E	1029.4	380 D	55			
	260 ONDR	42 SER	1144.6	1203.2	23	13			
	7000 SAOP	20 GRF	1401.8		70		4		
	7000 SAOP	20 GRF	1505.2		24.8		1.5		
23	2800 OTTA	2 S/F	1502.9	1503	1	3.6	0.8		
24	606 SGMR	22 GRF	1909.5	1936.1	44.9	15.9	9.5		
25	127 TORN	41 F	1337	1347 U	13 D	52			
	2800 OTTA	21 GRF	1432	1501	85	1.2	0.8		
	2800 OTTA	1 S	1440.5	1442.3	3.5	1	0.4		
	2800 OTTA	240 R	1625	1641	16	1	0.5		
	2800 OTTA	24P R	1641		180 D	1			
26	18 MCHA	6 S	1528	1529	5				
27	1000 TYKH	5 S	0607	0607.3	1.5	1.5	0.5		
	260 ONDR	44 NS	0815		351	30			
28	260 ONDR	44 NS	0810 E		360 D	9			
	18 MCHA	41 F	1455	1458	10				
	18 MCHA	42 SER	1520	1530	21				
	18 MCHA	42 SER	1548	1550	6				
	18 MCHA	42 SER	1600	1613	20				
	2800 OTTA	20 GRF	1730	1835	160	5.4	2.7		
	18 MCHA	42 SER	1826	1828	7				

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SOLAR RADIO EMISSION OUTSTANDING OCCURRENCES

DECEMBER 1976

DEC 1976	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		INT	POLARIZATION OR REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
29	18 MCMA	42 SER	1845	1852	52			1	
	260 ONDR	44 NS	0820 E		353 0	44			
	160 OWIN	44 NS	1129 E		181 0		1		
	172 OWIN	44 NS	1129 E		181 0		2		
	242 OWIN	45 C	1331.5	1333	2	60	5		
	242 OWIN	45 C	1335	1338	4	50	5		
	4995 BOUL	45 C	1811	1819	8	163	27		
	2695 BOUL	45 C	1815	1819	6	163	25		
30	2000 TYKH	29 GRF	0500	0515	70 0	2.6	1.80		OL
	3750 TYKH	29 GRF	0500	0530	70 0	3	2 0		OR
	9400 TYKH	29 GRF	0500	0530	70 0	5	3 0		OR
	260 ONDR	44 NS	0810 E		190 0	11			
	127 TORN	44 NS	0826 E		105 0				
	18 MCMA	6 S	1510	1513	11			2	
	18 MCMA	41 F	1522	1525	9			1	
31	200 HIRA	45 C	0140	0140.5	1	300	90		WR
	100 HIRA	45 C	0140	0140.2	1	550	200		WRHL
	127 TORN	45 C	0901	0901.5	3	65	15		
	237 TRST	41 F	0901.2	0901.4	0.4	122			0
	2800 OTTA	27A RF	1602		248	2	1.5		
	2800 OTTA	24 R	1602	1622	20	2	1		
	2800 OTTA	2 S/F	1606	1609.3	9	9.2	2.5		
	4995 BOUL	3 S	1608.5	1609	3.5	11	4		
	2695 BOUL	8 S	1610	1610.5	1	6	2		
	2600 OTTA	24P R	1622		125	2			
	2800 OTTA	1 S	1801.5	1802.5	4.5	1	0.5		
	18 MCMA	6 S	1804	1805	2			1	
	2800 OTTA	21 GRF	1812		16	1.4	0.7		
	245 SGMR	6 S	1813.2	1815.8	4.4	146.5	44		
	8800 SGMR	4 S/F	1814.1	1814.5	9.8	50.7	15.2		
	2695 SGMR	4 S/F	1814.4	1815.3	8.2	47.9	14.4		
	1415 SGMR	1 S	1814.4	1815.3	2.4	7.8	2.3		
	4995 SGMR	4 S/F	1814.9	1815.7	12.4	93.7	28.1		
	410 SGMR	6 S	1814.9	1816	1.9	59.9	23.9		
	1420 BOUL	8 S	1814	1815.5	3.5	7	2		
	606 SGMR	3 S	1815	1815.8	1.9	19.4	5.8		
	9400 HUAN	3 S	1815	1818.1	3.1	49.3	26		
	9400 HUAN	29 PBI	1818.1	1834.8	16.7	12.7	3.9		
	2695 BOUL	8 S	1819.5	1817	3.5	41	13		
	2800 OTTA	4 S/F	1815	1815.8	4	48	16		
	4995 BOUL	8 S	1815	1815.5	4.5	40	13		
	2800 OTTA	26 FAL	1827	2010	103	-2	-1		

Reports received from the following observatories:

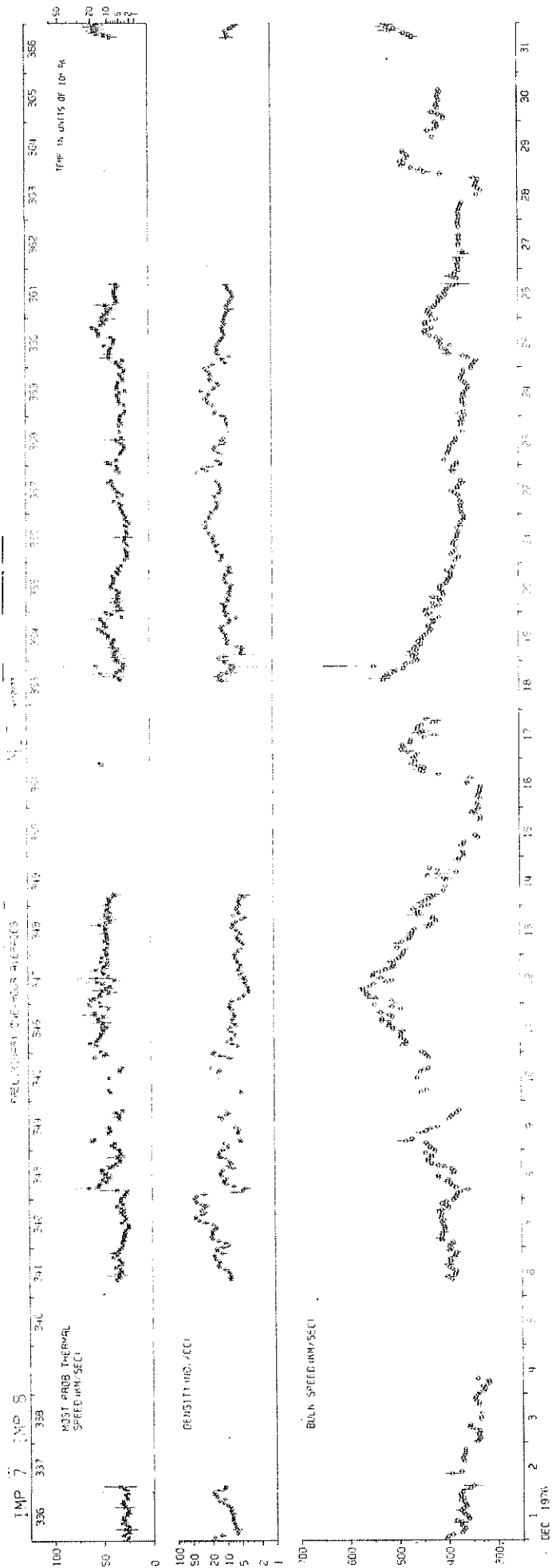
ARCE = Arcetri	OWIN = Dwingeloo	KIEV = Kiev	OTTA = Ottawa	SYDN = Sydney
BERL = Berlin-Adlershof	GORK = Gorky		PENT = Penticton	TORN = Torun
BORD = Bordeaux	HARS = Harestua	MANI = Manila	POTS = Potsdam	TYKW = Toyokawa
BOUL = Boulder	HIRA = Hiraïso	MCMA = McMath-Hulbert	SAOP = Sao Paulo	TRST = Trieste
CRIM = Simferopol	HUAN = Huancayo	ONDR = Ondrejov	SGMR = Sagamore Hill	VORO = Voroshilov (Ussurisk)
	IRKU = Irkutsk			

Explanation of Type Code:

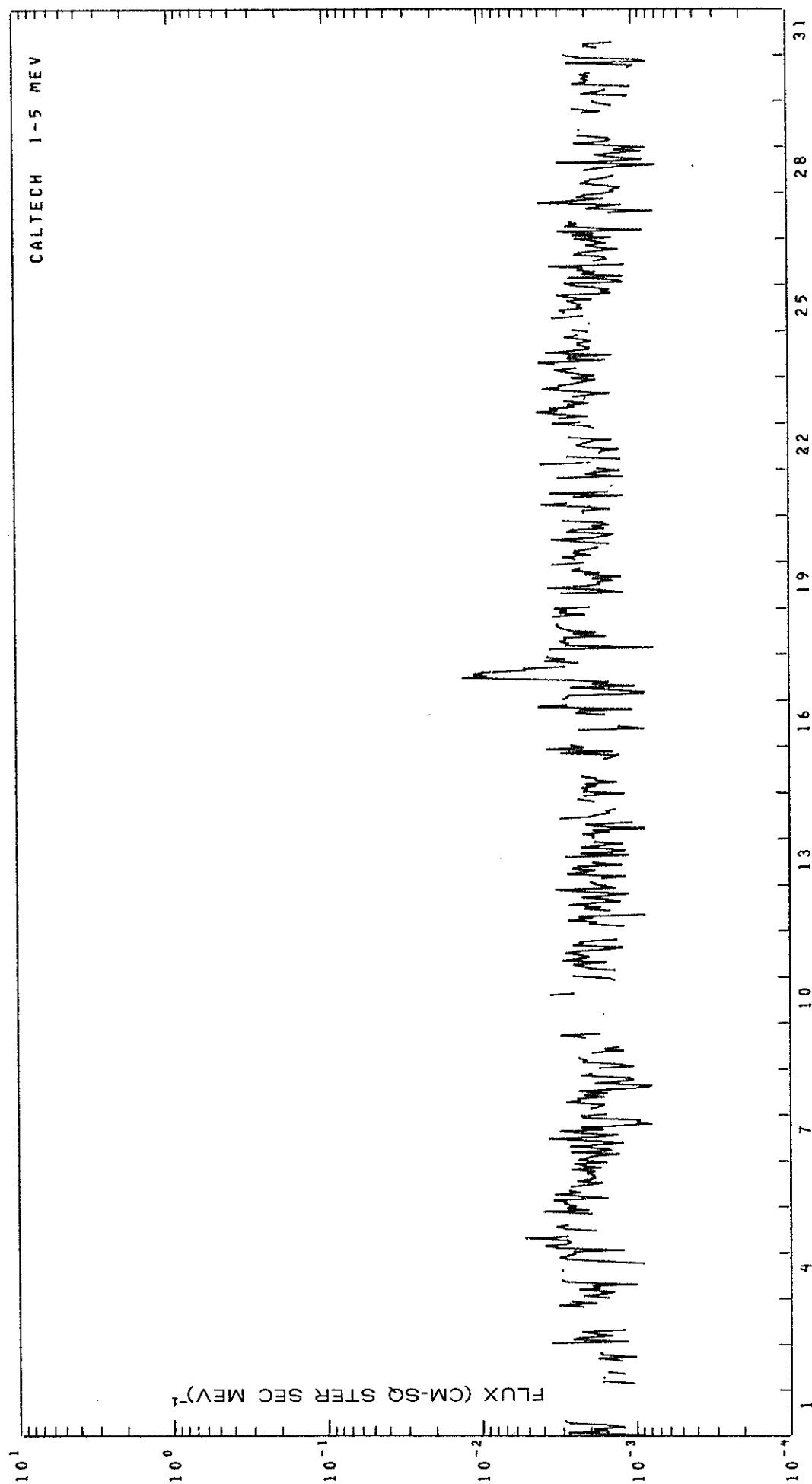
1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase A	42 Series of Bursts	47 Great Burst
5 Simple	21 Simple 3A	26 Fall	31 Post Burst Decrease	43 Onset of Noise Storm	48 Major
					49 Major +

IMP 7 AND 8 SOLAR WIND PLASMA

DECEMBER 1976

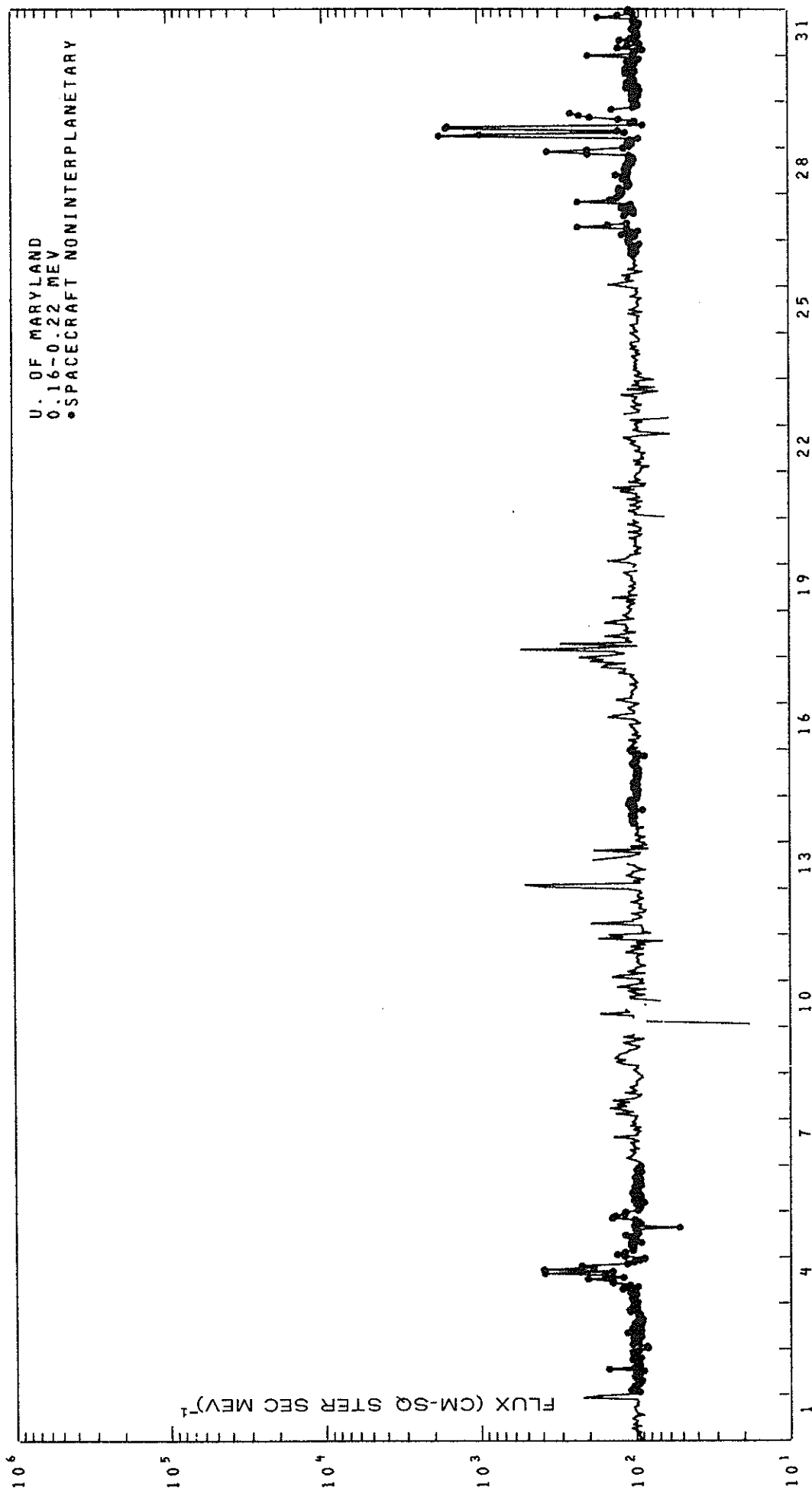


IMP 7 AND 8 ELECTRONS
DECEMBER, 1976



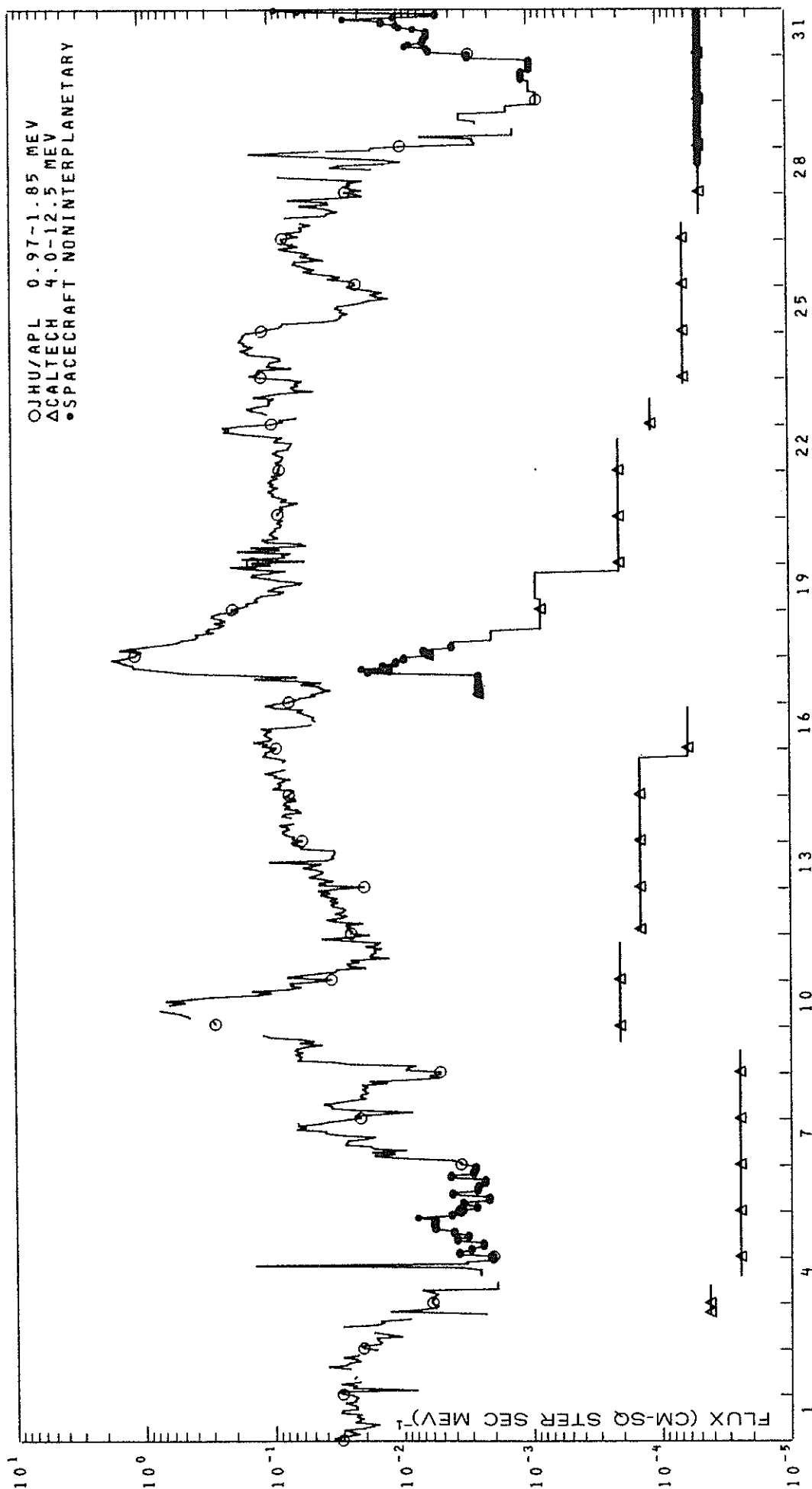
IMP 7 AND 8 LOW ENERGY PROTONS

DECEMBER, 1976



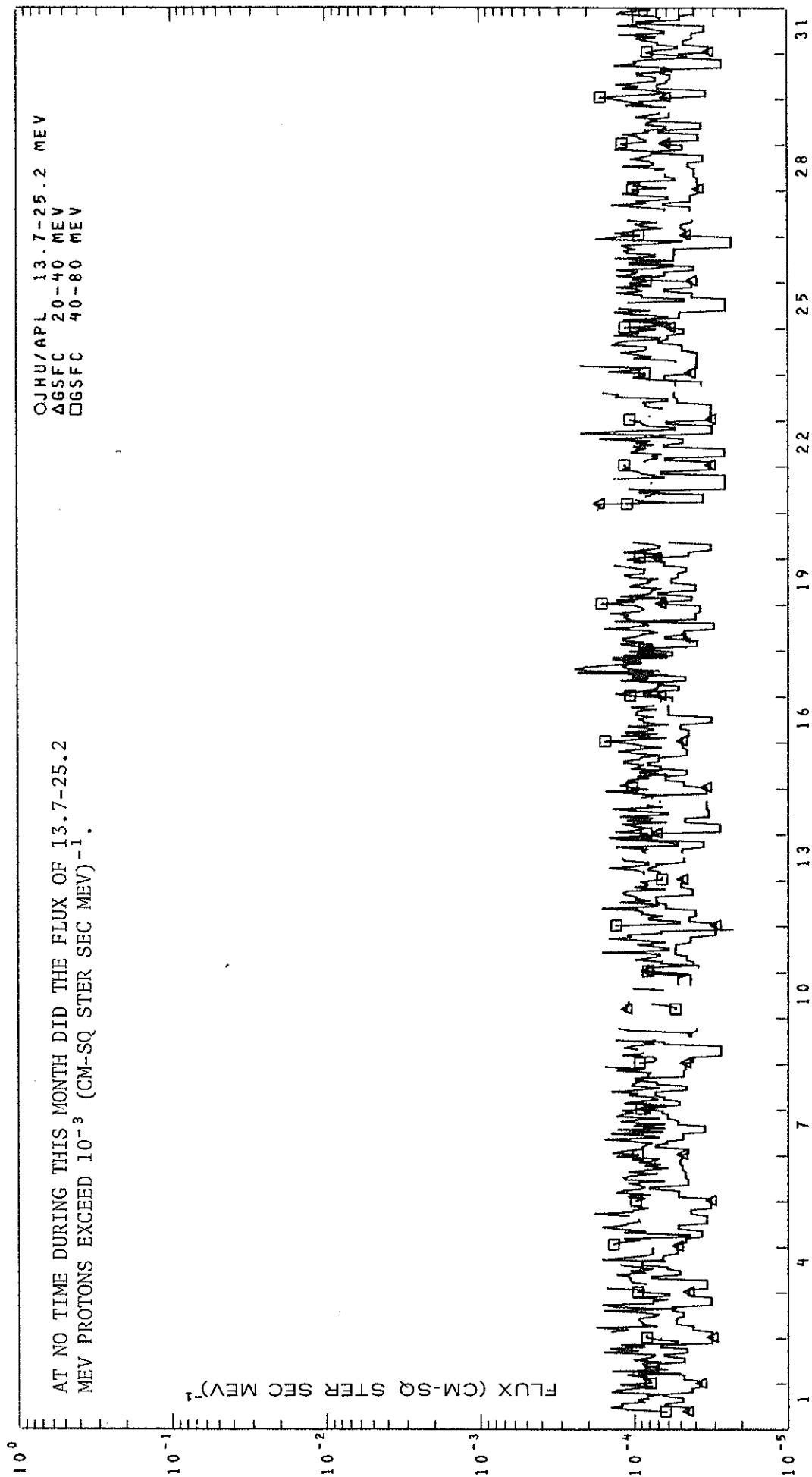
IMP 7 AND 8 INTERMEDIATE ENERGY PROTONS

DECEMBER, 1976

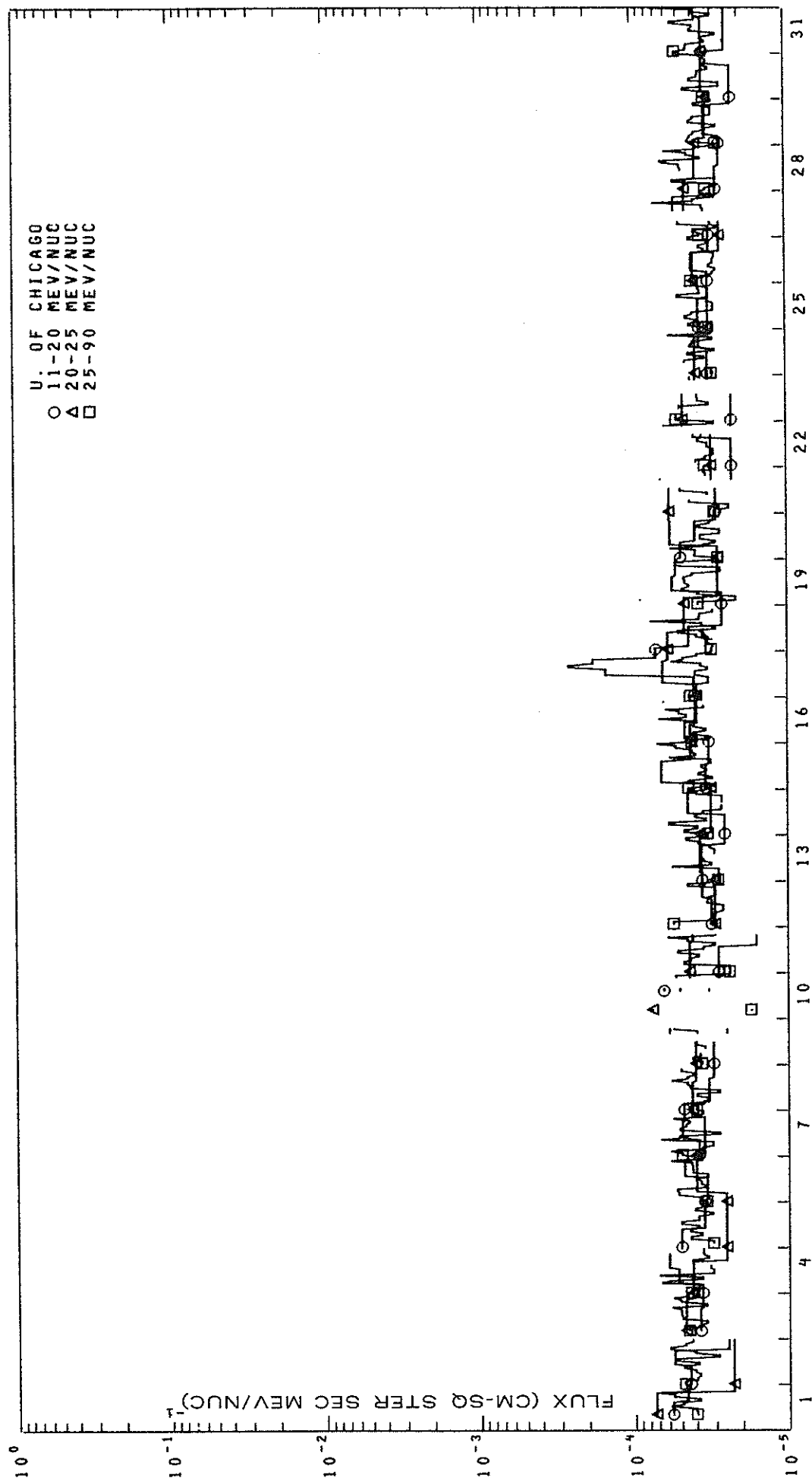


IMP 7 AND 8 HIGH ENERGY PROTONS

DECEMBER, 1976



IMP 7 AND 8 ALPHA PARTICLES DECEMBER, 1976



NOVEMBER 1976 DATA

Contents

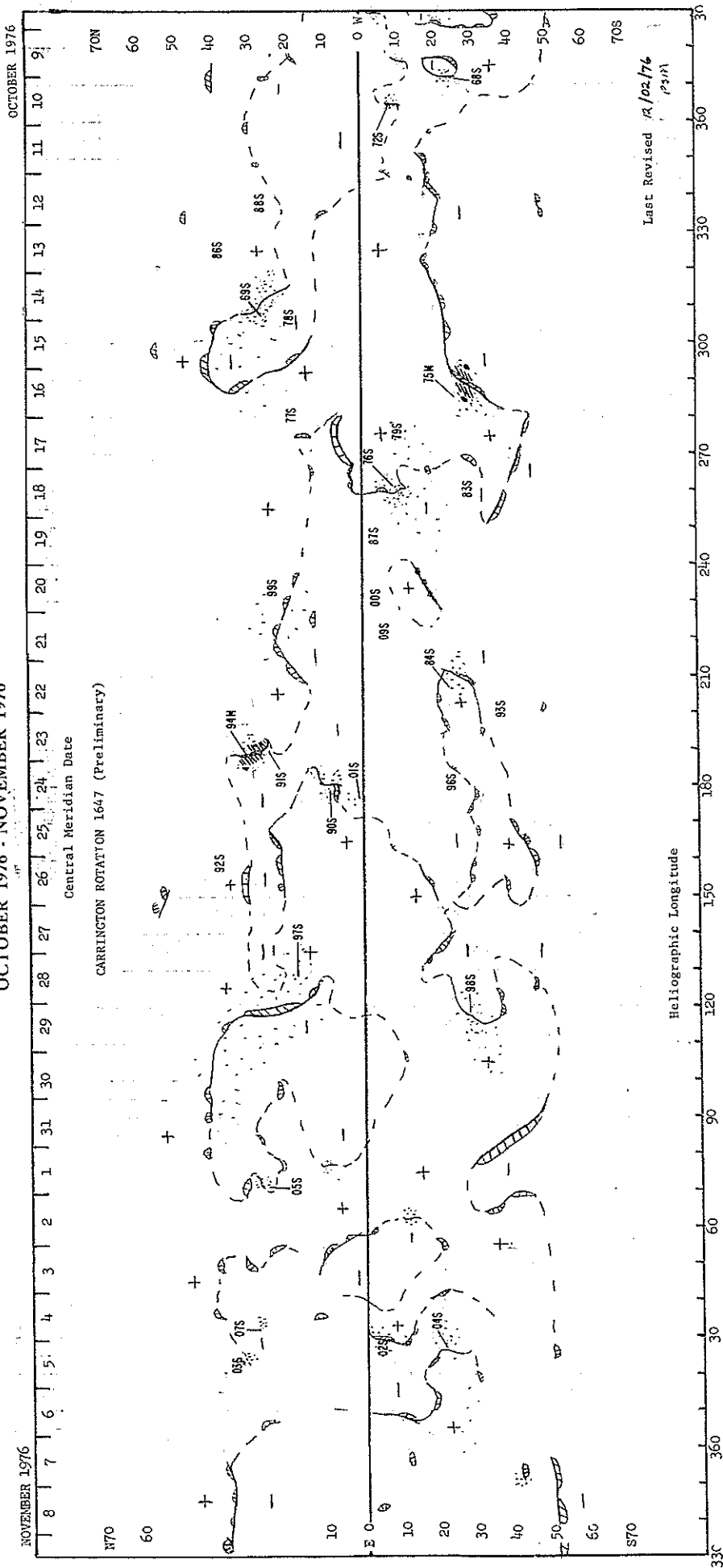
	Page
<u>Hα Synoptic Chart</u>	24-25
<u>Abbreviated Calendar Record</u>	26-33
<u>Regional Flare Index</u>	33

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Nov 76

ABBREVIATED CALENDAR RECORD

H α SYNOPTIC CHART

OCTOBER 1976 - NOVEMBER 1976



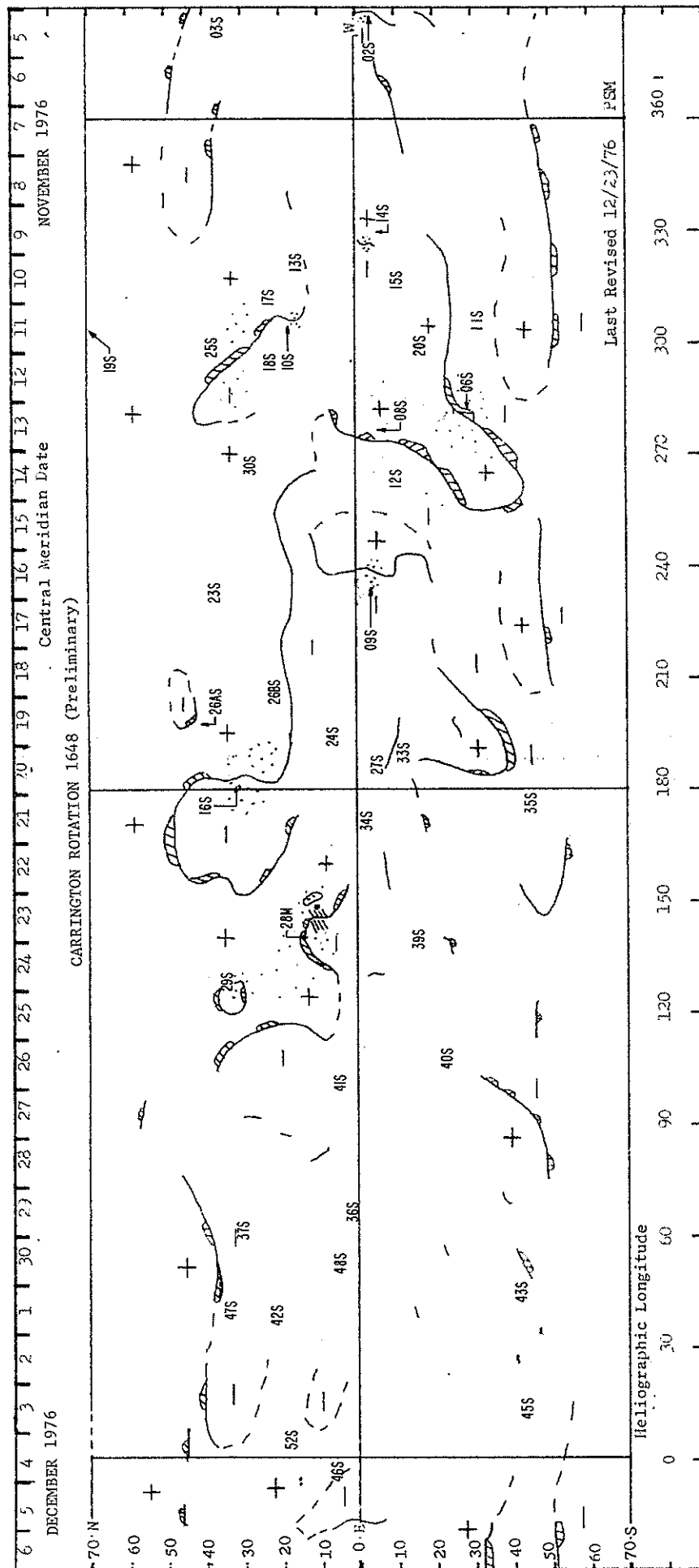
Last Revised 12/02/76

PSM

ABBREVIATED CALENDAR RECORD

H α SYNOPTIC CHART

NOVEMBER 1976 - DECEMBER 1976



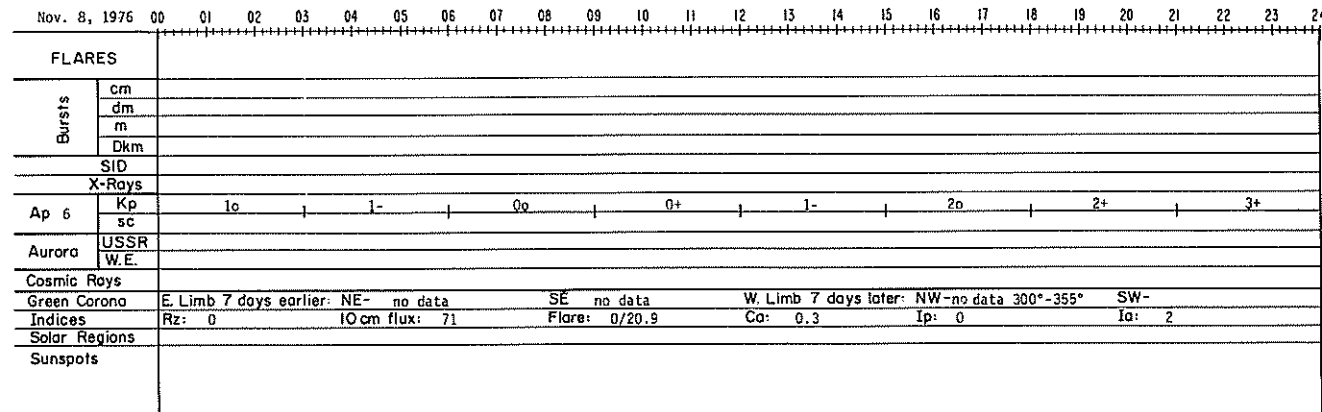
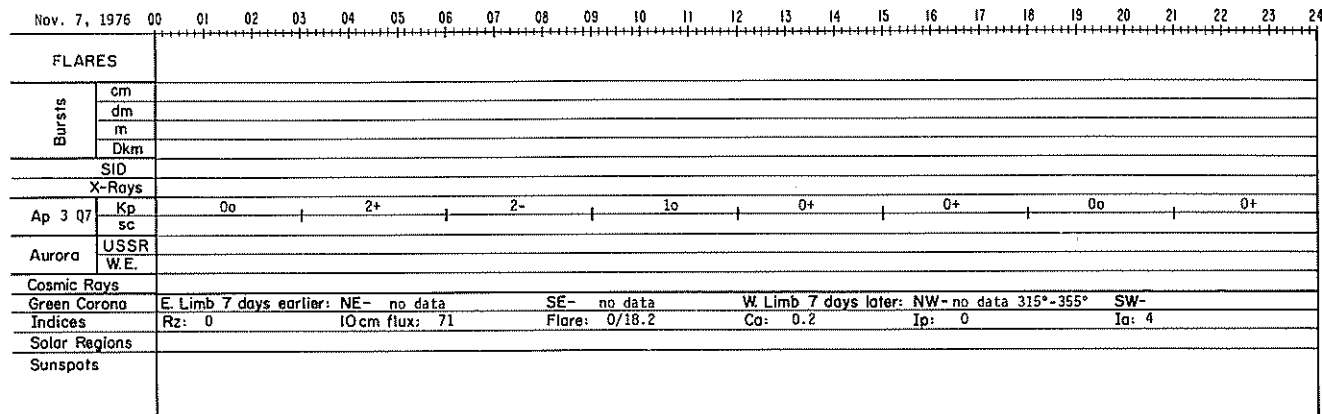
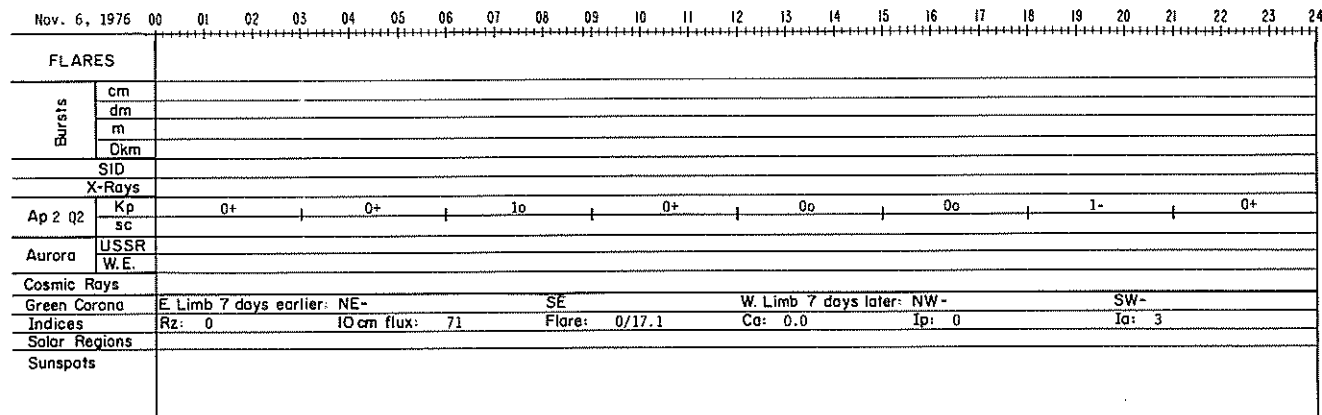
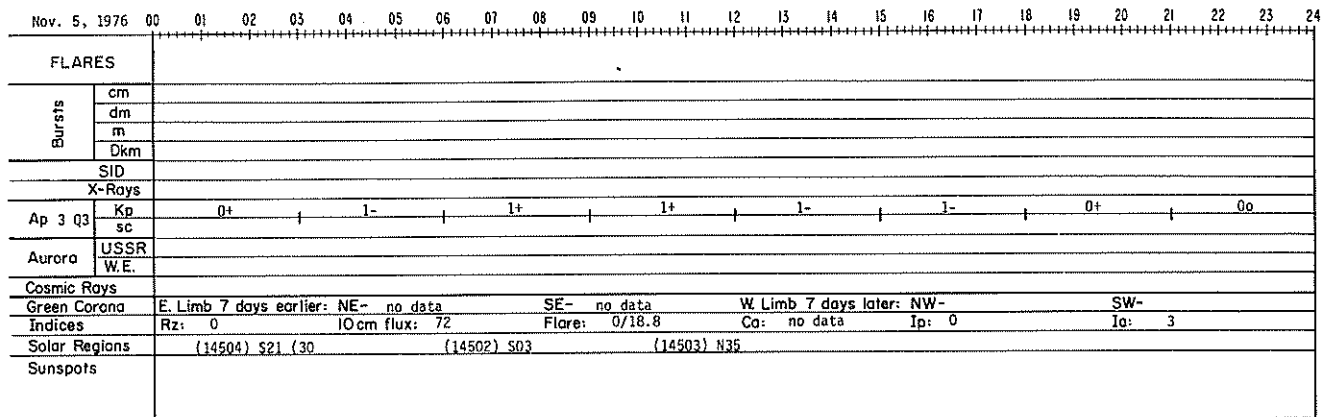
ABBREVIATED CALENDAR RECORD

Nov. 1, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 10	Kp sc	4- 3- 3- 3- 1o 1o 2+ 2+																									
Aurora	USSR W.E.																										
Cosmic Rays																											
Green Corona	E. Limb 7 days earlier: NE- no data																										

Nov. 2, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 7	Kp	2+ 3- 2o 1+ 2- 2+ 2- 1o																									
	Sc																										
Aurora	USSR																										
	W.E.																										
Cosmic Rays																											
Green Corona	E Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data																										
Indices	Rz: 0 10 cm flux: 70 Flare: 0/14.2 Ca: 1.3 Ip: 0 Ia: 2																										
Solar Regions																											
Sunspots																											

Nov. 3, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 6	Kp	2+ 1o 2o 1+ 1- 1+ 1o 3o																									
	sc																										
Aurora	USSR																										
	W.E.																										
Cosmic Rays																											
Green Corona		E. Limb 7 days earlier: NE- no data 5° SE- W. Limb 7 days later: NW- no data SW- no data																									
Indices		Rz: 0 10cm flux: 71 Flare: 0/19.9 Ca: 0.6 Ip: 0 Ia: 1																									
Solar Regions																											
Sunspots																											

Nov. 4, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 4 Q8	Kp sc	1+ 1o 2- 1+ 0+ 1- 1+ 1+																									
Aurora	USSR																										
	W.E.																										
Cosmic Rays																											
Green Corona	E Limb 7 days earlier: NE- SE no data 95°, 145° W. Limb 7 days later: NW- no data SW- no data																										
Indices	Rz: 0 IO cm flux: 71 Flare: 0/22.5 Ca: 0.3 Ip: 0 Ia: 3																										
Solar Regions		14507, N29																									
Sunspots																											



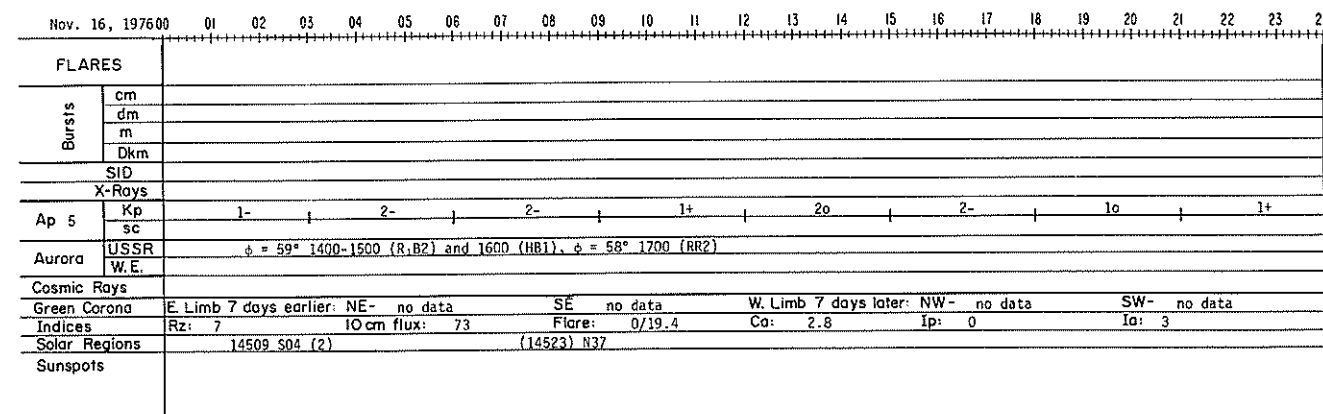
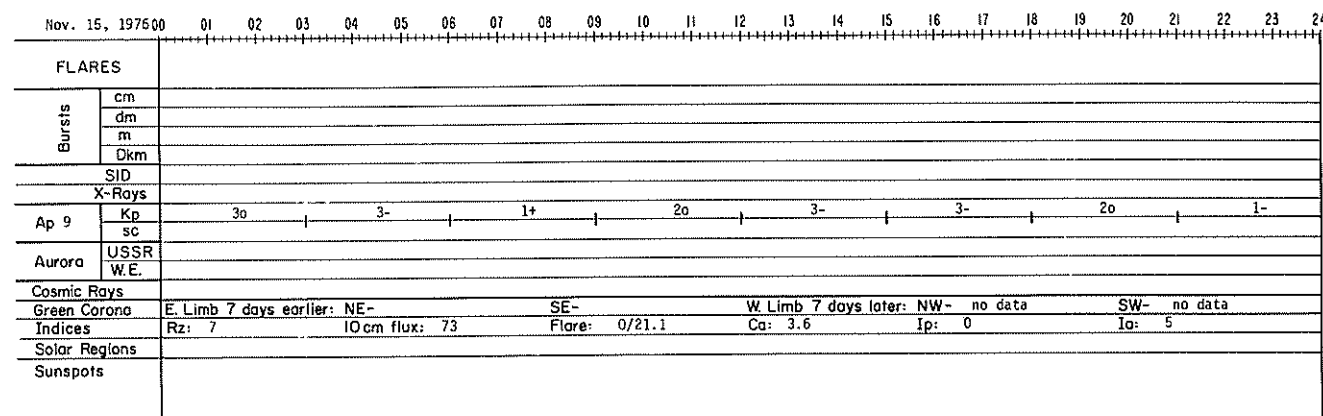
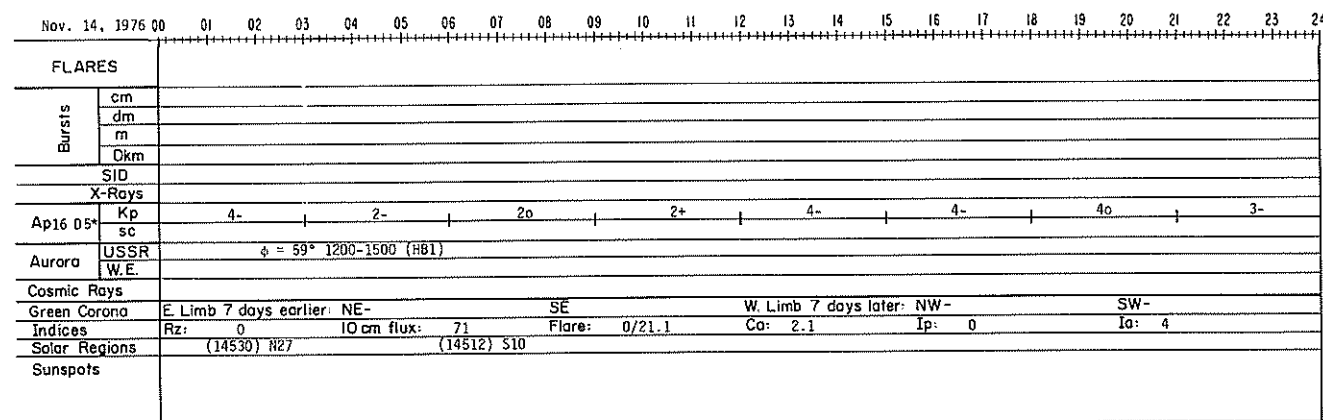
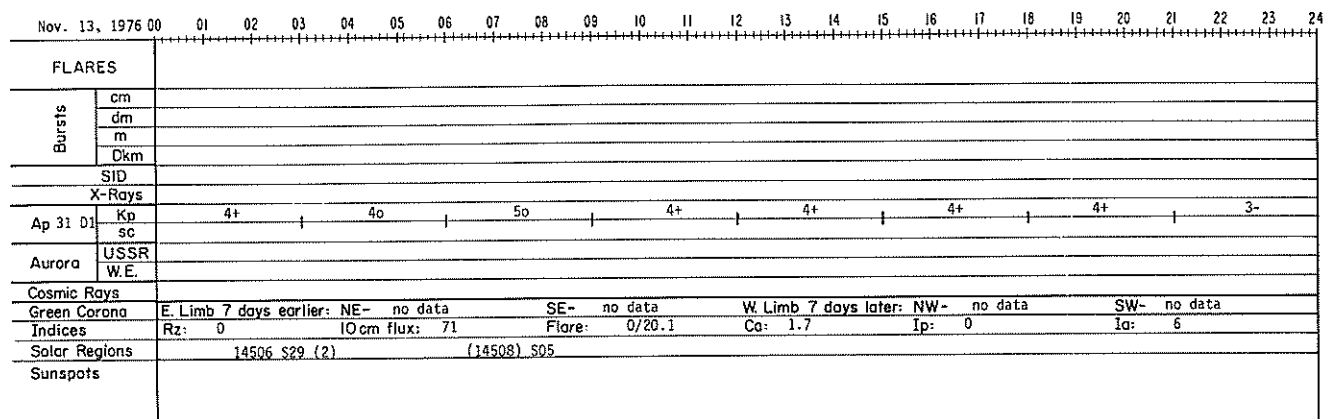
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Nov. 9, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 8	Kp	3- 3+ 2- 2- 2- 1o 1o 2o																									
	sc																										
Aurora	USSR																										
	W.E.																										
Cosmic Rays																											
Green Corona	E. Limb 7 days earlier: NE- SE- W. Limb 7 days later: NW- no data SW- no data																										
Indices	Rz: 0 10cm flux: 72 Flare: 0/22.3 Co: 0.3 Ip: 0 Ia: 1																										
Solar Regions		(14514) S05																									
Sunspots																											

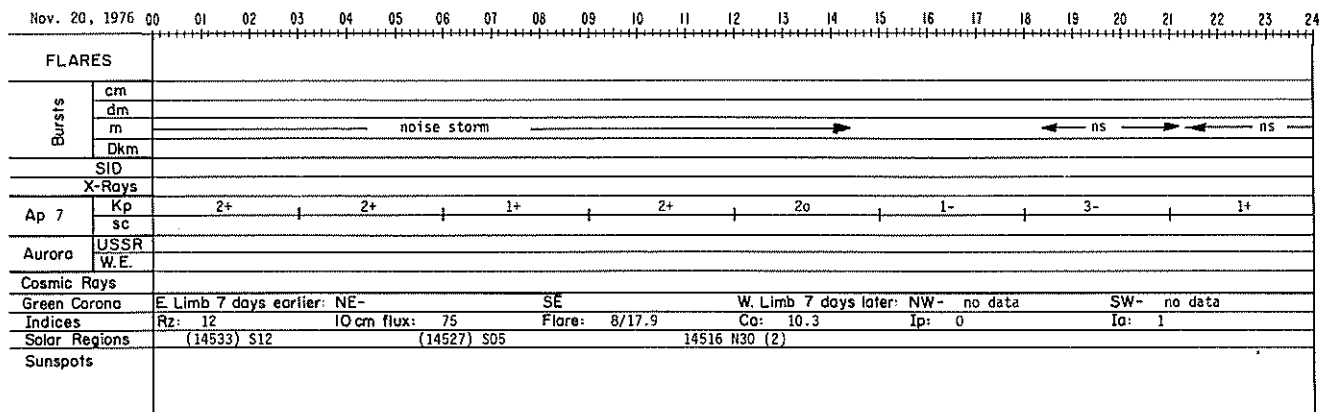
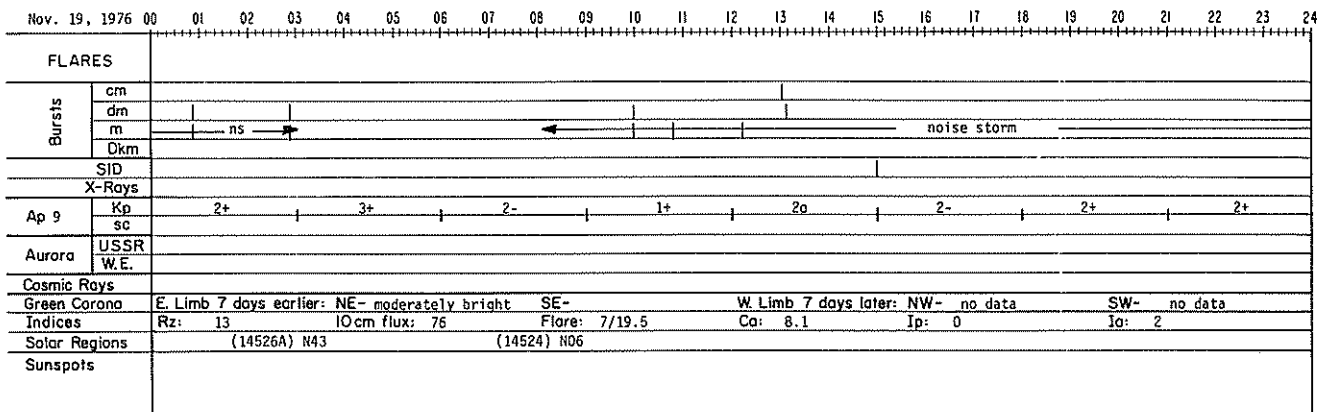
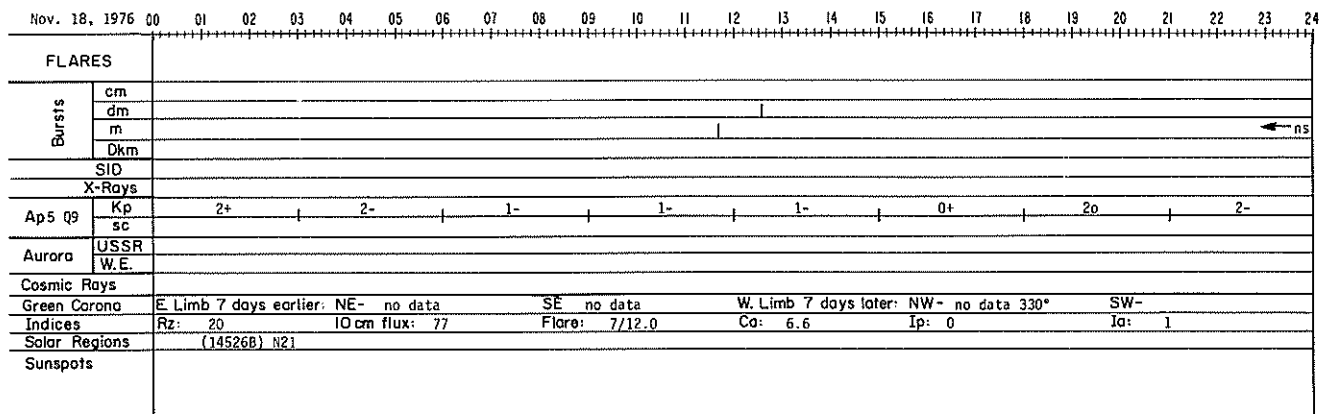
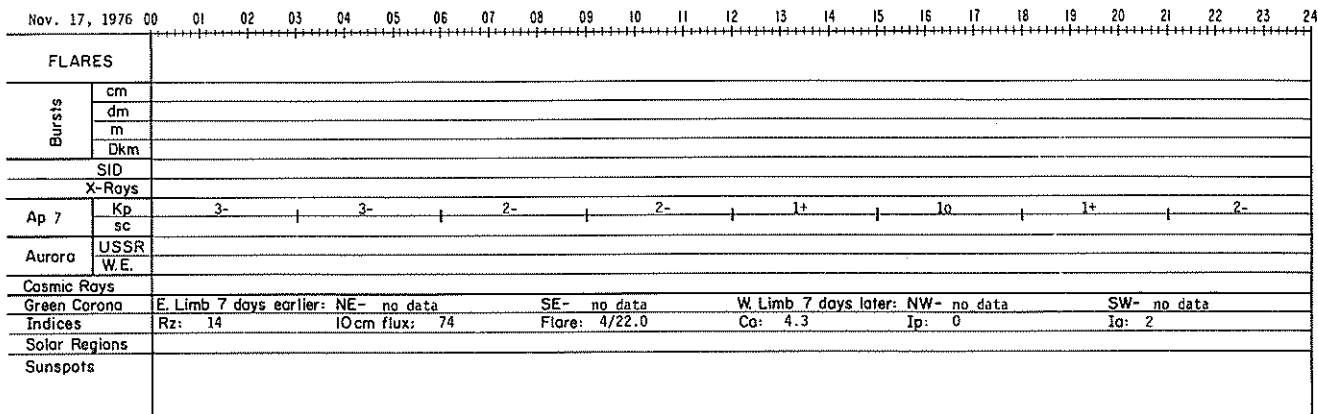
Nov. 10, 1976 00		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FLARES																									
Bursts	cm																								
	dm																								
	m																								
	Dkm																								
SID																									
X-Rays																									
Ap18 D4	Kp	2+ 3o 3o - 3- 3- 3- 4+ 5-																							
	sc																								
Aurora	USSR	φ = 58° 1300 and 2100 (R,R2)																							
	W.E.																								
Cosmic Rays																									
Green Corona	E Limb 7 days earlier: NE-												SE				W. Limb 7 days later: NW- no data				SW- no data				
Indices	Rz: 0	10 cm flux: 71				Flare: 0/14.4				Ca: 0.5				Ip: 0				Ia: 2							
Solar Regions	{14513} N16 {14515} S10 {14517} N23																								
Sunspots																									

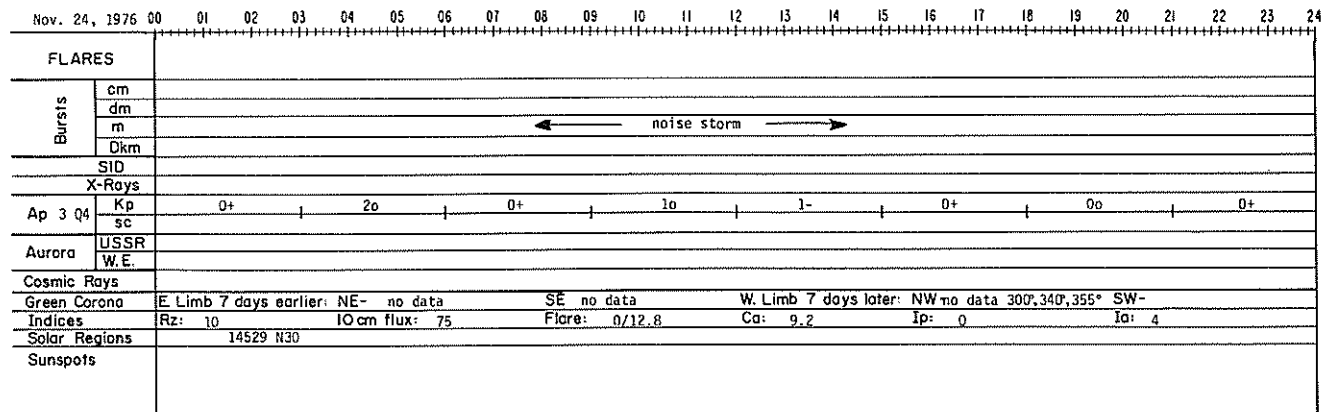
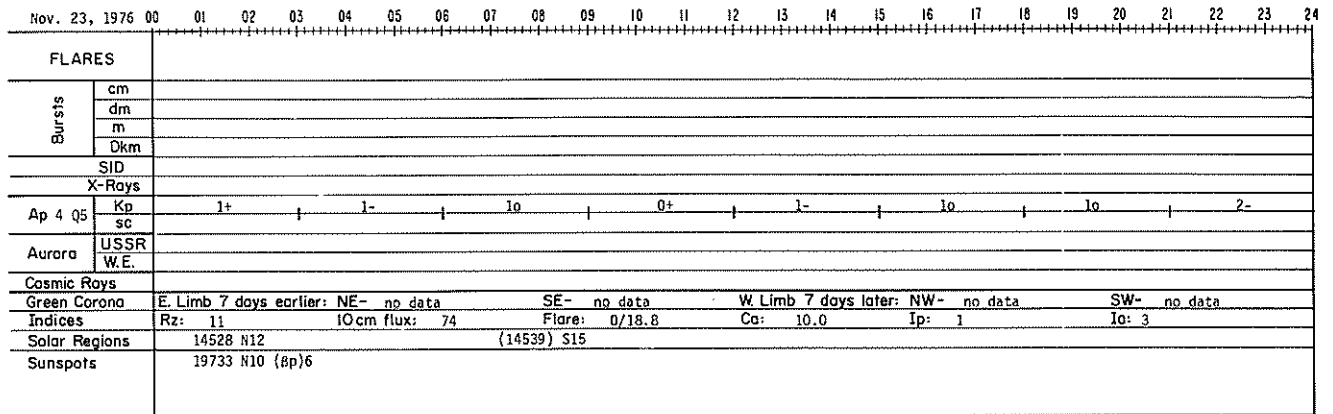
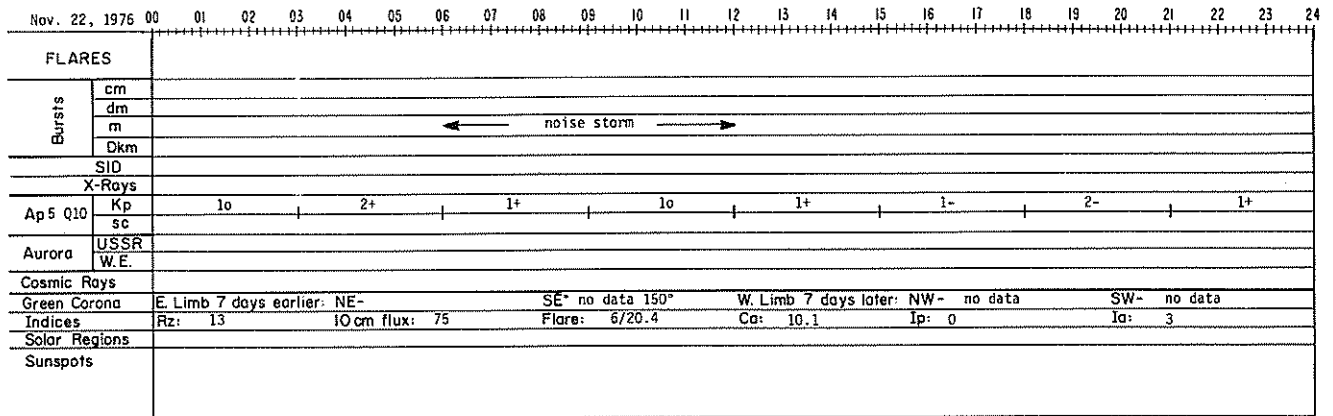
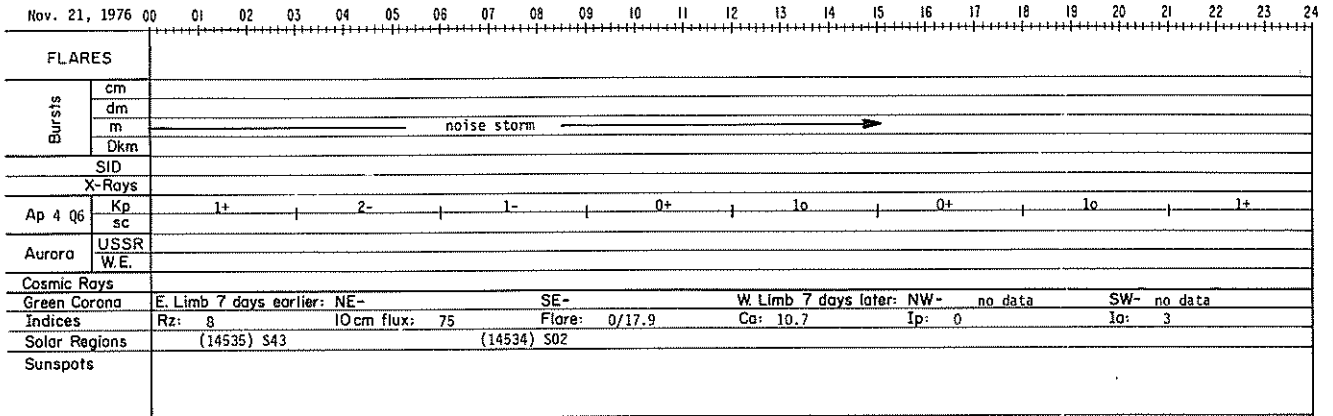
Nov. 11, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 23 D3	Kp	3o 4- 3- 3o 4o 5o 4+ 3-																									
	SC																										
Aurora	USSR	$\phi = 60^\circ$ 1400-1600 (HA2-3) and $\phi = 59^\circ$ 1600-1700 (HA1)																									
	W.E.																										
Cosmic Rays																											
Green Corona	E Limb 7 days earlier: NE- SE- W. Limb 7 days later: NW- no data SW- no data																										
Indices	Rz: 0 10cm flux: 72 Flare: 0/16.6 Ca: 1.2 Ip: 0 Ia: 5																										
Solar Regions	(14511) S32 (14510) N18 (14519) N70 (14520) S16 (14525) N37																										
Sunspots																											

Nov. 12, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
FLARES																													
Bursts	cm																												
	dm																												
	m																												
	Dkm																												
SID																													
X-Rays																													
Ap 24	D2	Kp	5+			3o			3o			3o			3+			3+			4-			4+					
		sc																											
Aurora	USSR																												
	W.E.																												
Cosmic Rays																													
Green Corona			E. Limb 7 days earlier: NE-										SE					W. Limb 7 days later: NW-					SW-						
Indices			Rz: 0	IO cm flux: 72					Flare: 0/18.9					Ca: 2.6					Ip: 0					ia: 4					
Solar Regions			(14518) N23																										
Sunspots																													



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Nov. 25, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 11	Kp	1+ 3o 3o 3o 2+ 3o 2+ 2-																									
	sc																										
Aurora	USSR	$\phi = 57^{\circ}$ 1300-1600 (A,R2); $\phi = 56^{\circ}$ 1600-1800 (HV1)																									
	W.E.																										
Cosmic Rays																											
Green Corona	E Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- SW-																										
Indices	Rz: 9 IO cm flux: 75 Flare: 0/19.0 Ca: 7.2 Ip: 0 Ic: 5																										
Solar Regions																											
Sunspots																											

Nov. 26, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FLARES																										
Bursts	cm																									
	dm																									
	m																									
	Dkm																									
SID																										
X-Rays																										
Ap 9	Kp sc	2+ 3- 1- 1+ 1+ 2o 4- 3-																								
Aurora	USSR W.E.	φ = 58° 1200-1900 (SB2), 2000 (R,B3) and 2100 (HA3)																								
Cosmic Rays																										
Green Corona Indices	E. Limb 7 days earlier: NE- SE- W. Limb 7 days later: NW- no data SW- no data																									
Solar Regions	Rz: 9 IO cm flux: 74 Flare: 0/15.9 Ca: no data Ip: 0 Ia: 3																									
Sunspots	(14540) S23 (14541) N04																									

Nov. 27, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 8	Kp	3- 4- 3- 10 0+ 1- 2- 20																									
Aurora	USSR																										
	W.E.																										
Cosmic Rays																											
Green Corona	E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data																										
Indices	Rz: 8 10cm flux: 76 Flare: 0/15.1 Ca: 2.9 Ip: 1 Ic: 2																										
Solar Regions																											
Sunspots																											

Nov. 28, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
FLARES																													
Bursts	cm																												
	dm																												
	m																												
	Okm																												
SID																													
X-Rays																													
Ap 2 Q1	Kp	0+ 1- 0+ 0+ 0+ 1- 1- 0o																											
	sc																												
Aurora	USSR																												
	W.E.																												
Cosmic Rays																													
Green Corona	E Limb 7 days earlier: NE- SE W. Limb 7 days later: NW- no data SW- no data																												
Indices	Rz: 8 10 cm flux: 74 Flare: 0/20.8 Cg: 2.0 Ip: 0 Io: 4																												
Solar Regions																													
Sunspots																													

Nov. 29, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 6	Kp	0o 1- 2+ 1+ 1o 2+ 1+ 2+																									
Aurora	USSR																										
	W.E.																										
Cosmic Rays																											
Green Corona	E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- SW-																										
Indices	Rz: 8 IOcm flux: 72 Flare: 0/19.1 Ca: 1.3 Ip: 0 Ia: 3																										
Solar Regions	(14536) N01 (14537) N30																										
Sunspots																											

Nov. 30, 1976		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
FLARES																											
Bursts	cm																										
	dm																										
	m																										
	Dkm																										
SID																											
X-Rays																											
Ap 11	Kp	3o 4- 2o 2- 2+ 3o 1o 2o																									
	sc																										
Aurora	USSR	φ = 59° 1100-1300 (HA1)																									
	W.E.																										
Cosmic Rays																											
Green Corona	E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data																										
Indices	Rz: 0 10 cm flux: 72 Flare: 0/12.3 Cd: 1.3 Ip: 0 Ia: 3																										
Solar Regions	(14548) N04																										
Sunspots																											

REGIONAL FLARE INDEX

INCLUDES ALL FLARES

MC MATH PLAGE NO.	LAT	CHP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
14518	N23	76/11/12.0	76/11/17	76/11/18	3.47	1.73	3
14520	N12	76/11/23.7	76/11/17	76/11/22	27.05	4.64	10

note:

NOTE:
Because of differences in method of calculation, the dates of Central Meridian Passage for the McMath Plage Regions vary somewhat from those given elsewhere. Any region not listed here produced no flares during its disk passage.

Miscellaneous Data

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Misc
Feb-Mar 77

COSMIC RAY INDICES (Neutron Monitors)

FEB - MAR 1977

	CALGARY	SULPHUR MT		CALGARY	SULPHUR MT
FEB. 1977	Average cts/hr	Average cts/hr	MAR. 1977	Average cts/hr	Average cts/hr
1	11750.3(23)	8989.6	1	11870.0	9127.1
2	11899.3	9035.9	2	11819.6	9118.4
3	11942.4	9078.0	3	11751.0	9049.3
4	11837.5	9061.5(23)	4	11715.6	9019.0
5	11740.3	9009.2	5	11665.2	8976.2
6	11843.9	9081.0	6	11635.3	8961.8
7	11723.7	8980.9	7	11659.0	9014.8
8	11665.1	8972.7	8	11675.7	8998.0
9	11678.2	8977.2	9	11675.0	9016.0
10	11735.5	9034.4	10	11725.5	9024.6
11	11779.0	9040.6	11	11758.5	9057.1
12	11782.5	9057.4	12	11797.7	9116.2
13	11849.4	9113.5	13	11911.2	9207.2
14	11861.1	9136.5	14	11961.1	9163.3
15	11962.5	9232.9	15	11939.3	9145.3
16	11868.2	9148.0	16	11951.0	9157.7
17	11920.7	9196.4	17	11963.7	9155.1
18	11730.0	9020.6	18	11898.9	9083.2
19	11675.1	8981.3	19	11776.5	9046.9
20	11690.6	9015.8	20	11825.3	9029.6
21	11695.0	9034.9	21	11845.9	9022.6
22	11759.3	9066.7	22	11880.5	9064.3
23	11787.4	9084.6	23	11822.0	9040.4
24	11786.2	9040.9	24	11856.0	9000.0
25	11814.1	9049.1	25	11829.5	8994.5
26	11843.2	9062.9	26	11799.3	8995.7
27	11849.2	9085.3	27	11751.4	8953.5
28	11878.2	9116.5	28	11724.4	8917.4
			29	11763.0	8940.4
			30	11801.5	8933.6
			31	11835.5	8986.3
MEAN	11798.1	9060.9		11802.7	9042.5

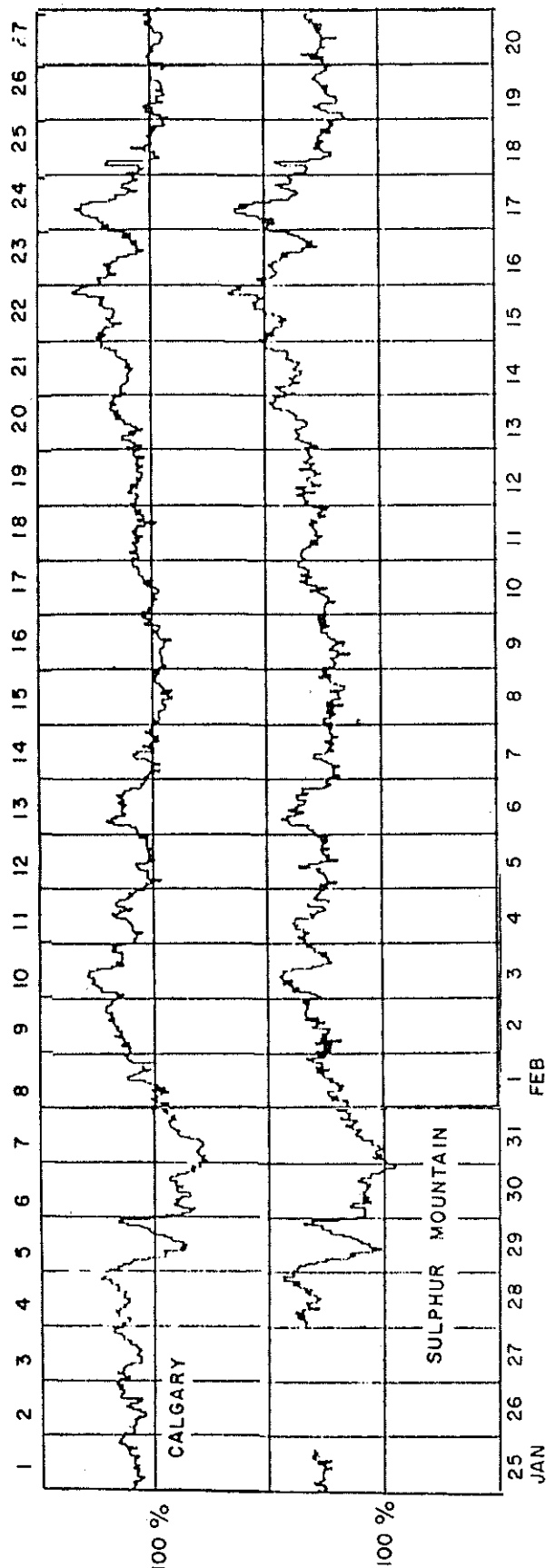
() Number of hours for which data are available if less than 24. Number of Section Hours at Climax if sum of both sections is less than 40 hours.

Thule, Alert, Calgary, Sulphur Mountain, Kiel and Climax Scaling Factors = 100.
Deep River Scaling Factor = 300.
Tokyo Scaling Factor = 128.

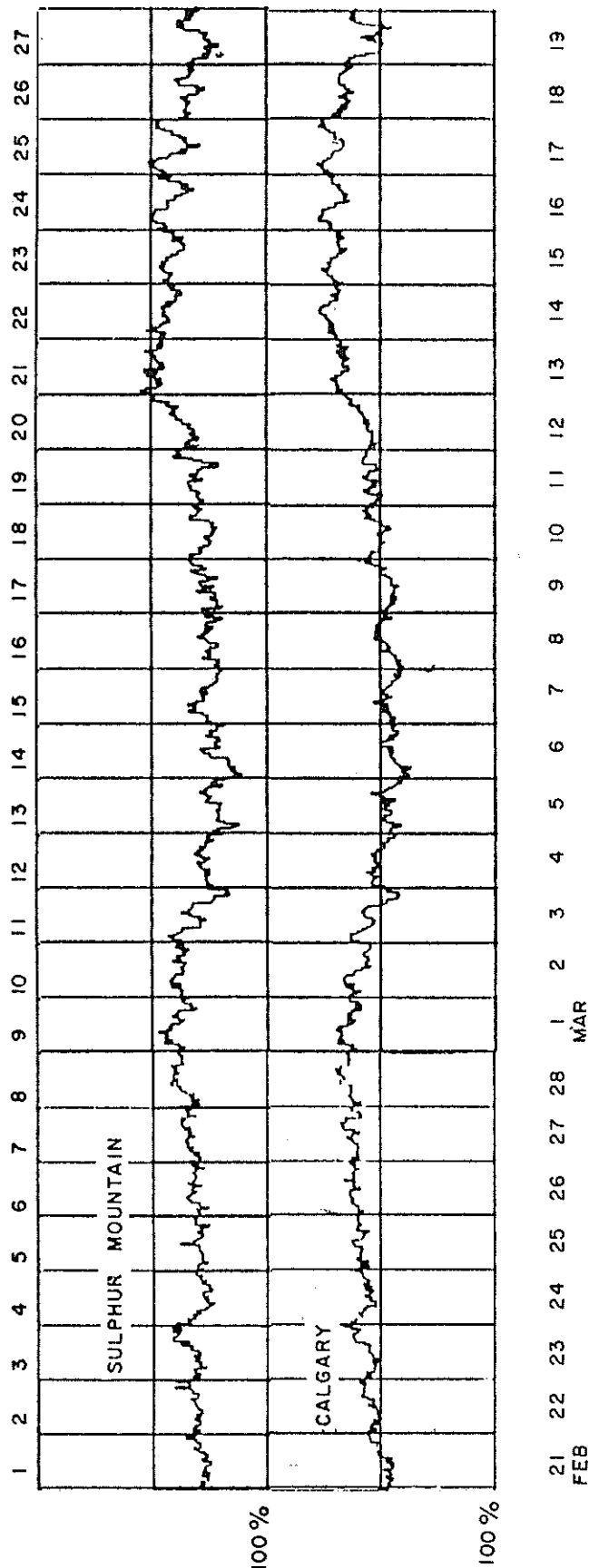
Due to the closing of the Geopole Station the Thule neutron monitor operations were temporarily suspended at the end of May 1976. Operations have been resumed but data are still not available for publication.

COSMIC RAY INDICES (Neutron Monitors)

Bartels Rotation 1962 (January - February 1977)



Bartels Rotation 1963 (February - March 1977)



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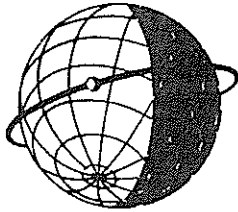
Prepared by World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado, U.S.A.

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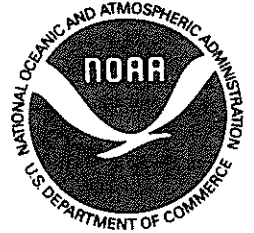
- UAG-48A "Synoptic Observations of the Solar Corona during Carrington Rotations 1580-1596 (11 October 1971 - 15 January 1973)", [Reissue with quality images] by R. A. Howard, M. J. Koomen, D. J. Michels, R. Tousey, C. R. Detwiler, D. E. Roberts, R. T. Seal and J. D. Whitney, E. O. Hulbert Center for Space Research, NRL, Washington, D. C. 20375 and R. T. and S. F. Hansen, C. J. Garcia and E. Yasukawa, High Altitude Observatory, NCAR, Boulder, Colorado 80303, February 1976, 200 pages, price \$4.27.
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WORLD DATA CENTER A

FOR

SOLAR-TERRESTRIAL PHYSICS



The ICSU Panel on WDCs has recommended that it would be appropriate courtesy to acknowledge in publications that data were obtained from the originating station or investigator through the intermediary of the WDCs. The following statement is suggested:

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