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Solar - Geophysical Data

NO. 411 NOVEMBER 1978

Part II (Comprehensive Reports)

DATA FOR
MAY 1978
APRIL 1978
& MISCELLANEA

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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No. 411

Issued in two parts

Helen E. Coffey, Editor

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Solar-Terrestrial Physics Division

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ACTIVE REGIONS

CARRINGTON ROTATION 1667

(April 9 to May 6, 1978)

Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1666	Activity at West Limb
1	12°N	356°	+6	1	x		decreasing
2	18 N	350	>6	2			decreasing
3	15 S	348	+3	1	x		disappeared
4	17 N	337	+6	2			decreasing
5	18 N	331	-4	2			stable
6	29 S	329	>6	3			decreasing
7	20 N	308	-1	2			decreasing
8	34 S	307	>6	2			dispersed
9	34 S	304	>6	1	x		dispersed
10	20 N	301	+3	2			decreasing
11	15 N	297	0	3			decreasing
12	19 S	291	+1	2			decreasing
13	16 N	287	>6	3			increasing
14	10 N	285	-6	2			(?)
15	38 S	284	>6	1	x		dispersed
16	19 N	280	+1	2			dispersed
17	19 N	269	>6	3		(11)	decreasing
18	20 N	261	-3	3			increasing
19	25 S	260	+6	1	x		disappeared
20	41 N	250	-1	1	x		decreasing
21	42 S	247	>6	2			decreasing
22	30 N	213	+6	2			decreasing
23	17 N	211	-1	2			decreasing
24	29 S	202	>6	1	x		dispersed
25	30 S	199	+1	2			decreasing
26	28 N	194	>6	1	x		decreasing
27	30 S	194	-3	2			stable
28	29 S	190	>6	2			decreasing
29	22 N	189	+4	4			decreasing
30	18 N	187	+4	2			decreasing
31	15 N	182	-1	2			increasing
32	24 N	166	+2	2			decreasing
33	18 S	165	>6	3			decreasing
34	11 N	148	>6	1	x		dispersed
35	26 N	147	>6	1	x		dispersed
36	27 S	146	>6	1	x		dispersed
37	19 N	145	>6	1	x		dispersed
38	22 N	144	>6	1	x		dispersed
39	29 N	140	-3	2			increasing
40	30 N	133	+1	2			decreasing
41	14 N	128	+5	1	x		disappeared
42	32 S	115	+3	1	x		disappeared
43	13 N	113	-5	1	x		(?)
44	23 S	111	+6	1	x		disappeared
45	24 S	105	+4	1	x		disappeared
46	14 S	99	+2	1	x		disappeared
47	2 N	98	+6	1	x		disappeared
48	32 N	93	0	1	x		disappeared
49	18 N	87	>6	5			decreasing
50	24 N	68	>6	6			decreasing
51	23 N	52	>6	5			decreasing
52	21 N	39	>6	1	x	(54)	decreasing
53	22 S	27	-5	1	x		(?)
54	41 N	27	>6	1	x		disappeared
55	23 S	26	>6	1	x		disappeared
56	28 N	25	>6	1	x		dispersed
57	27 S	8	>6	1	x	(56+57)	decreasing
58	19 N	7	>6	1	x		dispersed

ACTIVE REGIONS

CARRINGTON ROTATION 1668

(May 6 to June 3, 1978)

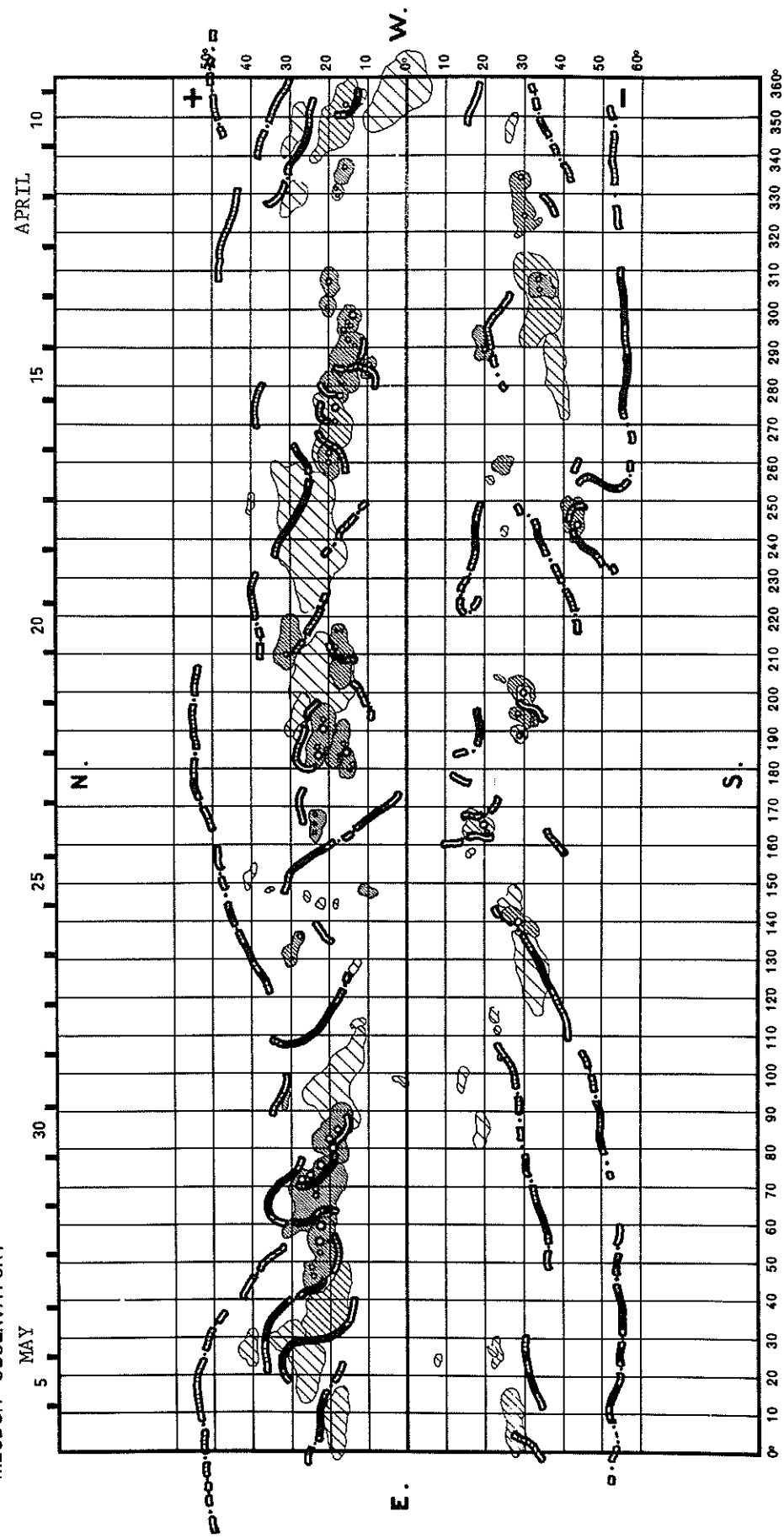
Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1667	Activity at West Limb
1	30°S	357°	>6	1	x		dispersed
2	17 N	355	>6	1	x		dispersed
3	17 N	348	>6	2			decreasing
4	22 N	347	>6	1	x		dispersed
5	26 S	347	>6	3			decreasing
6	17 N	333	-3	1	x		decreasing
7	18 S	331	>6	1	x		disappeared
8	29 S	325	>6	1	x		dispersed
9	14 S	313	+3	1	x		stable
10	36 S	305	+5	1	x		dispersed
11	20 N	304	>6	1	x		dispersed
12	19 S	299	+2	1	x		dispersed
13	24 S	296	-2	1	x		increasing
14	16 N	295	>6	2			decreasing
15	33 S	291	>6	1	x		dispersed
16	17 N	283	>6	3		(13)	decreasing
17	36 N	281	-4	1	x		stable
18	18 N	271	>6	1	x		decreasing
19	33 S	267	+2	1	x		disappeared
20	20 N	260	>6	1	x	(18)	decreasing
21	20 S	257	>6	3			stable
22	21 N	214	>6	3			decreasing
23	16 N	203	+2	1	x		stable
24	27 S	195	>6	2			decreasing
25	19 N	194	>6	1	x		decreasing
26	11 N	191	>6	2			decreasing
27	16 N	184	>6	1	x		decreasing
28	24 N	179	>6	1	x		decreasing
29	19 S	176	-6	1	x		(?)
30	16 N	174	>6	1	x		decreasing
31	18 S	171	+4	1	x		disappeared
32	14 S	158	+3	1	x		disappeared
33	31 S	151	+1	1	x		disappeared
34	15 S	141	-1	1	x		dispersed
35	28 N	131	-1	1	x		decreasing
36	30 S	131	>6	2		(39)	decreasing
37	23 S	115	-3	2			increasing
38	17 S	111	+5	2			decreasing
39	18 N	96	>6	1	x		dispersed
40	23 N	92	>6	3			decreasing
41	35 N	87	-3	2			decreasing
42	16 S	81	+2	2			stable
43	18 N	80	>6	5			decreasing
44	19 N	63	>6	1	x		decreasing
45	16 S	61	0	2			decreasing
46	26 S	61	-5	1	x		(?)
47	26 N	60	>6	3			decreasing
48	18 S	49	+2	1	x		stable
49	18 N	40	>6	3			decreasing
50	22 N	37	>6	3			decreasing
51	23 S	23	+6	2			decreasing
52	26 S	8	+1	3			increasing
53	28 S	2	>6	1	x		dispersed

SYNOPTIC SOLAR MAP

CARRINGTON ROTATION 1667

APRIL 9 TO MAY 6, 1978

MEUDON OBSERVATORY

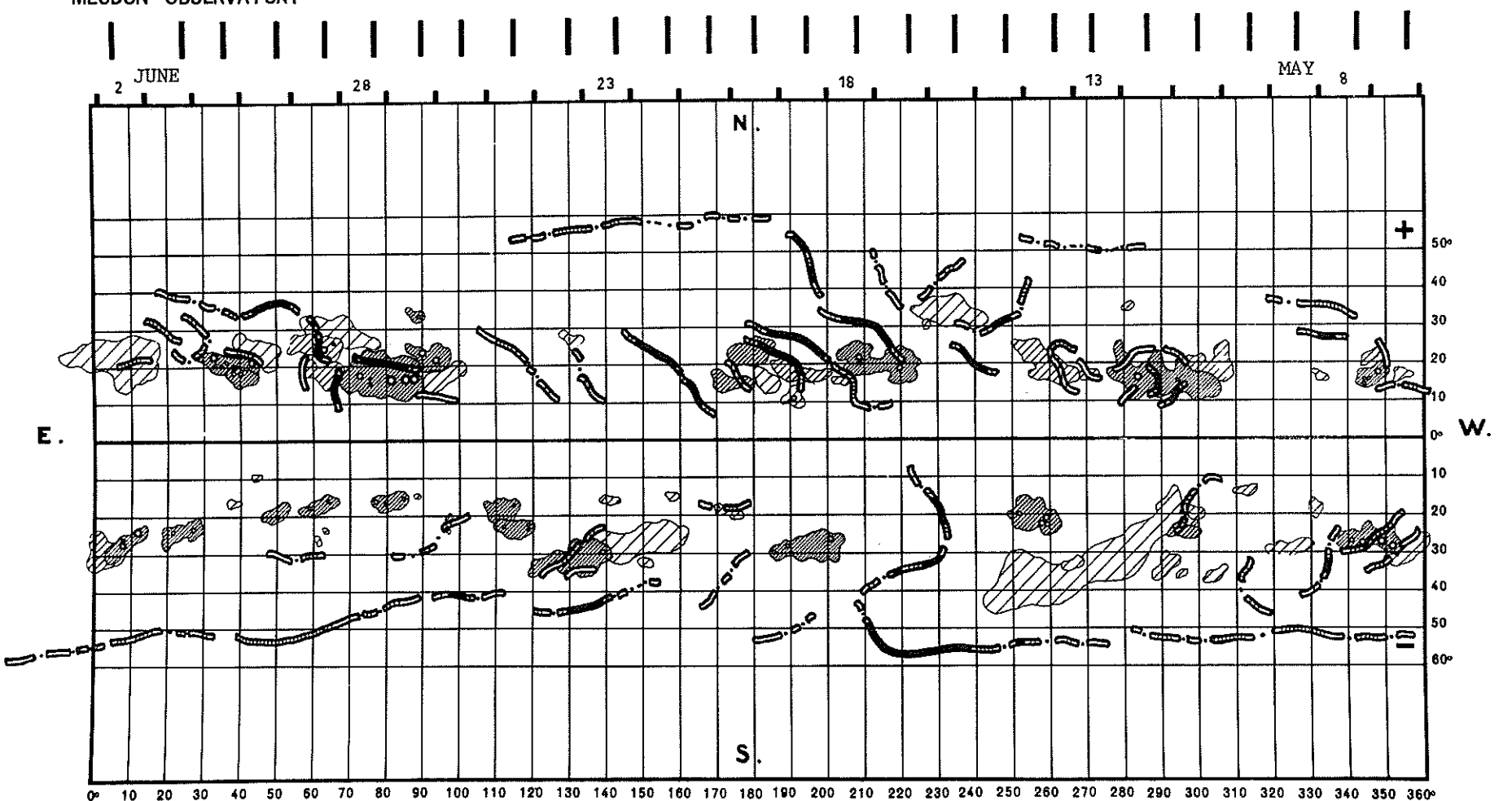


SYNOPTIC SOLAR MAP

CARRINGTON ROTATION 1668

MAY 6 TO JUNE 3, 1978

MEUDON OBSERVATORY



7 May 78

Hα SOLAR FLARES

MAY 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE MAY	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
144 TACH	01	0441	0445	0458	S28	E89	.999	15280	7.9	17	?F		C	0445	88		D	Y5
	IMP.1 NO		CULG1															
GRP67145	01	0538	0540	0620	N29	E01	.548	15266	1.3	42	-N						J	
TACH	01	0538	0540	0600D	N29	E01	.548	15266	1.3	22D	-N		C	0540	88	.9	E	
ABST	01	0552E	0552	0620	N29	E01	.548	15266	1.3	28D	-F		P	0552	131	1.6	DJ	
146 ABST	01	0610	0614	0636	N26	E26	.634	15266	3.2	26	-F		C	0614	79	1.0	DJ	Y5
147 ABST	01	0629	0631	0635	N18	E01	.378	15266	1.3	6	-F		C	0631	96	1.1	DJ	Y5
148 ABST	01	0637	0645	0654	S27	E88	.998	15280	7.9	17	?F		P	0645	61		ADJ	Y5
	IMP.1 NO		CULG1															
149 ABST	01	0751	0755	0809D	N29	E01	.548	15266	1.4	18D	-F		P	0755	114	1.4	DJ	Y5
150 ABST	01	0800	0804	0809D	S27	E88	.998	15280	7.9	9D	1F		P	0804	87		ADJ	Y5
	01	0952	1051	NO FLARE PATROL														
151 MCMA	01	1109	1120	1150	N29	E12	.576	15266	2.4	41	-N		C	1120	100	1.3	E	Y5
152 MCMA	01	1307	1311	1322	N24	W02	.473	15266	1.4	15	-F		C	1311	35	.4	D	Y5
153 MCMA	01	1323	1324	1330	N21	E14	.480	15266	2.6	7	-F		C	1324	30	.4	D	Y5
154 MCMA	01	1332	1340	1400D	N18	W05	.386	15266	1.2	28D	-F		C	1340	30	.3	E	Y5
155 MCMA	01	1404	1406	1430	N32	E12	.615	15266	2.5	26	-B		C	1406	40	.5	D	Y5
156 MCMA	01	1455		1520	N26	W06	.511	15266	1.2	25	-N		C	1501	50	.6	E	Y5
157 MCMA	01	1541	1543	1551	S28	W74	.961	15252	26.1	10	-F		C	1543			D	Y5
158 MCMA	01	1646		1710D	S29	W74	.961	15252	26.1	24D	-F		C	1705			E	Y5
159 MCMA	01	1714	1715	1737D	N34	E23	.694	15266	3.4	23D	-B		C	1715	35	.4	E	Y5
160 MCMA	01	1727E		1747	N22	W08	.459	15266	1.1	20D	-B		C	1733	100	1.1		Y5
161 PALE	01	1739	1743	1826	N16	W72	.961	0	26.3	47	?B	3	C		167			Y5
	IMP.1 NO		RAMY2															
162 MCMA	01	1759E		1804D	S29	W74	.961	15252	26.2	5D	-F		P	1759			D	Y5
	01	1807	1820	NO FLARE PATROL														
	01	1834	1849	NO FLARE PATROL														
163 MCMA	01	1910E		2230	N21	W12	.466	15266	30.9	200D	2B		C	1953	450	5.2	UXYZ	Y5
164 MCMA	01	1955	1958	2030	S29	W77	.973	15252	26.1	35	-N		C	1958			E	Y5
165 MCMA	01	2045E	2046	2050D	S29	W77	.973	15252	26.1	5D	-N		C	2046			E	Y5
166 MCMA	01	2134	2138	2146	S29	W78	.976	15252	26.0	12	-N		C	2138			D	Y5
167 MCMA	01	2148	2155	2201	S29	W78	.976	15252	26.1	13	-F		C	2155			E	Y5
	02	0026	0031	NO FLARE PATROL														
168 MANI	02	0048	0050	0100	N26	E03	.503	15266	2.3	12	-N	3	V		100	1.1	F	Y5
169 MANI	02	0118E	0120	0209D	N26	E03	.503	15266	2.3	51D	-N	3	V		150	1.7	F	Y5
	02	0159	0209	NO FLARE PATROL														
	02	0212	0219	NO FLARE PATROL														
	02	0221	0230	NO FLARE PATROL														
	02	0233	0251	NO FLARE PATROL														
	02	0306	0310	NO FLARE PATROL														
GRP67170	02	0345E	0345+4	0413	N30	W05	.565	15266	1.8	28	1N				300	3.6	LU	
TACH	02	0345E	0345	0413	N30	W06	.567	15266	1.7	28D	1B		P	0345	398	4.9	ELU	
MANI	02	0347E	0349	0409D	N30	W05	.565	15266	1.8	22D	1N	3	V		210	2.6	FU	
171 ABST	02	0514	0516	0530	N25	E01	.486	15266	2.3	16	-F		C	0516	131	1.5	EJ	Y5
172 ABST	02	0606	0609	0616	N35	E19	.682	15266	3.7	10	-F		C	0609	131	1.8	DJ	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE MAY	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
GRP67173	02	0614	0616+0	0625	S26	E78	.976	15280	8.1	11	-N						DJ	
ABST	02	0614	0616	0626	S25	E80	.982	15280	8.3	12	1N		C	0616	87		DJ	
MANI	02	0616E	0616U	0623	S27	E76	.969	15280	8.0	7D	-N	3	V		30	.7		
GRP67174	02	0635+3	0640+1	0710	N29	W12	.574	15266	1.4	35	1B				340	4.1	FJ	
CATA	02	0635E	0640	0710D	N29	W13	.579	15266	1.3	35D	1B	2		0640	337	4.2		
ABST	02	0638	0641	0722	N28	W12	.561	15266	1.4	44	1B		C	0641	393	4.8	FJ	
MANI	02	0639E	0640	0709	N30	W10	.579	15266	1.5	30D	-B	3	V		150	1.8	F	
175 ABST	02 IMP.1 NO CATA1	0716	0721	0726	S26	E75	.965	15280	7.9	10	?F		C	0721	79		DJ	Y5
	02	1040	1048	NO FLARE PATROL														
176 MCMA	02	1050E		1155D	N25	W04	.490	15266	2.2	65D	-N		C	1055	50	.6	E	Y5
177 MCMA	02	1130	1146	1203	S29	W85	.994	15252	26.1	33	-N		C	1146			E	Y5
GRP67178	02	1200	1220+1	1305	N24	W02	.472	15266	2.3	65	-N				100	1.1	E	
MCMA	02	1200	1221	1305	N25	W03	.488	15266	2.3	65	-B		C	1221	90	1.1	E	
KHAR	02	1213E	1220	1230D	N24	W02	.472	15266	2.4	17D	-F		P	1220	110	1.3	E	
179 MCMA	02	1307	1308	1313	S29	W85	.994	15252	26.2	6	-B		C	1308			E	Y5
180 MCMA	02	1330	1340	1355D	N25	W05	.492	15266	2.2	25D	-N		C	1340	40	.5	E	Y5
181 MCMA	02	1420	1424	1429	N16	E72	.961	15282	8.0	9	-F		C	1424	20	.6	D	Y5
182 MCMA	02	1432	1439	1445	S29	W86	.995	15252	26.2	13	-N		C	1439			D	Y5
183 MCMA	02	1610	1612	1615	S27	E72	.952	15280	8.1	5	-B		C	1612	40	1.4	EV1611	Y5
184 MCMA	02	1815	1830	1930	N28	E24	.637	15270	4.6	75	-F		C	1830	60	.8	E	Y5
185 MCMA	02	2003	2012	2045	N15	E68	.940	15282	7.9	42	-N		C	2012	20	.6	D	Y5
186 MCMA	02	2205	2208	2215	N22	E03	.442	15266	3.1	10	-F		C	2208	25	.3	D	Y5
GRP67187	02	2307	2314+1	2332	N26	W07	.513	15266	2.4	25	-N				120	1.4		
VORO	02	2307	2315	2337	N26	W08	.516	15266	2.4	30	-B		C	2315	161	1.9	E	
MANI	02	2314E	2314U	2326	N26	W07	.513	15266	2.4	12D	-N	3	P		80	.9	F	
188 VORO	02	2315	2322	2329	N15	E65	.921	15282	7.8	14	-N		C	2322	81		DH	Y5
189 VORO	02 IMP.1 NO CULG1	2315	2323	2336	S31	W90	.999	15252	26.2	21	?F		C	2323	108		DH	Y5
190 VORO	03	0007	0008	0015	N21	W20	.526	15266	1.5	8	-B		C	0008	125	1.5	E	Y5
GRP67191	03	0118+4	0125+3	0148	S32	W90	.999	15252	26.3	30	1B						H	
VORO	03	0118	0125	0134D	S32	W90	.999	15252	26.3	16D	2N		C	0125	206		H	
MANI	03	0122	0128	0148	S32	W90	.999	15252	26.3	26	1B	3	P					
	03	0331	0352	NO FLARE PATROL														
	03	0355	0418	NO FLARE PATROL														
	03	0450	0500	NO FLARE PATROL														
192 KANZ	03	0625E		0649D	S31	W86	.995	15252	26.8	24D	-F	1						Y5
GRP67193	03	0731E	0815+7 1001	1009D	S31	W86	.995	15252	26.9	158	1F							
KANZ	03	0731E		1045D	S31	W86	.995	15252	26.9	194D	-F	*						
MONT	03	0748E	0822	0931D	S31	W86	.995	15252	26.9	103D	-N		C	0822	110			
CATA	03	0805E	0815	0830D	S36	W90	.999	15252	26.6	25D	2F	2		0815	168			
MONT	03	0957	1001	1009	S31	W86	.995	15252	27.0	12	-N	*	C	1001	50		D	
194 KANZ	03	0842		0930	N15	E58	.870	15282	7.7	48	-F	1						Y5
GRP67195	03	0954>9	1044	1049	N15	E58	.870	15282	7.8	55	-F							
KANZ	03	0954		1045	N15	E58	.870	15282	7.8	51	-F	1						
ZURI	03	1040	1044	1052	N16	E59	.880	15282	7.9	12	-F		C	1044	60	1.3		
196 MCMA	03	1126	1128	1135	S29	W90	.999	15252	26.7	9	-N		C	1128				Y5
197 ZURI	03	1130	1146	1202	N16	E58	.872	15282	7.8	32	-F		C	1146	60	1.3		Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
GRP67198	03	1226+2	1230+0	1242	N22	W27	.603	15266	1.5	16	-F				100	1.3	E	
MCMA	03	1211E		1245D	N29	W28	.676	15266	1.4	340	-N		C	1220	45	.6	E	
ZURI	03	1226	1230	1238	N22	W26	.593	15266	1.6	12	-F		C	1230	100	1.3		
MCMA	03	1228	1230	1242	N22	W27	.603	15266	1.5	14	-N		C	1230	100	1.4	E	
199 MCMA	03	1346	1348	1410	S33	W90	.999	15252	26.8	24	-F		C	1348				Y5
GRP67200	03	1355+5	1412 1418+2	1445	N23	W22	.566	15266	1.9	50	-N				140	1.7	EK	
MCMA	03	1355	1420	1455D	N23	W23	.575	15266	1.9	600	1N		C	1420	160	2.1	EK	
ZURI	03	1400	1412	1430	N25	W16	.543	15266	2.4	30	-N		C	1412	110	1.4		
ZURI	03	1418	1418	1434	N22	W27	.603	15266	1.6	16	-N		C	1418	130	1.7		
201 MCMA	03	1411	1413	1418	N15	E57	.862	15282	7.9	7	-N		C	1413	30	.6	D	Y5
GRP67202	03	1435+1	1441+1	1448	S31	W90	.999	15252	26.9	13	-F							
MCMA	03	1435	1442	1447	S32	W90	.999	15252	26.9	12	-F		C	1442				
KANZ	03	1436	1441	1448	S31	W90	.999	15252	26.9	12	-F	1						
GRP67203	03	1500+4	1505+5	1655D	N21	W33	.654	15266	1.2	115	-N				80	1.0	EK	
KANZ	03	1500	1506	1529D	N21	W33	.654	15266	1.2	290	-N	2						
MCMA	03	1500	1505	1655D	N20	W33	.647	15266	1.2	1150	-N		C	1505	80	1.1	EK	
ZURI	03	1504	1510	1512D	N21	W33	.654	15266	1.2	80	-N		P	1510	90	1.3		
204 MCMA	03	1628	1628	1639	N24	W18	.545	15266	2.3	11	-N		C	1628	20	.3	D	Y5
GRP67205	03	1654+1	1700+3	1735	N29	W31	.700	15266	1.4	41	1B						F	
KANZ	03	1654	1703	1710D	N29	W31	.700	15266	1.4	160	1B	2						
MCMA	03	1655	1700	1735	N29	W31	.700	15266	1.4	40	1B		C	1700	250	3.6	F	
206 MCMA	03	1815	1820	1842	N25	W25	.613	15266	1.9	27	-N		C	1820	60	.8	D	Y5
207 MCMA	03	1847	1855	2015D	N23	W27	.612	15266	1.8	88D	-N		C	1855	110	1.4	FK	Y5
208 MCMA	03	2020	2023	2056	N26	W20	.584	15266	2.3	36	-B		C	2023	120	1.5	E	Y5
209 MANI	03	2243E	2243	2252	N20	W40	.720	15266	30.9	9D	-F	3	V		20	.3		Y5
210 MANI	03	2243E	2244	2302	N24	W20	.561	15266	2.4	19D	-N	3	V		80	1.0	F	Y5
GRP67211	04	0140>9	0150+2	0209	N24	W23	.584	15266	2.3	29	1N				280	3.4		
VORO	04	0140	0150	0220	N24	W24	.593	15266	2.3	40	1N		C	0150	305	3.8	E	
MANI	04	0150	0152	0158	N25	W23	.595	15266	2.4	8	1N	3	V		250	3.2	F	
212 MANI	04 IMP+1 NO	0259	0302	0309D CULG1 PALE1	N20	W40	.719	15266	1.1	10D	?N	3	V		150	2.2	F	Y5
GRP67213	04	0637	0640+2	0708	N21	W24	.563	15266	2.5	31	1N							
ABST	04	0637	0640	0708	N21	W24	.563	15266	2.5	31	1F		C	0640	262	3.3	E	
MANI	04	0638E	0642	0705D	N20	W27	.583	15266	2.3	27D	-N	3	V		150	1.9	F	
BUCA	04	0639E		0655D	N21	W24	.563	15266	2.5	16D	1N		C	0640	429	5.1	C	
214 MONT	04	0952E	1003	1027	N20	W43	.749	15266	1.2	35D	-N		C	1003	110		E	Y5
215 CATA	04	0955E	1000	1005	N23	W24	.583	15266	2.6	10D	-N	2		1000	84	1.0		Y5
216 KIEV	04	1206	1212	1240	N22	W48	.805	15266	30.9	34	-F		C	1212	100	1.7	DI	Y5
217 KANZ	04	1233	1245	1304	N18	E47	.780	15282	8.0	31	-F	1						Y5
GRP67218	04	1250>9	1258 1309+2	1337	N27	W30	.674	15266	2.3	47	1N						EI	
KIEV	04	1250	1258	1320	N29	W29	.683	15266	2.4	30	-F		C	1258	150	2.0	EI	
KANZ	04	1258	1309	1337	N27	W30	.674	15266	2.3	39	1B	2					F	
LVOV	04	1304	1311	1347	N27	W30	.674	15266	2.3	43	1F		C	1311	150	2.1	E	
219 KANZ	04	1258	1307	1325	N19	W51	.821	15266	30.7	27	-N	1						Y5
	04	1510	1529	NO FLARE PATROL														
220 KANZ	04	1541	1546	1552	N19	E43	.744	15282	7.9	11	-B	1					E	Y5
221 KANZ	04	1616	1623	1638	N19	W54	.846	15266	30.6	22	-N	1						Y5
	05	0015	0022	NO FLARE PATROL														
	05	0105	0110	NO FLARE PATROL														

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE MAY	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
222 MANI	05	0338	0344	0401D	N18	W60	.891	15266	30.7	23D	-F	3	P		40	.8		Y5
223 ABST	05	0547E	0548	0554D	N15	E36	.647	15282	7.9	7D	-F		P	0548	87	1.2	DJ	Y5
224 CATA	05	0915E	0915	0930D	N20	E90	1.000	15291	12.1	15D	?N	2		0915	84			Y5
	IMP.1 NO : ZURI2																	
225 ZURI	05	1028	1030	1032D	N28	W54	.873	15266	1.4	4D	1B		P	1030	290	6.0		Y5
	05	1045	1053	NO FLARE PATROL														
	05	1419	1433	NO FLARE PATROL														
	05	1445	1446	NO FLARE PATROL														
	05	1454	1455	NO FLARE PATROL														
226 ZURI	05	1537	1539	1547D	N18	W64	.918	15266	30.9	10D	1F		P	1539	160			Y5
	05	1547	1657	NO FLARE PATROL														
	05	1843	1924	NO FLARE PATROL														
	05	2045	2117	NO FLARE PATROL														
227 VORO	05	2138	2142	2147	N20	W77	.982	15266	30.1	9	-B		C	2142	54		HJ	Y5
228 VORO	05	2159	2206	2218	N29	W61	.920	15266	1.3	19	?B		C	2206	116	2.9	EHJ	Y5
	IMP.1 NO : CULG1																	
229 VORO	05	2224	2225	2230	N17	E85	.998	15291	12.3	6	-N		C	2225	27		DH	Y5
	06	0149	0221	NO FLARE PATROL														
	06	0223	0229	NO FLARE PATROL														
	06	0231	0305	NO FLARE PATROL														
230 KHAR	06	0953E		0958D	N23	W50	.825	15266	2.7	5D	-F		P	0954			DH	Y5
231 KHAR	06	1005E		1011D	N19	W85	.998	15266	30.0	6D	-F		P	1005			D	Y5
	06	1032	1040	NO FLARE PATROL														
232 RAMY	06	1140E	1146	1208D	N15	W80	.989	15266	30.5	28D	-N	3	C		35			Y5
233 RAMY	06	1214	1215	1225	S28	E26	.569	15280	8.5	11	-N	3	C		36		H	Y5
GRP67234	06	1225	1256 1310	1407	N18	W49	.798	15266	2.8	102	-B							
RAMY	06	1225	1256	1407	N18	W49	.798	15266	2.8	102	-F	3	C		39			
RAMY	06	1225	1310	1407	N18	W49	.798	15266	2.8	102	-B	3	C		44			
GRP67235	06	1255	1300 1306	1441	N16	W85	.998	15266	30.2	106	-B							
RAMY	06	1255	1306	1441	N15	W80	.989	15266	30.5	106	-B	3	C		39			
RAMY	06	1255	1300	1441	N15	W80	.989	15266	30.5	106	-F	3	C		53			
KHAR	06	1400E		1425D	N17	W90	1.000	15266	29.8	25D	1N		V					
236 RAMY	06	1501	1514	1520	N16	W78	.983	15266	30.8	19	-B	3	C		49			Y5
237 RAMY	06	1535	1543	1551	N19	W71	.958	15266	1.3	16	-B	3	C		27			Y5
	06	1607	1614	NO FLARE PATROL														
238 PALE	06	1638E	1644	1656	N16	W71	.956	15266	1.4	18D	-N	3	C		26		DE	Y5
GRP67239	06	1643+2	1645+2	1700	N19	W53	.837	15266	2.7	17	-N				40	.7		
RAMY	06	1643	1645	1658	N20	W51	.823	15266	2.9	15	-N	3	C		38		F	
PALE	06	1645	1647	1702	N19	W56	.862	15266	2.5	17	-B	3	C		43		DE	
240 RAMY	06	1702	1705	1713	N16	W78	.983	15266	30.9	11	-B	3	C		23			Y5
241 PALE	06	1738	1800	1826	N20	W57	.872	15266	2.5	48	-B	3	C		88		DE	Y5
242 RAMY	06	1739	1742U	1752	N17	W78	.984	15266	30.9	13	?B	3	C					Y5
	IMP.1 NO : PALE1																	
	06	1833	2230	NO FLARE PATROL														
	07	0312	0325	NO FLARE PATROL														
GRP67243	07	0327		0353	N23	W72	.966	15266	1.7	26	1N						FLOZ	
TACH	07	0327		0350	N22	W77	.983	15266	1.4	23	1N		V	0327	115		OL	
MANI	07	0336E	0336U	0355	N24	W68	.949	15266	2.1	19D	2N	3	P		250	5.6	FZ	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
244 CATA	07	0835	0835	0840	N17	W90	1.000	15266	30.6	5	-N	2		0835	28			Y5
GRP67245	07	0903>9	0915 0947+3	0955	N15	W90	1.000	15266	30.6	52	1N						H	
KHAR	07	0903E		0953D	N19	W90	1.000	15266	30.6	50D	1F		P	0935			H	
CATA	07	0915	0915	0935D	N16	W90	1.000	15266	30.6	20D	1N	2		0915	67			
KHAR	07	0943E	0947	0953D	N14	W90	1.000	15266	30.7	10D	-N		P					
CATA	07	0945E	0950	0955	N13	W90	1.000	15266	30.7	10D	1F	2		0950	56			
246 KHAR	07	0937E	0939	0947D	N30	W85	.999	15266	1.0	10D	-F		P	0939			DH	Y5
247 KHAR	07	1125E	1133	1143D	N18	W89	1.000	15266	30.8	18D	1F		P					Y5
	07	1222	1230	NO FLARE PATROL														
248 RAMY	07	1237	1241	1307	N18	W81	.992	15266	1.5	30	-B	3	C					Y5
249 RAMY	07	1318	1326	1346	N19	W67	.937	15266	2.5	28	-B	4	C		27			Y5
250 RAMY	07	1405	1413	1418	N19	W68	.943	15266	2.5	13	-B	4	C		21			Y5
251 RAMY	07	1425	1429	1433	N19	W68	.943	15266	2.5	8	-B	4	C		22			Y5
GRP67252	07	1435+2	1436+4	1445	N19	W88	1.000	15266	1.0	10	-N							
RAMY	07	1435	1439	1441	N18	W84	.997	15266	1.3	6	-E	4	C					
MCMA	07	1436	1436	1445	N20	W90	1.000	15266	30.9	9	-F		C	1436				
KANZ	07	1437	1440	1447	N19	W88	1.000	15266	1.0	10	-N	1						
GRP67253	07	1455+0	1459+2	1504	N22	W90	1.000	15266	30.9	9	-N							
KANZ	07	1455	1459	1503	N21	W90	1.000	15266	30.9	8	-B	1						
MCMA	07	1455	1501	1504	N24	W90	1.000	15266	30.9	9	-F		C	1501				
GRP67254	07	1510+2	1514	1522D	N22	W69	.951	15266	2.5	12	-N						D	
KANZ	07	1510	1513	1513D	N22	W69	.951	15266	2.5	3D	-N	1					D	
MCMA	07	1512	1514	1522D	N22	W70	.956	15266	2.4	10D	-N		C	1514			D	
255 RAMY	07	1531	1532	1539	N25	W80	.991	15266	1.6	8	-B	4	C					Y5
GRP67256	07	1544+8	1552 1612	1626	N20	W68	.944	15266	2.6	42	1N						EK	
RAMY	07	1544	1612	1627	N18	W66	.930	15266	2.7	43	1B	4	C		247		FDE	
RAMY	07	1544	1552	1627	N18	W66	.930	15266	2.7	43	-B	4	C		102		FDE	
MCMA	07	1552		1625	N22	W70	.956	15266	2.4	33	1N		P	1611	60	2.2	EK	
257 PALE	07	2124E	2126U	2128D	N17	W87	.999	15266	1.4	4D	-B	3	C				DE	Y5
258 PALE	07	2228	2229	2240	N21	W72	.964	15266	2.5	12	-N	3	C		39		F	Y5
	08	0052	0058	NO FLARE PATROL														
GRP67259	08	0752+1	0806+6	0823	N16	W06	.348	15282	7.9	31	-N				130	1.4	E	
MONT	08	0752	0812	0829	N16	W06	.348	15282	7.9	37	-N		C	0812	80		E	
KANZ	08	0753	0809	0823	N16	W06	.348	15282	7.9	30	-B	1						
ABST	08	0804	0806	0808D	N16	W07	.353	15282	7.8	4D	-N		P	0806	175	1.9	E	
TEHR	08	0809E	0810	0822	N17	W07	.368	15282	7.8	14D	-B	2	C		127		F	
GRP67260	08	1212+0	1216+0 1248	1312	N22	W76	.980	15266	2.8	60	1B						F	
RAMY	08	1212	1248U	1312	N22	W76	.980	15266	2.8	60	2B	4	C		115		F	
RAMY	08	1212	1216	1217D	N22	W76	.980	15266	2.8	5D	-B	4	V		45			
RAMY	08	1212	1216U	1312	N22	W76	.980	15266	2.8	60	-B	4	C		45		F	
GRP67261	08	1441	1447+1 1454	1502	N16	E44	.739	15291	11.9	21	-B						F	
RAMY	08	1441	1447	1502	N16	E46	.760	15291	12.1	21	-B	4	C		32		F	
RAMY	08	1441	1448	1502	N16	E43	.728	15291	11.8	21	-B	3	C		32			
RAMY	08	1441	1454	1502	N16	E43	.728	15291	11.8	21	-F	3	C		10			
GRP67262	08	1739	1741	1750	N17	E56	.857	15291	12.9	11	-B				60	1.1		
RAMY	08	1739	1741	1752	N18	E57	.867	15291	13.0	13	-B	3	C		63			
PALE	08	1744E	1744U	1748	N16	E55	.846	15291	12.9	4D	-B	3	C		58		DE	
263 PALE	08	2044E	2044U	2101D	N16	E53	.828	15291	12.8	17D	-B	3	C		30		DE	Y5
	09	0105	0128	NO FLARE PATROL														
	09	0140	0150	NO FLARE PATROL														

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	MAY																
264 ABST	09	0747	0750	0759	N16	E36	.650	15291	12.0	12	-F		C	0750	96	1.2	D Y5
GRP67265	09	0935>9	1010	1035	N24	W90	1.000	15266	2.6	60	-F						
KHAR	09	0935E		1020D	N24	W90	1.000	15266	2.6	45D	1F		V				
CATA	09	1005	1010	1035	N24	W90	1.000	15266	2.7	30	-F	2		1010	28		
GRP67266	09	1442+0	1442+1	1509	N21	W90	1.000	15266	2.9	27	1N						
RAMY	09	1442	1443	1508	N22	W90	1.000	15266	2.9	26	1B	4	C				
HERS	09	1442E	1442	1510	N21	W90	1.000	15266	2.9	28D	1N		P				
	10	0417	0423	NO FLARE PATROL													
	10	1057	1101	NO FLARE PATROL													
	10	1205	1335	NO FLARE PATROL													
	10	1339	1347	NO FLARE PATROL													
	10	1359	1419	NO FLARE PATROL													
	10	1436	1542	NO FLARE PATROL													
	10	1558	1622	NO FLARE PATROL													
	10	1625	1639	NO FLARE PATROL													
	10	2113	2157	NO FLARE PATROL													
GRP67267	10	2157+0	2204+0 2210+5	2240	N19	E40	.709	15294	13.9	43	1B				220	3.1	U
PALE	10	2157E	2204U	2245D	N20	E40	.715	15294	13.9	48D	1B	3	C		216		U F
PALE	10	2157	2204U	2207D	N19	E43	.741	15294	14.1	10D	1B	3	V		216		FDE
PALE	10	2157E	2215U	2245D	N20	E40	.715	15294	13.9	48D	1N	3	C		221		U F
MANI	10	2210E	2210U	2235	N17	E38	.677	15294	13.8	25D	1F	3	V		150	2.1	U
	10	2159	2204	NO FLARE PATROL													
	10	2206	2210	NO FLARE PATROL													
	11	0045	0050	NO FLARE PATROL													
GRP67268	11	0249+0	0251+0 0300+0	0328	N20	E38	.693	15294	14.0	39	2B				510	7.0	FU
PALE	11	0249	0309	0338	N20	E38	.693	15294	14.0	49	1F	3	C		314		U F
PALE	11	0249	0251	0338	N20	E38	.693	15294	14.0	49	-B	3	C		120		UF
PALE	11	0249	0251	0258D	N20	E38	.693	15294	14.0	9D	-B	3	V		120		U F
TEHR	11	0254E	0300	0318	N20	E38	.693	15294	14.0	24D	1B	1	C		509		U F
TEHR	11	0254E	0300	0305D	N20	E38	.693	15294	14.0	11D	1B	1	V		509		U F
	11	1527	1721	NO FLARE PATROL													
269 RAMY	11	1532	1533	1538	N17	E13	.405	15291	12.6	6	-N	3	C		40		F Y5
	11	1731	2021	NO FLARE PATROL													
GRP67270	11	2114+1	2116+2 2135	2143	N19	E31	.611	15294	14.2	29	-B				70	.9	EGJ
PALE	11	2114	2116	2142	N19	E30	.600	15294	14.1	28	-B	3	C		51		DE
VORO	11	2115	2118	2124	N20	E34	.651	15294	14.4	9	-B		C	2118	99	1.3	EG
VORO	11	2131	2135	2143	N18	E32	.615	15294	14.3	12	-N		C	2135	99	1.2	EGJ
GRP67271	11	2145+2	2153+1	2204	N19	E31	.611	15294	14.2	19	-N				70	.9	EG
PALE	11	2145	2153	2204	N19	E29	.589	15294	14.1	19	-N	3	C		57		DE
VORO	11	2147	2154	2204	N20	E34	.651	15294	14.5	17	-N		C	2154	81	1.0	EG
GRP67272	11	2330+0	2333+2	0001	N20	W01	.393	15291	11.9	31	1B				380	4.1	J
MANI	11	2330E	2335	2350	N18	W04	.366	15291	11.7	20D	1N	3	P		200	2.2	FE
VORO	11	2330	2333	0001	N19	E01	.377	15291	12.1	31	1N		C	2333	421	4.6	EJ
PALE	11	2330	2334	2341D	N20	W01	.393	15291	11.9	11D	1B	3	C		413		FDE
PALE	11	2330	2334	2341D	N20	W01	.393	15291	11.9	11D	1B	3	V		413		FDE
MITK	11	2339	.	0015	N20	E00	.393	15291	12.0	36	1B		P	2339	310	3.5	E
	12	0120	0121	NO FLARE PATROL													
	12	0123	0136	NO FLARE PATROL													
	12	0138	0147	NO FLARE PATROL													
273 ABST	12	0651	0657	0702	S31	W02	.470	15293	12.1	11	-F		C	0657	175	2.0	DG Y5
	12	1300	1301	NO FLARE PATROL													
274 RAMY	12	1851	1852	1852D	N23	E18	.521	15294	14.1	1D	-B	2	C		44		F Y5
	13	0130	0147	NO FLARE PATROL													

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
GRP67275	13	0742+1	0744 0751	0843	S28	W70	.946	15280	8.1	61	1B						F	
MANI	13	0742	0744	0747D	S26	W73	.959	15280	7.8	5D	-N	3	P		80	1.8		
TEHR	13	0743	0751	0841	S28	W70	.946	15280	8.1	58	1B	1	C		350		F	
CATA	13	0745E	0745	0845D	S30	W64	.915	15280	8.5	60D	1B	2		0745	224			
276 TEHR	13 IMP.1	0743 NO	0751 CATA1	0806D	N22	E60	.896	15298	17.3	23D	1B	1	V		350		F	Y5
277 CATA	13	0805	0805	0820	N19	E09	.401	15294	14.0	15	-B	2		0805	84	.9		Y5
278 CATA	13	0910	0920	0950D	N16	E42	.715		16.5	40D	-B	2		0920	56	.8		Y5
279 RAMY	13	1118	1137	1212D	N22	E57	.874	15298	17.7	54D	-N	3	C		26			Y5
280 RAMY	13	1307	1308	1317	S19	E16	.382	15296	14.7	10	-B	3	C		21			Y5
281 RAMY	13	1836	1838	1840	N13	W21	.442	15291	12.2	4	-N	3	C		61			Y5
282 PALE	13	2057	2138	2231D	N22	E55	.859	15298	18.0	94D	-N	3	C		31		DE	Y5
283 PALE	14	0001	0038	0055	N22	E52	.834	15298	17.9	54	-B	3	C		40		DE	Y5
GRP67284	14	1116+0	1117+1 1138	1144	N18	E68	.940	15300	19.6	28	1N				100		F	
RAMY	14	1116	1117	1152	N19	E70	.952	15300	19.7	36	1N	3	C		110		F	
RAMY	14	1116	1117	1124D	N19	E70	.952	15300	19.7	8D	1N	3	V		110		F	
RAMY	14	1116	1138	1152	N19	E70	.952	15300	19.7	36	-F	3	C		30		F	
TEHR	14	1117E	1118	1135	N18	E67	.934	15300	19.5	18D	-B	2	C		96		F	
TEHR	14	1117E	1118	1122D	N18	E67	.934	15300	19.5	5D	-B	2	V		96		F	
GRP67285	14	1129+2	1131+2	1150	S18	E09	.302	15296	15.2	21	-B				130	1.4	F	
RAMY	14	1129	1131	1150	S20	E04	.303	15296	14.8	21	-B	3	C		53		F	
TEHR	14	1131	1133	1149	S18	E09	.302	15296	15.2	18	-B	2	C		127		F	
TEHR	14	1131	1133	1137D	S18	E09	.302	15296	15.2	6D	-B	2	V		127		F	
GRP67286	14	1251+3	1253+3	1304	N20	E43	.743	15298	17.8	13	-N				120	1.8	F	
RAMY	14	1251	1253	1303	N20	E45	.763	15298	17.9	12	-B	3	C		80		F	
TEHR	14	1254	1256	1304	N21	E41	.727	15298	17.6	10	-N	2	C		159		F	
287 RAMY	14	1354E	1355	1402	S28	W82	.989	15280	8.4	8D	-B	3	C				F	Y5
GRP67288	14	1611+0	1612+1	1623	S20	E01	.296	15296	14.7	12	-B				70	.7	F	
RAMY	14	1611	1612	1623	S20	E01	.296	15296	14.7	12	-B	3	C		82		F	
RAMY	14	1611	1613	1617D	S20	E01	.296	15296	14.7	6D	-B	3	V		58		F	
GRP67289	14	2139+1	2141+0	2154	S26	E59	.875	15301	19.3	15	-B				50	1.1	FU	
PALE	14	2139	2141	2155D	S27	E60	.884	15301	19.4	16D	-B	3	C		35		U F	
RAMY	14	2140	2141	2152	S26	E58	.868	15301	19.3	12	-B	3	C		56		F	
	15	0802	0844	NO FLARE PATROL														
	15	0847	1003	NO FLARE PATROL														
	15	1008	2215	NO FLARE PATROL														
290 RAMY	15	1606	1610	1618	N21	E33	.644	15298	18.1	12	-B	4	C		62		F	Y5
291 PALE	15	2220	2227	2234	S27	E46	.769	15301	19.4	14	-B	3	C		50		FDE	Y5
292 VORO	15	2317	2321	2329	N22	E29	.610	15298	18.1	12	-N		C	2321	125	1.6	E	Y5
293 VORO	16	0057	0057	0100	N22	E27	.588	15298	18.1	3	-N		C	0057	63	.7	D	Y5
GRP67294	16	0215+3	0228	0239	N23	E56	.868	15300	20.3	24	-F				90	1.8	J	
MITK	16	0215		0239D	N24	E57	.878	15300	20.4	24D	-F		C	0228	70			
VORO	16	0218	0228	0239	N23	E55	.860	15300	20.2	21	1F		C	0228	116	2.2	J	
GRP67295	16	0446+8	0447 0457	0504	S18	W19	.410	15296	14.8	18	1N						E	
TACH	16	0446	0447	0505	S19	W18	.408	15296	14.8	19	1N		C	0447	220	2.5	E	
TEHR	16	0454	0457	0502	S18	W20	.422	15296	14.7	8	1B	2	C		222			
296 ABST	16	0524E	0526	0542D	N23	E80	.990		22.2	18D	-F		P	0526	87		AD	Y5
297 ZURI	16	1029E	1029	1035D	S19	W21	.443	15296	14.9	6D	-F		P	1029	80	.9		Y5
	16	1045	1047	NO FLARE PATROL														

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg		
	MAY																	
298 RAMY	16	1234	1240	1254	S20	W23	.476	15296	14.8	20	-B	4	C		94			Y5
GRP67299	16	1607>9	1625>9 1640	1704	N16	W56	.851	15291	12.5	57	1B				230	4.4		
KANZ	16	1607	1625	1658	N18	W58	.872	15291	12.3	51	1B	2						
KANZ	16	1607	1640	1658	N18	W58	.872	15291	12.3	51	1N	2						
RAMY	16	1626E	1630U	1656D	N15	W56	.849	15291	12.5	300	1B	3	C		301			
RAMY	16	1626	1630U	1632D	N15	W56	.849	15291	12.5	6D	1B	3	V		301			
PALE	16	1634E	1635U	1642D	N16	W56	.851	15291	12.5	8D	1B	3	V		159		FDE	
PALE	16	1634E	1635U	1710	N16	W56	.851	15291	12.5	36D	1B	3	C		159		FDE	
GRP67300	16	1706+0	1708+1	1721	N19	E18	.468	15298	18.1	15	-N						FU	
KANZ	16	1706	1709	1719	N19	E18	.468	15298	18.1	13	-N	1						
PALE	16	1706	1708	1722	N19	E19	.478	15298	18.1	16	-N	3	C		61		U F	
	16	1728	1846	NO FLARE PATROL														
GRP67301	16	1758+0	1801+6	1836	N20	E15	.453	15298	17.9	38	-N				110	1.2		
PALE	16	1758	1801	1836	N20	E15	.453	15298	17.9	38	-B	3	C		124		FDE	
PALE	16	1758	1807	1836	N20	E15	.453	15298	17.9	38	-F	3	V		112			
GRP67302	16	1852+6	1858+3 1908	1910	S20	W27	.524	15296	14.8	18	-N				50	.6	E	
MCMA	16	1852	1908	1915D	S19	W28	.529	15296	14.7	23D	-F		C	1908	60	.7	E	
PALE	16	1856	1858	1910	S21	W27	.531	15296	14.8	14	-N	3	C		36		DE	
RAMY	16	1858	1901	1909	S20	W26	.512	15296	14.8	11	-E	3	C		67			
	16	1915	2025	NO FLARE PATROL														
303 MCMA	16	2025E		2026D	N26	E17	.544	15298	18.1	1D	-F		P	2026	40	.5	E	Y5
	16	2026	2213	NO FLARE PATROL														
304 MANI	16	2300E	2302	2309D	S21	W27	.531	15296	14.9	9D	-N	3	V		150	1.8		Y5
	17	0114	0123	NO FLARE PATROL														
	17	0127	0129	NO FLARE PATROL														
	17	0150	0208	NO FLARE PATROL														
	17	0210	0240	NO FLARE PATROL														
	17	1147	1203	NO FLARE PATROL														
GRP67305	17	1233	1237 1327	1342	S26	W84	.994	15292	11.2	69	-B							
RAMY	17	1233	1237	1342	S26	W84	.994	15292	11.2	69	-B	4	C		24			
RAMY	17	1233	1327	1342	S26	W84	.994	15292	11.2	69	-F	4	C		7			
	17	1426	1433	NO FLARE PATROL														
306 MCMA	17	1434		1439D	S18	W38	.648	15296	14.8	5D	-F		C	1438	15	.2	DL	Y5
GRP67307	17	1450	1454	1511	S15	W39	.649	15296	14.7	21	-F				60	.8	EL	
ZURI	17	1450	1454	1458	S13	W41	.668	15296	14.5	8	-F		C	1454	70	1.0		
MCMA	17	1453E		1523D	S18	W38	.648	15296	14.8	30D	-N		P	1454	50	.7	EL	
GRP67308	17	1504+0	1505+1	1519	S26	E20	.506	15301	19.1	15	-N				60	.7	E	
ZURI	17	1504	1506	1512D	S27	E15	.476	15301	18.8	8D	-F		P	1506	90	1.1		
RAMY	17	1504	1505	1514	S26	E20	.506	15301	19.1	10	-B	4	C		36			
MCMA	17	1507E		1523D	S24	E20	.484	15301	19.1	16D	-N		P	1508	50	.6	E	
309 RAMY	17	1505	1507	1513	S26	W85	.995	15292	11.3	8	-N	4	C		9			Y5
310 RAMY	17	1521	1522	1527	S26	W85	.995	15292	11.3	6	-B	4	C		9			Y5
	17	1523	1535	NO FLARE PATROL														
	17	1537	1557	NO FLARE PATROL														
	17	1715	1724	NO FLARE PATROL														
	17	1732	1748	NO FLARE PATROL														
	17	1750	1853	NO FLARE PATROL														
	17	1916	1925	NO FLARE PATROL														
	17	1926	1950	NO FLARE PATROL														
	17	2000	2010	NO FLARE PATROL														
	17	2013	2216	NO FLARE PATROL														
311 RAMY	17	2056	2057	2101D	N16	W70	.949	15291	12.6	5D	-N	3	C					Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
GRP67312	17	2118+0	2126+0	2135D	N19	W01	.366	15298	17.8	17	-B				80	.9	F	
RAMY	17	2118	2126	2135D	N19	W01	.366	15298	17.8	17D	-B	3	V		81		F	
RAMY	17	2118	2126	2135D	N19	W01	.366	15298	17.8	17D	-B	3	C		81		F	
	17	2334	2344	NO FLARE PATROL														
	18	0050	0101	NO FLARE PATROL														
	18	0109	0117	NO FLARE PATROL														
	18	0138	0211	NO FLARE PATROL														
	18	0242	0259	NO FLARE PATROL														
	18	0341	0400	NO FLARE PATROL														
	18	0604	0607	NO FLARE PATROL														
313 ABST	18	0623E	0626	0627D	S27	E15	.478	15301	19.4	4D	-N		P	0626	61	.7	E	Y5
314 KANZ	18	1024	1031	1046	S18	W48	.761	15296	14.8	22	-F	1						Y5
	18	1100	1159	NO FLARE PATROL														
315 MCMA	18	1159E		1213D	N18	E33	.620	15300	21.0	14D	-F		P	1159	60	.8		Y5
	18	1300	1316	NO FLARE PATROL														
	18	1515	1529	NO FLARE PATROL														
	18	1712	1720	NO FLARE PATROL														
316 MCMA	18	1754E		1840D	N20	W01	.381	15298	18.7	46D	-N		C	1755	110	1.2	E	Y5
	18	1844	1952	NO FLARE PATROL														
	18	2105	0020	NO FLARE PATROL														
	19	0035	0059	NO FLARE PATROL														
	19	0132	0145	NO FLARE PATROL														
	19	0152	0157	NO FLARE PATROL														
	19	0343	0348	NO FLARE PATROL														
	19	0443	0501	NO FLARE PATROL														
	19	0513	0516	NO FLARE PATROL														
317 KANZ	19	0813	0821	0821D	S24	W60	.881	15296	14.8	8D	-B	1						Y5
318 MONT	19	1002	1011	1021	S29	E03	.453	15301	19.6	19	-N		C	1011	110			Y5
GRP67319	19	1028	1034+1	1050	S24	W62	.896	15296	14.8	22	-N				60	1.4	D	
MONT	19	1028	1034	1043	S24	W64	.909	15296	14.6	15	-N		C	1034	50		D	
ATHN	19	1030E	1035	1050D	S25	W60	.883	15296	14.9	20D	-B	1		1035	66	1.2		
MCMA	19	1037E		1054	S24	W62	.896	15296	14.8	17D	-N		P	1037	60	1.5	D	
320 MCMA	19	1120E		1145D	N20	E20	.495	15300	21.0	25D	-F		C	1125	55	.6	E	Y5
GRP67321	19	1220+0	1221+2	1228	S25	W62	.897	15296	14.9	8	-B				20	.5		
RAMY	19	1220	1221	1223D	S25	W62	.897	15296	14.9	3D	-B	3	V		21			
RAMY	19	1220	1221	1227	S25	W62	.897	15296	14.9	7	-B	3	C		21			
TEHR	19	1222E	1223	1229	S23	W60	.880	15296	15.0	7D	-B	2	C		32			
322 MCMA	19	1328	1334	1343D	S24	W64	.909	15296	14.8	15D	-N		C	1334	45	1.2	E	Y5
	19	1434	1453	NO FLARE PATROL														
	19	1505	1517	NO FLARE PATROL														
323 MCMA	19	1517E		1600D	N21	E04	.400	15300	19.9	43D	1F		C	1518	220	2.4	E	Y5
324 MCMA	19	1532	1542	1555	S24	W67	.928	15296	14.6	23	-F		C	1542	30	1.0	D	Y5
325 MCMA	19	1720	1726	1740	S28	E03	.437	15301	19.9	20	-F		C	1726	50	.6	E	Y5
326 MCMA	19	1842	1856	1918	S24	W67	.928	15296	14.8	36	-N		C	1856	60	1.8	E	Y5
	19	1955	2030	NO FLARE PATROL														
	19	2103	2300	NO FLARE PATROL														
327 MANI	19	2343E	2343U	2355	S21	W76	.971	15296	14.3	12D	2N	2	P		400	9.7	Z	Y5
	20	0213	0225	NO FLARE PATROL														
328 MANI	20	0226	0236	0240	S25	W70	.946	15296	14.9	14	1N	3	P		150	3.3		Y5
	20	0259	0317	NO FLARE PATROL														
	20	0319	0335	NO FLARE PATROL														
	20	0400	0515	NO FLARE PATROL														

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	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY			COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY									MIN.								
329 KANZ	20	0806E		0812D	S22	W72	.954	15296	14.9	6D	-B	1						Y5
330 KHAR	20	0841E	0845	0900D	S23	W78	.979	15296	14.5	19D	-F		P	0841			DT	Y5
GRP67331	20	0910E	0910	0916	S24	W76	.972	15296	14.7	6	-F						D	
CATA	20	0910E	0910	0915	S24	W75	.968	15296	14.8	5D	-N	2		0910	56			
KHAR	20	0910E		0917D	S24	W78	.979	15296	14.5	7D	-F		P	0912			DT	
GRP67332	20	0950+3	1007+3	1054D	S24	W78	.979	15296	14.6	64	-N						D	
KANZ	20	0950	1008	1122D	S23	W76	.972	15296	14.7	92D	-N	1						
MONT	20	0953	1007	1012	S24	W78	.979	15296	14.6	19	-N		C	1007	50		D	
KHAR	20	0955E	1010	1013D	S24	W78	.979	15296	14.6	18D	-F		P	1010			DT	
KANZ	20	1009		1122D	S23	W76	.972	15296	14.7	74D	-F	1						
KHAR	20	1033E		1054D	S24	W78	.979	15296	14.6	21D	-F		P	1041			DT	
GRP67333	20	1120+8	1123 1130	1135	S24	W78	.979	15296	14.6	15	-N						D	
KHAR	20	1120E	1123	1130D	S24	W79	.982	15296	14.5	10D	-F		P				DT	
RAMY	20	1128	1130	1135	S24	W78	.979	15296	14.6	7	-B	3	C		13			
GRP67334	20	1143+5	1151+3	1210	S23	W78	.979	15296	14.6	27	-N				40		K	
KHAR	20	1143E		1206D	S23	W79	.982	15296	14.6	22D	-F		P				DT	
LVOV	20	1148	1151	1209	S22	W83	.992	15296	14.3	21	-F		C	1151	50		DK	
RAMY	20	1148	1151	1210	S24	W78	.979	15296	14.6	22	-B	3	C		16		F	
RAMY	20	1148	1151	1153D	S25	W76	.972	15296	14.8	5D	-B	3	V		16		F	
TEHR	20	1153E	1154	1157D	S23	W75	.968	15296	14.9	4D	-B	2	V		64			
	20	1353	1356	NO FLARE PATROL														
GRP67335	20	1455+1	1457+1	1504	S23	W80	.985	15296	14.6	9	-N						DK	
LVOV	20	1455	1458	1508	S22	W83	.992	15296	14.4	13	1F		C	1458	100		DK	
RAMY	20	1456	1457	1459	S24	W78	.979	15296	14.8	3	-N	3	C		22			
336 RAMY	20	1602	1604	1607	S24	W79	.982	15296	14.7	5	-N	3	C		17			Y5
	20	1610	2233	NO FLARE PATROL														
337 RAMY	20	1610	1612	1617	S24	W79	.982	15296	14.7	7	-N	3	C		23			Y5
338 RAMY	20	1807	1809	1812	S25	W79	.982	15296	14.8	5	-B	3	C		21			Y5
	20	2238	2240	NO FLARE PATROL														
339 VORO	21	0108	0110	0115	N18	E90	1.000	15314	27.8	7	-F		C	0110	45		DH	Y5
340 KHAR	21	0944E		1010D	N16	E90	1.000	15314	28.2	26D	1F		P					Y5
341 KHAR	21	0946E		1002D	S23	W90	1.000	15296	14.7	16D	-F		P					Y5
	21	1100	1136	NO FLARE PATROL														
342 KHAR	21	1137E		1223D	N16	E90	1.000	15314	28.2	46D	-F		P					Y5
343 KHAR	21	1137E		1147D	S23	W90	1.000	15296	14.7	10D	-F	*	P					Y5
344 RAMY	21	1235	1238	1245	N25	W90	1.000	15294	14.8	10	-B	4	C					Y5
345 RAMY	21	1250	1251	1254	N17	E81	.990	15314	27.6	4	-N	*	C					Y5
346 KHAR	21	1250E		1258D	N17	W89	1.000	15294	14.9		-F		P				O	Y5
347 RAMY	21	1316	1317	1319	N17	E81	.990	15314	27.6	3	-N	4	C					Y5
348 MCMA	21	1507E		1527D	N17	W10	.365	15300	20.9	20D	-N		C	1515	30	.3	EH	Y5
349 MCMA	21	1614		1640	S29	W22	.562	15301	20.0	26	-N		C	1625	50	.6	E	Y5
350 RAMY	21	1636E	1636	1653	N18	E76	.976	15314	27.4	17D	-N	3	C		9			Y5
351 RAMY	21	1716	1721	1724	N18	E76	.976	15314	27.4	8	-B	3	C		10			Y5
	21	1907	0153	NO FLARE PATROL														
GRP67352	22	0203+4	0208+3	0217	S27	W44	.755	15301	18.8	14	-B						E	
VORO	22	0203	0208	0217	S27	W45	.765	15301	18.7	14	-B		C	0208	125	1.9	E	
MITK	22	0207		0224	S28	W44	.760	15301	18.8	17	-N		C	0208			E	
PALE	22	0210E	0211U	0215	S26	W43	.741	15301	18.9	5D	-B	3	C		47		DE	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
	22	0600	0610	NO FLARE PATROL														
	22	0630	0645	NO FLARE PATROL														
	22	0800	0855	NO FLARE PATROL														
	22	0955	0957	NO FLARE PATROL														
	22	1022	1034	NO FLARE PATROL														
GRP67353	22	1433+1	1436+0	1443	S26	W44	.751	15301	19.3	10	-B				90	1.4	E	
RAMY	22	1433	1436	1437D	S26	W44	.751	15301	19.3	4D	-B	3	V		102			
RAMY	22	1433	1436	1443	S26	W44	.751	15301	19.3	10	-B	3	C		102			
MCMA	22	1434	1436	1443	S28	W50	.813	15301	18.9	9	-N		C	1436	60	1.1	E	
GRP67354	22	1459+2	1502 1509	1539	N18	E69	.944	15314	27.8	40	-N						E	
RAMY	22	1459	1509	1522	N19	E66	.928	15314	27.6	23	-B	3	C		28			
MCMA	22	1501	1502	1547	N18	E72	.959	15314	28.0	46	-N		C	1502	40	1.6	E	
RAMY	22	1522	1531	1531	N19	E66	.928	15314	27.6	9	-B	3	C		33			
GRP67355	22	1625+1	1626+2	1638	S26	W46	.770	15301	19.2	13	1B							
MCMA	22	1625	1628	1638	S26	W53	.832	15301	18.7	13	-B		C	1628	50	.9	E	
RAMY	22	1626	1626	1633D	S26	W46	.770	15301	19.2	7D	1B	3	C		132		FDE	
RAMY	22	1626	1626	1627D	S26	W45	.760	15301	19.3	1D	1B	3	V		132			
356 MCMA	22	1650	1651	1656	N21	E89	1.000	15314	29.4	6	-F		C	1651				Y5
357 MCMA	22	1816	1844	1909	N18	W24	.513	15300	21.0	53	-B		C	1844	50	.6	E	Y5
358 MCMA	22	1835	1842	1910	N16	E72	.958	15314	28.2	35	-F		C	1842	25	1.0	D	Y5
	22	2100	2208	NO FLARE PATROL														
GRP67359	23	0015	0024+8	0107	N18	E69	.944	15314	28.2	52	-N						E	
MITK	23	0015	0027	0130	N18	E66	.926	15314	28.0	75	1N		C	0027	140		E	
PALE	23	0024E	0024U	0107D	N18	E69	.944	15314	28.2	43D	-B	3	C		40		DE	
MANI	23	0031E	0032	0050	N17	E70	.948	15314	28.3	19D	-N	3	V		80	1.8		
GRP67360	23	0629+0	0636+1	0704	N18	E65	.920	15314	28.1	35	-F				80		AD	
MITK	23	0629	0637	0700	N17	E65	.919	15314	28.1	31	-F		C	0637	70			
ABST	23	0629	0636	0707D	N20	E65	.922	15314	28.1	38D	1F		P	0636	104		AD	
361 MONT	23	0801	0812	0839	S33	W07	.529	15313	22.8	38	-F		C	0812	40		D	Y5
362 MONT	23	0845	0851	0911	N17	E65	.919	15314	28.2	26	1N		C	0857	250			Y5
	23	0923	0947	NO FLARE PATROL														
	23	1135	1220	NO FLARE PATROL														
363 RAMY	23	1140	1141	1200D	N19	E53	.829	15314	27.5	20D	-B	3	C		20			Y5
	23	1245	1457	NO FLARE PATROL														
	23	1515	1525	NO FLARE PATROL														
	23	1526	1551	NO FLARE PATROL														
	23	1557	1607	NO FLARE PATROL														
364 MCMA	23	1613	1613	1615D	N22	E67	.937	15314	28.7	2D	-N		P	1613	20	.6	D	Y5
	23	1615	1725	NO FLARE PATROL														
	23	1726	1838	NO FLARE PATROL														
	23	1844	2215	NO FLARE PATROL														
365 MITK	24	0439	0534	0640	S30	W03	.477	15305	24.0	121	?F		C	0534	220	2.5	EH	Y5
	IMP.1 NO # CULG1																	
GRP67366	24	0750+5	0805+5	0830	N25	E64	.923	15314	29.1	40	-N						E	
CATA	24	0750	0810	0840	N26	E63	.919	15314	29.1	50	1B	2		0810	84			
MEUD	24	0755	0805	0820	N25	E66	.934	15314	29.3	25	-F		C				E	
367 MEUD	24	0856E		0857D	S16	W12	.319	15318	23.5	1D	-F		C	0857	30	.3	D	Y5
368 CATA	24	0900	0900	0905	S17	W12	.332	15318	23.5	5	-N	2		0900	28	.3		Y5
369 CATA	24	0905	0905	0915	N27	E66	.937	15314	29.3	10	?B	2		0905	84			Y5
	IMP.1 NO # MONT2																	
	24	1100	1239	NO FLARE PATROL														
370 MCMA	24	1239E		1304D	S33	W14	.559	15305	23.5	25D	-N		C	1239	25	.3	DH	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
371 MCMA	24	1525	1530	1606	N20	E52	.823	15314	28.5	41	-N		C	1530	45	.8	EL	Y5
	24	1653	1710	NO FLARE PATROL														
	24	1712	1800	NO FLARE PATROL														
372 MCMA	24	1800E		1805D	S28	W83	.993	15301	18.5	5D	1N		C	1802			E	Y5
	24	1805	1820	NO FLARE PATROL														
GRP67373	24	1901+0	1914+5	2108D	N17	E42	.712	15314	27.9	127	1B				190	2.7	L	
PALE	24	1901	1914	2023D	N17	E42	.712	15314	27.9	82D	1B	3	C		200		FDE	
PALE	24	1901	1914	1923D	N17	E42	.712	15314	27.9	22D	1B	3	V		200		FDE	
MCMA	24	1913E	1919	2108	N18	E42	.717	15314	28.0	115D	1B		C	1919	175	2.8	EL	
PALE	24	2054E	2054U	2142D	N17	E41	.701	15314	27.9	48D	-N	3	C		49		DE	
	24	1903	1913	NO FLARE PATROL														
	24	1929	1944	NO FLARE PATROL														
	24	2121	2137	NO FLARE PATROL														
	24	2321	2328	NO FLARE PATROL														
	25	0104	0110	NO FLARE PATROL														
	25	0112	0131	NO FLARE PATROL														
	25	0141	0148	NO FLARE PATROL														
	25	0154	0235	NO FLARE PATROL														
	25	0245	0250	NO FLARE PATROL														
	25	0400	0440	NO FLARE PATROL														
	25	0443	0515	NO FLARE PATROL														
374 ABST	25	0558E	0612	0623	N20	E45	.756	15314	28.6	25D	-N		P	0612	122	1.9	DF	Y5
375 ABST	25	0614	0618	0623	N27	E57	.881	15314	29.5	9	-N		C	0618	87	1.8	DF	Y5
376 ABST	25	0639	0642	0647	N17	E29	.560	15314	27.5	8	-N		C	0642	87	1.1	DF	Y5
377 CATA	25	0725E	0725	0810D	N14	E33	.591	15314	27.8	45D	-B	2		0725	73	.9		Y5
378 KHAR	25	0908E		0915D	N20	E44	.745	15314	28.7	7D	-F		P				E	Y5
GRP67379	25	0941	0942+2	0952	N15	E30	.559	15314	27.7	11	-N						E	
TEHR	25	0941	0944	0952	N15	E29	.546	15314	27.6	11	-B	2	C		95			
KHAR	25	0942E	0942	0950D	N15	E32	.584	15314	27.8	8D	-F		P				E	
380 CATA	25	1015	1025	1040D	N24	E90	1.000	15319	1.2	25D	1N	2		1025	112			Y5
	25	1105	1122	NO FLARE PATROL														
381 MCMA	25	1327	1332	1337	N22	W67	.936	15300	20.5	10	-F		C	1332	30	.9	E	Y5
382 MCMA	25	1401	1403	1405	N20	E75	.972	15319	31.2	4	-N		C	1403	15	.6	D	Y5
383 MCMA	25	1657	1708	1719	N21	E74	.969	15319	31.3	22	-N		C	1708	30	1.2	E	Y5
GRP67384	25	1707	1733 1740	1810	N19	E33	.621	15314	28.2	63	-B						L	
MCMA	25	1707	1733	1810	N21	E35	.656	15314	28.3	63	1N		C	1733	150	2.0	EL	
PALE	25	1715E	1740	1755D	N18	E31	.591	15314	28.0	40D	-B	3	C		87		FDE	
385 PALE	25	1754E	1754U	1757D	N21	W64	.917	15300	20.9	3D	-N	3	C		30		DE	Y5
386 MCMA	25	1807	1808	1816	N21	E75	.973	15319	31.4	9	-N		C	1808	15	.6	D	Y5
387 MCMA	25	1837	1842	1853D	N16	E25	.504	15314	27.7	16D	-N		C	1842	40	.5	E	Y5
	25	2115	2301	NO FLARE PATROL														
	25	2315	2337	NO FLARE PATROL														
388 MITK	26	0041	0047	0127	N25	E35	.682	15314	28.7	46	-F		C	0047			E	Y5
	26	0051	0107	NO FLARE PATROL														
	26	0114	0119	NO FLARE PATROL														
	26	0328	0400	NO FLARE PATROL														
389 ABST	26	0514	0518	0528	N16	E21	.455	15314	27.8	14	-F		C	0518	104	1.2	E	Y5
390 ABST	26	0551E	0628	0714D	N17	E36	.643	15314	28.9	83D	-F		P	0628	104	1.4	E	Y5
391 MCMA	26	1103	1109	1118	N20	E65	.921	15319	31.3	15	-N		C	1109	25	.6	D	Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
392 MCMA	26	1157	1205	1215D	N20	E19	.475	15314	27.9	18D	-N		C	1205	70	.8	E	Y5
393 MCMA	26	1241	1245	1315	N20	E64	.915	15319	31.3	34	-N		C	1245	20	.6	D	Y5
394 MCMA	26	1323	1332	1347	N20	E63	.908	15319	31.3	24	-N		C	1332	20	.6	D	Y5
395 MCMA	26	1443	1450	1458	N23	E10	.443	15314	27.4	15	-F		C	1450	40	.5	E	Y5
GRP67396	26	1604	1607 1645	1720D	N20	E61	.895	15319	31.2	76	-N						K	
MCMA	26	1604	1607	1720D	N20	E61	.895	15319	31.2	76D	-N		C	1607	20	.6	DK	
MCMA	26	1604	1645	1720D	N20	E61	.895	15319	31.2	76D	-N		C	1645	20	.6	DK	
GRP67397	26	1732	1751 1800	1813	N20	E61	.895	15319	31.3	41	1B						E	
MCMA	26	1732	1751	1812	N20	E61	.895	15319	31.3	40	1B		C	1751	100	2.2	E	
PALE	26	1744E	1800U	1813	N20	E61	.895	15319	31.3	29D	1B	3	C		148		DE	
398 PALE	26	1807	1810	1813	N18	E16	.423	15314	28.0	6	-N	3	C		50		DE	Y5
	26	2147	2357	NO FLARE PATROL														
399 VORO	26	2357		0006	N24	E04	.434	15314	27.3	9	-N		C	2357	116	1.3	E	Y5
	27	0050	0101	NO FLARE PATROL														
	27	0117	0134	NO FLARE PATROL														
	27	0137	0145	NO FLARE PATROL														
	27	0303	0305	NO FLARE PATROL														
400 TACH	27	0321E		0331	N21	E55	.850	15319	31.3	10D	1F		V	0321	221	4.3	E	Y5
401 ATHN	27	0604E	0605	0640D	N21	E26	.557	15314	29.2	36D	-N	1		0605	66	1.1		Y5
402 ABST	27	0610E	0612	0614D	N21	E56	.858	15319	31.5	4D	-F		P	0612	61	1.2	BD	Y5
403 KANZ	27	0812	0816	0819D	N19	E51	.809	15319	31.2	7D	-B	1						Y5
404 ZURI	27	0857	0901	0915	N21	E18	.476	15314	28.7	18	-F		C	0901	100	1.2		Y5
405 ZURI	27	0925	0925	0931	N16	E51	.801	15319	31.2	6	-N		C	0925	50	.9		Y5
406 ZURI	27	0947E	0949	0959D	N18	E18	.441	15314	28.8	12D	-F		P	0949	80	.9		Y5
GRP67407	27	1005	1011	1025	N20	E52	.821	15319	31.3	20	1N				160	2.8		
MEUO	27	1005	1011	1025	N20	E53	.830	15319	31.4	20	1N		C	1011	150	2.6		
ZURI	27	1013E	1013	1017D	N20	E52	.821	15319	31.3	4D	1N		P	1013	180	3.3		
408 MCMA	27	1208	1211	1245D	N22	W04	.401	15314	27.2	37D	-N		C	1211	60	.7	E	Y5
409 MCMA	27	1230	1232	1242	N19	E07	.365	15314	28.0	12	-N		C	1232	30	.3	DL	Y5
410 MCMA	27	1256	1258	1304	N27	E23	.587	15314	29.3	8	-N		C	1258	30	.4	E	Y5
411 MCMA	27	1256	1259	1303	N22	E48	.791	15319	31.1	7	-N	*	C	1259	40	.7	E	Y5
GRP67412	27	1620>9	1625	1655	N20	E48	.784	15319	31.3	35	-F						EH	
MCMA	27	1620	1625	1700	N20	E48	.784	15319	31.3	40	-N		C	1625	80	1.4	EH	
KANZ	27	1639		1650	N21	E49	.797	15319	31.4	11	-F	1						
413 MCMA	27	2040	2041	2054D	N19	E03	.350	15314	28.1	14D	-N		C	2041	25	.3	D	Y5
	27	2054	2228	NO FLARE PATROL				*										
	27	2243	2252	NO FLARE PATROL														
414 MITK	28	0145	0154	0219	N26	E20	.550	15314	29.6	34	1N		C	0154	200	2.4	FH	Y5
GRP67415	28	0715	0719+0 0730+4	0752	N17	W04	.319	15314	28.0	37	-N						F	
CATA	28	0715	0730	0755	N17	W05	.323	15314	27.9	40	-B	2		0730	67	.7		
TEHR	28	0716E	0734	0748	N17	W04	.319	15314	28.0	32D	-B	3	C		127		F	
TEHR	28	0716E	0734	0737D	N17	W04	.319	15314	28.0	21D	-B	3	C		127		F	
TEHR	28	0716E	0719	0737D	N17	W04	.319	15314	28.0	21D	-F	3	V		64		F	
TEHR	28	0716E	0719	0748	N17	W04	.319	15314	28.0	32D	-F	3	C		64		F	
CATA	28	0730E	0730	0755	N15	W07	.302	15314	27.8	25D	-B	2		0730	28	.3		
416 CATA	28	0825	0325	0835	N17	W09	.346	15314	27.7	10	-B	2		0825	112	1.2		Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg		
	MAY																	
GRP67417	28	1044+1	1045+2	1105	N18	W05	.339	15314	28.1	21	-B				80	.9		
TEHR	28	1044E	1047	1101	N18	W05	.339	15314	28.1	17D	-B	2	C		95		F	
CATA	28	1045	1045	1105	N15	W09	.317	15314	27.3	20	-B	2		1045	67	.7		
MCMA	28	1057E		1120D	N18	W04	.335	15314	28.2	23D	-N		P	1057	100	1.1	BE	
GRP67418	28	1310	1317+0 1333+6	1438	N20	W13	.418	15314	27.6	88	1B						K	
MCMA	28	1310	1317	1450D	N20	W13	.418	15314	27.6	100D	1B		C	1317	180	2.0	EFK	
MCMA	28	1310	1333	1450D	N20	W13	.418	15314	27.6	100D	1B		C.	1333	180	2.0	EFK	
KANZ	28	1316E	1317	1339	N21	W17	.465	15314	27.3	23D	1B	2						
KANZ	28	1326	1339	1408	N17	W06	.327	15314	28.1	42	1B	2						
KANZ	28	1416	1421	1426	N17	W08	.339	15314	28.0	10	-B	1						
GRP67419	28	1451	1459+5	1629	N18	W07	.348	15314	28.1	98	1B						FKLX	
MCMA	28	1451	1504	1629	N18	W10	.367	15314	27.9	98	1B		C	1504	280	3.1	EFLX	
KANZ	28	1459E	1459	1526D	N18	W08	.354	15314	28.0	27D	1B	1						
LOCA	28	1510	1510	1535	N17	W07	.333	15314	28.1	25	2N		S	1510	713	7.8	FK	
ZURI	28	1628E	1632	1648	N18	W07	.348	15314	28.2	20D	-F		P	1632	180	2.0		
420 ZURI	28	1704	1714	1728	N16	W10	.339	15314	28.0	24	-N		C	1714	70	.8		Y5
	28	1744	0305	NO FLARE PATROL														
	29	0645	0646	NO FLARE PATROL														
	29	0651	0653	NO FLARE PATROL														
421 KANZ	29	0655	0657	0708	N19	W15	.421	15314	28.2	13	-B	1					E	Y5
422 KHAR	29	0947E		0947D	N18	W18	.439	15314	28.1		-F		P				D	Y5
GRP67423	29	1020+1	1023+0	1043	N20	E25	.534	15319	31.3	23	-F						E	
KHAR	29	1020E	1023	1030D	N21	E24	.533	15319	31.2	10D	-F		P				E	
ZURI	29	1021	1023	1043	N20	E26	.545	15319	31.4	22	-N		C	1023	60	.8		
GRP67424	29	1039+1	1053 1105+0	1132	N22	W08	.412	15314	28.8	53	1N				200	2.2	E	
KHAR	29	1023E		1107D	N17	W20	.450	15314	27.9	44D	-F		P				E	
ZURI	29	1039	1105	1131	N22	W08	.412	15314	28.8	52	-N		C	1105	180	2.1		
MONT	29	1040	1105	1130D	N22	W08	.412	15314	28.8	50D	-N		C	1105	220			
KHAR	29	1040E	1053	1130D	N23	W10	.438	15314	28.7	50D	1F		P				E	
KANZ	29	1104E		1104D	N23	W08	.427	15314	28.9		-B	1					E	
MCMA	29	1113E		1133	N21	W08	.397	15314	28.9	20D	-N		C	1113	80	.9	E	
425 MCMA	29	1220	1223	1229	N22	E26	.563	15319	31.5	9	-F		C	1223	30	.4	E	Y5
426 MCMA	29	1512	1516	1526	N18	W23	.494	15314	27.9	14	-F	*	C	1516	20	.3	E	Y5
GRP67427	29	1512+1	1515+2	1537	N21	E24	.533	15319	31.4	25	-N						E	
MCMA	29	1512	1515	1530D	N22	E23	.532	15319	31.4	18D	-N		C	1515	50	.6	E	
ZURI	29	1513	1517	1537	N20	E25	.534	15319	31.5	24	-N		C	1517	140	1.8		
	29	1545	1600	NO FLARE PATROL														
	29	1626	2200	NO FLARE PATROL														
GRP67428	29	1720+0	1759+1	1848	N17	W23	.485	15314	28.0	88	1B				420	4.9		
RAMY	29	1720	1759	1836	N16	W25	.500	15314	27.8	76	1B	3	C		355			
RAMY	29	1720	1759	1802D	N16	W25	.500	15314	27.8	42D	1B	3	V		355		DE	
PALE	29	1740E	1800U	1808D	N19	W21	.481	15314	28.2	28D	1B	3	V		475		DE F	
PALE	29	1740E	1800U	1900D	N19	W21	.481	15314	28.2	80D	1B	3	C		475		DE F	
	29	2255	0356	NO FLARE PATROL														
429 PALE	29	2310E	2310U	0025D	N21	E17	.464	15319	31.2	75D	-N	3	C		45		DE	Y5
430 PALE	29	2310E	2316U	0003D	S24	W58	.871	15331	25.6	53D	-B	3	C		58		FDE	Y5
GRP67431	30	0403	0410+2	0427	N21	W39	.694	15314	27.2	24	1N				230	3.2	U	
TACH	30	0403	0410	0427	N21	W39	.694	15314	27.2	24	1N		C	0410	265	3.8	EU	
PALE	30	0411E	0412U	0413D	N21	W39	.694	15314	27.2	2D	1B	3	C		199		FDE	
432 TACH	30	0552	0554	0600D	S18	W29	.548	15321	28.1	8D	-N		P	0600	133	1.6	D	Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
GRP67433	30	0605>9	0623+7 0712	0728	N21	E15	.444	15319	31.4	83	1B				190	2.2	F	
CATA	30	0605E	0630	0710D	N21	E14	.436	15319	31.3	65D	1B	2		0630	252	2.8		
TEHR	30	0619	0623	0630D	N20	E16	.441	15319	31.5	11D	-B	1	V		190		F	
TEHR	30	0619	0623	0641	N20	E16	.441	15319	31.5	22	-B	1	C		190		F	
KHAR	30	0640E	0640	0730D	N21	E14	.436	15319	31.3	50D	1F		P				E	
MONT	30	0655E	0712	0746	N22	E15	.457	15319	31.4	51D	-N		C	0712	150			
KHAR	30	0744E		0857D	N22	E17	.474	15319	31.6	73D	1F		P	0818	220	2.6	E	
GRP67434	30	0620+0	0623+0	0647	N18	W11	.371	15314	29.4	27	-B				140	1.5	F	
TEHR	30	0620	0623	0647	N18	W06	.339	15314	29.8	27	-B	1	C		190		F	
TEHR	30	0620	0623	0630D	N18	W16	.417	15314	29.1	10D	-B	1	V		95			
GRP67435	30	0630E	0721+6	0827	N16	W30	.561	15314	28.0	117	2B				500	6.1	FIL	
CATA	30	0630E	0725	0735D	N16	W32	.586	15314	27.9	65D	2B	2		0725	477	6.0		
KHAR	30	0640E	0727	0840D	N16	W34	.610	15314	27.7	120D	2N		P	0752	500	6.4	EILIB	
MONT	30	0655E	0725	0811	N16	W30	.561	15314	28.0	76D	1N		C	0725	440			
TEHR	30	0716	0721	0813	N17	W26	.519	15314	28.4	57	2B	2	C		541		F	
TEHR	30	0716	0721	0735D	N17	W26	.519	15314	28.4	19D	2B	2	V		541		F	
ZURI	30	0808E	0808	0856	N17	W33	.604	15314	27.9	48D	1N		P	0808	270	3.4		
	30	0653	0655	NO FLARE PATROL														
GRP67436	30	0902+0	0910+1	0942	N20	E13	.415	15319	31.4	40	-N						EH	
ZURI	30	0902	0910	0942	N20	E13	.415	15319	31.4	40	-N		C	0910	60	.7		
KHAR	30	0902E	0911	0938D	N20	E14	.423	15319	31.4	36D	1F		P	0909	200	2.2	EH	
437 KHAR	30	0909E		0920D	S23	W66	.925	15331	25.4	11D	-F		P				E	Y5
GRP67438	30	0914	0916+1	0922	N20	W41	.711	15314	27.3	8	-F						D	
ZURI	30	0914	0916	0920	N20	W42	.721	15314	27.2	6	-N		C	0916	100	1.5		
KHAR	30	0916E	0917	0923D	N21	W41	.715	15314	27.3	7D	-F		V	0917			D	
439 ZURI	30	0954	0956	0958	N20	W42	.721	15314	27.3	4	-F		C	0956	100	1.5		Y5
GRP67440	30	0955+6	1005+3	1022	N17	W28	.543	15314	28.3	27	-N						D	
LOCA	30	0955	1005	1030	N17	W28	.543	15314	28.3	35	1N		V	1005	204	2.5		
ZURI	30	1000	1006	1022	N18	W28	.551	15314	28.3	22	-B		C	1006	110	1.4		
MONT	30	1001	1008	1014	N18	W30	.574	15314	28.2	13	-F		C	1008	50		D	
KHAR	30	1004E		1007D	N17	W27	.531	15314	28.4	3D	1F		V	1005			D	
441 ZURI	30	1016	1020	1026	N20	E13	.415	15319	31.4	10	-F		C	1020	90	1.0		Y5
GRP67442	30	1100+9	1131+6 1143	1255	S30	E58	.848	15330	4.4	115	1N				180	3.5	EG	
ZURI	30	1100	1143	1300	S29	E55	.860	15330	3.6	120	1N		C	1143	200	4.0		
MONT	30	1109	1131	1149D	S30	E54	.856	15330	3.5	40D	-N		C	1131	180		G	
KHAR	30	1123E	1137	1233D	S30	E53	.848	15330	3.4	70D	1N		P	1137	165	3.4	E	
MCMA	30	1152E		1250	S30	E53	.848	15330	3.5	58D	1F		C	1152	100	2.1	BE	
443 KHAR	30	1143E	1143	1157D	N23	W23	.541	15314	28.8	14D	-F		P				E	Y5
GRP67444	30	1233+2	1241+7	1324	N20	E10	.393	15319	31.3	51	-N				130	1.4	E	
MCMA	30	1233	1241	1310	N21	E12	.421	15319	31.4	37	-N		C	1241	80	.9	E	
ZURI	30	1234	1248	1324	N20	E11	.399	15319	31.3	50	-N		C	1248	140	1.6		
CATA	30	1235	1245	1300D	N20	E10	.393	15319	31.3	25D	-B	2		1245	168	1.8		
KHAR	30	1253E	1253	1330D	N20	E10	.393	15319	31.3	37D	-F		P				E	
445 MCMA	30	1238	1241	1251	N21	W39	.694	15314	27.6	13	-F		C	1241	20	.3	DL	Y5
GRP67446	30	1307+1	1308+1	1320	N21	W44	.746	15314	27.2	13	-N						E	
MCMA	30	1307	1309	1326	N22	W44	.751	15314	27.2	19	-N		C	1309	45	.7	E	
ZURI	30	1308	1308	1316	N20	W44	.742	15314	27.2	8	-N		C	1308	140	2.1		
KHAR	30	1310E	1310	1320D	N21	W43	.736	15314	27.3	10D	-F		P				E	
447 MCMA	30	1336	1338	1354	N22	W23	.531	15314	28.8	18	-N		C	1338	40	.5	E	Y5
GRP67448	30	1458+2	1459+1 1510	1514	N22	W23	.531	15314	28.9	16	-N				50	.6	K	
ZURI	30	1458	1500	1512	N21	W22	.511	15314	29.0	14	-F		C	1500	70	.8		
MCMA	30	1459E	1459	1518	N22	W23	.531	15314	28.9	19D	-N		C	1459	30	.4	OK	
MCMA	30	1459E	1510	1518	N22	W23	.531	15314	28.9	19D	-N		C	1510	30	.4	OK	
KANZ	30	1500	1500	1514	N22	W25	.552	15314	28.8	14	-N	2						

Hα SOLAR FLARES

MAY 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX HER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
GRP67449	30	1515+3	1520+3	1534	N21	W45	.756	15314	27.3	19	-N				100	1.5	E	
CATA	30	1515	1520	1525D	N21	W44	.746	15314	27.3	10D	-B	2		1520	112	1.7		
ZURI	30	1516	1522	1536	N20	W45	.752	15314	27.3	20	-B		C	1522	110	1.7		
MCMA	30	1516	1523	1528D	N22	W45	.760	15314	27.3	120	-F		C	1523	70	1.1	E	
KANZ	30	1518	1523	1532	N21	W46	.766	15314	27.2	14	-B	2						
GRP67450	30	1523+3	1531+1	1600	N18	W33	.610	15314	28.2	37	1B						E	
MCMA	30	1523		1551D	N18	W33	.610	15314	28.2	28D	-B		C	1532	90	1.2	E	
KANZ	30	1526	1531	1554	N19	W33	.616	15314	28.2	28	1B	2						
ZURI	30	1526	1532	1546D	N17	W33	.604	15314	28.2	20D	1N		P	1532	200	2.6		
WEND	30	1538E		1606D	N18	W33	.610	15314	28.2	28D	1N		V		500	6.8		
GRP67451	30	1532+1	1534+3	1551	N21	E11	.414	15319	31.5	19	-N				50	.6	E	
ZURI	30	1532	1534	1546D	N20	E10	.393	15319	31.4	14D	-F		P	1534	70	.8		
MCMA	30	1532		1551	N21	E11	.414	15319	31.5	19	-N		C	1539	40	.5	E	
KANZ	30	1533	1537	1551	N21	E11	.414	15319	31.5	18	-N	2					E	
	30	1608	1625	NO FLARE PATROL														
	30	1632	1648	NO FLARE PATROL														
	30	1656	1706	NO FLARE PATROL														
452 MCMA	30	1706E		1718D	N19	W37	.662	15314	27.9	12D	-F		C	1712	30	.4	EL	Y5
453 MCMA	30	1737	1739	1742	N27	E12	.503	15319	31.6	5	-N		C	1739	20	.3	E	Y5
GRP67454	30	1756E	1800+3	1838	N20	E07	.375	15319	31.3	42	-N				50	.5		
RAMY	30	1756E	1800	1838	N21	E06	.386	15319	31.2	42D	-B	3	C		60		FDE	
MCMA	30	1801E	1803	1809D	N20	E08	.380	15319	31.4	8D	-F		C	1803	50	.6	E	
	30	1809	2100	NO FLARE PATROL														
GRP67455	30	1927E	1927	2027	N18	W36	.645	15314	28.1	60	1B				280	3.7	U	
PALE	30	1927E	1927U	2027	N18	W36	.645	15314	28.1	60D	1B	3	C		278		UDE	
PALE	30	1927E	1927U	1933D	N18	W36	.645	15314	28.1	6D	-B	3	V		278		DE	
456 VORO	30	2110E		2141	S18	W36	.633	15321	28.2	31D	-N		C	2114	108	1.4	EJ	Y5
457 VORO	30	2335	2339	2355	N28	W18	.555	15314	29.6	20	-N		C	2339	99	1.2	DJ	Y5
458 VORO	30	2337	2341	2347	N18	W46	.755	15314	27.5	10	-F		C	2341	45	.6		Y5
459 VORO	31	0026	0027	0029	N16	W40	.681	15314	28.0	3	-N		C	0027	90	1.2	DJ	Y5
460 VORO	31	0034	0035	0038	S24	W88	.999	15331	24.4	4	-B		C	0035	36		D	Y5
	31	0103	0105	NO FLARE PATROL														
	31	0111	0221	NO FLARE PATROL														
	31	0337	0401	NO FLARE PATROL														
	31	0409	0509	NO FLARE PATROL														
461 ABST	31	0644E	0644	0652D	N22	E05	.396	15319	31.7	8D	-F		P	0644	70	1.3	CD	Y5
GRP67462	31	0733E	0733 0740+0	0758	N17	W42	.708	15314	28.2	25	-B				130	1.9		
MONT	31	0733E	0733	0802	N17	W43	.719	15314	28.1	29D	-N		C	0733	180			
TEHR	31	0738E	0740	0753	N17	W42	.708	15314	28.2	15D	-B	1	C		127			
TEHR	31	0738E	0740	0745D	N17	W42	.708	15314	28.2	7D	-B	1	V		127			
GRP67463	31	0820+1	0828+4	0845	N17	W42	.708	15314	28.2	25	-N						E	
ZURI	31	0820	0828	0844	N18	W42	.712	15314	28.2	24	1N		C	0828	150	2.3		
MONT	31	0821	0832	0846	N16	W43	.715	15314	28.1	25	-F		C	0832	60		E	
GRP67464	31	1006+8	1048+5 1124+6	1353	N20	W43	.731	15314	28.2	227	3B						FILSUW	
ZURI	31	1006	1124	1444D	N21	W41	.715	15314	28.3	278D	4B		P	1124	1850	27.3		
MONT	31	1014	1053	1200D	N21	W41	.715	15314	28.4	106D	3B		C	1053	1700		FS	
KANZ	31	1023E		1302D	N22	W40	.709	15314	28.4	159D	3B	1						
MCMA	31	1031E	1048	1458D	N20	W42	.721	15314	28.3	259D	2B		C	1049	360	5.4	BFU	
WEND	31	1035E	1048	1308	N20	W40	.699	15314	28.4	153D	3N		P		1200	13.2	TW	
RAMY	31	1044E	1053	1059D	N16	W48	.769	15314	27.8	15D	2B	3	V		468		FDE	
RAMY	31	1044E	1106	1109D	N16	W48	.769	15314	27.8	25D	2B	3	C		804		U F	
HERS	31	1103E	1130	1305	N20	W48	.782	15314	27.9	122D	3N		P				F	
KHAR	31	1140E	1140	1340D	N23	W40	.715	15314	28.5	120D	3N		P	1140	1400	21.0	EIU	
KIEV	31	1250E	1250	1359D	N21	W42	.725	15314	28.4	69D	3N		P	1250	1500	22.1	BILU	
465 ZURI	31	1021	1025	1027	S17	W25	.492	15335	29.6	6	-F		C	1025	80	1.0		Y5

Hα SOLAR FLARES

MAY 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	MAY																	
466 RAMY	31	1130	1132	1206	S16	W26	.497	15335	29.5	36	-B	3	C		23			Y5
467 RAMY	31	1427	1430	1447	N21	W04	.377	15319	31.3	20	-B	3	C		53			Y5
GRP67468	31	1621+7	1632+0	1645	N21	W56	.856	15314	27.5	24	-N				45	.9	E	
RAMY	31	1621	1632	1651	N21	W57	.864	15314	27.4	30	-B	3	C		52			
MCMA	31	1628	1632	1639	N22	W55	.850	15314	27.6	11	-F		C	1632	40	.8	E	
469 RAMY	31	1646	1651	1703	S16	W28	.523	15335	29.6	17	-N	3	C		23			Y5
470 MCMA	31	1755	1758	1808	S17	W30	.554	15335	29.5	13	-F		C	1758	80	1.0	EL	Y5
471 MCMA	31	1812	1815	1821	N20	W07	.373	15319	31.2	9	-N		C	1815	50	.6	E	Y5
472 MCMA	31	1904	1905	1915	N22	W05	.396	15319	31.4	11	-N		C	1905	20	.2	D	Y5
	31	2008	2017	NO FLARE PATROL														
473 MCMA	31	2044E	2056	2110	N17	E52	.811	15333	4.8	260	-B		C	2056	25	.5	D	Y5
	31	2239	2242	NO FLARE PATROL														

DAILY FLARE INDICES

Includes all Flares

MAY 1978

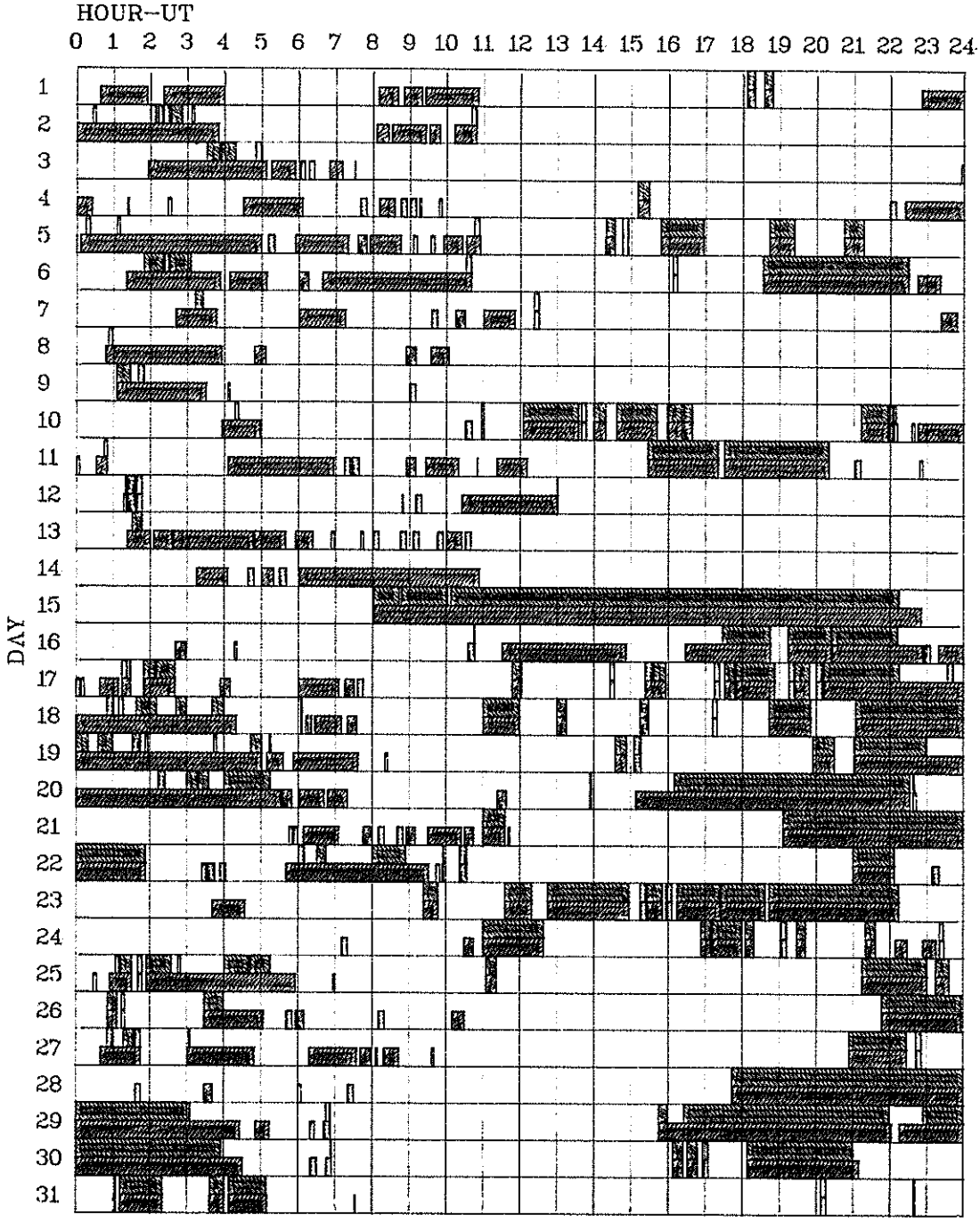
Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.
780501	538.54	22.6	780511	261.32	19.2	780521	28.41	16.6
780502	155.59	23.0	780512	6.76	23.6	780522	31.34	21.3
780503	76.00	23.1	780513	27.02	23.7	780523	18.21	14.0
780504	83.60	23.7	780514	28.45	24.0	780524	39.11	20.2
780505	18.84	21.0	780515	19.75	9.9	780525	34.42	19.1
780506	18.19	18.6	780516	93.94	19.7	780526	41.40	21.0
780507	23.64	23.7	780517	17.62	17.7	780527	59.64	21.7
780508	22.22	23.9	780518	15.97	16.5	780528	195.54	14.7
780509	6.12	23.5	780519	124.81	19.8	780529	209.17	13.1
780510	26.87	19.3	780520	16.96	15.5	780530	361.58	20.4
						780531	2378.65	21.2

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

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

MAY 1978



Observatories included in total patrol:

Abastumani	Huancayo	Locarno	Monte Mario	Voroshilov
Athenes	Istanboul	Lvov	Palehua	Wendelstein
Bucharest	Kandilli	Manila	Ramey	Zürich
Catania	Kanzelhohe	McMath-Hulbert	Tashkent	
Herstmonceux	Kharkov	Meudon	Tehran	
Holloman	Kiev	Mitaka	Upice	

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).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MAY 1978

MAY 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
1	2695	PENT	21 GRF	0045	0100 .	50	7.2	3.6		
	2695	PENT	45 C	0048	0052.5	10	9	4.4		
	700	SYDN	8 S	0146	0146	.2				
	221	ABST	44 NS	0500	0715.5	240	17			
	260	ONOR	44 NS	0650 E		494 D	30	4		
	127	TORN	44 NS	0650 E		480 D				V=1
	245	SGMR	44 NS	0943 E	1824.7	836 D	32			3G,CONT
	410	SGMR	44 NS	0943 E	1828.1	836 D	28.9			3G,CONT
	9100	GORK	20 GRF	0533.8	0534.1	8.4	18	4.1		
	33	UPIC	41 F	0534.6	0538.7	9.9				
	29	UPIC	41 F	0534.7	0539.1	6.8				
	950	GORK	40 F	0536	0537.8	3	11.2			
	650	GORK	2 SF	0536.3	0538.1	2.9	8.3			
	2950	GORK	1 S	0537.1	0538.1	3.5	6.8	3.4		
	2800	OTTA	240 R	1102	1110	8	5.8	2.9		
	1420	ARCE	21 GRF	1107.5	1220.7	108				
	1470	BERL	4	1108	1112	8.5	6.9			
	3000	BERL	4	1109.5	1111.4	7.5	12			
	1420	ARCE	3 S	1110.9	1112	6				
	2800	OTTA	1 S	1111	1111.5	5	6	3		
	2800	OTTA	20 GRF	1140	1147	30	2.2	1.1		
	2800	OTTA	1 S	1316	1317.5	3	2.8	1.2		
	18	MCMA	6 S	1652	1703	17			2	
	18	MCMA	6 S	1714	1716	3			1	
	8800	SGMR	3 S	1724.7	1725.4	6.3	108	43.2		
	10500	BERN	3 S	1724.8	1725.3	10	33	96		
	2800	OTTA	1 S	1724.9	1725.5	1.5	8.2	2		
	9400	HUAN	3 S	1725	1725.8	1.3	117.9	47.5		R
	2695	SGMR	3 S	1725.1	1725.5	2.9	11.2	4.5		
	4995	SGMR	3 S	1725.1	1725.4	6.1	49	19.6		
	15400	SGMR	3 S	1725.2	1725.5	1.8	39.1	15.6		
	9400	HUAN	29 PBI	1726.3	1726.3	23	16.4	7.7		0
	2800	OTTA	28 PRF	1800		101	6.4			
	245	SGMR	49 GB	1914	1947	146	1330	532		CONT
	4995	BCUL	28 PRE	1915.5	1928.5	24	148	49		
	9400	HUAN	47 GB	1916.1	1953	98.9	1007	334.8		LOROL
	4995	SGMR	47 GB	1917	2015.3	128	1180	472		2,4,3G,
	2695	BCUL	49 GB	1917 E	1923.5	113 D	1930	643		
	2695	SGMR	47 GB	1917	2015.1	128	2200	880		CONT
	8800	SGMR	47 GB	1917.1	1954	127.9	870	348		CONT
	1420	BCUL	49 GB	1917.5E	2020.5	121.5D	4314	1438		
	410	SGMR	49 GB	1918.8	2003.2	141.2	6500	2600		2,4,3G,
	606	SGMR	47 GB	1919	2001.5	127.5	20400	8160		CONT
	1415	SGMR	47 GB	1919	2022.5	127	7220	2890		2,4,3G,
	15400	SGMR	3 S	1919	1954.4	126	344	138		2,4,3G,
	18	MCMA	41 F	1927	1951	73 D			2	
	4995	BCUL	49 GB	1939.5	1953.5	83	837	279		
	2800	OTTA	47 GB	1941	2015	84	1665	584		
	200	HIRA	48 C	1950 E	2100 U	130 D	300 U			ML,SUNRISE
	100	HIRA	48 C	1950 E	2006 U	170 D	1000 U			SL,SUNRISE
	9400	HUAN	29 PBI	2055	2055	26.7	67.2	49.7		0
	2800	OTTA	29 PBI	2105	2105	200	23	7.2		
2	2695	PENT	1 S	0057.2	0057.5	2	8.4	4.2		
	1420	BCUL	28 PRE	0057 E	0108 U	15 D	4	1		
	2695	BOUL	45 C	0106	0108.5	6.5D	31	10		
	2695	PENT	21 GRF	0107		40 D	20			
	1420	BCUL	40 F	0112 E	0117	8.5D	46	15		
	2695	BCUL	28 PRE	0113.5E	0116	2.5D	5	2		
	2800	OTTA	45 C	0115.5	0118.5	20	77	22		
	700	SYDN	40 F	0116	0117.5	4.5				
	200	HIRA		0116	0130		1400			HR
	200	HIRA	48 C	0116	0210	100	8000	3000		ML
	500	HIRA		0116	0119.6		60			HR
	500	HIRA	48 C	0116	0206	99	500	50		ML
	4995	BOUL	45 C	0116.5	0117.5	4 D	30	10		
	1400	SYDN	40 F	0116.5	0118.5	2.8				
	2695	PENT		0116.5	0118.5	9.5	77			
	2695	MANI	3 S	0116.6	0118.7	8.5	89.4	59.6		
	606	MANI	4 S/F	0116.6	0117.6	7.5	41.4	27.6		
	1415	MANI	3 S	0116.6	0118.4	8.5	71.8	47.9		
	4995	MANI	3 S	0116.6	0118.64	8.5	27.5	6.9		
	100	HIRA	48 C	0116	0139	135	11000	3000		WR
	100	HIRA		0116	0210		7000			WR
	2695	PENT		0126	0130	10.5	30			
	606	MANI	22 GRF	0152.6	0206.8	26.6	232.3	154.9		
	700	SYDN	40 F	0158	0207	16				
	606	MANI	4 S/F	0234.3	0235.5	2.5	82.8	55.2		
	700	SYDN	40 F	0234.4	0235.5	5.3				
	5730	IRKU		0332	0346.3		51			R
	5730	IRKU	45 C	0332	0334.7	32	6	7		R
	4995	MANI	3 S	0343.9	0346.7	6.7	62.4	41.6		
	2695	MANI	3 S	0344	0345.9	5.3	23.3	15.5		
	1400	SYDN	40 F	0344.8	0345.2	2.3				

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MAY 1978

MAY 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	1415	MANI	3 S	0344.9	0346.5	2.3	14	9.4		
	2950	GORK	4 S/F	0345 E	0346.6	3	103			
	2950	GORK	29 PBI	0345 E	0348	10.1	27			
	8800	MANI	3 S	0345.8	0346.5	1.5	34.5	23		
	606	MANI	3 S	0346	0346.1	.8	11.4	7.6		
	500	HIRA	46 C	0421.1	0423	4.5	115	35		WL
	606	MANI	4 S/F	0421.5	0421.8	3.3	28.5	18.9		
	221	ABST	44 NS	0500	0815.5	240	31			
	10500	BERN	40 F	0507.3	0509	5.5	7	20		
	606	MANI	41 F	0508	0509.8	6.7	259.9	173.3		
	700	SYDN	40 F	0508	0509.8	5.2				
	650	GORK	45 C	0508.8	0510.6U	6.2	150			
	650	GORK		0508.8	0512.4U		150			
	5730	IRKU	1 S	0508	0509.1	4	10	3		R
	200	GORK		0509	0514.2		20			
	200	GORK	46 C	0509	0509.2	6.5	50			
	9100	GORK	2 SF	0509.2	0510	2.2	20	10		
	234	POTS	48	0612.5	0614.5	5.5	8000	150		
	113	POTS	45 C	0612.5	0614.3	17	5500	200		
	8800	ATHN	45 C	0612.6	0616.5		215.7			
	8800	ATHN	45 C	0612.6	0615.2	112.7	128.3	38.5		
	4995	ATHN	45 C	0612.7	0616.5		131.4			
	4995	ATHN	45 C	0612.7	0615.2	112.3	106.6	32		
	228	HARS	47 GB	0613	0614.7	1.8	450	180		
	2695	ATHN	45 C	0613	0615.2	112	84.8	25.4		
	1415	ATHN	45 C	0613	0616.5		63			
	2695	ATHN	45 C	0613	0616.5		75.4			
	1415	ATHN	45 C	0613	0615.4	112	73.5	22.1		
	200	HIRA	46 C	0613.2	0614.5	5	20000	100		WR
	200	HIRA		0613.2	0617		180			WR
	10500	BERN	46 C	0613.2	0615.9	9	48	139		
	500	HIRA	46 C	0613.3	0616.4	7	165	30		O
	650	GORK	4 SF	0613.3	0615	10.7	157			
	9100	GORK	29 PBI	0613.4	0617.6	12.7	46	9.7		
	9100	GORK		0613.4	0615.9		190			
	2950	GORK		0613.4	0616		53			
	2950	GORK	45 C	0613.4	0614.5	8.2	53			
	9100	GORK	46 C	0613.4	0614.5	4.2	121			
	4995	MANI	4 S/F	0613.4	0616	6.4	107	71.4		
	606	MANI	4 S/F	0613.4	0616.3	5.3	11.2	7.5		
	2695	MANI	4 S/F	0613.4	0614.4	6.7	60.3	40.1		
	1415	MANI	4 S/F	0613.5	0614.8	7.2	59.7	39.8		
	5730	IRKU	46 C	0613.5	0614.5	16	55			R
	5730	IRKU		0613.5	0616		88			R
	200	GORK	46 C	0613.5	0614 U	4.5	60			
	200	GORK		0613.5	0616.3		680			
	950	GORK		0613.6	0616		29			
	950	GORK	45 C	0613.6	0614.8	9.8	66			
	8800	MANI	4 S/F	0613.6	0616.2	4.3	163.3	108.9		
	29	UPIC	46 C	0613.7	0614.9	5.8				
	33	UPIC	46 C	0613.8	0614.9	5.7				
	930	BORO	46 C	0613	0615	10	123	14		
	10500	BERN	4 S/F	0634.2	0640.5	27	84	244		
	8800	ATHN	4 S/F	0635.5	0640.7	7.4	455.9	136.8		
	260	ONDR	44 NS	0635 E		512 D	16			
	127	TORN	44 NS	0730 E		150 U				V=1
	245	SGMR	44 NS	0941 E	2221.1	839 D	77.8			3,5,CONT
	410	SGMR	44 NS	0941 E	2152.7	839 D	13.3			3,5,CONT
	200	HIRA	46 C	0636	0642.5	80	250	30		MRML
	33	UPIC	46 C	0637.5	0640.5	4.7				
	113	POTS	45 C	0637	0641.4	22	800	30		
	9100	GORK	21 GRF	0638.3	0643	10.6	37	17		
	29	UPIC	46 C	0638.3	0640.4	3.7				
	2950	GORK	4 SF	0638.4	0640.5	5.7	413			
	228	HARS	47 GB	0638.5	0642.5	6	340	130		
	9500	BERL	4	0638.5	0640.4	9.5	230			
	500	HIRA	46 C	0638.6	0641.3	15	65	25		MR
	2695	ATHN	4 S/F	0638.6	0640.8	4.7	191.9	57.6		
	4995	ATHN	4 S/F	0638.6	0640.7	4.9	360	108		
	1415	ATHN	4 S/F	0638.6	0640.8	4.5	211.7	63.5		
	808	ONDR	4 S/F	0638.6	0640.8	15	50	13		
	2695	MANI	4 S/F	0638.7	0640.6	12.2	243.9	162.6		
	8800	MANI	3 S	0638.7	0640.6	14.9	502.4	334.9		
	650	GORK	3 S	0638.7	0641.1	4.3	43	20		
	650	GORK	29 PBI	0638.7	0643	11	12.5			
	200	GORK	46 C	0638.8	0640.5	5	210			
	3000	BERL	4	0638.8	0640.7	8.2	14			
	9100	GORK	4 SF	0638.8	0640.5	3.8	420			
	200	GORK		0638.8	0642.7		490			
	1415	MANI	4 S/F	0638.8	0640.4	5.8	175.5	117		
	4995	MANI	3 S	0638.8	0640.6	13.2	428.2	285.4		
	5730	IRKU	47 GB	0638	0640.5	20	110			R
	930	BORO	3 S	0638	0641.2	16	54	8		
	100	HIRA		0638	0647		200			O
	100	HIRA	46 C	0638	0641	36	4000	200		O

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	1470	BERL	4		0639	0640.5	8.5	127			
	606	MANI	4	S/F	0639	0640.8	15.2	43.3	28.9		
	234	POTS	45	C	0639.1	0640.2	4.1	1900	8		
	950	GORK	5	C	0639.2	0641.3	4.9	32	16		
	536	ONDR	46	C	0639.2	0641.2	15	42	19		
	260	ONDR	49	GB	0639		63	219 D	41 D		
	33	UPIC	4	S/F	0654.5	0654.7	.5				
	29	UPIC	4	S/F	0654.6	0655	.7				
	930	BORD	8	S	0704.8	0704.8	.1	38	2		
	5730	IRKU	1	S	0720.7	0720.8	.5	9	3		R
	29	UPIC	4	S/F	0724.1	0725	1.4				
	33	UPIC	4	S/F	0724.3	0724.9	2.2				
	4995	ATHN	1	S	0802.6	0803.5	4.4	2.5	1.5		
	8800	ATHN	3	S	0802.6	0803.6	4.4	17.5	10.5		
	3000	BERL	20		0810	0828.5		7.2			
	9500	BERL	20		0813	0822		5.8			
	9100	ARCE	22	GRF	0816.1	0841.7	88				
	9100	GORK	1	S	0835.5	0836.6	2.3	13	5.5		
	9100	GORK	1	S	0841.1	0841.8	1.4	14	6.7		
	10500	BERN	20	GRF	0926.4	0930.3	15	4	11		
	808	ONDR	45	C	0928.7	0930.2	5.5	16	6		
	606	MANI	4	S/F	0929.8	0932.6	4.3	102.6	68.4		
	536	ONDR	46	C	0929	0932.5	6	124	8		
	9500	BERL	1	S	0930	0931	2.5	4.4			
	3000	BERL	1	S	0930	0930.5	1.5	2.3			
	1470	BERL	1	S	0930	0930.9	2.5	2.4			
	127	TORN	45	C	0959	0959.8	2.5	105	4		
	9500	BERL	1	S	0959	1000	2	5.8			
	1420	ARCE	1	S	0959.1	0959.6	2				
	202	IZMI	5	S	0959.5	0959.5	.5	400	125		
	3000	BERL	3		0959.5	0959.8	1.5	8.6			
	1470	BERL	3		0959.5	1000	1.5	7.2			
	9100	ARCE	1	S	0959.8	1000.2	1				
	930	BORD	8	S	0959	1000	2	27	5		
	808	ONDR	45	C	0959	1000	4	40	10		
	536	ONDR	46	C	0959	1001.8	6	12	3.8		
	536	ONDR	45	C	1114.2	1117.8	5	17	3.8		
	1420	ARCE	2	S/F	1114.8	1115.2	1.6				
	3000	BERL	1	S	1115	1115.7	1	2.3			
	1470	BERL	1	S	1115	1115.5	1.5	4.7			
	808	ONDR	8	S	1115.2	1115.2	.3	39			
	33	UPIC	4	S/F	1115.3	1115.5	1.3				
	29	UPIC	45	C	1115.4	1116.1	1				
	930	BORD	8	S	1115	1115.3	1	25	5		
	29	UPIC	3	S	1132.6	1132.9	.4				
	33	UPIC	3	S	1132.6	1132.7	.5				
	9500	BERL	20		1137	1139	18	4.3			
	1470	BERL	20		1143	1153	17	2.4			
	3000	BERL	20		1146.5	1149.3	15	3.2			
	33	UPIC	42	SER	1155.1	1207.2	12.8				
	29	UPIC	42	SER	1155.1	1155.4	12.4				
	10500	BERN	4	S/F	1214	1219.9	45.5	23	66		
	10500	BERN		S	1214	1234		5	15		
	9400	HUAN	3	S	1215.8	1219.7	16	79.1	17		O
	9500	BERL	4		1216	1220	20	63			
	2695	SGMR	3	S	1218.8	1219.9	5.2	13.5	4.1		SWF
	3000	BERL	4		1219.5	1220	13	20			
	4995	SGMR	3	S	1219.6	1220.1	2	27.7	8.3		SWF
	15400	SGMR	3	S	1219.7	1220	2.3	51	15.3		SWF
	8800	SGMR	3	S	1219.7	1219.9	4.3	68.2	20.5		SWF
	2800	OTTA	3	S	1219.7	1220	2	14.6	4		
	9100	ARCE	3	S	1219.7	1220.1	4				
	9400	HUAN	3	S	1232.9	1233.8	3.1	11.5	4.4		O
	9100	ARCE	1	S	1233.5	1234.4	2.4				
	536	ONDR	45	C	1240.8	1240.8	2	17	2		
	29	UPIC	8	S	1245	1245.3	.4				
	33	UPIC	8	S	1245	1245.1	.4				
	930	BORD	41	F	1451.6	1452	1.1	20	2		
	536	ONDR	4	S/F	1451	1451.8	5	29	2.5		
	8800	ATHN	4	S/F	1455.4	1455.6	1.4	94.5	28.4		
	2800	OTTA	4	S/F	1610.2	1611.1	3	98	25		
	1420	ARCE	4	S/F	1610.2	1610.8	2.7				
	10500	BERN	3	S	1610.3	1611.1	5.5	26	77		
	606	SGMR	47	GB	1610.4	1611.2	4.9	513	154		SWF
	4995	SGMR	3	S	1610.5	1611.1	3.5	86.2	26.5		SWF
	1420	SOUL	45	C	1610.5E	1611	9 D	183	61		
	2695	SGMR	3	S	1610.5	1611.2	3	117	34.9		SWF
	8800	SGMR	3	S	1610.6	1611.2	3.4	80.8	24.3		SWF
	15400	SGMR	3	S	1610.6	1611.3	3.8	51.1	20.4		SWF
	1415	SGMR	3	S	1610.6	1611.4	6.1	125	37.5		SWF
	237	TRST	41	F	1610.7	1611.2	.8	2150			8L
	9400	HUAN	3	S	1610.7	1611.4	1.9	93.9	28.8		L
	8800	ATHN	4	S/F	1610.8	1611.4	3.2	100.1	30		
	4995	ATHN	4	S/F	1610.8	1611.4	2.7	90.2	27.1		
	2695	ATHN	4	S/F	1610.8	1611.4	2.3	94.9	28.5		

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	1415	ATHN	4 S/F	1610.8	1611.5	2.3	186.6	56		
	9100	ARCE	3 S	1610.8	1611.3	2.4				
	33	UPIC	4 S/F	1610.9	1611.5	1.5				
	930	BORD	46 C	1610	1611.2	8	809	12		
	300	KIEL	45 C	1610	1611.5	7	500	90		
	602	KIEL	45 C	1610	1611.5	7	300	80		
	405	KIEL	45 C	1610	1611.5	7	400	50		
	1420	KIEL	45 C	1610	1611.5	5	300	130		
	4995	BCUL	8 S	1610	1610.5	2.5	61	20		
	240	KIEL	45 C	1610	1611.5	6	1000	30		
	245	SGMR	48 GB	1611	1611.1	4.3	3264	979		SWF
	410	SGMR	7 S	1611	1611.1	5.6	373	112		SWF
	2695	BCUL	45 C	1611.5E	1612	5.5D	95	32		
	29	UPIC	4 S/F	1611	1611.7	1.3				
	1420	ARCE	29 PBI	1612.9		6				
	33	UPIC	4 S/F	1613.1	1613.7	1.4				
	2800	OTTA	29 PBI	1613.2	1613.2	7	4.4	2		
	29	UPIC	4 S/F	1613.6	1614	1				
	2800	OTTA	20 GRF	1820	1840	70	3.6	1.8		
	2800	OTTA	20 GRF	2000	2025	60	3	1.5		
	9400	HUAN	1 S	2034.8	2035.8	2.1	9.9	7.7		O
	9400	HUAN	3 S	2118.4	2119.1	1.6	11.5	2.6		L
	2800	OTTA	21 GRF	2200	2201	30	3.8	1.9		
	2800	OTTA	8 S	2202.7	2202.8	0.5	1.8	0.9		
	4995	BCUL	8 S	2306.5	2307.5	2.5	20	7		
	2695	BCUL	3 S	2307.5E	2308	1 D	16	5		
	2695	PENT	3 S	2307.7	2308	1	16.6	8.3		
	1400	SYDN	1 S	2307.9	2308	1				
	1415	MANI	1 S	2307.9	2308.3	.9	9.7	6.4		
	8800	MANI	3 S	2308.1	2308.3	1.2	24.3	16.2		
	2695	MANI	3 S	2308.1	2308.3	1	15	10		
	4995	MANI	1 S	2308.2	2308.3	1.6	8.1	5.4		
	2695	PENT	29 PBI	2308.8	2308.8	22	4.8	2.4		
3	221	ABST	44 NS	0500	0707	240	31			
	260	ONDR	44 NS	0640 E		508 D	44	3.5		
	127	TORN	44 NS	0650 E	0937.7	480 D	110			V=1
	245	SGMR	44 NS	0940 E	1908.8	841 D	440.8			CONT
	410	SGMR	44 NS	0940 E	1909	841 D	17.8			3,4,5,
	240	KIEL	44 NS	1440	1648	140	1000	50		
	100	HIRA	44 NS	1950 E	2130	820 D	350	150		SL
	200	HIRA	44 NS	1950 E	2111	820 D	20	10		ML
	208	VORO	44 NS	2100 E	2111	240 D	20	8		
	9100	GORK	1 S	0541.6	0543.4	3.9	10	5		
	10500	BERN	1 S	0627.3	0628.3	3.5	3	10		
	3100	CRIM	24 R	0657	0747		7			
	113	POTS	45 C	0658.3	0659.5	1.7	300	35		
	33	UPIC	46 C	0659.1	0659.5	3.3				
	29	UPIC	46 C	0659.2	0659.8	3.3				
	33	UPIC	46 C	0705.5	0707.1	6.6				
	202	IZMI	25 R	0706	0709.5	5	35	16		
	29	UPIC	46 C	0706	0707.9	5.9				
	9100	GORK	20 GRF	0727.2	0748.9	25	13	4.7		
	29	UPIC	42 SER	0936.7	0938	13.3				
	33	UPIC	42 SER	0936	0937.5	14.5				
	2800	OTTA	27A RF	1115		255	4.4	3.6		
	2800	OTTA	24 R	1115	1155	40	4.4	2.2		
	9100	ARCE	21 GRF	1149.5	1232.3	161				
	113	POTS	45 C	1149	1226	87	30	10		
	29	UPIC	42 SER	1150.4	1157.5	56.4				
	33	UPIC	42 SER	1150	1157.3	56.7				
	2800	OTTA	24P R	1155		165	4.4			
	127	TORN	48 C	1155 U	1208	40 U	370			
	3100	CRIM	1 S	1156.5	1159	4	6	2		
	1470	BERL	4	1158	1159	3	1.7			
	2800	OTTA	1 S	1158.5	1159.2	2	3.6	1.8		
	3000	BERL	4	1158.5	1202.5	5	15			
	113	POTS	48	1206.5	1208.7	7.7	200	20		
	8800	ATHN	4 S/F	1220	1220.4	5.7	148.3	44.5		
	113	POTS	45 C	1225.8	1226.8	2.9	200	20		
	4995	ATHN	3 S	1227.3	1228.8	4.6	15.5	4.6		
	10500	BERN	46 C	1227.3	1228.7	7	11	35		
	9400	HUAN	4 S/F	1227.4	1228.7	7.6	35.4	14.7		L
	8800	ATHN	4 S/F	1227.4	1228.8	4.6	71.2	21.3		
	9500	BERL	4	1227.5	1228.2	6.5	37			
	8800	SGMR	3 S	1227.7	1228.5	4.5	49.5	14.9		5,CONT
	4995	SGMR	1 S	1228	1229.5	5.6	8.4	2.5		5,CONT
	9100	ARCE		1228.2	1228.7	1.2				
	9100	ARCE	45 C	1228.2	1228.7	3.3				
	15400	SGMR	3 S	1228.5	1228.8	2.3	10.3	3.1		5,CONT
	9100	ARCE		1229.4	1229.8	2.1				
	10500	BERN	1 S	1313.3	1314.9	24	4	13		
	9500	BERL	42	1313.5	1314.6	24	13			
	3000	POTS	4	1313.5	1314.5	9	29			
	8800	SGMR	3 S	1313.8	1314.7	3	28.5	8.6		4,CONT

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	4995	BOUL	4 S/F	1313	1314	3.5	37	12		
	2695	SGMR	3 S	1314	1315	4	14	4.2		4,CONT
	2800	OTTA	3 S	1314	1314.9	4	15.6	5.2		
	3100	CRIM	3 S	1314	1315	3	34	11		
	9400	HUAN	3 S	1314.1	1314.7	1.3	20	10.9		O
	4995	ATHN	4 S/F	1314.2	1315.1	1.9	56.7	17		
	9100	ARCE	1 S	1314.4	1315	1.3				
	2695	ATHN	3 S	1314.5	1315	2.8	11.4	3.4		
	8800	ATHN	3 S	1314.5	1315.1	1.4	23.7	7.1		
	2650	DWIN	1 S	1314	1315	3	15	5		
	29	UPIC	3 S	1330.6	1330.9	.5				
	33	UPIC	3 S	1330.6	1330.7	.4				
	2800	OTTA	20 GRF	1415	1419	17	7.6	2.6		
	113	POTS	45 C	1421.9	1422.1	.7	280	70		
	9400	HUAN	3 S	1426.3	1429	8.6	21.6	6.8		L
	9100	ARCE	1 S	1426.9	1429.4	5.8				
	2800	OTTA	26 FAL	1440	1530	50	-4.4	-1.5		
	930	BORD	8 S	1559.4	1559.4	.1	16	1		
	240	KIEL	45 C	1651	1657	13	2200	60		
	237	TRST		1652.2	1659.8		8200			48L
	237	TRST	47 GB	1652.2	1656.5	15.8D	7100			40L
	4995	SGMR	3 S	1653.2	1657	25.7	293.7	117.6		3G,4,CONT,
	4995	BOUL	46 C	1653	1656	11	266	89		
	2695	SGMR	3 S	1654.9	1657.7	23.7	179	71.6		SHF
	10500	BERN		1654.9	1700.2		68	198		
	10500	BERN	46 C	1654.9	1656.9	60	50	145		
	405	KIEL	45 C	1654	1657.5	11	130	60		
	2800	OTTA	4 S/F	1655	1657.5	9	169	53.5		
	9100	ARCE	46 C/F	1655.2	1700.5	8.6				
	9100	ARCE		1655.2	1657.1	4.4				
	1420	BOUL	46 C	1655.5E	1656.5	14 D	123	41		
	29	UPIC	46 C	1655.8	1700.1	6.6				
	930	BORD	46 C	1655	1657.6	12	55	8		
	1415	SGMR	3 S	1656	1657.4	11.7	186	74.5		3G,4,CONT,
	33	UPIC	46 C	1656.1	1657.7	6.5				
	8800	SGMR	3 S	1656.2	1700.4	22.6	273	109.2		SHF
	15400	SGMR	3 S	1656.4	1700.4	15.8	83.2	33.3		3G,4,CONT,
	2695	BOUL	46 C	1656.5E	1658.5	6.5D	165	55		
	2695	ATHN	4 S/F	1656.6	1657.9	9.3	171.5	51.4		
	606	SGMR	3 S	1656.6	1700.4	10.3	55	22		SHF
	245	SGMR	6 S	1656.6U	1700.6	4 D	223	89.1U		SHF
	410	SGMR	6 S	1656.6U	1700.6	4 D	97.3	28.9U		3G,4,CONT,
	8800	ATHN	4 S/F	1656.7	1700.5	9.2	359	108		
	4995	ATHN	4 S/F	1656.7	1700.5	9.2	305	91.5		
	1415	ATHN	4 S/F	1656.8	1657.8	9.1	150.1	45		
	602	KIEL	45 C	1656	1700	11	100	80		
	1420	KIEL	45 C	1656	1657.5	10	290	130		
	800	KIEL	45 C	1656	1657.5	10	130	90		
	1420	ARCE	4 S/F	1656	1657.1	4				
	9100	ARCE		1659.6	1700.5	4.2				
	2695	BOUL	29 PBI	1703	1703	20.5D	16	5		
	9100	ARCE	29 PBI	1703.8		11.5				
	2800	OTTA	29 PBI	1704	1704	45	9.6	3.2		
	4995	BOUL	30 PBI	1704	1705.5	11	8	3		
	4995	SGMR	20 GRF	1813.5	1816.8	16.5	12.5	5		CONT
	2800	OTTA	20 GRF	1814	1816.5	25	9.6	2.6		
	2695	SGMR	20 GRF	1814	1816.5	16	9.2	4.6		CONT
	9400	HUAN	22 GRF	1814	1853.6	73.7	15.4	5.6		O
	2800	OTTA	40 F	1930.5	1931.9	3	5.8			
	15400	SGMR	3 S	2017	2020.8	5	32.9	13.1		CONT
	2800	OTTA	3 S	2019.5	2020.5	2.5	67	23		
	8800	SGMR	3 S	2019.5	2020.6	5.5	98	39.2		CONT
	4995	SGMR	3 S	2019.7	2020.5	6.3	134	53.6		CONT
	2695	SGMR	3 S	2020	2020.8	5	66.6	26.7		CONT
	9400	HUAN	4 S/F	2020	2020.7	19.3	86.2	24.6		R
	2800	OTTA	29 PBI	2022	2022	14	8	2.2		
	9400	HUAN	3 S	2134	2135.2	2.7	16.9	8.2		L
	2695	PENT	22 GRF	2355	2427	100 D	7.2			
4	2930	VORO	3 S	0148	0150	4	17			
	5730	IRKU	23 GRF	0247.8	0257.5	40	72	11		
	4995	MANI	3 S	0255.9	0257.1	5.9	32.4	21.6		
	8800	MANI	4 S/F	0255.9	0257	6.8	165.4	110.3		
	200	GORK	43 NS	0336 E		564		5		
	221	ABST	44 NS	0500	0510	240	24			
	202	IZMI	44 NS	0600		360	50			
	127	TORN	44 NS	0640 E		500 D				V=1
	260	ONDR	44 NS	0640 E		508 D	178	12		
	33	UPIC	43 NS	0831.3	1103.2	307.7				
	29	UPIC	43 NS	0831.5	1103.7	308.3				
	410	SGMR	44 NS	0939 E	1851	843 D	20.4			3,5,CONT
	245	SGMR	44 NS	0939 E	1900.2	843 D	274			3,5,CONT
	100	HIRA	44 NS	1950 E	0510	820 D	300	130		ML
	200	HIRA	44 NS	1950 E	0120	820 D	90	40		ML
	208	VORO	44 NS	2100 E	2258	240 D	40	22		

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MAY 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	5730	IRKU	1 S	0340.5	0341	1.5	6			L
	234	POTS	45 C	0609.1	0609.6	1.1	500	100		
	2950	GORK	1 S	0656.9	0657	1.3	6.9	3		
	9100	GORK	1 S	0658	0659.3	4.2	14	4.8		
	9100	ARCE	22 GRF	0830.5	1000.1	180				
	10500	BERN	22 GRF	0927.8	0957.5	57	8	24		
	9500	BERL	4	0945	0946	2.5	13			
	9100	GORK	22 GRF	0945.6	0957.6	27.6	34	11		
	8800	ATHN	20 GRF	0952.4	0957.7	15.8	29.2	17.5		
	9500	BERL	4	0955	0957	16	20			
	3000	BERL	4	0956.8	0957.3	8.2	5.6			
	2950	GORK	1 S	0956.9	0957.4	.5	9.3	4.5		
	2695	ATHN	1 S	0956.9	0957.2	3	6.7	2		
	1470	BERL	1 S	0957	0957.4	1	3			
	4995	ATHN	20 GRF	0957.2	0959.7	10.4	9.2	5.5		
	930	BORD	8 S	0957.3	0957.3	.1	31	1		
	1420	ARCE	1 S	0957	0957.3	1				
	2800	OTTA	20 GRF	1125	1152	55	3.4	1.7		
	408	TRST	42 SER	1147	1147.7	.9	42			
	9500	BERL	4	1154	1154.5	4.5	7.1			
	113	POTS	45 C	1154.2	1154.7	5.8	250	40		
	9100	ARCE	22 GRF	1225.9	1308.4	82.5				
	3000	BERL	20	1232	1309	83	13			
	9500	BERL	22	1232	1430	148 D	16			
	3100	CRIM	3 S	1236	1315		15	5		
	8800	SGMR	20 GRF	1242.2	1243	17.3	11	5.5		CONT
	2800	OTTA	21 GRF	1250	1310	70	9.4	4.7		
	2800	OTTA	1 S	1332	1333	2.5	3.6	1.6		
	113	POTS	45 C	1334	1339	6	700	30		
	18	MCMA	6 S	1334	1337	5			1	
	9400	HUAN	20 GRF	1403.6	1405.3	37.1	8.2	6.7		0
	9100	ARCE	22 GRF	1404.8	1405.7	36				
	9400	HUAN	3 S	1552.1	1554	5.5	11.4	3.6		0
	10500	BERN	20 GRF	1613.5	1623.2	19.5	5	15		
	9400	HUAN	21 GRF	1613.7	1617.2	18.4	13.1	5.6		0
	9100	ARCE	22 GRF	1614.1	1623.3	23.5				
	9400	HUAN	2 S/F	1622.1	1622.8	1.7	9.8	3.9		0
	10500	BERN	22 GRF	1657.2	1658.1	10.5	5	15		
	9400	HUAN	4 S/F	1657.7	1658.2	2.6	14.7	4.7		0
	2800	OTTA	21 GRF	1735	1820	100	3	1.5		
	18	MCMA	41 F	1747	1841	87			2	
	9400	HUAN	20 GRF	1802.8	1815.2	21.3	13.1	6.6		0
	245	SGMR	49 GB	1831	1840.3	14	666	266		5,CONT
	410	SGMR	7 S	1834	1840	8	410	164		5,CONT
	2800	OTTA	1 S	1839	1840	2	3	1.5		
	2800	OTTA	20 GRF	1915	1923	30	3	1.5		
	9400	HUAN	4 S/F	2020.7	2022.4	4.7	14.7	7.5		0
	2800	OTTA	20 GRF	2105		17	2	1.6		
5	2930	VORO	3 S	0100	0105	10	27			
	200	GORK	44 NS	0300		600		10		
	221	ABST	44 NS	0500	0814	240	47			
	202	IZMI	44 NS	0600		360	70			
	127	TORN	44 NS	0600 E	1029 U	530 D	420 D			V=1
	29	UPIC	43 NS	0614.5	1028.7	630.5				
	33	UPIC	43 NS	0614.6	1027.6	630.6				
	260	ONDR	44 NS	0636 E		513 D	158	8		
	410	SGMR	44 NS	0937 E	1714.3	846 D	18.9			3,5
	245	SGMR	44 NS	0937 E	1643.7	846 D	388			3,5
	208	VORO	44 NS	2100 E		240 D		6		
	9100	GORK	1 S	0424.7	0425.7	2.9	8.7	4		
	9100	GORK	1 S	0458.1	0458.6	1.1	8.7	4		
	9100	GORK	1 S	0541	0541.6	1	6	3		
	8800	ATHN	4 S/F	0557.8	0608.2	83.9	53.4	16		
	4995	ATHN	20 GRF	0558.1	0623.3	63.9	24	14.4		
	10500	BERN	3 S	0603.8	0608	11.5	10	29		
	8900	BERN	3 S	0603.8	0608	11.5	13	35		
	8400	BERN	3 S	0603.8	0608	11.5	12	32		
	9100	GORK	21 GRF	0603.9	0609.4	8.9	16	4		
	9100	GORK	3 S	0607.6	0608.1	1.6	31	15		
	9100	GORK	1 S	0649.9	0650.3	.8	7.8	3.5		
	113	POTS	45 C	0654.9	0655.8	1.8	1700	50		
	202	IZMI	6 S	0655	0655.7	1	1200	500		
	200	GORK	8 S	0655.1	0656	1.1	960			
	234	POTS	45 C	0655.3	0655.8	1.9	600	25		
	127	TORN	47 GB	0655 U	0655.9	1.5	2600	200		
	9100	GORK	1 S	0706.1	0706.8	1.8	6.8	3		
	9100	GORK	20 GRF	0710.3	0716.5	8.2	11	5.5		
	536	ONDR	3 S	0713	0713	.2	15			
	234	POTS	45 C	0745.3	0745.4	.2	200	30		
	9100	ARCE	22 GRF	0915	0939	43				
	9100	GORK	1 S	0932.1	0932.4	.8	8	4		
	930	BORD	8 S	1002.2	1002.3	.2	27	2		
	3100	CRIM	3 S	1005	1007	12	17 D	6		
	234	POTS	45 C	1009.5	1009.5	.1	140	35		

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	9100	GORK	21	GRF	1019.9	1031	31	19		7			
	9100	ARCE	21	GRF	1019	1034.5	48						
	200	GORK			1024	1035.4		1870					
	200	GORK	46	C	1024	1028.8	13	6000					
	113	POTS	45	C	1024.5	1028.5	14	14000					
	29	UPIC	49	GB	1025.9	1028.7	14.1						
	408	TRST	49	GB	1025.9	1028.6	10.6	700					
	237	TRST			1026	1028.2		1250					26L
	237	TRST	47	GB	1026	1027.2	2.8	5700					10DL
	33	UPIC	49	GB	1026.1	1027.6	13.2						
	234	POTS	45	C	1026.1	1028.3	13	2500					
	602	KIEL	45	C	1026.5	1028	11	190		90			
	228	HARS	47	GB	1026.8	1028.2	5.7	2300	U	500	U		
	228	HARS			1026.8	1030.5	.3	230					
	228	HARS			1026.8	1029.1	.3	200					
	240	KIEL	45	C	1026	1029	13	2200		60			
	405	KIEL	45	C	1026	1029	11	950		70			
	260	ONDR	46	C	1026		11	222	D				
	1470	BERL	4		1027	1028.4	23	1130					
	3000	BERL	4		1027	1028.4	15	430					
	650	GORK	45	C	1027	1028.2	9	88					
	650	GORK			1027	1034		16					
	2950	GORK	4	SF	1027.3	1028.5	2.4	470					
	202	IZMI	47	GB	1027.3	1030	5	2750		1000			
	8900	BERN	23	GRF	1027.4	1028.3	28.5	166		475			
	8400	BERN	23	GRF	1027.4	1028.3	28.5	189		501			
	10500	BERN	23	GRF	1027.4	1028.3	28.5	126		366			
	245	SGMR	48	GB	1027.5	1029.5	9.5	3490		1396			5
	410	SGMR	48	GB	1027.5	1029.5	8.8	589		263			5
	606	SGMR	3	S	1027.5	1029.5	8.1	102		41			5
	950	GORK	3	S	1027.5	1028.1	4	196		98			
	9500	BERL	4		1027.7	1028.3	21	800					
	1415	SGMR	3	S	1027.7	1028.2	7	115		46			5
	9100	ARCE	3	S	1027.7	1028.5	4						
	9100	GORK	4	S/F	1027.9	1028.5	3.1	502					
	2650	DWIN	45	C	1027		5	120	D				
	10715	DWIN	45	C	1027		5	117					
	800	KIEL	45	C	1027	1028.5	11	400		90			
	1420	KIEL	45	C	1027	1028	9	220		130			
	1420	ARCE	4	S/F	1027	1027.9	3						
	930	BORD	46	C	1027	1028.2	9	538		12			
	4995	SGMR	3	S	1028	1028.5	8.5	467		187			5
	15400	SGMR	3	S	1028	1028.5	7	93.1		37.2			5
	2695	SGMR	3	S	1028	1028.5	7	200		80			5
	8800	SGMR	3	S	1028	1028.5	7	450		180			5
	1420	ARCE	30	PBI	1030	1030.4	19						
	1420	ARCE	2	S/F	1033.4	1034.2	1.8						
	228	HARS	45	C	1033.5	1034	3	320		150			
	202	IZMI	21	GRF	1033.7	1034	2.7	500		250			
	8900	BERN	3	S	1130	1130.7	2.5	10		28			
	8400	BERN	3	S	1130	1130.7	2.5	12		32			
	10500	BERN	3	S	1130	1130.7	2.5	6		17			
	9400	HUAN	3	S	1130.2	1130.8	1.1	26		10.7			L
	8800	ATHN	3	S	1130.4	1130.8	2.7	23.7		7.1			
	4995	ATHN	3	S	1130.4	1130.9	2.3	20.1		6			
	9100	GORK	1	S	1130.5	1130.9	2.1	22		10			
	2800	OTTA	22	GRF	1210		130	3		1.5			
	9100	ARCE	4	S/F	1312.6	1313.3	1.4						RECORDDISTURBED
	9100	ARCE	29	PBI	1314								
	234	POTS	49		1356.2	1411.5	24	500		1			
	113	POTS	49		1357.1	1403.7	22	2800		35			
	237	TRST			1403.4	1411.7		675					23L
	237	TRST			1403.4	1411.3		1050					22L
	237	TRST			1403.4	1407.9		650					13L
	237	TRST	42	SER	1403.4	1404.1	12.6	265					16L
	237	TRST			1403.4	1415.5		256					13L
	410	SGMR	7	S	1403.5	1415	16	278		111			3G
	245	SGMR	48	GB	1403.5	1411.5	17.5	647		259			3G
	536	ONDR	41	F	1403	1412.3	13	18		1.6			
	228	HARS	45	C	1410.5	1410.8U	1.2	340		100			
	930	BORD	41	F	1412	1414	3	19		2			
	9400	HUAN	20	GRF	1414.6	1421.1	13.7	9.8		5.6			O
	2800	OTTA	240	R	1420	1435	15	3		1.5			
	2800	OTTA	21	GRF	1440	1448	110	4.8		2.6			
	2800	OTTA	1	S	1458		9	1.8		1.1			
	2800	OTTA	1	S	1527.5	1529.4	6.5	2		1			
	9400	HUAN	4	S/F	1536.4	1538	9.7	13		5.5			O
	9400	HUAN	4	S/F	1623	1624.2	2.5	11.4		4.7			O
	2800	OTTA	24	R	1637	1650	13	2.8		1.4			
	2800	OTTA	27A	RF	1637		145	2.8		2.5			
	237	TRST	41	F	1643.3	1643.5	.2	508					26L
	930	BORD	8	S	1647.6	1647.6	.1	30		2			
	10500	BERN	32	ABS	1647.9	1648.9	3	10		29			
	1420	ARCE	1	S	1648.4	1648.6	.6						
	9400	HUAN	8	S	1648.5	1648.8	.6	30.9		15.3			L

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	9100	ARCE	1 S	1648.7	1649	5				
	2800	OTTA	24P R	1650		115	2.8			
	930	BORD	8 S	1714.4	1714.4	.1	12	1		
	2800	OTTA	20 GRF	1732	1737	15	2.6	1.3		
	9400	HUAN	21 GRF	1734.8	1738.8	44.5	9.8	6.7		O
	9400	HUAN	3 S	1745	1745.6	1	11.4	9.8		O
	9400	HUAN	3 S	1750.5	1751	.8	13	6.2		L
	9400	HUAN	3 S	1758.8	1759.4	1.5	17.9	12.4		O
	2800	OTTA	1 S	1800.6	1801	1.5	2.8	0.9		
	2800	OTTA	26 FAL	1845	1902	17	-2.8	-1.4		
	2800	OTTA	20 GRF	2000	2023	52	2	1		
	2800	OTTA	22 GRF	2130	2207	95	5.8	2.7		
	18	MCMA	41 S	2159	2208	13			1	
	208	VORO	46 C	2200	2202.5	14	115			
	208	VORO		2200	2205		350 D			
	200	HIRA	46 C	2200	2202.5	3	200	80		ML
	100	HIRA	46 C	2201	2202	8	3000	200		O
	245	SGMR	49 GB	2202.1	2204.6	11.5	1531	459		5
	500	HIRA	46 C	2204	2206	2	75	20		ML
	200	HIRA	46 C	2204	2204.5	5	1000	200		WL
	410	SGMR	6 S	2204.3	2206.3	6.5	103	30.9		5
	1415	SGMR	3 S	2204.4	2204.6	1.6	33	9.9		5
	606	SGMR	3 S	2204.7	2204.8	.3	11.1	3.3		5
	200	HIRA	27 RF	2215	2222	20	6	3		WL
	100	HIRA	27 RF	2219	2230	30	20	10		O
	208	VORO	41 F	2243	2243.5	3	70			
	2930	VORO	3 S	2309	2312	11	25			
	2695	PENT	20 GRF	2320	2345	45	3.4	2.2		
	208	VORO	4 S/F	2331	2332	1	60			
6	2930	VORO	3 S	0000	0004	10	18			
	9100	GORK	1 S	0340.3	0340.8	1.1	12	5.5		
	221	ABST	44 NS	0500	0840	240	87			
	260	ONDR	44 NS	0637 E		511 D	57	3		
	127	TORN	44 NS	0700 E	1108.2	470 D	170			V=1
	410	SGMR	44 NS	0936 E	2025.8	848 D	18.9			3,5,CONT
	245	SGMR	44 NS	0936 E	2158.3	848 D	76.6			3,5,CONT
	5730	IRKU	1 S	0610	0611	4	16			
	9100	GORK	1 S	0640.4	0610.8	1.1	22	11		
	29	UPIC	45 C	0835.6	0836.6	1.1				
	33	UPIC	45 C	0835.7	0836.4	1				
	536	ONDR	4 S/F	0929.5	0931	2.5	31	3.4		
	408	TRST	42 SER	0930.5	0930.6	.4	95			
	606	MANI	8 S	0930.7	0931	.5	23.9	15.9		
	1415	MANI	8 S	0930.8	0930.9	.2	18.9	12.6		
	1470	BERL	3	0930.8	0930.9	.2	14			
	808	ONDR	8 S	0930.8	0930.8	.3	59			
	930	BORD	8 S	0930	0931	2	85	3		
	113	POTS	45 C	1037.7	1037.8	3	120	1		
	33	UPIC	45 C	1046.4	1047.9	1.8				
	29	UPIC	45 C	1046.7	1048.4	1.7				
	29	UPIC	42 SER	1057.6	1104.8	11.6				
	33	UPIC	42 SER	1057.6	1104.5	11.8				
	113	POTS	45 C	1100	1109.7	10	100	10		
	202	IZMI	41 F	1102	1108	8	200			
	237	TRST	41 F	1103	1104.1	1.6	152			16L
	237	TRST	41 F	1107.7	1108	.8	120			24L
	9100	GORK	1 S	1118.2	1118.4	.6	9.5	4.5		
	9500	BERL	20	1153	1200	17	8.7			
	536	ONDR	4 S/F	1204.5	1205.3	2	110	13		
	1420	ARCE	1 S	1214.4	1215.3	2				
	1470	BERL	4	1214.8	1215.2	1.7	4.1			
	408	TRST	42 SER	1214.8	1215.3	.8	690			
	3000	BERL	1 S	1214.8	1215	.7	3.9			
	410	SGMR	48 GB	1215	1215.5	1.4	911	364		3
	245	SGMR	6 S	1215.1	1215.3	1.9	67.9	27.2		3
	1415	SGMR	1 S	1215.1	1215.4	1.3	5.2	2.1		3
	606	SGMR	3 S	1215.3	1215.4	.7	65.8	26.3		3
	113	POTS	1 S	1216.5	1216.6	.2	200	70		
	2800	OTTA	24 R	1217	1245	28	3.8	1.9		
	2800	OTTA	27A RF	1217		225	3.8	3.3		
	2800	OTTA	24P R	1245		165	3.8			
	536	ONDR	42 SER	1251.5	1301	10.5	75			
	410	SGMR	7 S	1300.5	1301.1	.9	334	134		
	2800	OTTA	20 GRF	1300 1	3130	22	2.4	1.6		
	245	SGMR	6 S	1301	1301.1	.3	26.5	10.6		
	930	BORD	3 S	1315	1315.1	2	11	2		
	930	BORD	8 S	1450	1450	.1	15	1		
	2800	OTTA	26 FAL	1530	1602	32	-3.8	-2.2		
	8800	SGMR	3 S	2013	2016.8	81	95	38		5,CONT,SHF
	15400	SGMR	3 S	2013	2016.8	81	85.2	34.1		5,CONT,SHF
	2695	PENT	4 S/F	2013.5	2016.8	11.5	150	46.6		
	2695	SGMR	3 S	2013.7	2016.8	80.3	172	68.8		5,CONT,SHF
	4995	SGMR	3 S	2013.8	2016.6	80.2	110	44		5,CONT,SHF
	1415	SGMR	3 S	2014	2017	80	55.9	22.4		5,CONT,SHF

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MAY 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	606	SGMR	45 C	2014	2121.8		15.1			S,CONT,SHF
	606	SGMR	45 C	2014	2100		484			S,CONT,SHF
	606	SGMR	45 C	2014	2017	80	128	194		S,CONT,SHF
	9400	HUAN	4 S/F	2014.1	2017.7	13.4	93.1	43.3		R
	200	HIRA	46 C	2019	2020	1	1000	400		WR
	410	SGMR	49 GB	2019.5	2021	72.5	3150	1260		S,CONT,SHF
	245	SGMR	49 GB	2019.5	2121.3		2600			S,CONT,SHF
	245	SGMR	49 GB	2019.5	2100		52			S,CONT,SHF
	245	SGMR	49 GB	2019.5	2021.4	72.5	685	1040		S,CONT,SHF
	410	SGMR	49 GB	2019.5	2121.6		29			S,CONT,SHF
	410	SGMR	49 GB	2019.5	2100		291			S,CONT,SHF
	100	HIRA	46 C	2023	2028.8	13	9000	2000		WL
	2800	OTTA	30 PBI	2025	2025	75	11	5.5		
	200	HIRA	27 RF	2026	2050	125	35	10		WL
	18	MCMA	41 S	2028	2029	8			1	
	100	HIRA	27 RF	2036	2050	135	55	25		O
	200	HIRA	46 C	2054.5	2100	12	70	30		WL
	500	HIRA	45 C	2057.6	2102.4	8	480	300		WL
	2800	OTTA	3 S	2058	2102	11	14.4	5.8		
	208	VORO	48 C	2119.5	2121	3.5	350 D			
	100	HIRA	46 C	2119	2121	5	90000	9999		O
	200	HIRA	46 C	2120	2121	5	2500	600		WR
	2800	OTTA	3 S	2120	2121	3	26	8.6		
	9400	HUAN	3 S	2120.1	2121	2.1	21.2	7.6		O
	208	VORO	46 C	2142	2144.5	7.5	135			
	2800	OTTA	23 GRF	2201	2227	55	9.4	2.4		
	2800	OTTA	1 S	2201.8	2202.5	2.5	4	1.5		
	4995	BCUL	2 SF	2219	2221.5	6	28	9		
	2800	OTTA	1 S	2222	2223	3	3.6	2		
	1420	BCUL	1 S	2259	2300.5	3.5	5	2		
	2695	PENT	1 S	2300	2301	2.5	6.6	3.3		
	2695	BCUL	1 S	2300	2301.5	4	5	2		
	2695	PENT	26 FAL	2318	2350	32	-6.8	-3.4		
	2930	VORO	3 S	2345	2353	10	18			
7	2930	VORO	20 GRF	0025	0040	30	17			
	2930	VORO	3 S	0145	0148	5	22			
	5730	IRKU	2 S	0249.5	0253	10	17	7		R
	5730	IRKU	1 S	0305	0305.8	5	10	4		R
	2950	GORK		0318.2	0359.1		400			
	2950	GORK		0318.2	0353.2		466			
	2950	GORK	46 C	0318.2	0332.9	105	1730			
	2950	GORK		0318.2	0336.2		1600			
	2950	GORK		0318.2	0341.1		1200			
	4995	MANI	47 GB	0319.3	0328.6	50.8	1400	550		
	4995	MANI	45 C	0319.3	0352.9		177.3			
	4995	MANI	47 GB	0319.3	0329.7		1640			
	5730	IRKU		0320	0359.3		89			R
	5730	IRKU		0320	0353.3		162			R
	5730	IRKU		0320	0336		162			R
	5730	IRKU		0320	0334		162			R
	5730	IRKU		0320	0328		162			L
	5730	IRKU		0320	0325		162			R
	5730	IRKU	48 C	0320	0322.9	52	68			R
	2695	MANI	45 C	0321.7	0358.8		176.4			
	2695	MANI	45 C	0321.7	0353.1		196			
	2695	MANI	47 GB	0321.7	0332.7	48.2	765	250		
	2695	MANI	47 GB	0321.7	0335.4		740			
	8800	MANI	46 C	0322.2	0358.5		169.7			
	8800	MANI	46 C	0322.2	0352.8		171.5			
	8800	MANI	47 GB	0322.2	0329.4		3450			
	8800	MANI	47 GB	0322.2	0328.5	39.4	3450	1175		NT
	950	GORK	23 GRF	0322.7		84				
	1415	MANI	46 C	0322.8	0327.5	46.7	330	120		
	1415	MANI	45 C	0322.8	0352.8		151.4			
	9100	GORK	21 GRF	0323 U	0333	78	390			
	606	MANI	47 GB	0324	0330.5	49.2	690	240		
	4995	MANI	45 C	0324	0358.8		175.3			
	606	MANI	47 GB	0324	0352.7		845			
	606	MANI	47 GB	0324	0359.7		1010			
	1415	MANI	45 C	0324	0359.2		176.4			
	500	HIRA		0324.2	0400.3		800			SL
	500	HIRA		0324.2	0352.9		800			SL
	500	HIRA	48 C	0324.2	0330.7	46	1000	120		ML
	650	GORK	47 GB	0324.2	0401	47.8	770			
	9100	GORK		0324.4	0330		1860			
	9100	GORK	46 C	0324.4	0326.8	8.7	672			
	950	GORK		0325.1	0353.2		116			
	950	GORK	46 C	0325.1	0328.9	37.9	193			
	950	GORK		0325.1	0359.9		202			
	35000	NAGO	47 GB	0326	0330	13	870			
	35000	NAGO		0326	0336		204			
	200	GORK		0327	0340.8		5450			
	200	GORK		0327	0331.8		8330			
	200	GORK	47 C	0327	0329.3	114	730			

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	200	GORK			0327	0456.2		420			
	200	GORK			0327	0337.7		7380			
	200	GORK			0327	0409.3		530			
	200	GORK			0327	0358.2		2450			
	200	HIRA			0327	0357.5		2000			ML
	200	HIRA	48	C	0327	0329	115	15000	200		ML
	100	HIRA	48	C	0327	0332	28	80000	9999		0
	228	HARS	47	GB	0328.3	0337 U		1650 D	500		
	1415	ATHN	4	S/F	0339.8	0343.8	51.5	401	120.3		
	2695	ATHN	47	GB	0339.8	0343.1	43.6	774	232.2		
	4995	ATHN	47	GB	0339.8	0342.2	49.4	721	216.3		
	8800	ATHN	47	GB	0339.8	0342.2	49.5	669	200.7		
	35000	NAGO	29	PBI	0339	0339	30	75			
	9100	GORK	4	S/F	0352.2	0353.4	2.7	84	40		
	228	HARS	45	C	0352.3	0353	4.7	600	230		
	228	HARS	45	C	0357.5	0358	6	1200	550		
	9100	GORK	5	S	0357.7	0359.2	3.6	109	50		
	606	MANI	3	S	0417.3	0419.3	5.5	22.2	14.8		
	1415	MANI	3	S	0418	0418.3	1	32.3	21.5		
	2695	MANI	3	S	0418	0418.1	1	19.6	13.1		
	650	GORK			0418.2	0457.2		133			
	650	GORK	41	F	0418.2	0429.5	49.6	250			
	650	GORK			0418.2	0440.6		155			
	1415	MANI	3	S	0423.8	0429.5	7.4	19.1	12.7		
	606	MANI	4	S/F	0425.9	0428.8	5	274.7	183.1		
	606	MANI	3	S	0439.4	0440.3	2.1	228.3	152.2		
	1415	MANI	3	S	0439.4	0440.4	1.9	22.1	14.7		
	606	MANI	4	S/F	0451.8	0456.2	6.7	117.2	78.1		
	1415	MANI	3	S	0452	0455.8	9.4	88.2	58.8		
	950	GORK	23	GRF	0452.2	0505.5	26	12.7			
	4995	ATHN	4	S/F	0453.8	0456.2	14.5	105.8	31.7		
	9100	GORK	4	S/F	0453.8	0456.5	5.7	74	19		
	950	GORK	4	S/F	0454.7	0455.4	2.7	97			
	2695	MANI	3	S	0455.3	0455.9	5.7	68.6	45.7		
	8800	MANI	3	S	0455.3	0455.8	2.7	78.8	52.5		
	4995	MANI	3	S	0455.3	0455.9	5.7	63	42		
	2695	ATHN	4	S/F	0455.5	0456.2	13.7	68	20.4		
	1415	ATHN	4	S/F	0455.7	0457.1	7.2	75.1	22.5		
	8800	ATHN	4	S/F	0455.7	0456.1	14	69	20.7		
	221	ABST	44	NS	0600	0846	180	9			
	260	ONDR	44	NS	0606 E		540 D	30	5		
	200	GORK	43	NS	0636		192		5		
	127	TORN	44	NS	0650 E	0818.7	480 D	32			V=0
	245	SGMR	44	NS	0935 E	2124.5	850 D	253			CONT
	410	SGMR	44	NS	0935 E	1710.1	850 D	115			2,3,4,5,
	200	GORK	27	RF	0703	0711.8	61	20	10		
	29	UPIC	2	S/F	0739.8	0740	.5				
	33	UPIC	4	S/F	0739.8	0739.8	.9				
	33	UPIC	42	SER	0846.2	0900.1	26.7				
	29	UPIC	42	SER	0846.6	0900.4	26.2				
	237	TRST	41	F	0912.5	0912.5	.3	178			11L
	3100	CRIM	1	S	0927	0927.2	1	7	2		
	113	POTS	45	C	0936.6	0937.5	2	1100	25		
	234	POTS	45	C	0936.9	0937.2	.7	1300	30		
	237	TRST	41	F	0936.9	0937.3	.8	2120			16L
	202	IZMI	45	C	0937	0937	1	3200	1000		
	228	HARS	45	C	0937	0937.3	.8	1200	600		
	29	UPIC	8	S	0937	0937.3	.5				
	33	UPIC	8	S	0937	0937	.9				
	33	UPIC	46	C	1000.6	1001.7	5.3				
	29	UPIC	46	C *	1000.8	1002.1	4.5				
	113	POTS	2		1001.1	1002.8	4	420	4		
	202	IZMI	41	F	1003.2	1004.5	2.8	70			
	237	TRST	41	F	1004.3	1004.3	.4	117			7L
	33	UPIC	42	SER	1111.3	1112.9	15.5				
	9500	BERL	20		1111	1114.3	59	17			
	9100	ARCE	20	GRF	1112	1114.2	32.5				
	9100	ARCE	22	GRF	1215.4	1232	83				
	113	POTS	48		1225.7	1233.9	8.5	1800	5		
	9500	BERL	21		1225	1328.5	144	17			
	536	ONDR	41	F	1225	1226	8.5	20			
	33	UPIC	42	SER	1227	1233.4	8				
	2800	OTTA	2	S/F	1227	1231	6	3.8	1.6		
	18	MCMA	41	F	1227	1231	17			1	
	3000	BERL	1	S	1230	1230.9	2	3.8			
	1420	ARCE	1	S	1230.7	1230.8	.6				
	9400	HUAN	3	S	1231.4	1231.7	.8	18.2	10.7		0
	9500	BERL	3		1231.5	1231.7	.7	23			
	9400	HUAN	2	S/F	1236.4	1238.3	3.7	9.9	7.4		0
	9400	HUAN	21	GRF	1326.5	1344.4	39.2	9.9	4.6		0
	9400	HUAN	3	S	1328.3	1328.8	1.3	13.2	8.6		0
	9100	ARCE	22	GRF	1341.8	1344.3	39				
	9400	HUAN	1	S	1355.7	1356	1.1	7.4	4.7		L
	9500	BERL	20		1432	1437	15	5.8			
	2800	OTTA	21	GRF	1500	1705	260	8.6	4.3		

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	9100	ARCE	21	GRF	1511.6	1609.5	82				
	1420	ARCE	21	GRF	1512	1609	82				
	245	SGMR	48	GB	1531	1534	5	603	241		3
	237	TRST	42	SER	1531	1531.4	3.3	370			9L
	237	TRST			1531	1533.7		525			16L
	410	SGMR	7	S	1531.3	1534	4.7	270	108		3
	18	MCMA	41	F	1531	1557	56			2	
	1420	BOUL	1	S	1532.5	1533.5	9	5	2		
	29	UPIC	42	SER	1533.1	1551.1	24.1				
	33	UPIC	42	SER	1533.3	1550.8	24.5				
	2800	OTTA	1	S	1533.5	1534	3	4.4	1.5		
	1420	BOUL	1	S	1541	1543	3	7	2		
	1420	ARCE	2	S/F	1542.5	1543.5	1.6				
	2800	OTTA	2	S/F	1543	1543.6	1.5	7.6	1.5		
	2695	SGMR	3	S	1543.5	1555.4	22.5	149	59.6		SWF
	2650	DWIN	45	C	1544	1550	16	85	40		
	10715	DWIN	45	C	1545	1548	9	29			
	4995	BCUL	46	C	1548.5	1553.5	26	142	47		
	8400	BERN	4	S/F	1548.7	1552.7	50	50	134		
	8900	BERN	4	S/F	1548.7	1552.7	50	50	136		
	4995	ATHN	40	F	1548.8	1552.2	21.6	224.5	112.3		
	8800	SGMR	3	S	1548.8	1553.8	16.2	155	62		SWF
	2695	ATHN	40	F	1548.8	1554.8	21	117.3	58.6		
	1420	ARCE	45	C	1548.9	1551.6	17				
	1420	BCUL	21	GRF	1548	1551	17	37	12		
	15400	SGMR	3	S	1549	1553	10	45.7	18.3		2,4,CONT,
	8800	ATHN	40	F	1549	1552	20	132.9	66.4		
	2800	OTTA	45	C	1549	1555.3	17	110	44.6		
	4995	SGMR	3	S	1549.4	1554.2	16.5	205	82		2,4,CONT,
	410	SGMR	6	S	1549.5	1555.4	17.5	146	58.4		2,4,CONT,
	9400	HUAN	45	C	1549.5	1552.6	14.8	127.2	63.3		R
	1415	ATHN	40	F	1549.5	1551.4	20.3	32.6	16.3		
	9100	ARCE	4	S/F	1549.8	1552.7	9				
	930	BORD	40	F	1549	1551	15	40	18		
	240	KIEL	47	GB	1549	1601	25	600	60		
	800	KIEL	45	C	1549	1551.5	19	150	100		
	602	KIEL	45	C	1549	1552	19	190	90		
	1420	KIEL	45	C	1549	1552	17	160	130		
	405	KIEL	45	C	1549	1551.5	15	180	80		
	606	SGMR	3	S	1550	1557	15	141	56.4		SWF
	1415	SGMR	3	S	1550	1558	16	43.5	17.4		2,4,CONT,
	245	SGMR	49	GB	1550.5	1601	19.5	852	341		SWF
	2695	BCUL	46	C	1550.5E	1556.5	30.50	87	29		
	237	TRST	47	GB	1550.6	1551.1	23.5	400			14L
	237	TRST			1550.6	1600.7		760			16L
	9100	ARCE	29	PBI	1558.8	1559	9.5				
	33	UPIC	41	F	1559.6	1605.2	20.5				
	29	UPIC	41	F	1602.1	1608.1	11.90				
	9400	HUAN	30	PBI	1602.3	1602.3	25.6	28.1	18.4		0
	228	HARS	45	C	1603	1600.6	1.3	600	200		
	2800	OTTA	30	PBI	1606	1606	35	7.6	3.8		
	9400	HUAN	1	S	1608.5	1609.3	1	8.3	3.3		0
	2800	OTTA	1	S	1609	1610	3	3	1.5		
	237	TRST	47	GB	1636.5	1653.5	30.3	106			30L
	245	SGMR	6	S	1637	1654.2	59	94	38.6		CONT,SWF
	410	SGMR	6	S	1637.6	1710.1	58.4	105.4	42.1		CONT,SWF
	9400	HUAN	28	PRE	1652.1	1701.4	9.3	9.1	5.1		0
	15400	SGMR	3	S	1700.3	1705.4	23.7	135.2	54.5		CONT,SWF
	8800	SGMR	3	S	1700.6	1705.4	26.6	132.8	53.1		CONT,SWF
	4995	SGMR	20	GRF	1700.7	1705.3	25.6	22.7	9.1		CONT,SWF
	2695	SGMR	20	GRF	1701.3	1707	13.9	6.8	2.7		CONT,SWF
	9400	HUAN	46	C	1701.4	1705.2	6	163.5	97.7		L
	4995	BCUL	4	SF	1701.5	1704.5	4	19	6		
	9100	ARCE	4	S/F	1701.9	1705.5	5.2				
	9100	ARCE	29	PBI	1707.1		27.5				
	9400	HUAN	30	PBI	1707.4	1707.4	72	43	16.8		0
	606	SGMR	3	S	1709.3	1709.4	.7	32.5	13		CONT,SWF
	1420	BCUL	1	S	1709	1710	1.5	3	1		
	2695	PENT	1	S	1710	1710.5	2	2.8	1.4		
	9400	HUAN	3	S	1710.8	1711.3	1	24.5	12.2		0
	18	MCMA	6	S	1711	1713	3			1	
	9400	HLAN	3	S	1713.5	1714	1	19.8	9.7		0
	4995	BOUL	4	SF	1733	1735	3	11	4		
	2695	BOUL	4	SF	1735	1737	2.5	23	8		
	606	SGMR	3	S	1754	1758.5	7.1	251	101		CONT
	1420	BOUL	1	S	1757.5	1758.5	2.5	2	1		
	410	SGMR	6	S	1757.8	1758.8	3.1	46.8	18.7		CONT
	2695	SGMR	1	S	1758	1759.3	2.3	7.2	2.9		CONT
	8800	SGMR	3	S	1758.2	1759.2	1.8	10.3	4.1		CONT
	4995	SGMR	1	S	1758.2	1759.2	1.9	7	2.8		CONT
	2800	OTTA	2	S/F	1758.3	1759.1	3.5	5.8	1.6		
	2695	BCUL	2	SF	1758.5	1759.5	2	6	2		
	4995	BCUL	8	S	1758	1758.5	1	8	3		
	2800	OTTA	26	FAL	2035	2100	25	-3.8	-1.9		
	18	MCMA	6	S	2123	2125	4			1	

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8	2930	VORO	3 S	0018	0022	7	18			
	4995	MANI	4 S/F	0039.8	0041.8	6.8	52.1	34.8		
	4995	BCUL	45 C	0039	0041	6	56	19		
	2695	PENT	1 S	0040	0042	5	6	2.6		
	2695	BOUL	1 S	0040.5	0042.5	6.5	7	2		
	2930	VORO	3 S	0040	0042	5	18			
	35000	NAGO	20 GRF	0050	0108	60	29			
	2695	MANI	4 S/F	0159.6	0211.7	17.4	87	58		
	500	HIRA	46 C	0159.7	0209.8	20	60	20		ML
	700	SYDN	40 F	0159.8	0203	13.7				
	1400	SYDN	40 F	0200.2	0208.9	15.6				
	606	MANI	4 S/F	0200.2	0203.4	13.8	53	35.4		
	1415	MANI	4 S/F	0200.3	0209.1	14	35.5	23.7		
	4995	MANI	4 S/F	0200.3	0211.9	16.6	23.7	15.8		
	200	HIRA	46 C	0200	0215	70	120	40		WL
	35000	NAGO	20 GRF	0205	0216	75	16			
	100	HIRA	46 C	0208	0230	70	250	70		WL
	500	HIRA	42 SER	0324	0329	6	45			G
	5730	IRKU	2 S	0326.5	0328	5	78	13		L
	100	HIRA	46 C	0326.5	0327.2	7	7000	500		WL
	2950	GORK	4 S/F	0326.5	0327.9	7.2	107			
	950	GORK	6 S	0327	0329	6.6	8.5	4.2		
	1400	SYDN	3 S	0327	0328	5				
	9100	GORK	4 S/F	0327.2	0327.9	4.4	55	10		
	1415	MANI	4 S/F	0327.2	0328.1	3.8	21.1	14		
	8800	MANI	4 S/F	0327.2	0328	2.5	47.7	31.8		I
	2695	MANI	4 S/F	0327.3	0327.9	4.2	64.7	43.1		
	4995	MANI	4 S/F	0327.3	0328	4.4	78.3	52.1		
	606	MANI	4 S/F	0327.6	0329.2	2.8	52.4	34.9		
	260	ONDR	44 NS	0630 E		520 D	84	6		
	410	SGMR	44 NS	0934 E	1122.4	852 D	8.5			2,3,4,5,
	245	SGMR	44 NS	0934 E	1929.8	852. D	158			CONT
	202	IZMI	41 F	0633.8	0634.5	1.7	110			
	536	ONDR	3 S	0709.7	0709.7	.4	25			
	202	IZMI	41 F	0710	0710.5	1	340			
	29	UPIC	45 C	0742.7	0743.6	2.6				
	33	UPIC	45 C	0742.9	0743.3	3.5				
	113	POTS	45 C	0805.6	0807.1	3.6	100	5		
	33	UPIC	4 S/F	0805.7	0806.8	3.8				
	29	UPIC	4 S/F	0806	0807.2	3.1				
	9100	ARCE	1 S	0853.2	0854	1.4				
	9100	ARCE	22 GRF	0914.1	0930	64				
	536	ONDR	46 C	0931.3		8.5	43	3.6		
	237	TRST		0932	0934.3		365			12L
	237	TRST	42 SER	0932	0932	4.9	605			12L
	237	TRST		0932	0936.8		435			12L
	237	TRST		0932	0936.2		375			10L
	237	TRST		0932	0935.5		240			24L
	202	IZMI	41 F	0932	0932.2	5.2	150			
	33	UPIC	46 C	0932.8	0936.1	8.1				
	29	UPIC	46 C	0934.5	0938.1	5.8				
	228	HARS	7 C	0934.7	0935.5	3.3	390	20		
	3000	BERL	3	0935	0935.8	5	20			
	9500	BERL	4	0935	0935.7	5	5.9			
	3100	CRIM	1 S	0935	0936	5	16	5		
	2695	ATHN	3 S	0935.1	0935.8	5.1	16.4	4.9		
	4995	ATHN	3 S	0935.1	0935.8	5.4	25.2	7.6		
	8800	ATHN	1 S	0935.2	0936.6	4.9	5.9	1.8		
	127	TORN	45 C	0935.2	0936 U	4	150 D			
	1470	BERL	1 S	0935.2	0936.5	5.3	5			
	1420	ARCE	1 S	0935.2	0936.9	7				
	1415	ATHN	1 S	0935.4	0935.7	4.3	4.7	1.4		
	1420	ARCE	20 GRF	0955	1122.3	120				
	33	UPIC	45 C	1002.4	1002.9	1				
	29	UPIC	45 C	1002.5	1002.8	1				
	9100	ARCE	20 GRF	1102.3	1122.8	40				
	2800	OTTA	21 GRF	1107	1315	230	8	4		
	33	UPIC	3 S	1112.5	1112.9	.4				
	29	UPIC	4 S/F	1112.6	1113	.8				
	10500	BERN	22 GRF	1112.8	1122.6	21	4	13		
	9500	BERL	4	1122	1123.9	10	16			
	3000	BERL	1 S	1122	1122.6	2	5.1			
	2695	ATHN	3 S	1122.1	1122.6	2.4	15.9	4.8		
	2800	OTTA	2 S/F	1122.2	1122.6	3	4	1		
	1415	ATHN	1 S	1122.2	1122.6	1.1	9.5	2.8		
	1470	BERL	1 S	1122.2	1122.5	.8	1.8			
	4995	SGMR	3 S	1122.2	1122.6	4.8	23.1	9.2		
	8800	SGMR	3 S	1122.3	1122.6	4.7	20.8	8.3		
	8800	ATHN	3 S	1122.3	1124.1	4.6	12.5	3.8		
	2695	SGMR	1 S	1122.3	1122.6	4.8	5.7	2.3		
	536	ONDR	2 S/F	1122	1122.3	1.5	29			
	10500	BERN	46 C	1202.9	1205.6	121	15	44		
	10500	BERN		1202.9	1244.4		144	332		
	10500	BERN		1202.9	1231.9		229	664		

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	9100	ARCE	28 PRE	1203.1	1224.3	24.6				
	8800	ATHN	47 GB	1203.8	1231.8	104.8	1094	328		
	9500	BERL	4	1203	1231.9	92	965			
	15400	SGMR	47 GB	1204	1232	56	742	297		2,4,CONT,
	15400	SGMR	47 GB	1204	1244		317			SWF
	4995	ATHN	45 C	1204	1231.7	100.1	372	111.6		
	8800	SGMR	47 GB	1204	1245.5		452			SWF
	8800	SGMR	47 GB	1204	1231.7	56	759	304		2,4,CONT,
	4995	ATHN	45 C	1204	1246.5		362			
	4995	ATHN	45 C	1204	1244.3		352			
	9400	HUAN	47 GB	1204.3	1231.7	55.7	859.2	166.2		ROLOR
	4995	SGMR	45 C	1204.4	1231.1	55.6	296	118		2,4,CONT,
	4995	SGMR	45 C	1204.4	1247.7		292			SWF
	2800	OTTA	45 C	1204.5	1246.8	62	114	33		
	2695	SGMR	45 C	1204.7	1246.7		138			SWF
	2695	SGMR	45 C	1204.7	1231.7	55.3	86	55.2		2,4,CONT,
	2695	ATHN	4 S/F	1204.7	1246.7	102.6	126	37.8		
	3000	BERL	4	1204	1246.7	81	117			
	2650	DWIN	10 GB	1205 E	1247	60 D	100	20		
	10715	DWIN	10 GB	1205 E		60 D	220 D			
	1470	BERL	4	1206	1230.3	54	51			
	1420	ARCE	40 F	1206	1230.1	65				
	1415	ATHN	4 S/F	1208.3	1230.3	94.4	60.6	18.2		
	606	SGMR	3 S	1209.5	1216.8	50.5	112	44.8		SWF
	536	ONDR	49 GB	1209	1216.6	80	195	23		
	602	KIEL	45 C	1209	1217	52	250	90		
	234	POTS	45 C	1210.5	1222	80	84000	120		
	410	SGMR	49 GB	1210.9	1212.1	49.1	1350	424		2,4,CONT,
	410	SGMR	49 GB	1210.9	1216		1060			SWF
	405	KIEL	47 GB	1210	1212.5	51	2000	80		
	1420	KIEL	45 C	1210	1230	50	180	130		
	240	KIEL	47 GB	1210	1213	50	3400	100		
	228	HARS	47 GB	1211	1220 U	69	1100 D	110		
	245	SGMR	49 GB	1211	1213	49	4690	4240		2,4,CONT,
	245	SGMR	49 GB	1211	1223		10600			SWF
	408	TRST	45 C	1211.1	1212	1.2	870			
	237	TRST		1211.1	1318		420			38L
	237	TRST	47 GB	1211.1	1222.8	78.5	7550			10L
	260	ONDR	49 GB	1211.5		74	219 D	168		
	113	POTS	45 C	1211.5	1216	152	700	30		
	127	TORN	49 GB	1211.9	1215.5U	76	1100 D	210 D		
	930	BORD	40 F	1211	1233.2	42	46	9		
	408	TRST	49 GB	1212.3	1215.9	22.7	1100			
	1415	SGMR	3 S	1212.4	1230.4	47.6	51	20.4		2,4,CONT,
	808	ONDR	20 GRF	1212	1233.3	39	48	24		
	800	KIEL	45 C	1212	1232	52	140	100		
	33	UPIC	48 C	1221.2	1230.9	21				
	29	UPIC	48 C	1221.2	1226.5	20.8				
	9100	ARCE	4 S/F	1227.7	1232.1	9.7				
	18	MCMA	41 S	1229	1231	5			1	
	930	BORD	8 S	1232	1232	.1	114	1		
	9100	ARCE	30 PBI	1237.4		81				
	4995	BCUL	21 GRF	1242.5	1246.5	27	126	42		
	1420	BCUL	20 GRF	1242.5	1246 U	15	12	4		
	9100	ARCE		1243.5	1244.6	2.6				
	9100	ARCE	45 C	1243.5	1244.6	5.3				
	2695	BOUL	45 C	1244.5E	1248	5 D	88	29		
	9100	ARCE		1246.1	1246.8	2.7				
	9100	ARCE	29 PBI	1248.8		14.7				
	2695	BCUL	29 PBI	1249.5	1249.5	13.5D	42	14		
	9400	HUAN	29 PBI	1300	1300	28.6	28.1	12.2		0
	240	KIEL	47 GB	1300	1318.5	28	240	50		
	405	KIEL	47 GB	1301	1316	25	190	60		
	245	SGMR	7 S	1304.5	1318	29.5	491	196		4,CONT
	410	SGMR	6 S	1304.6	1315.1	28.4	233	93.2		4,CONT
	606	SGMR	20 GRF	1305	1315	26	15.5	6.2		4,CONT
	602	KIEL	45 C	1306	1314	19	100	80		
	800	KIEL	45 C	1306	1314	19	80	75		
	1420	BCUL	1 S	1542	1543.5	5	3	1		
	33	UPIC	45 C	1543.6	1544.2	2.9				
	29	UPIC	45 C	1543.8	1544.5	2.7				
	410	SGMR	6 S	1544	1546.8	3	248	99.2		3G,CONT
	2800	OTTA	1 S	1544	1544.5	2	5.6	2.6		
	2695	BOUL	1 S	1544.5	1545	2	5	2		
	245	SGMR	48 GB	1546.1	1546.2	.2	714	286		3G,CONT
	2800	OTTA	26 FAL	1602	1645	43	-3.2	-1.5		
	2695	BOUL	40 F	1737	1740.5	4	5	2		
	2800	OTTA	1 S	1739	1739.8	2	3.4	1.2		
	2800	OTTA	20 GRF	1815	1855	125	2.6			
	2800	OTTA	20 GRF	2035	2100	65	1.6	0.8		
	9400	HUAN	3 S	2103.3	2103.5	2	23.6	14		0
	9400	HUAN	3 S	2138.6	2138.8	1.1	12.6	9.4		0
	2930	VORO	3 S	2150	2155	10	24			
	2930	VORO	32 ABS	2230	2235	10	-15			
9	221	ABST	44 NS	0700	0722	120	8			

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	245	SGMR	44	NS	0932 E	1556.8	856 D	48.7			CONT
	410	SGMR	44	NS	0932 E	1544	856 D	27.3			CONT
	930	BORD	8	S	1001.5	1001.7	.2	30	2		
	9500	BERL	20		1213	1227	42	7.3			
	930	BORD	40	F	1226	1308.4	68	21	5		
	930	BORD	40	F	1414	1520.5	158	65	5		
	536	ONDR	41	F	1424.3	1429	40	22	6.3		
	808	ONDR	4	S/F	1424.5	1427.5	6	28	16		
	260	ONDR	46	C	1426.5	1440.5	37	93	47		
	2695	ATHN	4	S/F	1429.6	1435.5	28.8	51.7	15.5		
	1415	ATHN	20	GRF	1430	1436.2	27.6	19.8	5.9		
	2800	OTTA	21	GRF	1430	1444	18	2.6	1.3		
	8800	ATHN	4	S/F	1430.1	1435.5	62.2	343	103		
	4995	ATHN	4	S/F	1430.9	1435.5	39.7	164	49.2		
	10500	BERN	45	C	1431.9	1435.2	78	62	179		
	1420	BCUL	20	GRF	1431	1434.5	10	20	7		
	4995	BCUL	46	C	1431	1434	44	110	37		
	3000	BERL	4		1432	1435.2	28	51			
	4995	SGMR	4	S/F	1432	1435.5	29	136	54.4		2,CONT,SWF
	2695	SGMR	4	S/F	1432	1435.5	29	50	20		2,CONT,SWF
	2800	OTTA	3	S	1432	1435.2	10	44.4	15.2		
	9400	HUAN	45	C	1432.4	1435.2	9	245.7	108		L
	2695	BCUL	20	GRF	1432.5	1436	16	44	15		
	1415	SGMR	4	S/F	1432.5	1435.5	56.5	20	8		2,CONT,SWF
	1470	BERL	4		1432.5	1435.4	13	23			
	9100	ARCE	45	C	1432.7	1435.5	7.2				
	9100	ARCE			1432.7	1435.5	3.2				
	1420	ARCE	3	S	1432	1435.3	7.2				
	2650	OWIN	2	S	1432	1435	9	40	20		
	1420	KIEL	45	C	1432	1435	8	140	120		
	8800	SGMR	4	S/F	1433	1436.9	20	176	70.4		2,CONT,SWF
	9500	BERL	4		1433.5	1434.9	47	193			
	10715	OWIN	45	C	1433	1435	8	65			
	800	KIEL	45	C	1433	1437	9	105	85		
	606	SGMR	46	C	1434.8	1440.5	57.2	30	32.5		2,CONT,SWF
	606	SGMR	46	C	1434.8	1523		81.3			2,CONT,SWF
	602	KIEL	45	C	1434	1438.5	14	100	80		
	405	KIEL	47	GB	1434	1446	25	180	70		
	240	KIEL	47	GB	1434	1439.5	37	380	60		
	15400	SGMR	4	S/F	1435	1437.4	18	123	49.2		2,CONT,SWF
	9100	ARCE			1435.9	1437	4				
	410	SGMR	6	S	1436.1	1446.3	67.9	107	42.8		2,CONT,SWF
	410	SGMR	6	S	1436.1	1525		119			2,CONT,SWF
	245	SGMR	6	S	1437	1440.3	67	186	92		2,CONT,SWF
	245	SGMR	6	S	1437	1454.2		230			2,CONT,SWF
	228	HARS		GB	1437.5	1450.7	120	1000 D	33		
	234	POTS	45	C	1437	1440	119	200			
	1420	ARCE	29	PBI	1439.2		18.8				
	237	TRST			1439.4	1525.6		150			0
	237	TRST			1439.4	1450.8		325			62R
	237	TRST	47	GB	1439.4	1439.9	115.8	495			9L
	127	TORN	49	GB	1439.6	1441 U	10 D	640			SUNSET
	9100	ARCE	29	PBI	1439.9		60				
	113	POTS	45	C	1439	1441	101	800			
	9400	HUAN	29	PBI	1441.4	1441.4	41	27.8	19.7		0
	2800	OTTA	45	C	1450	1451.8	8	7.4	3.7		
	2695	BCUL	46	C	1450	1452.5	11.5	8	3		
	2800	OTTA	31	ABS	1458		250	-2.8	-1.4		
	405	KIEL	47	GB	1504	1524.5	46	155	80		
	602	KIEL	45	C	1510	1524.5	30	170	90		
	240	KIEL	45	C	1511	1525.5	53	120	50		
	800	KIEL	45	C	1515	1524.5	20	150	100		
	1420	BCUL	45	C	1522	1523.5	4	8	3		
	1420	KIEL	45	C	1523	1524.5	5	130	115		
	1420	ARCE	4	S/F	1523	1524	5.5				
	2800	OTTA	26	FAL	2042	2112	30	-2.6	-1.3		
10	221	ABST	44	NS	0500	0535.5	240	13			
	200	GORK	43	NS	0521		499		5		
	410	SGMR	44	NS	0931 E	2203.6	858 D	27.4			4,5
	245	SGMR	44	NS	0931 E	2123.3	858 D	21.2			4,5
	221	ABST	45	C	0732	0733	2	41			
	260	ONDR	8	S	1037.2	1037.2	.3	10			
	2800	OTTA	22	GRF	1610	1618	60	2.2	1.1		
	245	SGMR	6	S	1844.9	1845.4	.8	200	60		
	410	SGMR	6	S	1845.2	1845.4	.5	6.1	1.8		
	228	HARS	7	C	1845.7	1846	1.5	57	16		
	410	SGMR	6	S	2155	2203.6	13.2	27.4	11		4
	2800	OTTA	8	S	2155	2155	0.1	5			
	2800	OTTA	21	GRF	2200	2235	140	5	3.2		
	245	SGMR	6	S	2200.8	2201	10.1	9.6	2.8		4
	1415	SGMR	1	S	2201.5	2205.4	6.8	10.9	3.3		4
	606	SGMR	1	S	2202	2206	8.3	2.4	.7		4
	1420	BCUL	2	SF	2202	2204.5	7	9	3		
	2800	OTTA	1	S	2204.5	2205.5	4	3.2	1.6		

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	2695	BCUL	1	S	2205	2206.5	3.5	4	1		
	100	HIRA	46	C	2207	2211	15	900	300		O
	18	MCMA	6	S	2208	2222	15			2	
11	221	ABST	44	NS	0500	0832	240	6			
	3100	CRIM	1	S	0732	0734	6	4	1		
	3000	BERL	1	S	0732	0734	7	4.5			
	1470	BERL	1	S	0733	0735	7	4			
	950	GORK	1	S	0734.7	0736	1.6	1.9			
	228	HARS	49	GB	0735.1	0737.2	42	350	20		
	650	GORK	1	S	0735.2	0736.6	2.2	4	2		
	237	TRST			0735.5	0749.1		50			O
	237	TRST	47	GB	0735.5	0737.4	35.6	440			10L
	237	TRST			0735.5	0805.3		225			13R
	260	ONDR	46	C	0735	0805	35	135	26.8		
	260	ONDR			0735	0736.5		88			
	234	POTS	45	C	0735	0737	55	230	25		
	200	GORK			0736	0752.2		43			
	200	GORK			0736	0805.2		180			
	200	GORK	46	C	0736	0737 U	33	44			
	202	IZMI	22	GRF	0736	0737.5	3	900	300		
	536	ONDR	42	SER	0742	0817.8	58	7	2.7		
	127	TORN	45	C	0745.5	0752.5	9.5	220	29		
	202	IZMI	23	GRF	0801	0805	7	180	70		
	1420	ARCE	20	GRF	0804.2	0819.2	74				
	3100	CRIM	20	GRF	0809	0829	39	6	2		
	410	SGMR	44	NS	0930 E	1803.3	860 D	4.7			3,5
	245	SGMR	44	NS	0930 E	1750.5	860 D	7			3,5
	9100	ARCE	1	S	0945	0945.4	1				
	930	BORD	8	S	1101.3	1101.3	.2	10	2		
	2800	OTTA	20	GRF	1215	1235	50	2.2	1.4		
	29	UPIC	45	C	1215.6	1215.9	1.3				
	33	UPIC	45	C	1215.9	1216	1.2				
	2800	OTTA	240	R	1335	1400	25	2.2	1.1		
	930	BORD	41	F	1336.7	1337	.4	25	2		
	2800	OTTA	20	GRF	1402	1530	165	2.8	1.4		
	245	SGMR	6	S	2021.1	2022.2	4.4	11	3.3		3
	410	SGMR	6	S	2022.3	2022.9	2.2	21.7	6.5		3
	2695	PENT	21	GRF	2325	2345	135	5	2.5		
	1420	BCUL	1	S	2328.5	2331	5	4	1		
	2695	PENT	3	S	2329.5	2331	4	11.8	5		
	2695	BCUL	4	SF	2330	2332	4.5	13	4		
12	221	ABST	44	NS	0500	0644	240	8			
	3100	CRIM	1	S	1014	1022	13	2	1		
	260	ONDR	3	S	1037.6	1037.6	.3	10			
	260	ONDR	4	S/F	1109	1109	1	45			
	260	ONDR	3	S	1256.6	1256.6	.3	12			
	930	BORD	41	F	1532.6	1532.9	.4	22	2		
	930	BORD	8	S	1644.9	1644.9	.1	12	1		
	2800	OTTA	8	S	1754.4	1754.4	0.2	23.6			
13	8800	ATHN	20	GRF	0734.3	0741.8	59.8	43.1	25.9		
	3100	CRIM	47	GB	0735	0741	32	100	33		
	3100	CRIM	29	PBI	0735	0814	46	4	1		
	3100	CRIM			0735	0807.5	6	5	3		
	2695	ATHN	4	S/F	0735.4	0741.7	59.9	110.9	33.3		
	3000	BERL	4		0737	0741.5	72	95			
	100	GORK	46	C	0738	0747	34	60			
	100	GORK			0738	0753		700			
	4995	ATHN	4	S/F	0738.2	0741.7	60.2	72.4	21.7		
	260	ONDR	46	C	0738.4	0741.6	11	10	2.3		
	5730	IRKU	23	GRF	0738	0746.9	14	50	12		R
	1470	BERL	4		0738	0741.5	48	30			
	1415	MANI	3	S	0739.1	0742	11.6	28.6	19		
	10500	BERN	20	GRF	0739.1	0741.8	37	8	23		
	1415	ATHN	3	S	0739.1	0742.3	53.5	27.2	8.2		
	2695	MANI	3	S	0739.1	0742	10.8	105.1	70		
	9500	BERL	4		0739.5	0741.8	76	24			
	9100	GORK	20	GRF	0739.7	0742.2	61	39	13		
	2950	GORK	4	S/F	0739.8	0741.9	10.2	69	21		
	2650	OMIN	45	C	0739	0741	32	90	20		
	4995	MANI	3	S	0740	0742.4	10.5	46.2	30.8		IG
	650	GORK	1	S	0740.3	0742.5	6.3	3	1.5		
	950	GORK	1	S	0740.5	0742.8	5.3	5.8	2.9		
	33	UPIC	48	C	0743.4	0744.9	13.5				
	29	UPIC	48	C	0743.5	0744.3	13.6				
	260	ONDR	4	S/F	1031	1032.3	1.3	32	12.4		
	9100	ARCE	8	S	1037.1	1037.3	.6				
	410	SGMR	43	NS	1132	1650.7	750 D	4.5			3
	245	SGMR	43	NS	1205	1826.5	707 D	13.7			3
	1420	BCUL	1	S	1657.5	1658	1.5	1	.3		
	4995	BCUL	8	S	1657.5	1658	1	11	4		
	2695	BCUL	2	SF	1658.5	1659	1.5	50	2		
	4995	BCUL	45	C	1732.5	1733.5	3	13	4		

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	1420	BOUL	1 S	1733	1734	2	2	1		
	2695	BOUL	2 SF	1734.5	1735.5	2	3	1		
	2695	PENT	240 R	2215	2245	30	2	1.2		
	2695	PENT	27 RF	2345		65	1.2	0.9		
	2695	PENT	24 R	2345	2355	10	1.2	0.6		
	2695	PENT	24P R	2355		45	1.2			
	2695	PENT	26 FAL	2440	2450	10	-1.2	-0.6		
14	260	ONDR	44 NS	0632 E		514 D	11			
	410	SGMR	44 NS	0927 E	2027.8	866 D	13.3			2,3G
	245	SGMR	44 NS	0927 E	1215.2	866 D	24.4			2,3G
	2800	OTTA	14 GRF	1055	1130	160	7	3.5		
	2800	OTTA	1 S	1250	1253.3	7	4	1.6		
	2800	OTTA	21 GRF	1346	1445	194	5	2.2		
	1420	ARCE	23 GRF	1347.8	1330.7	64				
	10500	EERN	20 GRF	1348.6	1407.7	65	5	15		
	9500	BERL	20	1348	1413	37	13			
	9100	ARCE	20 GRF	1349	1408.6	64				
	127	TORN	47 GB	1356	1358.7	3.5	1000	150		
	410	SGMR	6 S	1356.2	1408.5	22.8	48.3	14.5		3G,SWF
	237	TRST	47 GB	1356.5	1407.2	19.5	37			4L
	113	POTS	45 C	1356	1358.5	16	200	20		
	245	SGMR	6 S	1357.2	1405.9	26.8	23.3	7		3G,SWF
	808	ONDR	27 RF	1357	1408.5	19	16	7.2		
	2695	SGMR	20 GRF	1358.6	1407.5	25	31.4	9.4		3G,SWF
	18	MCMA	6 S	1358	1400	4			1	
	2800	OTTA	3 S	1400	1407	20	27.6	8.2		
	1420	ARCE	4 S/F	1400.2	1407.3	13.8				
	9400	HUAN	20 GRF	1400.3	1407.8	16.7	13.2	5.4		O
	1415	SGMR	20 GRF	1400.5	1407.8	18.7	20.3	6.1		3G,SWF
	127	TORN	27 RF	1400.6	1404	11	44	19		
	606	SGMR	20 GRF	1400.7	1408.5	12.5	13.7	4.1		3G,SWF
	1420	BOUL	4 SF	1400 E	1407.5U	10 D	18	6		
	930	BORD	3 S	1400	1408	12	12	6		
	536	ONDR	46 C	1400	1409	13	15	7.6		
	2650	OWIN	45 C	1400	1407	15	20	10		
	8800	SGMR	20 GRF	1401	1405.6	28	12.7	3.8		3G,SWF
	2695	BOUL	20 GRF	1401.5E	1408 U	12.5D	28	9		
	4995	SGMR	20 GRF	1401.5	1407.9	26.4	24.8	7.4		3G,SWF
	3000	BERL	4	1401	1407.5	13	25			
	1470	BERL	4	1401	1407.5	13	21			
	2695	ATHN	3 S	1402	1407.3	13.9	19.7	5.9		
	4995	ATHN	3 S	1402.3	1405.9	16.9	21.2	6.4		
	1415	ATHN	3 S	1403.1	1405.6	8.1	22.1	6.6		
	4995	BOUL	45 C	1403 E	1407	6.5D	17	6		
	8800	ATHN	3 S	1405.3	1405.6	5.4	13	3.9		
	8800	ATHN	4 S/F	1610.3	1613.1	7.4	84.5	25.4		
	4995	BOUL	1 S	1610.5	1611.5	3	13	4		
	2800	OTTA	1 S	1611	1612	2	2.2	1		
	2695	BOUL	1 S	1611	1612.5	3	2	1		
	4995	ATHN	3 S	1611.4	1612.1	3.9	15.9	4.8		
	2695	BOUL	1 S	1658.5	1659	1.5	4	1		
	4995	BOUL	4 SF	1733	1734.5	2	12	4		
	2695	BOUL	2 SF	1734.5	1735.5	2	3	1		
	4995	BOUL	2 SF	1757	1758	1.5	10	3		
	2800	OTTA	1 S	2139	2140	4	1.6	0.8		
15	260	ONDR	44 NS	0647 E		502 D	20			
	127	TORN	44 NS	0720 E	0805.6	120 U	140			V=1
	245	SGMR	44 NS	0926 E	1526.9	868 D	35.7			3,5
	410	SGMR	44 NS	0926 E	1844	868 D	7.2			3,5
	9100	ARCE	1 S	1306.1	1306.3	.8				
	2800	OTTA	22 GRF	1555	1610	95	1.8	0.9		
	2695	BOUL	1 S	1916	1917	2	4	1		
	2800	OTTA	1 S	1916.1	1916.5	1.5	3.4	1.1		
	2800	OTTA	20 GRF	2217	2225	20	2	1		
	2695	PENT	24A R	2315	2325	10	2.6	1.3		
	2695	PENT	1 S	2317	2318.5	2	1.6	0.8		
16	4995	ATHN	3 S	0444.9	0446	5.8	22.4	6.7		
	5730	IRKU	45 C	0445.5	0446.1	5	18	5		L
	5730	IRKU		0445.5	0447		12			L
	8800	ATHN	3 S	0445.7	0446.7	5.4	11.2	6.7		
	260	ONDR	44 NS	0550 E		558 D	27	3		
	127	TORN	44 NS	0720 E	1430 U	450 D				V=0
	100	GORK	43 NS	0742		240		5		
	245	SGMR	43 NS	1130	1344.4	745 D	40.8			2,3,5,SWF
	410	SGMR	43 NS	1500	1614.2	535 D	11.2			2,3,5,SWF
	113	POTS	45 C	0658.7	0659.9	1.4	350	50		
	202	IZMI	41 F	0703	0705.3	5	100			
	113	POTS	1 S	0839	0839.1	.2	350	100		
	33	UPIC	4 S/F	0926.5		1.1				
	29	UPIC	4 S/F	0926.6	0927.3	1				
	29	UPIC	8 S	0930.8	0931	.5				
	33	UPIC	8 S	0930.8		.6				

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	33	UPIC	8 S	0954.6		.7				
	29	UPIC	4 S/F	0954.7	0955.2	1				
	29	UPIC	8 S	0956.2	0956.4	.6				
	33	UPIC	8 S	0956.2		.5				
	9100	ARCE	3 S	1008.5	1008.6	.8				
	2800	OTTA	1 S	1519	1519.5	1	1.4	0.7		
	2800	OTTA	21 GRF	1600	1635	170	8.2	4.1		
	930	BORO	40 F	1603	1612.3	21	25	4		
	1420	BOUL	20 GRF	1604.5	1612	17 D	22	7		
	2695	ATHN	3 S	1609.8	1617.7	8.6	23.2	7		
	2695	BOUL	4 SF	1610 E	1613.5	4.5D	26	9		
	4995	BOUL	46 C	1610.5	1613.5	4.5	14	5		
	2800	OTTA	45 C	1611.5	1612.4	8	20	64		
	1415	ATHN	3 S	1611.5	1612.8	8.7	22.1	6.6		
	8800	ATHN	3 S	1611.6	1612.8	3.9	17.3	5.2		
	9400	HUAN	4 S/F	1611.7	1612.5	3	11.8	5.6		R
	18	MCMA	42 SER	1611	1635	41			2	
	4995	ATHN	3 S	1612	1612.5	6.2	23	6.9		
	930	BORO	41 F	1630	1634.8	7	25	4		
	2800	OTTA	1 S	1730	1731	6	1.2	0.6		
	2800	OTTA	20 GRF	1757	1801	25	5.6	1.9		
	2800	OTTA	1 S	1855.2	1856.5	5	1.6	0.8		
	2800	OTTA	8 S	1928.5	1928.8	0.5	1.6	0.8		
	245	SGMR	6 S	1929.8	1930	1	34.8	13.9		S
	2800	OTTA	24 R	2110	2145	35	2.6	1.3		
	2800	OTTA	27A RF	2110		230	2.6	2.2		
	2800	OTTA	24P R	2145		170	2.6			
	1420	BCUL	46 C	2154.5	2156.5	7	5	2		
	100	HIRA	7 C	2156.8	2157.2	2	11000	5000		ML
	1415	SGMR	1 S	2156.9	2157.5	2.6	3.9	1.6		S
	245	SGMR	48 GB	2156.9	2157.1	1.5	970	388		S
	410	SGMR	6 S	2156.9	2157.1	1.5	18.6	7.4		S
	2800	OTTA	8 S	2156.9	2157.2	0.4	7.8	3.9		
	18	MCMA	6 S	2156	2158	3			1	
	200	HIRA	7 C	2157	2157.5	1	1000	300		WR
	4995	BCUL	8 S	2256	2257	2	13	4		
	2800	OTTA	26 FAL	2435	2500	25	-2.6	-1.3		
17	200	GORK	43 NS	0400 E		320		5		
	100	GORK	43 NS	0451		107		5		
	260	ONDR	44 NS	0543 E		568 D	20	4		
	127	TORN	44 NS	0650 E	1100 U	480 D				V=1
	245	SGMR	44 NS	0924 E	0944.7	872 D	49.7			S,SWF
	410	SGMR	44 NS	0924 E	2036.4	872 D	18			S,SWF
	536	ONDR	27 GRF	0917.7	0926.2	28	32	14		
	930	BORO	8 S	0917.7	0917.8	.2	25	2		
	2800	OTTA	22 GRF	1438	1510	80	5.8	2.9		
	228	HARS	45 C	1501.7	1502.5	4	90	30		
	245	SGMR	6 S	1502.2	1503.9	16.8	113	33.9		3G,SWF
	237	TRST	41 F	1502.3	1503.7	2.5	134			0
	113	POTS	45 C	1502.5	1503.1	2.5	100	5		
	410	SGMR	6 S	1512	1515.8	7	38.4	11.5		3G,SWF
	2800	OTTA	20 GRF	2025	2125	230	3.6	1.6		
18	100	GORK	46 C	0516.3	0518.7	21	1300			
	100	GORK		0516.3	0522.6		3730			
	29	UPIC	46 C	0519.2	0521	5.4				
	33	UPIC	46 C	0520.1		4.1				
	260	ONDR	44 NS	0535 E		573 D	40	6		
	200	GORK	43 NS	0615		405		5		
	100	GORK	43 NS	0624		396		40		
	127	TORN	44 NS	0650 E		480 D				V=1
	245	SGMR	44 NS	0923 E	1156	874 D	26			3G,CONT
	410	SGMR	44 NS	0923 E	1811.9	874 D	7.8			3G,CONT
	221	ABST	41 F	0614.8	0615.2	1	10			
	536	ONDR	41 F	0617	0624	8	18			
	200	GORK		0620	0633 U		37			
	200	GORK	45 C	0620	0625 U		40			
	202	IZMI	23 GRF	0623.7	0633	11.3	130	40		
	650	GORK	1 S	0630.4	0633	4.6	11	5		
	950	GORK	1 S	0630.5	0633.1	3.3	9.8	4.9		
	808	ONDR	3 S	0630	0633.2	6	15	9		
	536	ONDR	2 S/F	0630	0632.4	6	7	3.7		
	2800	OTTA	21 GRF	1100	1130	150	5	2.5		
	1420	ARCE	20 GRF	1107.7	1110.5	54				
	808	ONDR	2 S/F	1126.6	1126.6	.6	32	4.5		
	2800	OTTA	1 S	1158.5	1158.8	1.2	2.6	1.3		
	2800	OTTA	21 GRF	1750	1803	240	3	2.6		
	1415	SGMR	3 S	1750.2	1752	7.3	273	109		
	1420	BOUL	4 SF	1750	1752.5	8	43	14		
	930	BORO	46 C	1750	1752.8	7	103	8		
	2695	BOUL	16 C	1751	1754	5	24	8		
	2695	SGMR	S	1751	1753.3	7	3 33.3	13.3		
	237	TRST	41 F	1751.2	1751.8	3.3	275			14L
	245	SGMR	6 S	1751.4	1752	8.6	218	87.2		

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	606	SGMR	3 S	1751.5	1752.6	4.6	72.6	29		
	228	HARS	45 C	1751.5	1752.5	3.5	95	25		
	2800	OTTA	40 F	1751.5	1753.2	3	25			
	410	SGMR	6 S	1751.9	1754.5	8.1	57.4	23		
19	260	ONDR	44 NS	0512 E		597 D	16			
	410	SGMR	44 NS	0922 E	1652.9	676 D	25.2			5
	245	SGMR	44 NS	1230 E	2023.8	688 D	39.6			5
	208	VORO	44 NS	2100 E		240 D		10		
	536	ONDR	45 C	0814	0814.7	3	7	4.7		
	808	ONDR	4 S/F	0814	0815	3.5	21	9.3		
	930	BORD	41 F	0814	0814.8	3	18	2		
	33	UPIC	46 C	1114.4	1118.7	11.8				
	29	UPIC	46 C	1114.7	1118.6	11.1				
	127	TORN	46 C	1114.8	1119.6	10.5	56	5.8		
	8800	ATHN	3 S	1243.6	1245.1	5.4	10.8	6.5		
	930	BORD	41 F	1502.2	1502.3	.3	54	2		
	2800	OTTA	20 GRF	1510	1550	80	1.8	1.4		
	2800	OTTA	20 GRF	1845	1940	70	1.8	1.4		
	2800	OTTA	20 GRF	2107	2125	85	3	2		
	2695	PENT	20 GRF	2300	2330	100	5.2	2.6		
20	200	GORK	44 NS	0315		278		10		
	260	ONDR	44 NS	0540 E		577 D	47	9		
	127	TORN	44 NS	0730 E	0846	410 D	60			V=1
	245	SGMR	44 NS	0921 E	1802.8	878 D	105.3			3
	410	SGMR	44 NS	0921 E	2132.6	878 D	61.1			3
	208	VORO	44 NS	2100 E	2134	240 D	18	8		
	536	ONDR	45 C	0910	0911	1	104			
	3100	CRIM	25 R	1020	1100		3			
	536	ONDR	8 S	1040.5	1040.5	.2	98			
	3100	CRIM	1 S	1056	1057	2	2	1		
	9100	ARCE	21 GRF	1145.3	1151.8	35				
	9100	ARCE	40 F	1145.7	1146.8	1.7				
	9100	ARCE	40 F	1155.1	1156.5	2.2				
	9100	ARCE	1 S	1224.2	1224.5	.9				
	237	TRST	47 GB	1302.4	1302.9	2.1	90			0
	2800	OTTA	1 S	1328	1330	8	1	0.5		
	2695	BOUL	1 S	1406	1407.5	3	3	1		
	1420	BCUL	1 S	1410.5	1411	1.5	2	1		
	1420	ARCE	1 S	1411	1411.4	1.7				
	2800	OTTA	21 GRF	1610	1655	100	2.6	1.3		
	2800	OTTA	1 S	1628.5	1630	2	1	0.5		
	2695	BOUL	45 C	1629	1630.5	5.5	2	1		
	1420	BCUL	1 S	1629	1630	2.5	2	1		
	2800	OTTA	45 C	1818.5	1820	2	2.6	1.3		
	2695	BOUL	40 F	1819.5	1821	3	1	0.3		
	2800	OTTA	20 GRF	1830	1845	150	2.6	1.3		
	2800	OTTA	240 R	2118	2125	7	2.6			
	500	HIRA	27 RF	2121.2	2214	120	30	15		ML
	500	HIRA		2121.2	2132		25			SL
	200	HIRA	27 RF	2125	2215	140	30	15		ML
21	2695	BCUL	46 C	0048.5	0050.5	5.5	5	2		
	15000	KISV	45 C	0537	0539	3	145			
	10500	BERN	45 C	0537.6	0538.3	7	19	55		
	5730	IRKU	2 S	0537.7	0538.3	8	63	21		L
	2950	GORK	3 S	0537.8	0538.5	3.1	14.4	7		
	9100	GORK	4 S/F	0537.8	0538.2	6.2	82	27		
	2695	ATHN	4 S/F	0538.1	0538.6	10.7	76.2	22.8		
	8800	ATHN	4 S/F	0538.2	0538.5	12.6	72.8	21.9		
	4995	ATHN	4 S/F	0538.2	0538.5	12.5	115	34.5		
	1415	ATHN	3 S	0538.3	0538.6	10.3	16.4	9.8		
	2695	MANI	4 S/F	0547.6	0548.5	6.2	82.9	55.3		
	1415	MANI	3 S	0547.7	0548.8	4.5	12.3	8.2		
	4995	MANI	4 S/F	0548	0549.2	6.8	59.7	39.8		
	8800	MANI	4 S/F	0548	0548.3	4	58.2	38.8		
	260	ONDR	44 NS	0720 E		471 D	27	4		
	245	SGMR	44 NS	0920 E	1608.8	880 D	278			3,5
	410	SGMR	44 NS	0920 E	1544	880 D	32.3			3,5
	113	POTS	1 S	0722.3	0722.4	.2	200	70		
	237	TRST	41 F	1526.7	1526.7	.2	115			7L
	2800	OTTA	1 S	1701	1703.5	5	1.4	0.7		
	1420	BCUL	40 F	1701	1702.5	2.5	4	1		
	1420	BCUL	1 S	1712	1713	2.5	3	1		
	2800	OTTA	22 GRF	2045	2103	100	3.2	2		
	2695	PENT	22 GRF	2223	2255	70	1.4	0.7		
	2695	PENT	2 S/F	2349.2	2349.9	7	4.2	2.1		
22	2695	BOUL	28 PRE	0026	0037 U	39.5	19	6		
	2695	BCUL	21 GRF	0105.5E	0107.5	16.50	30	10		
	100	HIRA	46 C	0204	0204.5	2.5	3000	1000		0
	2695	MANI	3 S	0204.3	0205	2.7	11.6	7.7		
	4995	MANI	3 S	0204.4	0205.3	1.5	17.2	11.4		IG
	1415	MANI	2 S/F	0204.5	0205	1.5	5.9	3.9		

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	100	HIRA	7 C	0308	0308.3	1	7000	600		O
	200	HIRA	7 C	0308	0308.3	1	1500	500		O
	6100	KISV	4 S/F	0417	0424.3	8	16			
	6100	KISV	45 C	0440	0504	65	23			
	260	ONDR	44 NS	0522 E		586 D	34	2		
	245	SGMR	44 NS	0919 E	1847.4	882 D	95.4			3,5
	410	SGMR	44 NS	0919 E	1021	882 D	14.9			3,5
	6100	KISV	4 S/F	0711	0714	5	11			
	202	IZMI	5 S	0730	0730	.3	110	60		
	113	POTS	45 C	0730	0730.1	.2	100	25		
	9100	GORK	1 S	0845.8	0846	.6	7.9	3.5		
	3100	CRIM	1 S	1007	1013	7	4	1		
	33	UPIC	42 SER	1039.3	1039.8	10.1				
	29	UPIC	42 SER	1039.5	1040	9.9				
	237	TRST	41 F	1046.2	1046.2	.6	145			4R
	9100	ARCE	8 S	1350.2	1350.3	.8				
	9100	ARCE	1 S	1352.1	1352.5	.9				
	9500	BERL	3	1422	1422.5	2	13			
	234	POTS	48	1431.5	1431.6	2.7	500	2		
	2695	BOUL	4 SF	1431.5	1434.5	5	13	4		
	237	TRST	42 SER	1431.8	1431.8	2.9	840			5L
	237	TRST		1431.8	1434		490			5L
	1420	BOUL	2 SF	1431	1433.5	4	4	1		
	113	POTS	48	1432.4	1434.5	8.6	600	2		
	1420	ARCE	2 S/F	1432	1433.9	5.8				
	2800	OTTA	2 S/F	1433	1434	3	7.4	2.6		
	1420	BERL	4	1433.5	1434	5	6			
	3000	BERL	2	1433.5	1434	1.5	6.2			
	18	MCMA	6 S	1433	1434	4			1	
	2800	OTTA	23 GRF	1500	1727	235	5.2	2.3		
	2695	BOUL	1 S	1500.5	1502	2.5	4	1		
	1420	ARCE	4 S/F	1623.9	1624.4	4				
	4995	BOUL	8 S	1623	1624	2	19	6		
	1420	BOUL	8 S	1623	1624	1.5	20	7		
	2800	OTTA	4 S/F	1624	1624.5	3	25	8		
	10500	BERN	32 ABS	1624.2	1624.6	2	5	14		
	33	UPIC	4 S/F	1624.3	1624.7	4.2				
	237	TRST	47 GB	1624.4	1624.7	1.1	1250			15L
	9100	ARCE	1 S	1624.5	1624.6	5.5				
	29	UPIC	4 S/F	1624.5	1625.2	4				
	2695	BOUL	4 SF	1624.5	1625	2	28	9		
	18	MCMA	6 S	1624	1628	7			1	
	2650	DWIN	45 C	1624	1624	3	20	5		
	18	MCMA	6 S	1835	1841	7			2	
	930	BORD	46 C	1836.8	1837.7	5.2	47	7		
	1420	BOUL	45 C	1836	1837	5	15	5		
	2800	OTTA	45 C	1837	1838	4.5	11	3.8		
	2695	BOUL	46 C	1837	1838	4.5	11	4		
	2695	PENT	21 GRF	2240	2517	180 D	17.4			
	2695	PENT	20 GRF	2414	2425	40	14.8	6.3		
	2695	PENT	4 S/F	2504.5	2507	10	34	11		
23	2695	MANI	3 S	0018.4	0022.5	13.6	15.8	10.2		
	1415	MANI	3 S	0019.5	0025	12.5	7.9	5.3		
	4995	MANI	3 S	0020	0025	12.1	40.8	27.2		
	2695	MANI	3 S	0104.6	0106.8	4.7	39.5	26.3		
	1415	MANI	3 S	0104.8	0106.8	5.7	36	23.9		
	4995	MANI	3 S	0104.8	0106.8	3.2	29.7	19.8		
	2930	VORO	3 S	0104	0107	6	44			
	1420	BOUL	3 S	0104	0106	5	22	7		
	1400	SYDN	3 S	0105	0106.7	5				
	6100	KISV	22 GRF	0635	0638	5	5			
	6100	KISV	22 GRF	0718	0719	20	2			
	9100	ARCE	1 S	0912	0912.4	.8				
	9100	ARCE	1 S	0913.6	0913.8	1				
	3100	CRIM	24 R	0922	1300		4			
	260	ONDR	42 SER	1108	1129.5	65	192			
	29	UPIC	41 F	1117.9	1140.1	29.6				
	33	UPIC	41 F	1120.2	1131.3	30.5				
	245	SGMR	43 NS	1120.4	1142.5	761.60	43			
	410	SGMR	43 NS	1129.8	1517.2	752 D	9.2			
	2800	OTTA	21 GRF	1445	1710	230	3.2	1.6		
	2800	OTTA	1 S	1610	1613	8	7.8	1.9		
	4995	BOUL	2 SF	1611	1612.5	3.5	10	3		
	2695	BOUL	1 S	1612	1613.5	3	7	2		
	930	BORD	8 S	1635.4	1635.4	.3	103	2		
	930	BORD	41 F	1701.4	1701.8	1.6	38	2		
	2800	OTTA	240 R	1948	1952	4	2	1		
	4995	BOUL	20 GRF	1949.5	1955 U	20.50	12	4		
	2800	OTTA	1 S	1953	1954.5	7	3	1.4		
	2695	BOUL	20 GRF	1953.5	1955.5	11.5	5	2		
	2800	OTTA	8 S	2038	2038.3	0.5	5.2	2.6		
	2800	OTTA	20 GRF	2100		120	2	1.4		
24	260	ONDR	46 C	0547.6	0554	7.5	29	7.6		

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	808	ONDR	2	S/F	0548.3	0552.3	7	12	5.3		
	536	ONDR	45	C	0549	0551	5.5	20	3.6		
	650	GORK			0550.8	0552.8		20			
	650	GORK	45	C	0550.8	0551.4	4.2	17.5			
	950	GORK	1	S	0551.2	0552.8	2.4	5.5	2.7		
	5730	IRKU	1	S	0621	0622	2	9			R
	260	ONDR	4	S/F	0700	0701.7	3	19	1.4		
	113	PGTS	45	C	0706.5	0706.6	.3	125	25		
	260	ONDR	41	F	0810.2	0810.2	14	8			
	260	ONDR	46	C	0906.3	0906.3	9.5	15	1.3		
	606	HANI	3	S	0911.4	0916.1	6.3	15.8	10.6		
	930	BORD	41	F	1007.5	1007.7	.5	16	2		
	408	TRST	42	SER	1050.1	1056.3	6.5	97			
	536	ONDR	8	S	1050.8	1050.8	.3	48			
	9100	ARCE	46	C/F	1108.1	1109.4	2.3				
	1420	ARCE	1	S	1135.8	1140	.4				
	245	SGMR	43	NS	1200	1228	723 D	83.3			3G,SWF
	410	SGMR	43	NS	1200	1228.1	723 D	18.4			3G,SWF
	228	HARS	45	C	1227.5	1227.7	2	55	20		
	260	ONDR	4	S/F	1227.6	1228.6	4	25	4.6		
	237	TRST	41	F	1227.9	1228	1.2	135			25L
	930	BORD	41	F	1246.2	1246.6	.4	16	2		
	2800	OTTA	1	S	1250	1251.5	3	2.4	1.2		
	2800	OTTA	23	GRF	1350	1450	200	6.8	3.5		
	260	ONDR	8	S	1432.6	1432.6	.5	20	1		
	237	TRST	41	F	1551.4	1551.5	.2	297			11L
	237	TRST	41	F	1555.3	1555.4	.2	58			14L
	2800	OTTA	1	S	1602	1603.5	6	2.6	1.7		
	237	TRST	5	S	1605.9	1605.9	.1	435	145		14L
	237	TRST	41	F	1621.8	1622.8	1.2	150			15L
	2800	OTTA	21	GRF	1750	1950	275	18	9		
	2695	BOUL	4	SF	1750.5	1755.5	11.5	21	7		
	4995	BOUL	4	SF	1751.5	1753.5	6	19	6		
	2800	OTTA	4	S/F	1752	1754.1	6	12.2	4		
	1420	BOUL	46	C	1752	1754	4.5	7	2		
	237	TRST	41	F	1753.5	1753.7	.5	87			0
	18	MCMA	6	S	1753	1756	11			2	
	4995	BOUL	3	S	1904.5	1910.5	11.5	58	19		
	1420	BOUL	4	SF	1905	1911	8	13	4		
	2695	BOUL	20	GRF	1906	1912.5	19	50	17		
	2800	OTTA	3	S	1906	1911	14	52.8	26.4		
	4995	SGMR	3	S	1906.5	1911.5	19.5	60.6	24.2		
	2695	SGMR	3	S	1906.6	1910.5	19.4	59.2	23.7		
	8800	SGMR	3	S	1907	1911	18	41	16.4		
	15400	SGMR	20	GRF	1907.5	1909.5	16.5	7.4	3		
	1415	SGMR	20	GRF	1908	1912	17	14	5.6		
	1420	BOUL	29	PBI	1912.5	1912.5	17.5D	9	3		
	4995	BOUL	29	PBI	1916	1916	74.5	25	8		
	9400	HUAN	29	PBI	1918 E	1918 U	13.1	30.8	27.3		R
	2800	OTTA	29	PBI	1920	1920	30	16.4	8.2		
	9400	HUAN	3	S	2102.3	2102.8	2	40.5	13		R
	4995	BOUL	1	S	2242	2243	2.5	3	1		
	2800	OTTA	1	S	2243	2243.5	2	3	1.8		
	2695	BOUL	2	SF	2243.5	2244.5	3	3	1		
25	6100	KISV	4	S/F	0446	0446.3	2	5			
	6100	KISV	21	GRF	0537	0542	8	5			
	6100	KISV	21	GRF	0557	0603	11	6			
	260	ONDR	46	C	0602	0602.7	11	21	3.3		
	536	ONDR	41	F	0605.8	0616.2	17	9			
	6100	KISV	45	C	0610	0613	19	13			
	930	BORD	41	F	0614.4	0616.3	2.2	31	4		
	1415	HANI	2	S/F	0614.5	0615.3	2.5	17.3	11.5		
	808	ONDR	45	C	0615	0616.2	2	29	5		
	6100	KISV	20	GRF	0712	0712.3	8	3			
	260	ONDR	8	S	0723	0723	.2	10			
	6100	KISV	4	S/F	0804.3	0807	21	3			
	3100	CRIM			0828	0913		6	2		
	3100	CRIM			0828	0851		3	1		
	3100	CRIM	2	S/F	0828	0841	60	6	2		
	6100	KISV	4	S/F	0902	0904.3	7	4			
	6100	KISV	1	S	1017	1019	3	4			
	536	ONDR	8	S	1458	1458	.3	136			
	9400	HUAN	8	S	1637.6	1638	.8	16.1	6.8		O
	2800	OTTA	21	GRF	1705	1729	180	10.4	3.2		
	9400	HUAN	21	GRF	1718.4	1729.4	38.4	12.9	4.8		O
	2695	BOUL	28	PRE	1719	1741.5U	335	16	5		
	2800	OTTA	20	GRF	1736	1740	12	4.4	2.2		
	1415	SGMR	3	S	1751.3	1751.6	.9	31.2	12.5		3,5
	1420	BOUL	8	S	1751.5	1752	1	17	6		
	4995	BOUL	4	SF	1751	1751.5	4	30	10		
	2800	OTTA	3	S	1752	1752.5	3	39.6	9		
	29	UPIC	4	S/F	1752.1	1752.8	2.8				
	33	UPIC	4	S/F	1752.2	1752.5	2.6				
	2695	SGMR	3	S	1752.2	1752.7	2.8	41.8	16.7		3,5

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	4995	SGMR	3	S	1752.2	1752.6	2.8	34.7	13.9		3,5
	9400	HUAN	1	S	1752.3	1752.5	1.6	8.1	5.4		R
	2695	BOUL	3	S	1752.5E	1753.5	17 D	31	10		
	2650	OWIN	2	S	1752	1753	2	30	10		
	18	MCMA	6	S	1930	1933	4			1	
	4995	BOUL	4	SF	2250.5	2251.5	2	23	8		
	2800	OTTA	3	S	2251.8	2252.7	4	10	3.3		
	1420	BOUL	1	S	2251	2252	5	10	3		
	2695	BOUL	1	S	2252	2253.5	3	8	3		
	1415	MANI	3	S	2252	2252.7	2	12.8	8.5		
	4995	MANI	3	S	2252	2252.7	1.8	10.3	6.9		
	2695	MANI	3	S	2252	2252.6	1.7	11.8	7.9		
	245	SGMR	7	S	2252.7	2253.7	1.8	496	198		
	1400	SYDN	3	S	2352	2352.6	2.5				
26	2695	PENT	20	GRF	0030	0048	70 D	15.6			
	1420	BOUL	3	S	0043.5	0048	10	10	3		
	1415	MANI	3	S	0044.8	0048.2	6.2	14	9.4		
	1400	SYDN	3	S	0045	0048	5				
	2695	MANI	3	S	0045.1	0048	5.4	11.8	7.9		
	6100	KISV	45	C	0512.3	0515.3	6	7			
	260	ONDR	44	NS	0540 E		571 D	21			
	127	TORN	44	NS	0720 E	0913.6	450 D	90			V=0
	200	GORK	43	NS	0906		234		5		
	245	SGMR	44	NS	0916 E	2022.8	888 D	232			3G,CONT
	650	GORK			0553.3	0609.7		52			
	650	GORK	46	C	0553.3	0554	25.7	18.5			
	536	ONDR	2	S/F	0605	0606.2	4	9	2.4		
	808	ONDR	41	F	0605	0610	20	46	12		
	606	MANI	4	S/F	0843.9	0844.4	3.8	32.6	21.8		
	1415	MANI	2	S/F	0844.2	0844.4	3.3	4.1	2.7		
	9500	BERL	20		0855	0906.5	92	6.5			
	3000	BERL	20		0905	0920	50	6.1			
	1470	BERL	20		0908	0914	72	2.6			
	202	IZMI	22	GRF	0933	0935	3.2	1500	500		
	202	IZMI	23	GRF	0936.8	0938.6	1.8	1400	450		
	9100	ARCE	4	S/F	0951.7	0952.2	1.8				RECORDDISTURBED
	930	BORD	41	F	1007	1007.6	.7	24	2		
	930	BORD	41	F	1100	1102.8	3.5	22	3		
	2800	OTTA	26A	FAL	1105	1535	270	-12			
	2800	OTTA	21	GRF	1150	1205	125	6	3.6		
	2800	OTTA	2	S/F	1334	1336.2	5.2	5.8	2		
	930	BORD	8	S	1514	1514	.1	15	1		
	930	BORD	41	F	1537.9	1538.2	.5	26	2		
	228	HARS	46	C	1614	1616	3.5	29	9		
	1420	BOUL	41	F	1646	1648.5	12.5	24	8		
	2800	OTTA	22	GRF	1744	1748	25	3	1.5		
	2800	OTTA	21	GRF	1745	1822	185	5.6			
	2695	BCUL	41	F	1746.5	1754	26.5	47	16		
	2800	OTTA	45	C	1746.5	1750.2	13	80	14.6		
	2695	SGMR	45	C	1746.7	1754.5		77.8			3G,CONT,SWF
	4995	SGMR	45	C	1746.7	1754.5		73.3			3G,CONT,SWF
	4995	SGMR	45	C	1746.7	1750	25.9	109.2	43.7		3G,CONT,SWF
	2695	SGMR	45	C	1746.7	1750.2	23.8	91.5	36.6		3G,CONT,SWF
	8800	SGMR	45	C	1747.2	1749.9	24	140.4	56.2		3G,CONT,SWF
	8800	SGMR	45	C	1747.2	1754.5		85.4			3G,CONT,SWF
	9400	HUAN			1747.3	1754.7		99.1			
	9400	HUAN	45	C	1747.3	1750	10.2	151.3	42.6		R
	4995	BOUL	41	F	1747.5	1750.5	11.5	192	64		
	1415	SGMR	45	C	1747.6	1750.4	13.6	29.5	16		3G,CONT,SWF
	1415	SGMR	45	C	1747.6	1754.8		40			3G,CONT,SWF
	15400	SGMR	3	S	1747.7	1750.1	31.1	205	82		3G,CONT,SWF
	35000	SGMR	20	GRF	1747.7	1750.1	12.3	9.5	3.8		3G,CONT,SWF
	930	BORD	46	C	1747	1755.6	12	43	4		
	10500	BERN	41	F	1748.9	1750	20 D	44	126		
	10500	BERN			1748.9	1554.7		20	58		
	245	SGMR	7	S	1751	1755	8	394	118		3G,CONT,SWF
	410	SGMR	6	S	1752	1755.2	7	139	55.5		3G,CONT,SWF
	606	SGMR	3	S	1754.3	1755.3	3.9	43.6	17.6		3G,CONT,SWF
	18	MCMA	6	S	1754	1757	4			1	
	9400	HUAN	29	PBI	1757.5	1757.5	12.2	15.6	10.1		O
	2695	BCUL	28	PRE	2337.5	2342.5	5	3	1		
	2695	BCUL	1	S	2342.5	2344.5	4.5	9	3		
	606	MANI	2	S/F	2343.3	2344.9	2.7	5.9	3.9		
	2800	OTTA	1	S	2344	2345.3	4	4.4	2		
	4995	BOUL	4	SF	2344.5	2346	5	12	3		
	1415	MANI	2	S/F	2344.6	2345.2	1.5	6.9	4.6		
	2695	MANI	2	S/F	2344.6	2345.3	1.4	6.5	4.3		
27	200	GORK	44	NS	0300		420		5		
	260	ONDR	44	NS	0555 E		577 D	27			
	127	TORN	43	NS	0905 U	0935.6	345 D	160			V=1
	245	SGMR	44	NS	0916 E	1210.8	889 D	29			
	410	SGMR	44	NS	0916 E	1209.5	889 D	83.3			
	6100	KISV	28	PRE	0541	0552	13	36			

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MAY 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	15000	KISV	4	S/F	0550	0552.1	5	15			
	3100	CRIM	3	S	0550	0552	6	15	5		
	10500	BERN	22	GRF	0550.6	0551.7	7.5	9	26		
	4995	ATHN	3	S	0550.9	0552.3	10.3	45.4	27.3		
	9100	GORK	4	SF	0551	0551.7	4.6	42	14		
	2695	ATHN	3	S	0551.2	0552.3	9.9	17.3	10.4		
	8800	ATHN	3	S	0551.3	0552.2	9.7	39.2	23.5		
	650	GORK	4	SF	0551.6	0551.6	1.3	69			
	5730	IRKU	1	S	0551	0552	6	33	12		R
	100	CORK	46	C	0630	0631 U	6.2	80			
	100	HIRA	46	C	0630	0631	3	850	300		SL
	200	HIRA	46	C	0630	0632	3	60	25		ML
	100	GORK			0630	0632.1		2910			
	3100	CRIM	1	S	0735	0737	4	4	1		
	6100	KISV	2	S/F	0735	0737.3	5	3			
	6100	KISV	2	S/F	0800	0812	27	23			
	3100	CRIM	1	S	0810	0811.5	3	4	1		
	9500	BERL	1	S	0811	0811.6	19	10			
	9100	GORK	1	S	0811.4	0811.8	1.8	15	6.5		
	9100	ARCE	1	S	0811.5	0812	6				
	9100	ARCE	21	GRF	0811.5		113				
	930	BORD	8	S	0811.7	0811.7	.2	18	1		
	4995	ATHN	3	S	0811.9	0812.1	5.2	11.4	6.8		
	8800	ATHN	3	S	0811.9	0812.2	4.5	13.1	7.8		
	930	BORD	8	S	0815.2	0815.2	.1	32	1		
	33	UPIC	42	SER	0922.3	0922.6	14.3				
	29	UPIC	42	SER	0922.5	0923	14.1				
	6100	KISV	1	S	0924	0924.3	1	3			
	6100	KISV	28	PRE	0938.3	1008	37	20			
	3100	CRIM	1	S	0939	0940	4	7	2		
	29	UPIC	45	C	1000.8	1001.9	2.3				
	33	UPIC	45	C	1000	1001.8	3.1				
	10500	BERN	20	GRF	1005.4	1007	6	5	13		
	3100	CRIM	1	S	1006.5	1008	4	7	2		
	3000	BERL	20		1006	1008.5	7	7.9			
	9500	BERL	20		1006	1007.5	24	9.1			
	6100	KISV	1	S	1145	1145.3	1	5			
	10500	BERN	40	F	1148.3	1148.9	3	4	11		
	1470	BERL	4		1208.5	1209.6	6.5	6.1			
	29	UPIC	42	SER	1208.5	1209.8	22.3				
	33	UPIC	42	SER	1208.5	1209.4	22.3				
	113	POTS	2		1208.7	1211.8	4.5	200	5		
	1420	ARCE	2	S/F	1208.9	1209.8	2.6				
	2800	OTTA	1	S	1209	1210	4	2.4	1.2		
	3000	BERL	1	S	1209	1209.5	3	4			
	930	BORD	41	F	1209	1210	2	20	3		
	408	TRST	40	F	1217.7	1219.3	3.1	150			
	6100	KISV	29	PBI	1229.3	1230	5	3			
	1420	ARCE	1	S	1229.6	1229.9	1				
	2800	OTTA	1	S	1229.9	1230	2.5	7.6	1.9		
	29	UPIC	42	SER	1308.4	1309.4	5.2				
	33	UPIC	42	SER	1308.4	1309.1	5.1				
	9100	ARCE	4	S/F	1352.5	1352.8	2				
	9100	ARCE	1	S	1355.4	1355.6	.6				
	2800	OTTA	22	GRF	1550	1625	90	3	1.5		
	18	MCMA	6	S	1710	1713	5			1	
	2800	OTTA	22	GRF	2038	2045	12	1.2	0.6		
	2695	PENT	240	R	2125	2305	100	3.8	2.2		
	2695	PENT	1	S	2314	2317	10	1.6	1		
28	2695	PENT	20	GRF	0056	0105	35	7	3.5		
	221	ABST	6	S	0629	0629.5	1	20			
	6100	KISV	8	S	0635	0637	3	7			
	221	ABST	41	F	0651.2	0651.5	1	11			
	6100	KISV	21	GRF	0713	0731	57	16			
	3000	BERL	4		0713.5	0716.8	6.5	61			
	2950	GORK	4	S/F	0713.5	0717.5	5.7	122			
	2695	ATHN	4	S/F	0713.7	0717.4	61.9	97.9	29.4		
	9100	GORK	21	GRF	0714	0728.7	136	21			
	1420	ARCE			0714.1	0714.5	1.8				
	1420	ARCE	46	C/F	0714.1	0717.1	6.5				
	2695	MANI	4	S/F	0714.3	0717.4	4.7	70.4	46.9		
	1415	MANI	2	S/F	0714.4	0717.3	3.6	9.6	6.4		
	4995	ATHN	20	GRF	0714.4	0717.6	37.6	12.4	7.4		
	1470	BERL	4		0714	0717	6	19			
	8800	ATHN	20	GRF	0715.4	0732.4	57.2	20	12		
	1420	ARCE			0715.9	0717.1	4.7				
	9500	BERL	20		0715	0731	50	13			
	6100	KISV	45	C	0822	0833.3	13	8			
	29	UPIC	8	S	0824.1	0824.4	.5				
	33	UPIC	8	S	0824.2	0824.3	.6				
	10500	BERN	3	S	0832.7	0833.4	4	8	23		
	8800	ATHN	3	S	0832.7	0833.3	3.1	33.3	10		
	9100	GORK	1	S	0833	0833.5	1.8	22	11		
	15000	KISV	23	PBI	0833	0834	3	29			

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	9100	ARCE	3 S	0833	0833.6	2.6				
	9100	ARCE	3 S	0844.4	0845.2	2.2				
	3100	CRIM	25 R	0857	0935	108 D	4			
	245	SGMR	44 NS	0915 E	1709	891 D	22.8			
	410	SGMR	44 NS	0915 E	1556	891 D	10.8			
	6100	KISV	21 GRF	1022	1043	38	11			
	3100	CRIM	1 S	1022 U	1024.5	12	4	1		
	1420	ARCE	20 GRF	1023.8	1040.6	55				
	10500	BERN	3 S	1037.4	1041	7.5	6	18		
	9100	ARCE	21 GRF	1038.9	1049.6	34				
	4995	SGMR	3 S	1038.9	1040.5	3.6	11.2	4.5		
	3100	CRIM	3 S	1039	1040	4	20	7		
	2695	SGMR	3 S	1039	1039.9	3.9	35	14		
	2695	ATHN	3 S	1039	1039.8	10.3	28.9	8.7		
	4995	ATHN	3 S	1039.2	1041.6	19.9	13.1	3.9		
	3000	BERL	3	1039	1039.2	2.50	24			
	8800	SGMR	3 S	1040.2	1041.2	2.8	16.2	6.5		
	8800	ATHN	3 S	1040.7	1041.3	5.1	25.6	7.7		
	9100	ARCE	3 S	1040.8	1041.6	4				
	9500	BERL	20	1041	1054	32 D	13			
	1470	BERL	20	1041	1049	64 D	2.9			
	2800	OTTA	26 FAL	1105	1300	115	-5.8	-3		
	6100	KISV	4 S/F	1157	1159.3	13	3			
	9400	HUAN	1 S	1158.3	1159.3	2	6.8	3.8		0
	9500	BERL	1 S	1158	1159	2	8.9			
0	0									
28	2800	OTTA	23 GRF	1307	1604	233	16.2	11.6		
	6100	KISV	23 PBI	1310	1314.3		254			
	9400	HUAN	21 GRF	1310.8	1356.3	54.7	27.1	17.9		0
	29	UPIC	46 C	1311.5	1315.1	7				
	33	UPIC	46 C	1311.5	1315	10.3				
	18	MCMA	6 S	1311	1316	8			1	
	245	SGMR	6 S	1312	1317.2	9	62.1	24.8		SWF
	410	SGMR	6 S	1312	1317.3	9	14.5	5.8		SWF
	2695	BOUL	4 SF	1312	1314	5	14	5		
	260	ONDR	46 C	1312.5		4	22	10		
	1470	BERL	4	1312.5	1314	4.5	13			
	9500	BERL	3	1312.5	1314.9	6.5	47			
	9400	HUAN	3 S	1312.8	1315	6.4	50.8	25.2		R
	1420	ARCE	4 S/F	1312.8	1314.4	6				
	113	POTS		1312.9	1317	5.1	750	5		
	606	SGMR	3 S	1312.9	1314.7	6.1	28.6	11.4		SWF
	1415	SGMR	3 S	1312.9	1314.7	6.1	15.1	6		SWF
	1420	BOUL	4 SF	1312	1314	9.5	22	3		
	3000	BERL	4	1312	1314.1	8	95			
	10500	BERN	3 S	1313	1315.3	8.2	15	43		
	2800	OTTA	3 S	1313	1315	8	85.2	23		
	8800	SGMR	3 S	1313	1315.2	7	61.2	24.5		SWF
	4995	SGMR	3 S	1313	1315.3	8	105	42		SWF
	15400	SGMR	3 S	1313	1315.2	7	29.5	11.8		SWF
	2695	ATHN	4 S/F	1313.2	1315.2	4.2	73.8	22.1		
	4995	ATHN	4 S/F	1313.2	1315.3	60.3	118.1	35.4		
	9100	ARCE	3 S	1313.4	1315.3	6				
	9100	ARCE	21 GRF	1313.4	1337.7	58.5				
	15000	KISV	2 S/F	1313.5	1315.5	6	24			
	8800	ATHN	4 S/F	1313.5	1315.1	56.2	64.1	19.2		
	4995	BOUL	3 S	1313	1315.5	8.5	192	64		
	228	HARS	45 C	1317	1317.6	1.1	47	20		
	9400	HUAN	1 S	1337	1337.5	2.9	11.9	8.6		0
	1420	ARCE	22 GRF	1455.6	1502.4	59				
	9400	HUAN	46 C	1456.4	1501.5	8.8	191.5	94.4		L
	1420	BOUL	4 SF	1456.5	1501	7.5	21	7		
	10500	BERN	46 C	1456.9	1501.6	48	60	174		
	2800	OTTA	46F C	1457	1501.3	7	34.2	18.5		
	15400	SGMR	3 S	1457	1457.8	9.5	225	67.5		SWF
	4995	ATHN	4 S/F	1457.1	1501.7	44.2	101.7	30.5		
	8800	SGMR	3 S	1457.6	1501.5	8.9	378	113		SWF
	9100	ARCE	4 S/F	1457.7	1501.6	8				
	4995	SGMR	3 S	1457.9	1501.3	7.2	84	25.2		SWF
	1415	SGMR	20 GRF	1457.9	1506.6	17.8	8.9	3.6		SWF
	35000	SGMR	3 S	1458	1458.9	9.5	155	46.5		SWF
	2695	SGMR	3 S	1458	1458.9	6.3	42.1	12.6		SWF
	8800	ATHN	4 S/F	1458	1501.8	44	281	84.3		
	2695	ATHN	3 S	1458.1	1501.6	39.7	25.7	7.7		
	4995	BOUL	4 SF	1458.5	1502 U	6.50	85	28		
	1420	BOUL	29 PBI	1504.5	1504.5	23	8	3		
	9400	HUAN	29 PBI	1505.2	1505.2	98.8	39	7.7		0
	9100	ARCE	29 PBI	1505.7		73				
	2800	OTTA	29 PBI	1604	1604	40	14.8	7.4		
	2800	OTTA	32 ABS	1715	1735	53	-3.8	-2.2		
	2800	OTTA	21 GRF	1810	1820	240	8.8	4		
	2800	OTTA	21 GRF	1959.8	2004	25	2	1		
	2800	OTTA	1 S	2000.2	2001.2	1.5	3	1.5		

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MAY 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	2800	OTTA	21 GRF	2030	2036.5	50	3.6	1.8		
	2800	OTTA	8 S	2036.3	2036.3	0.2	53			
	2800	OTTA	20 GRF	2230	2235	30	2.4	1.2		
	2695	PENT	240 R	2305	2345	40	4.4	2		
29	2695	PENT	1 S	0016	0016.7	2	2	1		
	2695	PENT	3 S	0126	0127.8	6	12	4		
	1400	SYDN	1 S	0127	0128	3				
	9500	BERL	20	0653	0705	83	6.5			
	6100	KISV	4 S/F	0655	0657	5	8			
	2950	GORK	4 S/F	0655.5	0657.5	3.9	18	9		
	3000	BERL	3	0656.5	0657.3	1.5	13			
	1470	BERL	1 S	0657	0657.4	1.5	2.7			
	3100	CRIM	1 S	0657	0658	2	7	2		
	221	ABST	43 NS	0721.2	0731.8	25	10			
	410	SGMR	44 NS	0915 E	1023.1	892 D	31.5			
	245	SGMR	44 NS	0915 E	1926.2	892 D	8.1			
	3100	CRIM	1 S	0955	0955.5	1	3	1		
	29	UPIC	45 C	1016.1	1016.3	2.5				
	33	UPIC	45 C	1016	1016.8	2.5				
	29	UPIC	2 S/F	1022.8	1023.8	1.5				
	33	UPIC	2 S/F	1022.8	1023.1	.9				
	6100	KISV	45 C	1038	1056	12	9			
	1470	BERL	20	1038	1101.5	125	7.1			
	3100	CRIM	20 GRF	1040	1053	42	7	2		
	2800	OTTA	20 GRF	1040		70	4.4	2.2		
	3000	BERL	20	1045	1049.5	68 D	15			
	2950	GORK	3 S	1048.8	1049.8	11	14			
	9500	BERL	20	1050	1055.5	53 D	8			
	2800	OTTA	20 GRF	1505	1515	90	4.4	2.2		
	245	SGMR	6 S	1507.9	1508.8	5.3	30.4	12.1		
	410	SGMR	6 S	1508.6	1508.7	.4	15.8	6.3		
	2800	OTTA	21 GRF	1650		195	4.6	2.3		
	10500	BERN	4 S/F	1719.1	1719.8	4	26	76		
	15400	SGMR	3 S	1719.4	1720	2.6	157	62.8		
	4995	SGMR	3 S	1719.4	1719.9	2.3	11.1	4.4		
	8800	SGMR	3 S	1719.4	1720	2.6	58	23.2		
	9100	ARCE	3 S	1719.4	1719.9	2.6				
	2800	OTTA	1 S	1746	1747.5	4	3.6	1.8		
	10500	BERN	46 C	1753.9	1758.2	18.5D	71	207		
	1420	BCUL	3 S	1755	1758	43	63	21		
	2800	OTTA	3 S	1756.5	1757.8	5.5	205	46		
	2695	BOUL	4 SF	1756.5	1758	8	140	47		
	8800	SGMR	3 S	1756.8	1758.2	6.7	230	92		SWF
	4995	SGMR	3 S	1757	1758.1	6.5	341	136		SWF
	2695	SGMR	3 S	1757	1758.1	6	253	101		SWF
	1415	SGMR	3 S	1757.6	1758.5	5.4	186	74.4		SWF
	9100	ARCE	3 S	1757.6	1758.2	6				AT SUNSET
	4995	BOUL	4 SF	1757	1759	7.5	492	164		
	15400	SGMR	3 S	1758.3	1759.5	4.7	106	42.4		SWF
	2800	OTTA	29 PBI	1802	1802	38	11.6	3.8		
	2695	BCUL	29 PBI	1804.5	1804.5	30.5	5	2		
	4995	BOUL	29 PBI	1805	1805	35.5	23	8		
	2800	OTTA	23 GRF	2105	2200	105	4.4	2.2		
	410	SGMR	48 GB	2240.6	2243	3.6	1200	480		
	606	SGMR	3 S	2241.3	2241.5	.9	372	149		
	606	MANI	4 S/F	2242	2242.4	1.1	47.7	15.9		
	2800	OTTA	1 S	2242	2242.5	1.5	4.4	2.2		
	4995	BOUL	1 S	2242	2243	3	10	3		
	2695	PENT	20 GRF	2310	2410	110	2.8	1.4		
30	200	HIRA	7 C	0252	0252	.7	450	150		O
	100	HIRA	7 C	0252	0252	.8	3000	1500		WL
	6100	KISV	4 S/F	0404	0409	27	8			
	10500	BERN	1 S	0444.7	0447.7	6	6	17		
	6100	KISV	3 S	0445.5	0448	33	6			
	9100	GORK	2 S/F	0447.4	0447.8	1.5	12	5.5		
	6100	KISV	45 C	0545.5	0713	194	85			
	3100	CRIM	21 GRF	0602	0632	56	6	2		
	260	ONDR	4 S/F	0603	0604.8	2.5	29	6		
	9100	GORK	21 GRF	0609.8	0721.3	203	63	27		
	3100	CRIM	1 S	0611	0616	9	4	1		
	10500	BERN	45 C	0612.2	0616	9.5	13	34		
	15000	KISV	45 C	0613	0714	157	168			
	8800	ATHN	3 S	0615.3	0616	7.5	31	9.3		
	4995	ATHN	3 S	0615.5	0617.4	7	11.2	3.4		
	9100	GORK	2 SF	0615.7	0616	2.4	27	13		
	221	ABST	6 S	0618.8	0619	1	28			
	3100	CRIM	1 S	0627	0628	4	12	4		
	202	IZMI	41 F	0701	0701.5	2	110			
	808	ONDR	46 C	0708	0709.3	4	109	21		
	10500	BERN	22 GRF	0711.2	0714.3	57.5	33	94		
	2695	ATHN	45 C	0712.2	0714	54.5	30.3	10.8		
	2695	ATHN	45 C	0712.2	0721.1		41.7			
	9100	ARCE	3 S	0712.4	0715	4.4				

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	4995	ATHN	4 S/F	0712.5	0714	55.5	56.2	16.9		
	1470	BERL	4	0712.5	0718.8	153	17			
	9500	BERL	4	0712.5	0714	143	83			
	4995	MANI	3 S	0713	0714	4.3	39.5	24.9		
	3100	CRIM	7 GB	0713	0714	15	20	7		
	3100	CRIM	29 PBI	0713	0728	92	12	4		
	3100	CRIM		0713	0721		32.5	11		
	8800	ATHN	4 S/F	0713.1	0714.9	34.2	80.6	24.2		
	8800	MANI	3 S	0713.2	0714.3	3.4	77.6	49.8		
	9100	GORK	4 SF	0713.3	0714.5	3.3	72	30		
	2695	MANI	3 S	0713.5	0721	13.5	31.5	20.9		
	3000	BERL	4	0713	0721	136	38			
	5730	IRKU		0713	0730.7		47			R
	5730	IRKU		0713	0718.2		36			R
	5730	IRKU	23 GRF	0713	0714.1	40	69			R
	9100	ARCE	29 PBI	0716.8	0722.9	97				
	650	GORK	46 C	0717	0719.3	4.4	32	8.5		
	650	GORK		0717	0721.1		27			
	950	GORK	4 S/F	0718.3	0718.5	1.4	24			
	100	GORK	8 S	0718.7	0718.9	.2	330			
	260	ONDR	46 C	0718	0718.8	5	28	2		
	260	ONDR	8 S	0914.3	0914.3	.4	29			
	536	ONDR	8 S	0914	0914	.3	35			
	808	ONDR	3 S	0940	0940	.2	35			
	6100	KISV	29 PBI	0957	1000.5	3	9			
	9500	BERL	22	0958.5	1000	34	13			
	9100	GORK	20 GRF	0959.5	1000.3	10.9	14	6.5		
	10500	BERN	20 GRF	0959.5	1000.4	5	4	12		
	9100	ARCE	20 GRF	0959.9	1007.7	28				
	650	GORK		1110.3	1112.3		9.5			
	650	GORK	45 C	1110.3	1111	2.9	9			
	2800	OTTA	240 R	1120	1130	10	2.8	1.4		
	1470	BERL	20	1120	1154.5	158	3.5			
	3000	BERL	20	1124	1156.5	116	9.5			
	9500	BERL	20	1133	1149	142	10			
	2800	OTTA	21 GRF	1135	1142	150	5.6	2.8		
	930	BORO	46 C	1227.2	1227.3	1	245	4		
	2800	OTTA	1 S	1306.8	1308	3	3	1.5		
	6100	KISV	45 C	1307	1309	9	6			
	18	MCMA	6 S	1411	1414	5			1	
	2800	OTTA	23 GRF	1450	1530	80	12	4		
	9100	ARCE	21 GRF	1519.4	1533.6	67				
	2695	BOUL	45 C	1520.5	1522	9	5	2		
	9400	HUAN	21 GRF	1520.8	1531.4	45.5	14.5	6		O
	245	SGMR	6 S	1521	1524.3	5	15.4	6.2		
	2800	OTTA	1 S	1521.5	1522.3	3	2.8	1.4		
	410	SGMR	48 GB	1522.3	1522.6	3.2	626	250		
	10500	BERN	22 GRF	1525.8	1528	25	6	19		
	1420	BCUL	2 SF	1525	1527	5	6	2		
	2800	OTTA	3 S	1526	1528	4	17.6	6.6		
	4995	ATHN	3 S	1526.1	1528	13.1	33.6	20.1		
	2695	ATHN	3 S	1526.1	1528	13.8	12.4	7.4		
	4995	BOUL	4 SF	1526 E	1528 U	5.5D	32	11		
	8800	ATHN	3 S	1527	1528.1	12.5	44.9	27		
	9400	HUAN	3 S	1527	1527.8	2.8	25.8	13.8		L
	9100	ARCE	1 S	1527	1527.9	2.8				
	1420	BOUL	29 PBI	1530	1532.5U	25	3	1		
	2800	OTTA	20 GRF	1615	1635	65	3.4	2		
	2800	OTTA	21 GRF	1750	2120	300	5.6	2.8		
	9400	HUAN	3 S	1922.1	1926.4	20.2	644.3	144.5		L
	1420	BCUL	3 S	1924.5	1926	6.5	65	22		
	8800	SGMR	47 GB	1924.8	1926.4	16.2	612	245		SWF
	15400	SGMR	47 GB	1925.2	1926.5	11.3	548	219		SWF
	4995	SGMR	3 S	1925.4	1926.6	13.6	354	142		SWF
	2695	BOUL	1 S	1925.5	1926.5	3	8	3		
	2800	OTTA	3 S	1925.5	1926.7	6	77.8	33.6		
	1415	SGMR	1 S	1926.4	1927.3	9.6	4.3	1.7		SWF
	2695	SGMR	3 S	1926.6	1926.7	14.4	78.2	31.3		SWF
	4995	BCUL	3 S	1926	1927	16.5	161	54		
	2695	BOUL	29 PBI	1929.5	1933	26	4	1		
	1420	BCUL	29 PBI	1930.5	1932	43	5	2		
	2800	OTTA	29 PBI	1931.5	1931.5	40	18.8	5.8		
	9400	HUAN	29 PBI	1942.3	1942.3	29.1	48.3	32.8		O
	4995	BCUL	29 PBI	1942.5	1942.5	29.5	25	8		
	2695	PENT	20 GRF	2335	2350	50	2.8	1.6		
	2695	BOUL	46 C	2336.5	2337.5	3	26	9		
31	6100	KISV	1 S	0436	0437	2	2			
	221	ABST	43 NS	0644	0649	32	9			
	260	ONDR	43 NS	0800		80	70			
	410	SGMR	44 NS	0913 E	1634.9	896 D	17.2			
	245	SGMR	44 NS	0913 E	1825.5	896 D	85.3			
	127	TORN	43 NS	1040 E	1043.3	250 D	1400			V=1
	10500	BERN	45 C	0732.4	0734.4	5.5	22	64		
	3100	CRIM	3 S	0733	0735	15	23	8		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MAY 1978

MAY 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	6100	KISV	45 C	0733	0734.5	15	13 D			
	3000	BERL	3	0733	0734.5	3.5	19			
	2695	ATHN	3 S	0733.2	0734.1	5.1	15.1	4.5		
	5730	IRKU	45 C	0733.2	0734.5	12	63	9		R
	5730	IRKU		0733.2	0742		9			R
	15000	KISV	45 C	0733.5	0734.5	3	32			
	4995	ATHN	4 S/F	0733.5	0734.2	5	64.1	19.2		
	9500	BERL	4	0733.5	0734.5	20	72			
	2695	MANI	4 S/F	0733.5	0734.6	4.3	14.3	4.7		
	8800	ATHN	4 S/F	0733.6	0734.5	7.4	96.3	28.9		
	8800	MANI	3 S	0733.7	0734.8	3.5	104.9	34.9		
	9100	ARCE	3 S	0733.7	0734.8	2.5				
	9100	GORK	4 SF	0733.8	0734.8	2.8	74	30		
	4995	MANI	3 S	0733.8	0734.7	3.9	42.9	14.4		
	2950	GORK	2 SF	0734	0735.9	2.1	26	13		
	9100	ARCE	30 PBI	0736.2		43.6				
	9100	ARCE	4 S/F	0745.8	0745.9	2				
	1420	ARCE	25 R	0954.2		79				
	1420	KIEL	47 GB	1000	1057	114	1000	170		
	930	BORO	28 PRE	1000	1029.5	31	198	35		
	3100	CRIM	47 GB	1005	1042.5	65	143	48		
	3100	CRIM	30 PBI	1005	1100	150 D	107	36		
	10500	BERN		1007.6	1052.5		27	64		
	10500	BERN	22 GRF	1007.6	1042.9	54	24	70		
	800	KIEL	47 GB	1010	1031	118	1900	150		
	602	KIEL	47 GB	1010	1037	132	1400	100		
	9500	BERL	22	1011	1051.5	289 D	85			
	650	GORK	23 GRF	1012		69				
	3000	BERL	4	1015	1042.9	285 D	290			
	8800	SGMR	3 S	1016	1052	59	84.2	33.7		SWF
	4995	SGMR	3 S	1017	1042	58	75.9	30.6		SWF
	606	SGMR	47 GB	1017	1047	58	1357	543		SWF
	9100	GORK	22 GRF	1018	1043.2	163	80			
	9100	ARCE	21 GRF	1018.1	1043	145				RECORDDISTURBED
	1420	ARCE	46 C/F	1018.3	1056	40.9				
	1420	ARCE		1018.3	1040.8	32.6				
	1470	BERL	4	1018	1056.6	282 D	900			
	405	KIEL	47 GB	1018	1050	126	450	80		
	408	TRST	49 GB	1019	1049.9	120	560			
	2695	SGMR	3 S	1020	1043	55	123	49.2		SWF
	245	SGMR	7 S	1020	1042	55	288	115		SWF
	410	SGMR	49 GB	1020	1050.1	55	585	234		SWF
	1415	SGMR	47 GB	1020.5	1057.5	54.5	1139	555		SWF
	260	ONDR	49 GB	1020		85 D	145	102		
	536	ONDR	49 GB	1020	1046.6	85 D	332	101		
	808	ONDR	49 GB	1020		85 D	596 D	376 D		
	650	GORK		1021	1037.2					
	650	GORK		1021	1047.2					
	650	GORK		1021	1041.3					
	650	GORK	46 C	1021	1029.1	28.1				
	234	POTS	45 C	1021	1041	279 D	190			
	240	KIEL	47 GB	1021	1042	131	220	50		
	228	HARS	28 PRE	1025	1031	7	53			
	237	TRST	47 GB	1025.2	1041.6	180.5	370			27L
	237	TRST		1025.2	1212.6		150			100R
	237	TRST		1025.2	1144.3		145			81R
	237	TRST		1025.2	1129.2		130			68R
	237	TRST		1025.2	1055		300			16R
	237	TRST		1025.2	1048.5		210			3R
	202	IZMI	25 R	1027.9	1042	92.1	280	50		
	200	GORK	46 C	1027	1040 U	140	29			
	200	GORK		1027	1114		110			
	200	GORK		1027	1213		110			
	100	GORK	27 RF	1028		152		500		
	15000	KISV	45 C	1031.5	1032.5	185	67			
	6100	KISV	45 C	1031.5	1043.5		113			
	930	BORO		1031	1056.5		494			
	930	BORO		1031	1055		553			
	930	BORO		1031	1036		593			
	930	BORO		1031	1032		632			
	930	BORO	46 C	1031	1045	30	790	280		
	930	BORO		1031	1033		593			
	2695	ATHN	20 GRF	1032.7	1043.5	194.8	136.2	81.7		
	1415	ATHN	47 GB	1032.7	1043.6	192.8	143.9	72		
	113	POTS	45 C	1032	1042	288 D	180			
	8800	ATHN	20 GRF	1033	1043	193.3	65.9	39.5		
	228	HARS	28 PRE	1033	1035	4	75			
	4995	ATHN	20 GRF	1033.6	1043.1	192.4	83.7	50.2		
	228	HARS	47 GB	1037	1042	29	270	83		
	228	HARS		1037	1055	11	228			
	228	HARS		1037	1047	3.5	187			
	127	TORN	25 R	1040 E	1053.3	15 U	290			
	29	UPIC	49 GB	1046.1	1102.9	71.9				
	33	UPIC	49 GB	1046.1	1051.6	101.9				
	2800	OTTA		1047	1053.9	373 D	135			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

MAY 1978

MAY 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	9100	ARCE	8 S	1049.6	1049.7	.6				
	1420	ARCE		1050.9	1056	8.3				
	3100	CRIM	3 S	1051	1053	6	43	14		
	1415	ATHN	47 GB	1057.3	1057.3		1107			
	1420	ARCE	29 PBI	1059.2		78				FLUCTUATIONS
	930	BORD	29 PBI	1101	1103.5	285	138	15		
	950	GORK	40 F	1106 E	1131.2	44	48			
	606	SGMR	3 S	1115	1149	60	212	84.7		
	9400	HUAN	46 C	1132.5E	1134.2U	46.3	151.5	64.1		L
	29	UPIC	29 PBI	1158	1158.6	182.8				
	33	UPIC	29 PBI	1158	1158.2	182.6				
	650	GORK	4 SF	1200.4	1201.2	1.8	24	9.5		
	9400	HUAN	29 PBI	1218.8	1218.8	75	51	15.8		O
	650	GORK	46 C	1246.8	1247.2	6.9	90			
	650	GORK		1246.8	1249		130			
	650	GORK		1246.8	1251.8		27			
	650	GORK		1246.8	1253.3		29			
	9100	ARCE	1 S	1527.2	1527.4	.6				
	9100	ARCE	3 S	1534.9	1535.2	1.4				
	9100	ARCE	41 SER	1534.9	1537	3.7				
	9100	ARCE	3 S	1536.6	1537	2.3				
	9100	ARCE	1 S	1550.2	1553.8	5				
	18	MCMA	6 S	1843	1850	4			1	
	2800	OTTA	26 FAL	1900	1925	25	-4.2	-2.1		
	2695	PENT	21 GRF	2330	2417	125	3.4	1.7		
	2695	PENT	1 S	2406	2408	6	7.4	3.7		

Reports received from the following observatories:

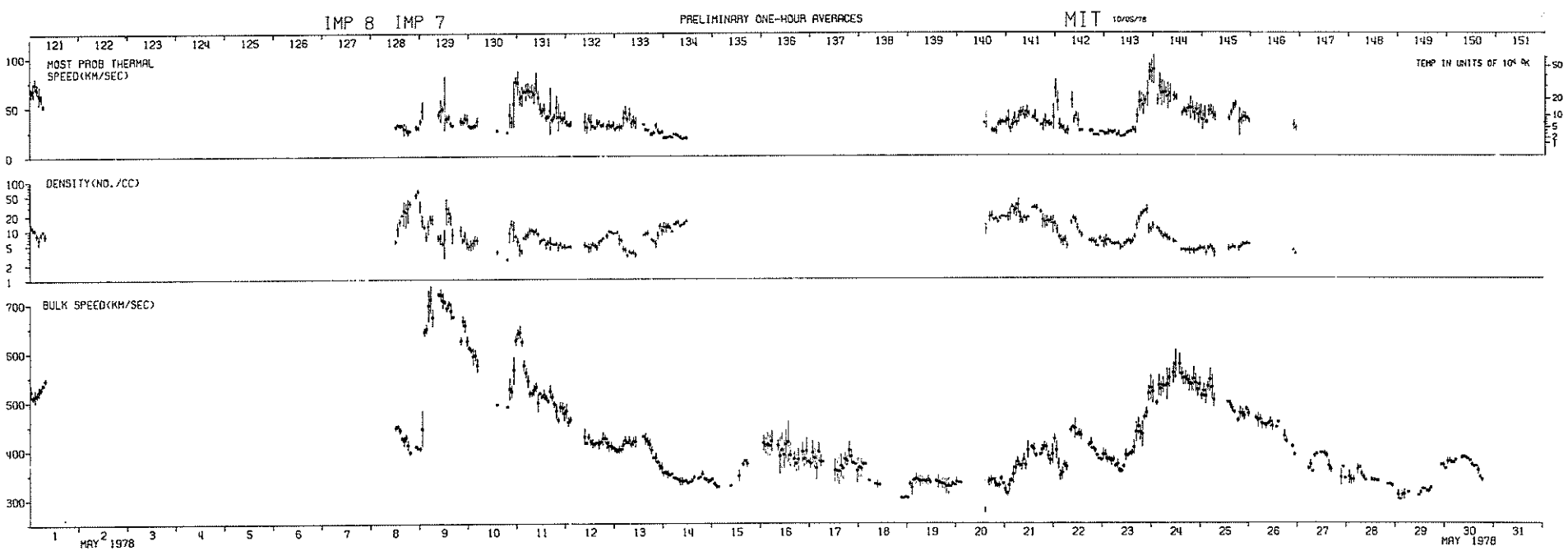
ARCE = Arcetri
BERL = Berlin-Adlershof
BORD = Bordeaux
BOUL = Boulder
CRIM = Simferopol
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
NAGO = Nagoya
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam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

Explanation of Type Code:

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

IMP 7 AND 8 SOLAR WIND PLASMA

MAY 1978



APRIL 1978 DATA

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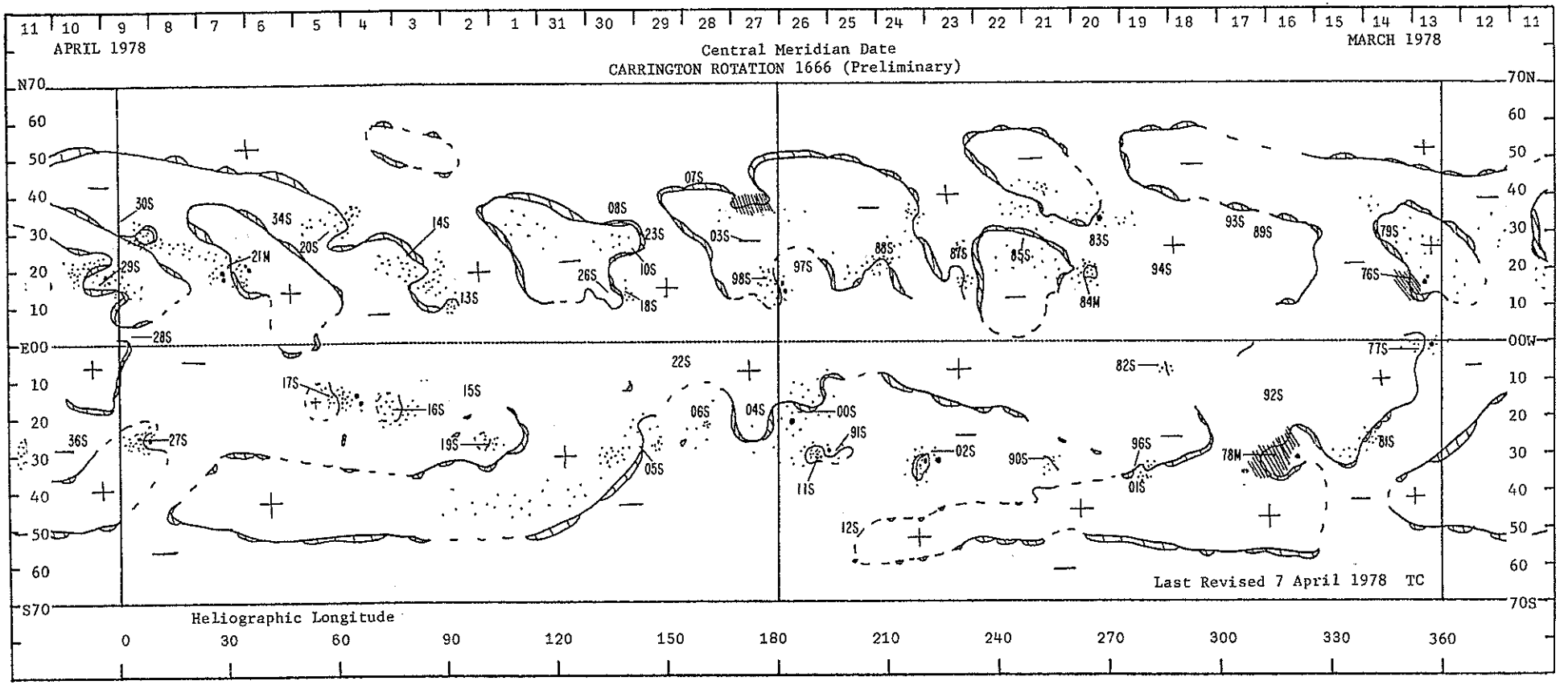
ABBREVIATED CALENDAR RECORD

Hα SYNOPTIC CHART

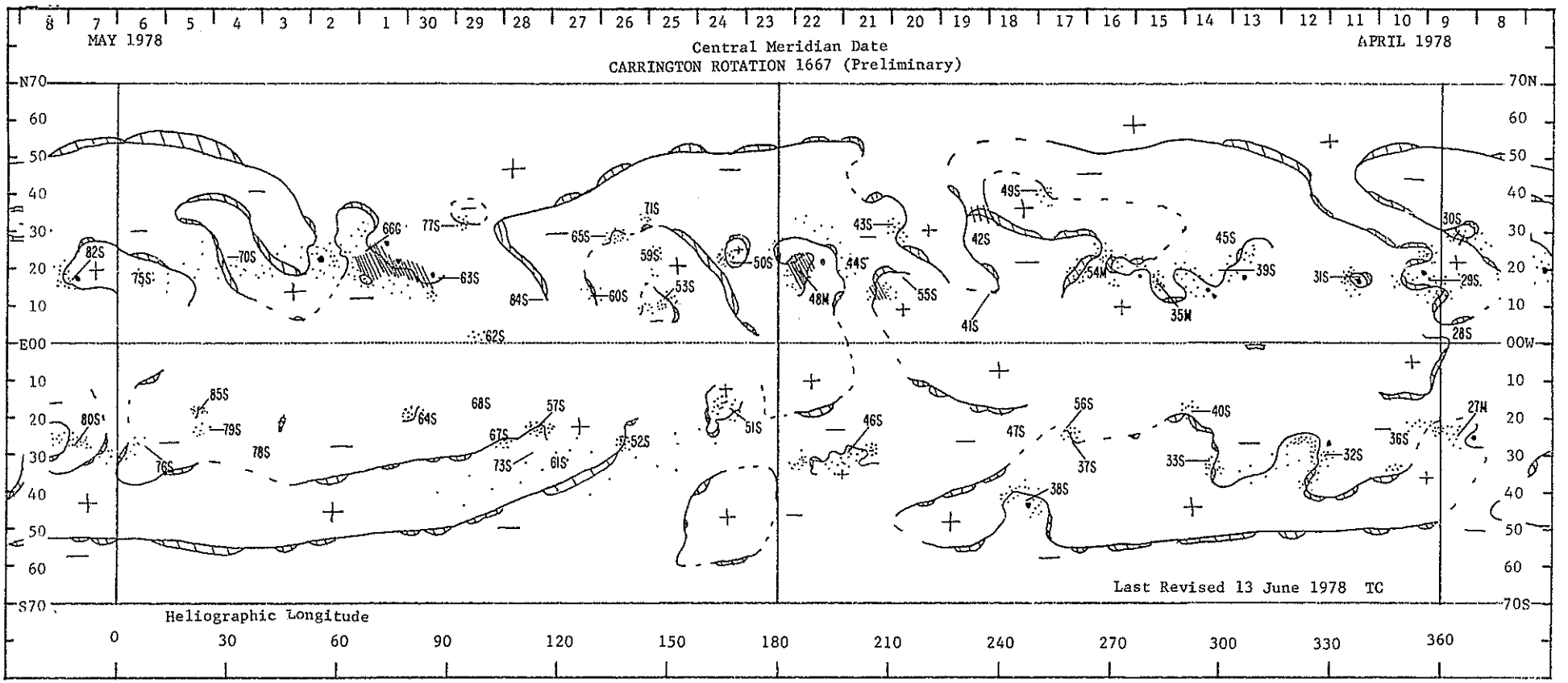
MARCH - APRIL 1978



ABBREVIATED CALENDAR RECORD

Hα SYNOPTIC CHART

APRIL - MAY 1978



ABBREVIATED CALENDAR RECORD

APRIL 1978

Apr. 1, 1978

FLARES

Bursts: cm; dm; m — noise storm; Dkm

SID

X-Rays

Ap 12 010A — Kp: 4o 4- 3o 1+ 1o 2o 2- 2+ — sc

Aurora: USSR; W.E.

Cosmic Rays

Green Corona — E. Limb 7 days earlier: NE- moderately bright SE- moderately bright W. Limb 7 days later: NW- no data SW- no data

Indices — Rz: 70 10cm flux: 130 Flare: 7/20.6 Ca: 22.3 Ip: 0 Ia: 5

Solar Regions

Sunspots

Apr. 2, 1978

FLARES

Bursts: cm; dm; m — II; Dkm

SID

X-Rays

Ap 15 — Kp: 4- 4- 1o 2o 2+ 2o 3- 5- — sc

Aurora: USSR; W.E.

Cosmic Rays

Green Corona — E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- no data SW- no data

Indices — Rz: 68 10cm flux: 130 Flare: 19/22.0 Ca: 23.4 Ip: 0 Ia: 2

Solar Regions — (15219) S29; (15215) S14; 15213 N12

Sunspots — (19993) N10 X1

Apr. 3, 1978

FLARES

Bursts: cm; dm; m — ns; noise storm; Dkm

SID

X-Rays

Ap 41 — Kp: 2o 5+ 5+ 3+ 3o 4o 6- 6o — sc

Aurora: USSR — ϕ = 58° 0000 (R_2R2); 0300 (R_1B3) and 2300-2400 (S1); ϕ = 56° 0100-0200 (R_2V2) and 1700-1800 (N1-2); ϕ = 60° 0400 (HA1); (see below); W.E.

Cosmic Rays

Green Corona — E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- bright SW-

Indices — Rz: 71 10cm flux: 134 Flare: 17/18.6 Ca: no data Ip: 0 Ia: 3

Solar Regions — 15214 N23 (3 and 4); 15216 S18

Sunspots — 19994 N21 (8)1; (19986) S18 (8)2; 19987 S15 (ap)2 CMP April 4

AURORA — USSR continued: ϕ = 59° 1300-1600 (HA2) and 2000-2200 (HA2).

Apr. 4, 1978

FLARES

Bursts: cm; dm; m — noise storm; noise storm; Dkm

SID

X-Rays

Ap 55 04 — Kp: 5+ 5o 5- 2+ 2- 5+ 7o 6+ — sc

Aurora: USSR — ϕ = 59° 0000 (R_2R) and 1800-1900 (R_2R1); ϕ = 57° 0100-0400 (R_2B1-2); ϕ = 56° 2000 (R_1R2E); ϕ = 54° 2100 (P_1SP2); ϕ = 58° 2200-2400 (HB1-2); W.E.

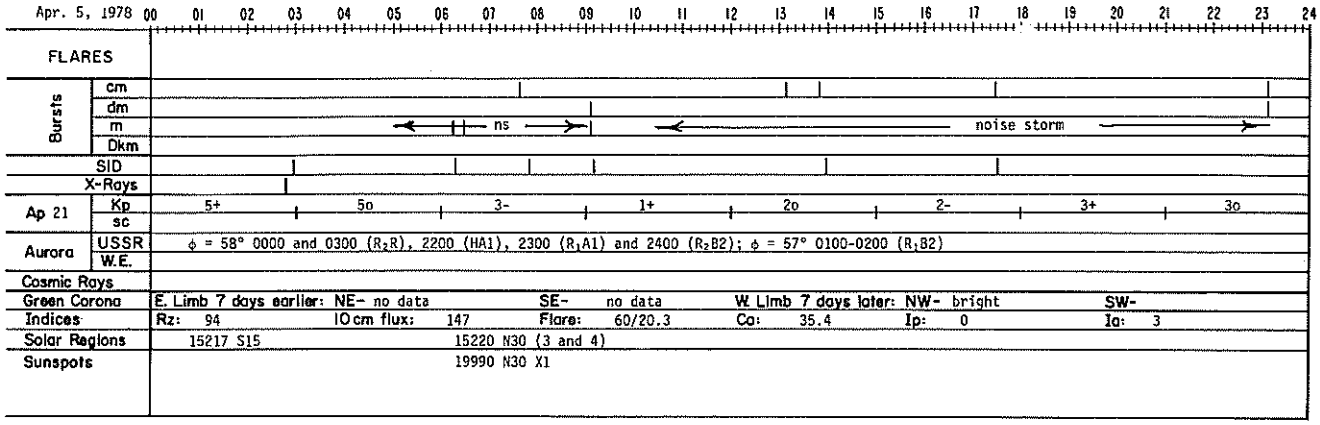
Cosmic Rays

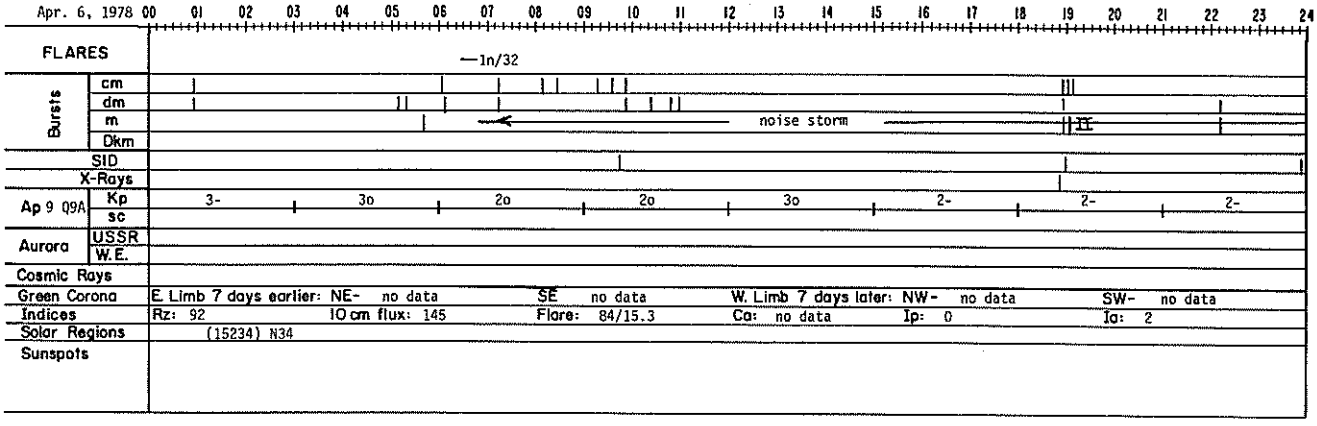
Green Corona — E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- moderately bright SW-

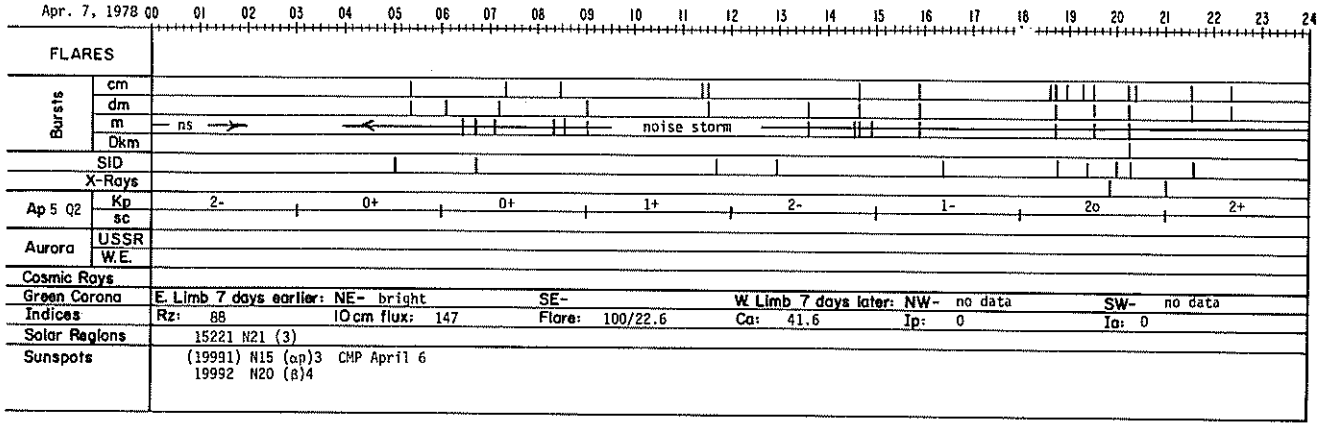
Indices — Rz: 75 10cm flux: 143 Flare: 17/19.9 Ca: 32.3 Ip: 0 Ia: 5

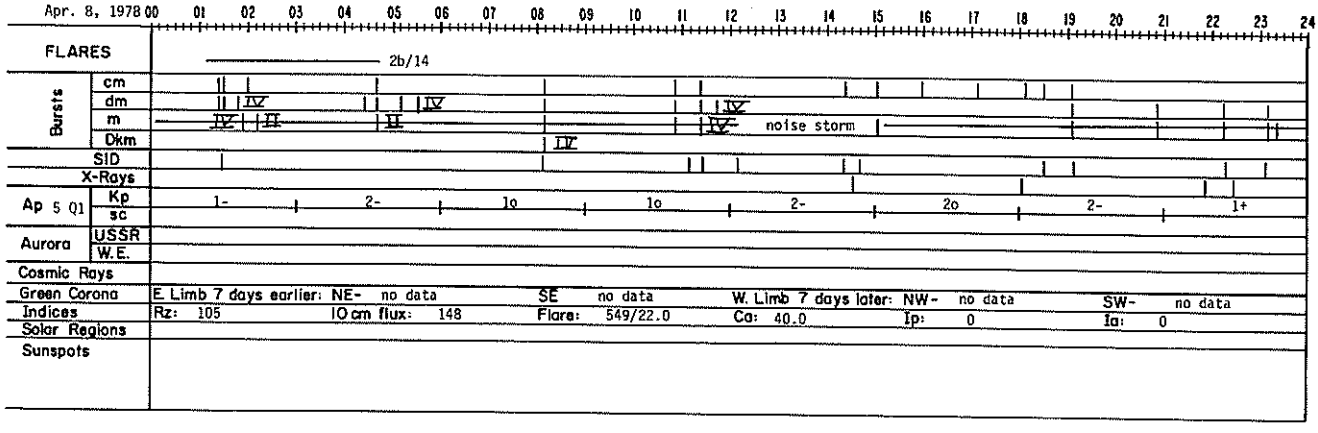
Solar Regions

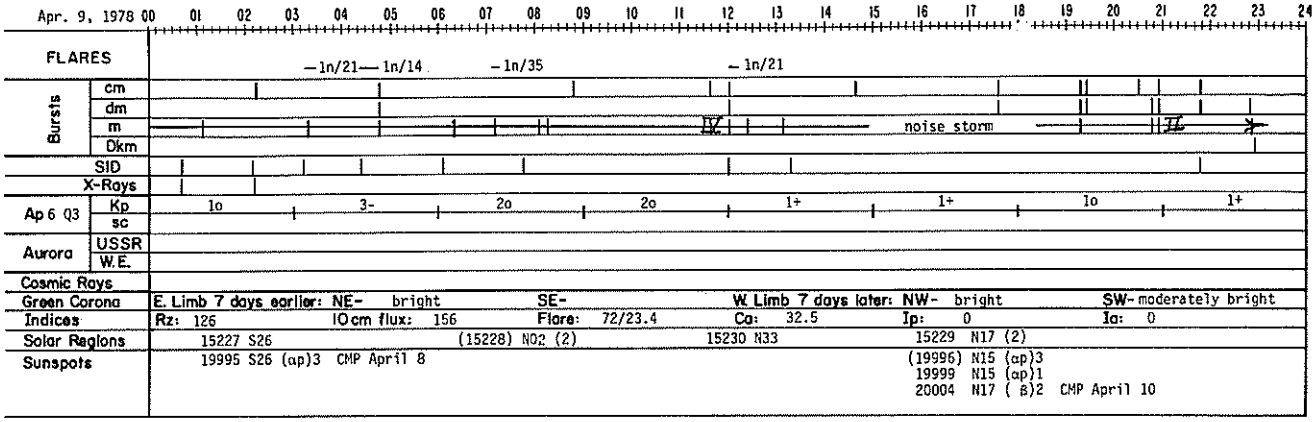
Sunspots

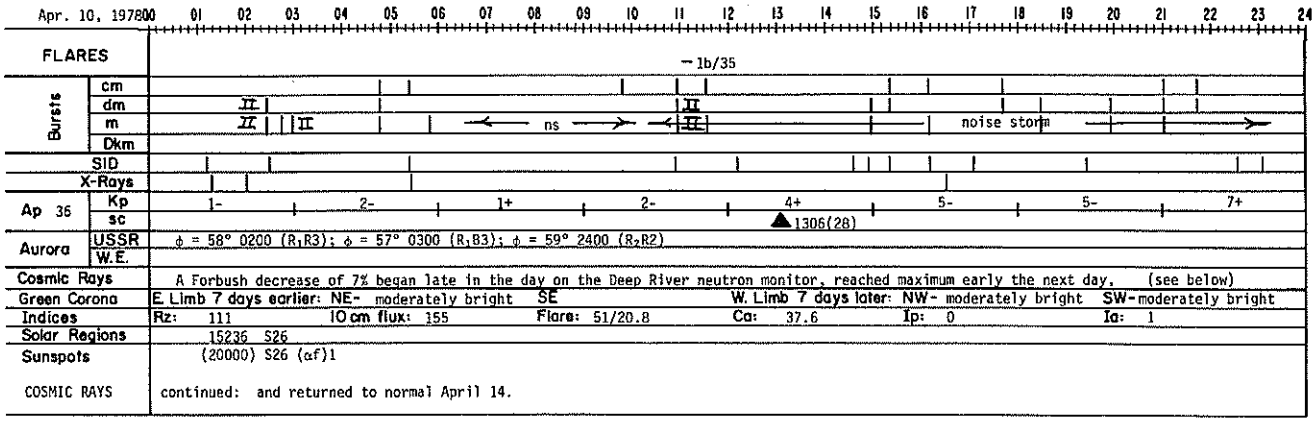

Apr. 5, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap 21
Kp
sc
5+ 5o 3- 1+ 2o 2- 3+ 3o
Aurora
USSR
W.E.
ϕ = 58° 0000 and 0300 (R2R), 2200 (HA1), 2300 (R1A1) and 2400 (R2B2); ϕ = 57° 0100-0200 (R1B2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- bright SW-
Indices
Rz: 94 10 cm flux: 147 Flare: 60/20.3 Ca: 35.4 Ip: 0 Ia: 3
Solar Regions
15217 S15
15220 N30 (3 and 4)
Sunspots
19990 N30 X1

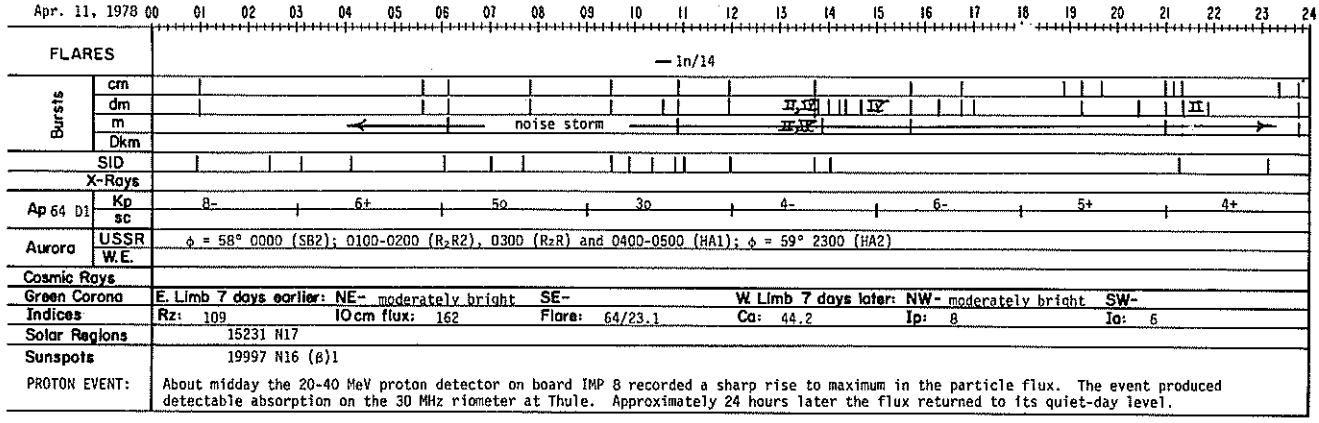

Apr. 6, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/32
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 9 Q9A
Kp
sc
3- 3o 2o 2o 3o 2- 2- 2-
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 92 10 cm flux: 145 Flare: 84/15.3 Ca: no data Ip: 0 Ia: 2
Solar Regions
(15234) N34
Sunspots

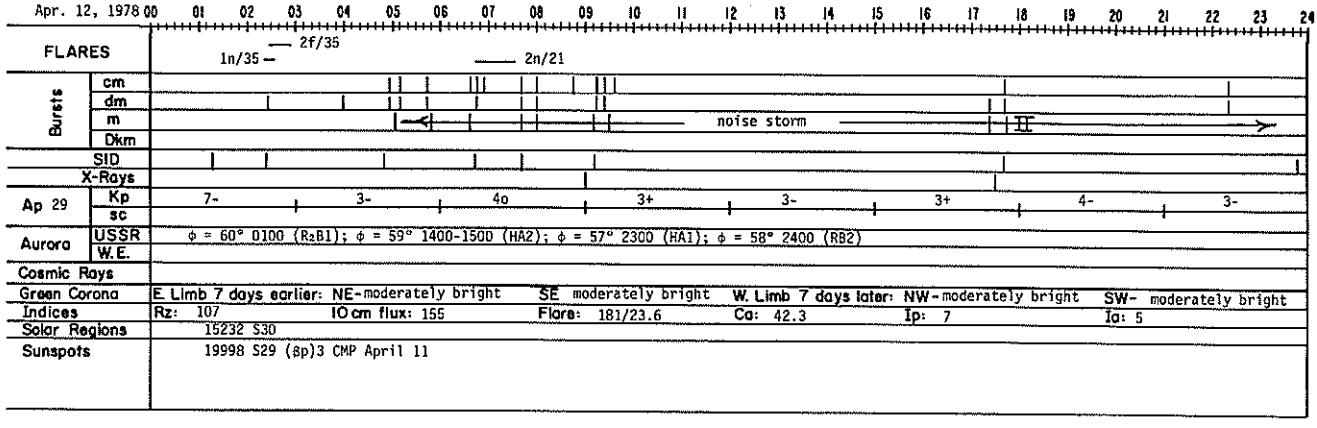

Apr. 7, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap 5 Q2
Kp
sc
2- 0+ 0+ 1+ 2- 1- 2o 2+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE- W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 88 10 cm flux: 147 Flare: 100/22.6 Ca: 41.6 Ip: 0 Ia: 0
Solar Regions
15221 N21 (3)
Sunspots
(19991) N15 (αp)3 CMP April 6
19992 N20 (β)4

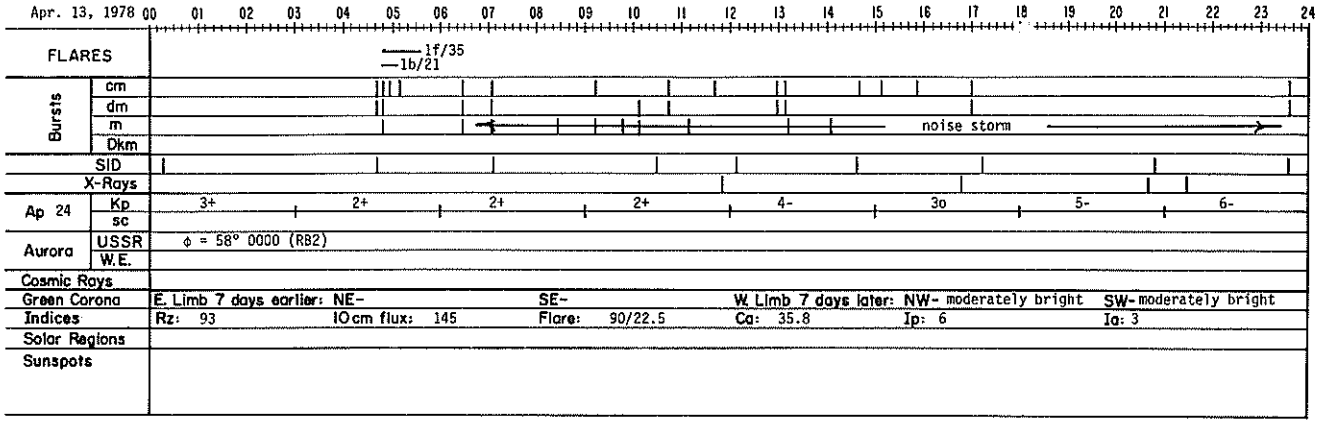

Apr. 8, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2b/14
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 5 Q1
Kp
sc
1- 2- 1o 1o 2- 2o 2- 1+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 105 10 cm flux: 148 Flare: 549/22.0 Ca: 40.0 Ip: 0 Ia: 0
Solar Regions
Sunspots

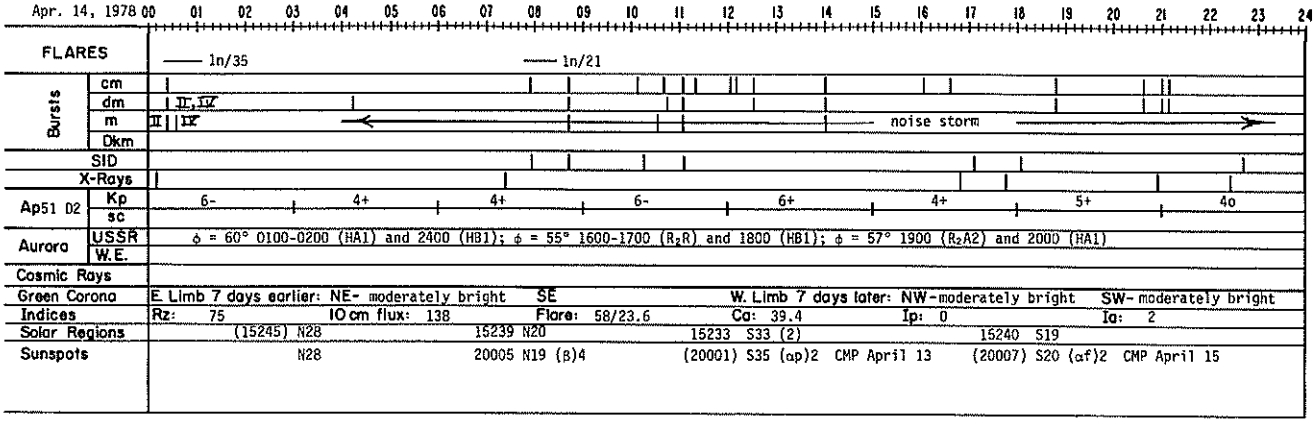

Apr. 9, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
— 1n/21— 1n/14 — 1n/35 — 1n/21
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 6 Q3
Kp
sc
1o 3- 2o 2o 1+ 1+ 1o 1+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE- W. Limb 7 days later: NW- bright SW- moderately bright
Indices
Rz: 126 10 cm flux: 156 Flare: 72/23.4 Ca: 32.5 Ip: 0 Ia: 0
Solar Regions
15227 S26 (15228) N02 (2) 15230 N33 15229 N17 (2)
Sunspots
19995 S26 (αp)3 CMP April 8
(19996) N15 (αp)3
19999 N15 (αp)1
20004 N17 (β)2 CMP April 10

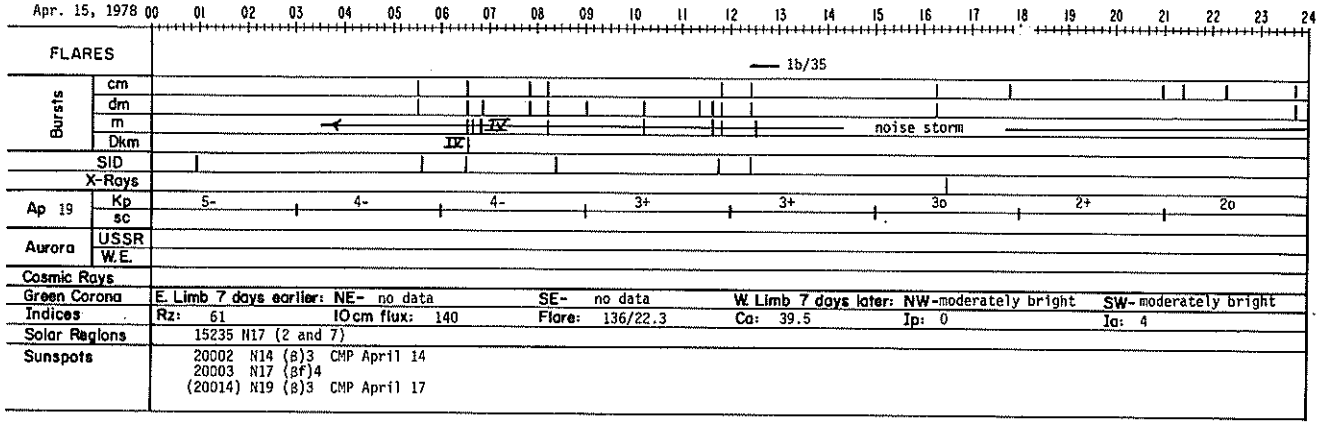

Apr. 10, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
— 1b/35
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap 36
Kp
sc
1- 2- 1+ 2- 4+ 5- 5- 7+
1306(28)
Aurora
USSR
W.E.
φ = 58° 0200 (R,R3); φ = 57° 0300 (R,B3); φ = 59° 2400 (R2R2)
Cosmic Rays
A Forbush decrease of 7% began late in the day on the Deep River neutron monitor, reached maximum early the next day. (see below)
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 111 10 cm flux: 155 Flare: 51/20.8 Ca: 37.6 Ip: 0 Ia: 1
Solar Regions
15236 S26
Sunspots
(20000) S26 (αf)1
COSMIC RAYS
continued: and returned to normal April 14.

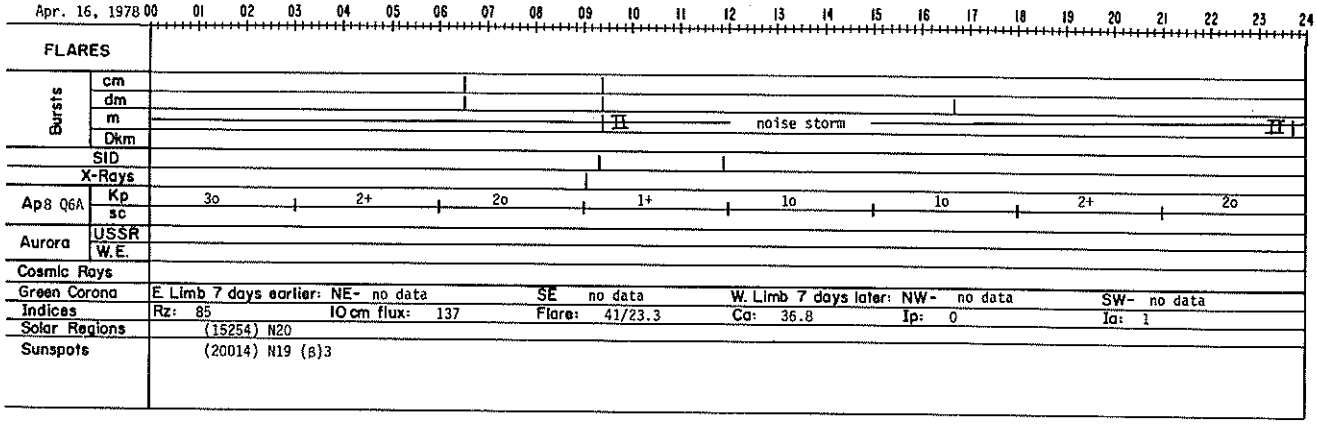

Apr. 11, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
— 1n/14
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 64 D1
Kp
sc
8- 6+ 5o 3o 4- 6- 5+ 4+
Aurora
USSR
W.E.
φ = 58° 0000 (SB2); 0100-0200 (R2R2), 0300 (R2R) and 0400-0500 (HA1); φ = 59° 2300 (HA2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- W. Limb 7 days later: NW- moderately bright SW-
Indices
Rz: 109 10 cm flux: 162 Flare: 64/23.1 Ca: 44.2 Ip: 8 Ia: 6
Solar Regions
15231 N17
Sunspots
19997 N16 (β)1
PROTON EVENT:
About midday the 20-40 MeV proton detector on board IMP 8 recorded a sharp rise to maximum in the particle flux. The event produced detectable absorption on the 30 MHz riometer at Thule. Approximately 24 hours later the flux returned to its quiet-day level.

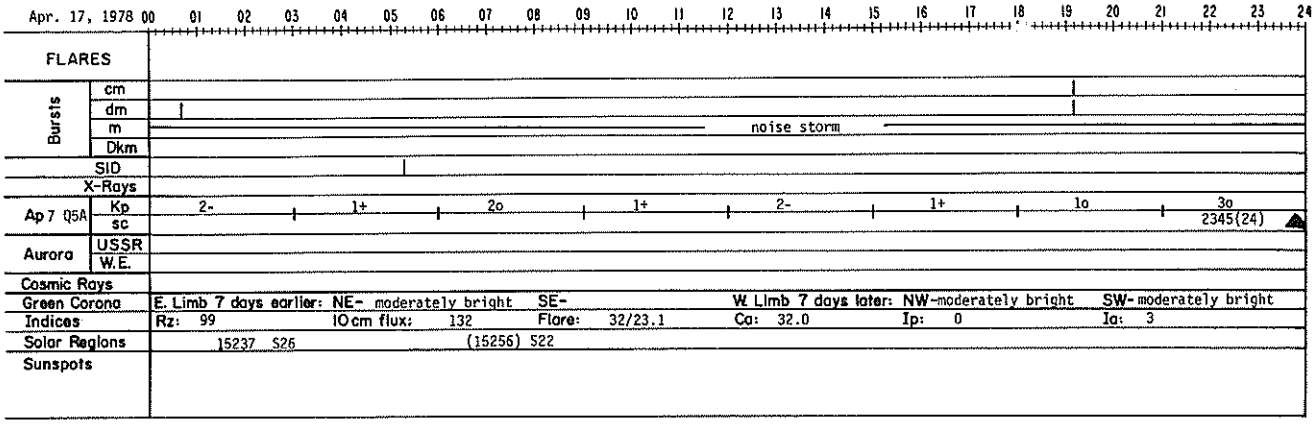

Apr. 12, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
— 2f/35
1n/35 —
—— 2n/21
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 29
Kp
sc
7- 3- 4o 3+ 3- 3+ 4- 3-
Aurora
USSR
W.E.
φ = 60° 0100 (R2B1); φ = 59° 1400-1500 (HA2); φ = 57° 2300 (HA1); φ = 58° 2400 (RB2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE-moderately bright SE moderately bright W. Limb 7 days later: NW-moderately bright SW- moderately bright
Indices
Rz: 107 10 cm flux: 155 Flare: 181/23.6 Ca: 42.3 Ip: 7 Ia: 5
Solar Regions
15232 S30
Sunspots
19998 S29 (βp)3 CMP April 11

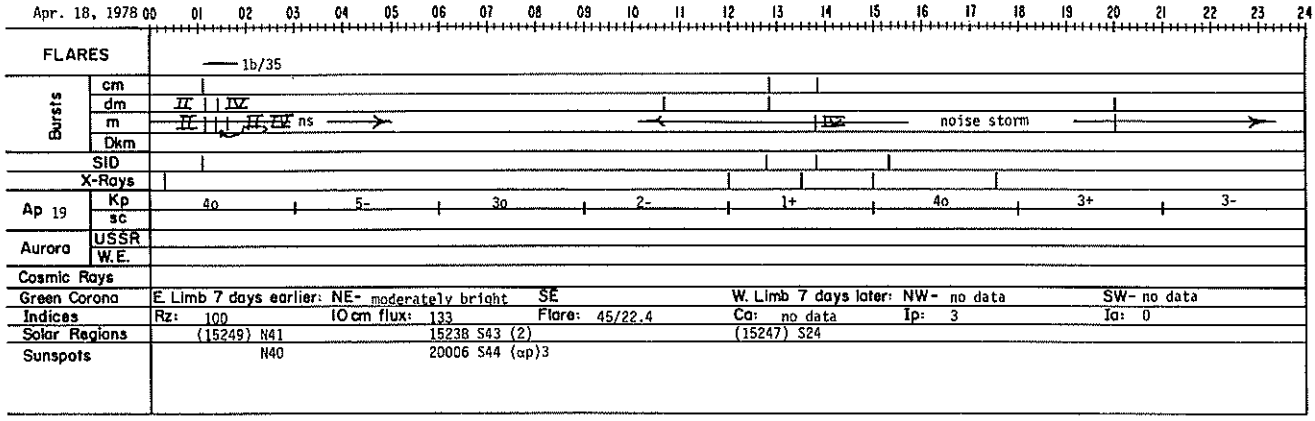

Apr. 13, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/35
1b/21
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 24
Kp
sc
3+ 2+ 2+ 2+ 4- 3o 5- 6-
Aurora
USSR
W.E.
ϕ = 58° 0000 (RB2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- SE- W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 93 10cm flux: 145 Flare: 90/22.5 Ca: 35.8 Ip: 6 Ia: 3
Solar Regions
Sunspots

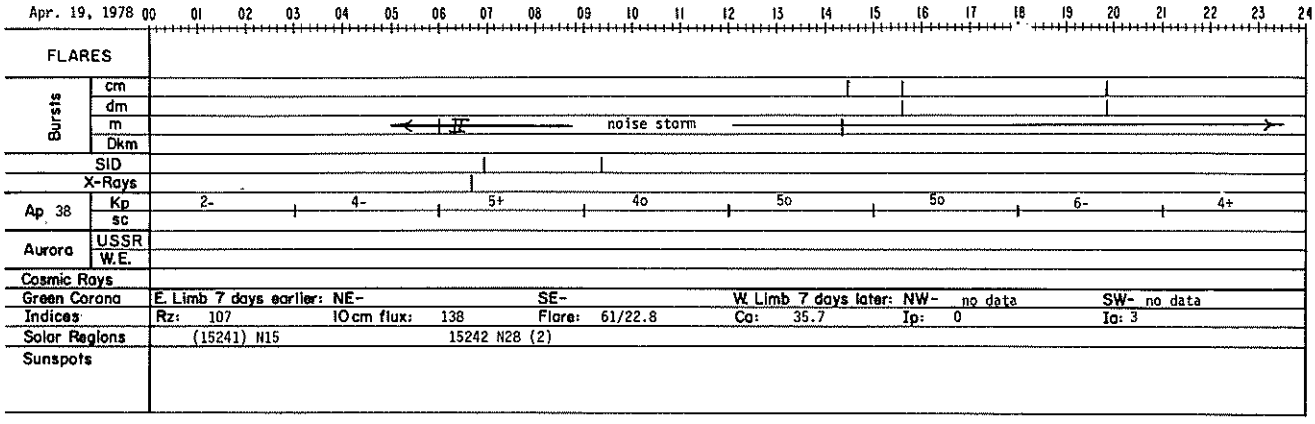

Apr. 14, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/35
1n/21
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap51 02
Kp
sc
6- 4+ 4+ 6- 6+ 4+ 5+ 4o
Aurora
USSR
W.E.
ϕ = 60° 0100-0200 (HA1) and 2400 (HB1); ϕ = 55° 1600-1700 (R2R) and 1800 (HB1); ϕ = 57° 1900 (R2A2) and 2000 (HA1)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW-moderately bright SW- moderately bright
Indices
Rz: 75 10cm flux: 138 Flare: 58/23.6 Ca: 39.4 Ip: 0 Ia: 2
Solar Regions
(15245) N28 15239 N20 15233 S33 (2) 15240 S19
Sunspots
N28 20005 N19 (β)4 (20001) S35 (αp)2 CMP April 13 (20007) S20 (αf)2 CMP April 15

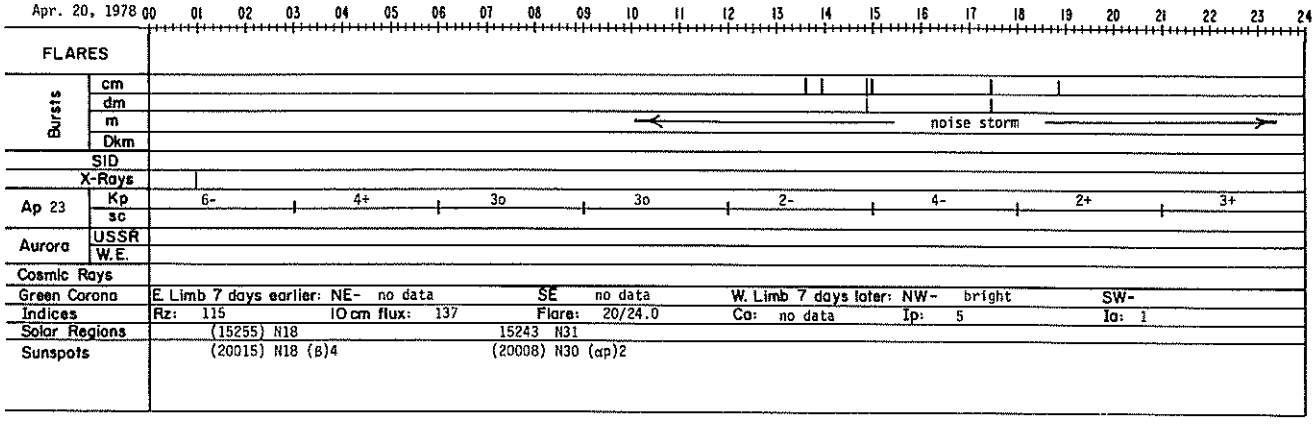

Apr. 15, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/35
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 19
Kp
sc
5- 4- 4- 3+ 3+ 3o 2+ 2o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW-moderately bright SW- moderately bright
Indices
Rz: 61 10cm flux: 140 Flare: 136/22.3 Ca: 39.5 Ip: 0 Ia: 4
Solar Regions
15235 N17 (2 and 7)
Sunspots
20002 N14 (β)3 CMP April 14
20003 N17 (βf)4
(20014) N19 (β)3 CMP April 17

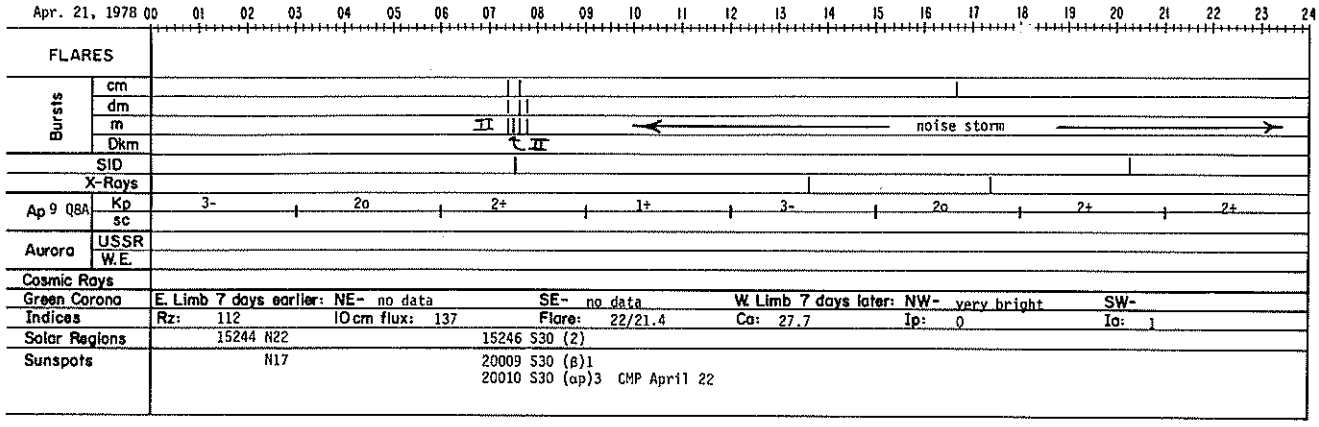

Apr. 16, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap8 Q6A
Kp
sc
3o 2+ 2o 1+ 1o 1o 2+ 2o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 85 10cm flux: 137 Flare: 41/23.3 Ca: 36.8 Ip: 0 Ia: 1
Solar Regions
(15254) N20
Sunspots
(20014) N19 (β)3

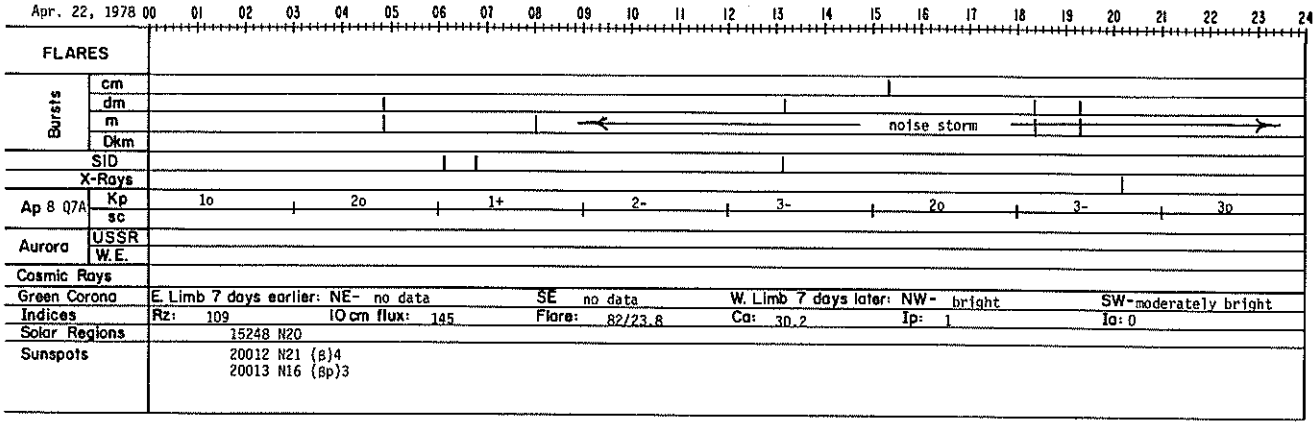

Apr. 17, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 7 Q5A
Kp 2- 1+ 2o 1+ 2- 1+ 1o 3o
sc 2345(24)
Aurora
USSR
W.E.
Cosmic Rays
Green Corona E. Limb 7 days earlier: NE- moderately bright SE- W. Limb 7 days later: NW-moderately bright SW- moderately bright
Indices Rz: 99 10cm flux: 132 Flare: 32/23.1 Ca: 32.0 Ip: 0 Ia: 3
Solar Regions 15237 S26 (15256) S22
Sunspots

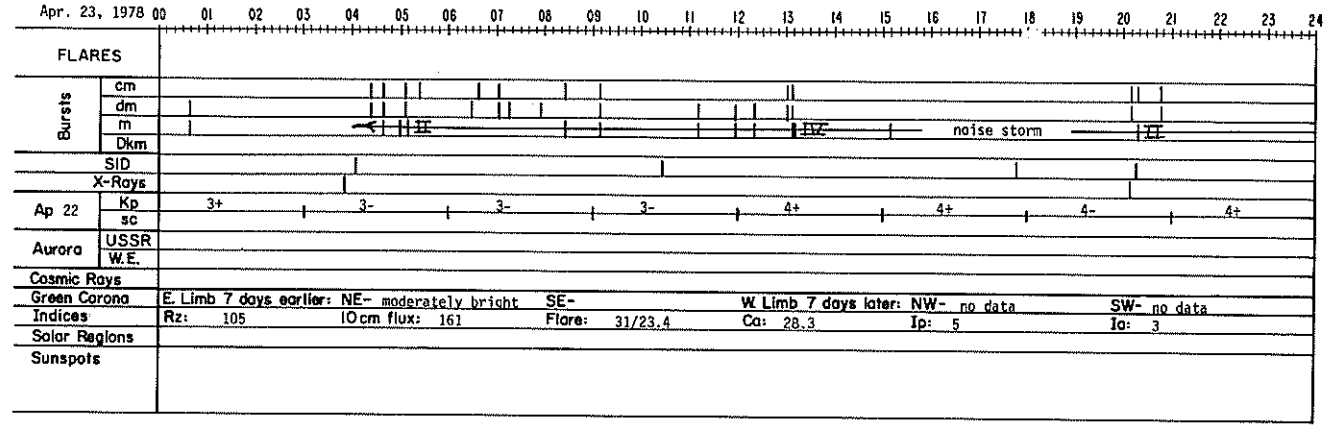

Apr. 18, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/35
Bursts
cm
dm
m
ns
noise storm
Dkm
SID
X-Rays
Ap 19
Kp 4o 5- 3o 2- 1+ 4o 3+ 3-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- no data SW- no data
Indices Rz: 100 10cm flux: 133 Flare: 45/22.4 Ca: no data Ip: 3 Ia: 0
Solar Regions (15249) N41 15238 S43 (2) (15247) S24
Sunspots N40 20006 S44 (αp)3

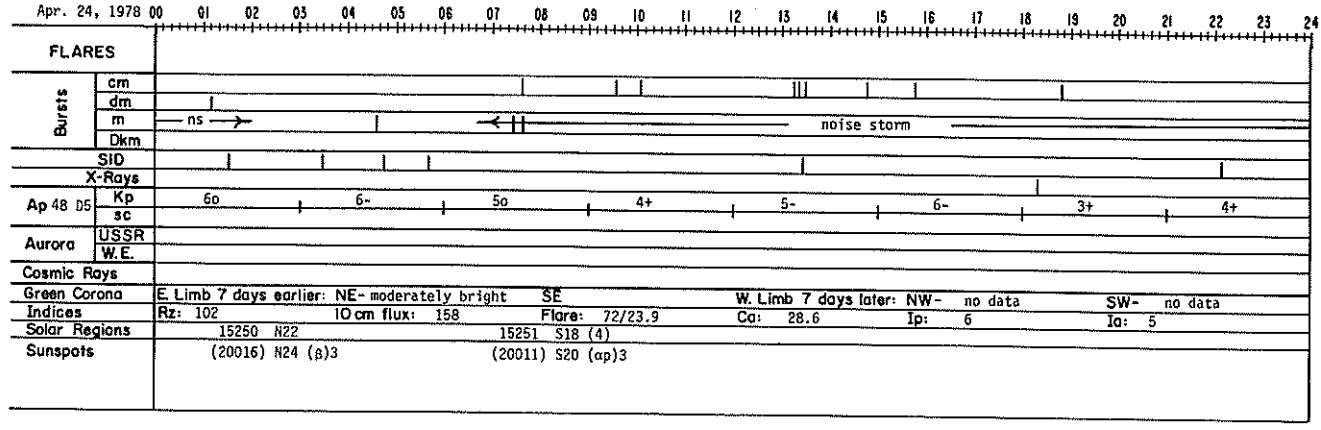

Apr. 19, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 38
Kp 2- 4- 5+ 4o 5o 5o 6- 4+
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona E. Limb 7 days earlier: NE- SE- W. Limb 7 days later: NW- no data SW- no data
Indices Rz: 107 10cm flux: 138 Flare: 61/22.8 Ca: 35.7 Ip: 0 Ia: 3
Solar Regions (15241) N15 15242 N28 (2)
Sunspots

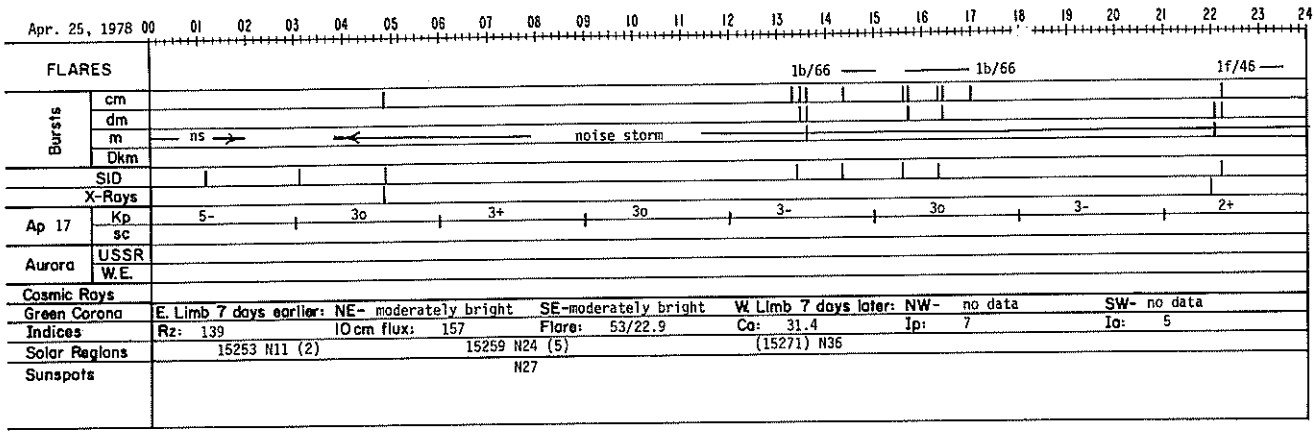

Apr. 20, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 23
Kp 6- 4+ 3o 3o 2- 4- 2+ 3+
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- bright SW-
Indices Rz: 115 10cm flux: 137 Flare: 20/24.0 Ca: no data Ip: 5 Ia: 1
Solar Regions (15255) N18 15243 N31
Sunspots (20015) N18 (β)4 (20008) N30 (αp)2

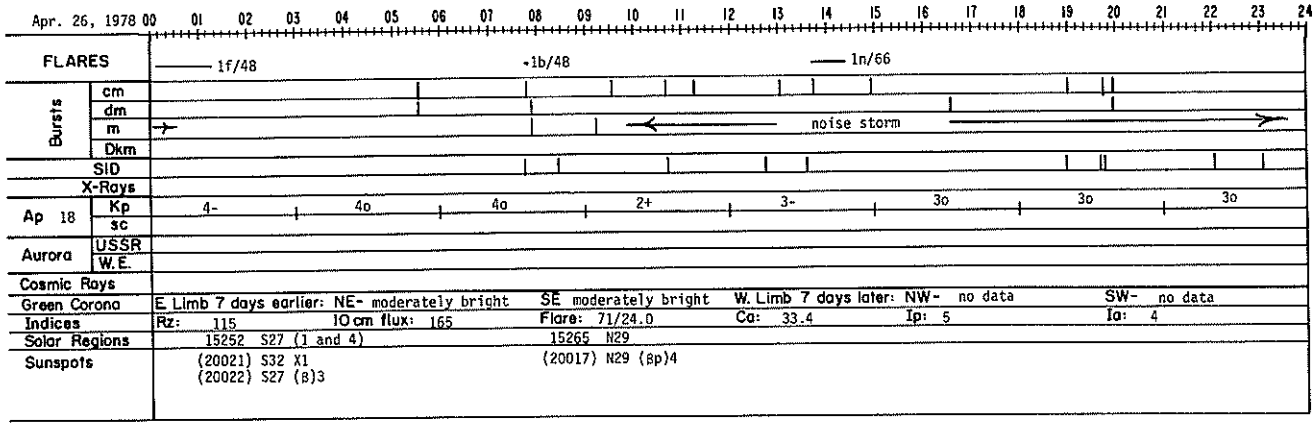

Apr. 21, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 9 Q8A
Kp
sc
3- 2o 2+ 1+ 3- 2o 2+ 2+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- very bright SW-
Indices
Rz: 112 10 cm flux: 137 Flare: 22/21.4 Ca: 27.7 Ip: 0 Ia: 1
Solar Regions
15244 N22 15246 S30 (2)
Sunspots
N17 20009 S30 (β)1
20010 S30 (αp)3 CMP April 22

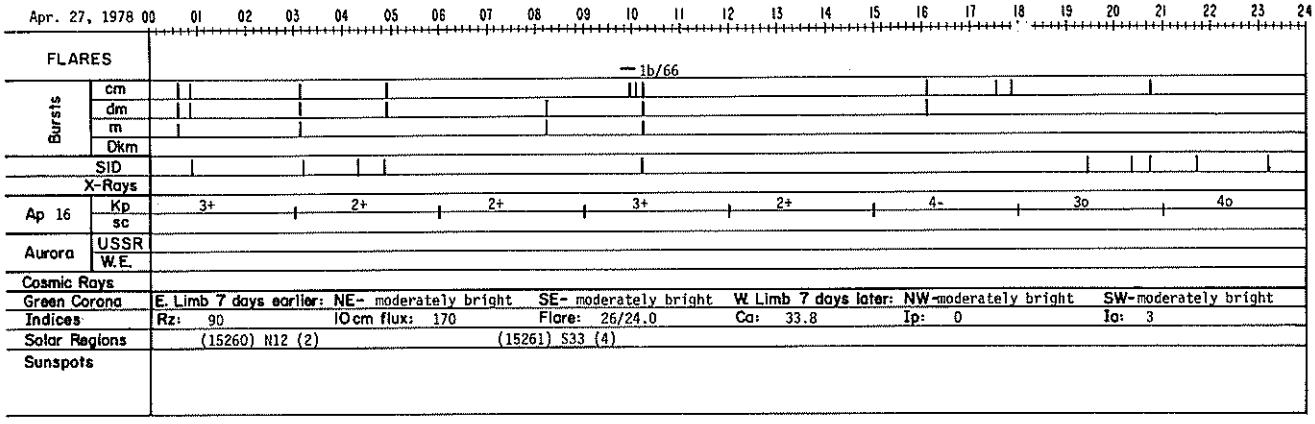

Apr. 22, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 8 Q7A
Kp
sc
1o 2o 1+ 2- 3- 2o 3- 3o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- bright SW- moderately bright
Indices
Rz: 109 10 cm flux: 145 Flare: 82/23.8 Ca: 30.2 Ip: 1 Ia: 0
Solar Regions
15248 N20
Sunspots
20012 N21 (β)4
20013 N16 (βp)3

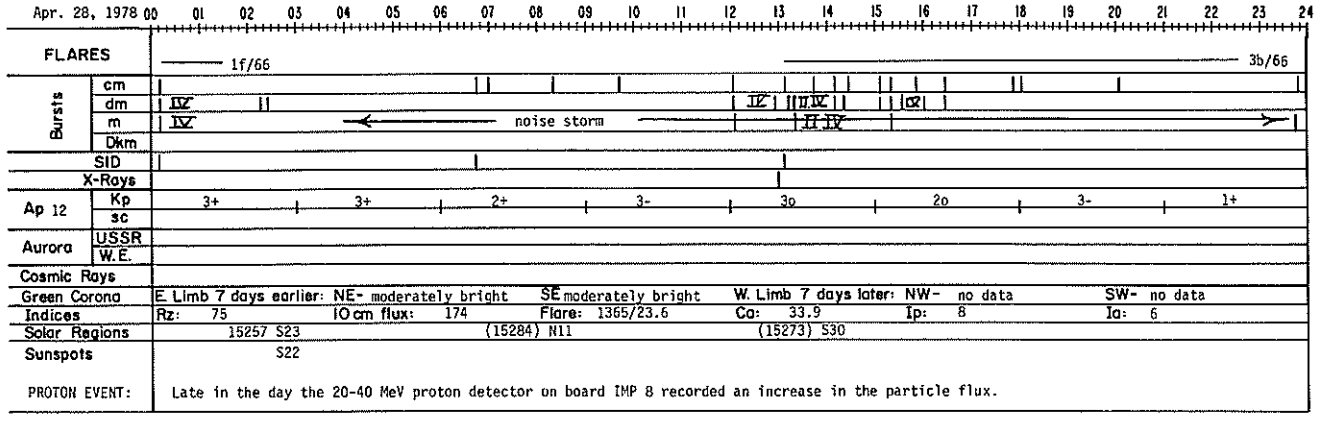

Apr. 23, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 22
Kp
sc
3+ 3- 3- 3- 4+ 4+ 4- 4+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 105 10 cm flux: 161 Flare: 31/23.4 Ca: 28.3 Ip: 5 Ia: 3
Solar Regions
Sunspots

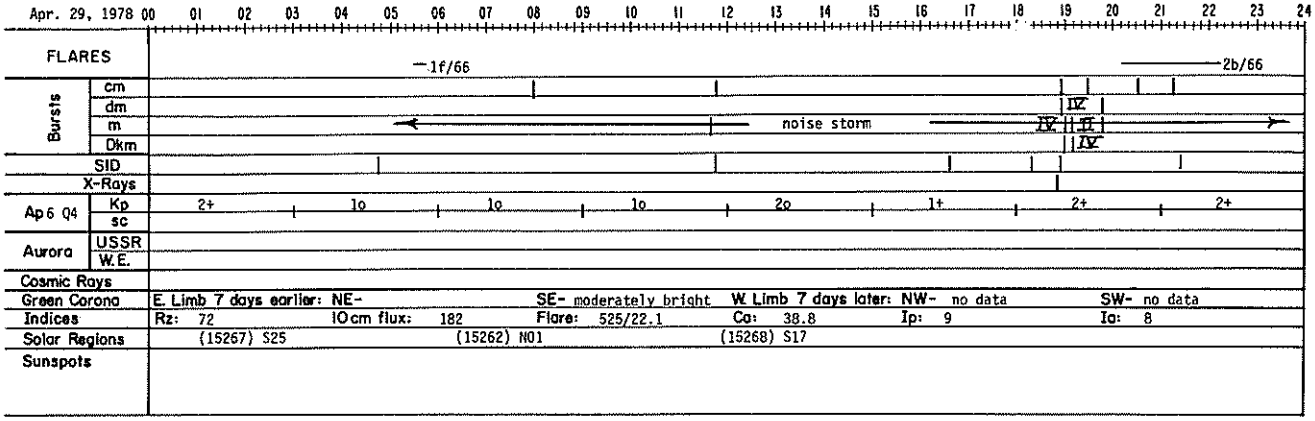

Apr. 24, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap 48 D5
Kp
sc
6o 6- 5o 4+ 5- 6- 3+ 4+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 102 10 cm flux: 158 Flare: 72/23.9 Ca: 28.6 Ip: 6 Ia: 5
Solar Regions
15250 N22 15251 S18 (4)
Sunspots
(20016) N24 (β)3 (20011) S20 (αp)3

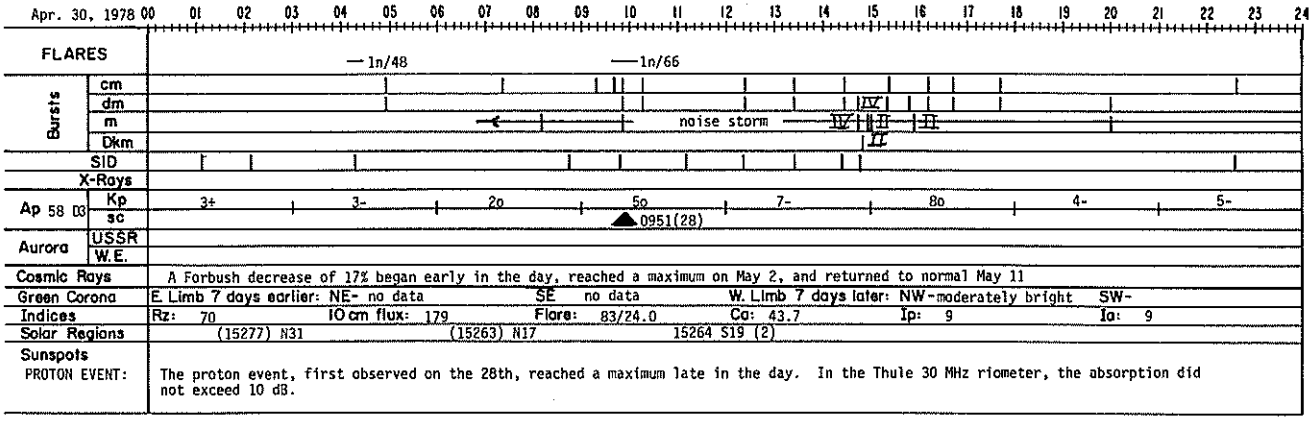

Apr. 25, 1978
FLARES
1b/66
1b/66
1f/46
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap 17
Kp
sc
5-
3o
3+
3o
3-
3o
3-
2+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright
SE-moderately bright
W. Limb 7 days later: NW- no data
SW- no data
Indices
Rz: 139
10cm flux: 157
Flare: 53/22.9
Ca: 31.4
Ip: 7
Ia: 5
Solar Regions
15253 N11 (2)
15259 N24 (5)
(15271) N36
Sunspots
N27


Apr. 26, 1978
FLARES
1f/48
1b/48
1n/66
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 18
Kp
sc
4-
4o
4o
2+
3-
3o
3o
3o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright
SE moderately bright
W. Limb 7 days later: NW- no data
SW- no data
Indices
Rz: 115
10cm flux: 165
Flare: 71/24.0
Ca: 33.4
Ip: 5
Ia: 4
Solar Regions
15252 S27 (1 and 4)
15265 N29
Sunspots
(20021) S32 X1
(20022) S27 (B)3
(20017) N29 (Bp)4


Apr. 27, 1978
FLARES
1b/66
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 16
Kp
sc
3+
2+
2+
3+
2+
4-
3o
4o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright
SE- moderately bright
W. Limb 7 days later: NW-moderately bright
SW-moderately bright
Indices
Rz: 90
10cm flux: 170
Flare: 26/24.0
Ca: 33.8
Ip: 0
Ia: 3
Solar Regions
(15260) N12 (2)
(15261) S33 (4)
Sunspots


Apr. 28, 1978
FLARES
1f/66
3b/66
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 12
Kp
sc
3+
3+
2+
3-
3o
2o
3-
1+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright
SE moderately bright
W. Limb 7 days later: NW- no data
SW- no data
Indices
Rz: 75
10cm flux: 174
Flare: 1365/23.6
Ca: 33.9
Ip: 8
Ia: 6
Solar Regions
15257 S23
(15284) N11
(15273) S30
Sunspots
S22
PROTON EVENT:
Late in the day the 20-40 MeV proton detector on board IMP 8 recorded an increase in the particle flux.


Apr. 29, 1978
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
1f/66
2b/66
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 6 Q4
Kp
sc
2+ 1o 1o 1o 2o 1+ 2+ 2+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE-
SE- moderately bright
W. Limb 7 days later: NW- no data
SW- no data
Indices
Rz: 72
10cm flux: 182
Flare: 525/22.1
Ca: 38.8
Ip: 9
Ia: 8
Solar Regions
(15267) S25
(15262) N01
(15268) S17
Sunspots


Apr. 30, 1978
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
1n/48
1n/66
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 58 D3
Kp
sc
3+ 3- 2o 5o 7- 8o 4- 5-
0951(28)
Aurora
USSR
W.E.
Cosmic Rays
A Forbush decrease of 17% began early in the day, reached a maximum on May 2, and returned to normal May 11
Green Corona
E. Limb 7 days earlier: NE- no data
SE no data
W. Limb 7 days later: NW-moderately bright
SW-
Indices
Rz: 70
10cm flux: 179
Flare: 83/24.0
Ca: 43.7
Ip: 9
Ia: 9
Solar Regions
(15277) N31
(15263) N17
15264 S19 (2)
Sunspots
PROTON EVENT:
The proton event, first observed on the 28th, reached a maximum late in the day. In the Thule 30 MHz riometer, the absorption did not exceed 10 dB.

REGIONAL FLARE INDEX

INCLUDES ALL FLARES

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
15213	N13	78/04/02.5	78/04/02	78/04/06	19.47	3.89	5
15214	N23	78/04/03.6	78/03/30	78/04/11	47.01	3.62	20
15216	S18	78/04/03.9	78/03/29	78/03/31	5.45	1.82	3
15217	S15	78/04/05.1	78/04/01	78/04/02	7.09	3.54	2
15220	N31	78/04/05.1	78/03/30	78/04/02	4.99	1.25	4
15234	N34	78/04/06.3	78/04/07	78/04/07	1.96	1.96	1
15221	N21	78/04/07.3	78/04/01	78/04/14	899.56	64.25	95
15227	S27	78/04/09.4	78/04/06	78/04/15	58.91	5.89	22
15229	N18	78/04/09.9	78/04/03	78/04/14	35.56	2.96	11
15231	N18	78/04/11.4	78/04/05	78/04/16	16.03	1.34	4
15232	S30	78/04/12.1	78/04/04	78/04/17	19.20	1.37	8
15239	N20	78/04/14.2	78/04/12	78/04/16	18.76	3.75	6
15233	S33	78/04/14.5	78/04/08	78/04/14	13.14	1.88	6
15240	S19	78/04/14.8	78/04/16	78/04/17	6.93	3.47	2
15235	N17	78/04/15.6	78/04/08	78/04/22	458.91	30.59	112
15254	N20	78/04/16.9	78/04/21	78/04/24	7.84	1.96	9
15237	S26	78/04/17.3	78/04/14	78/04/14	3.38	3.38	1
15238	S43	78/04/19.0	78/04/12	78/04/17	12.11	2.02	6
15255	N18	78/04/20.8	78/04/22	78/04/26	22.22	4.44	10
15243	N31	78/04/21.0	78/04/19	78/04/20	6.77	3.39	2
15244	N23	78/04/21.9	78/04/14	78/04/23	22.31	2.23	12
15246	S30	78/04/22.1	78/04/18	78/04/27	81.59	8.16	28
15248	N20	78/04/22.9	78/04/18	78/04/30	187.69	14.44	62
15250	N23	78/04/24.4	78/04/22	78/04/26	36.52	7.30	10
15251	S19	78/04/24.5	78/04/24	78/04/28	19.84	3.97	5
15252	S27	78/04/26.1	78/04/30	78/05/03	23.86	5.96	18
15265	N29	78/04/26.8	78/04/25	78/04/25	3.38	3.38	1

Miscellaneous Data

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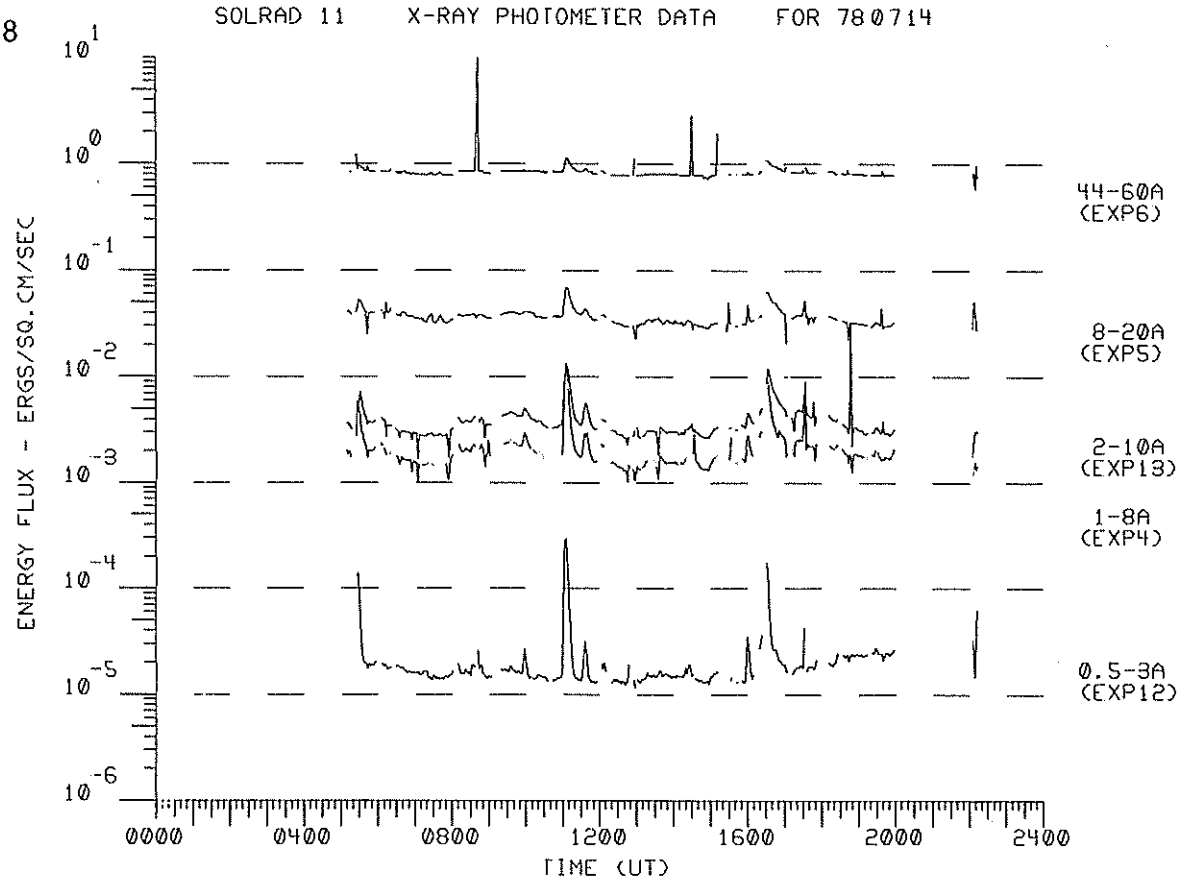
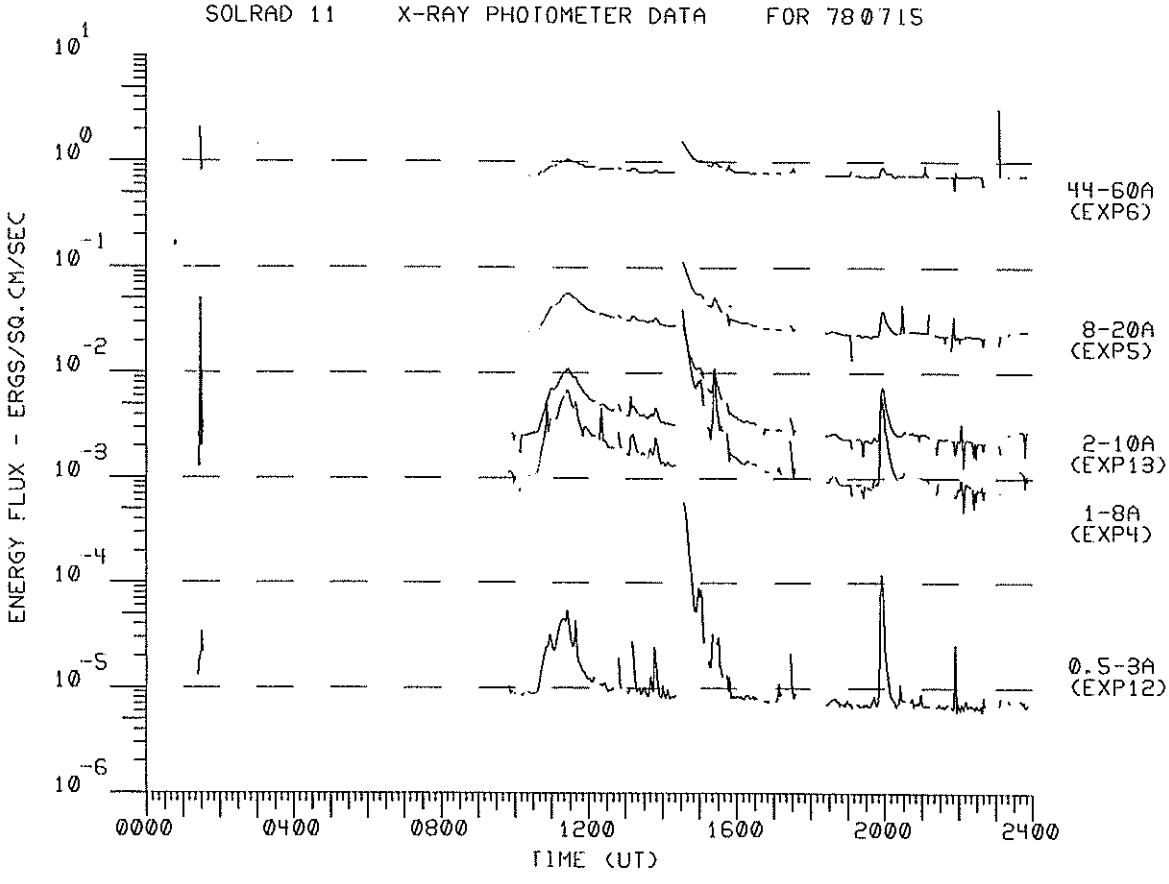

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780714
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)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ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

COSMIC RAY INDICES
(Neutron Monitors)

CLIMAX

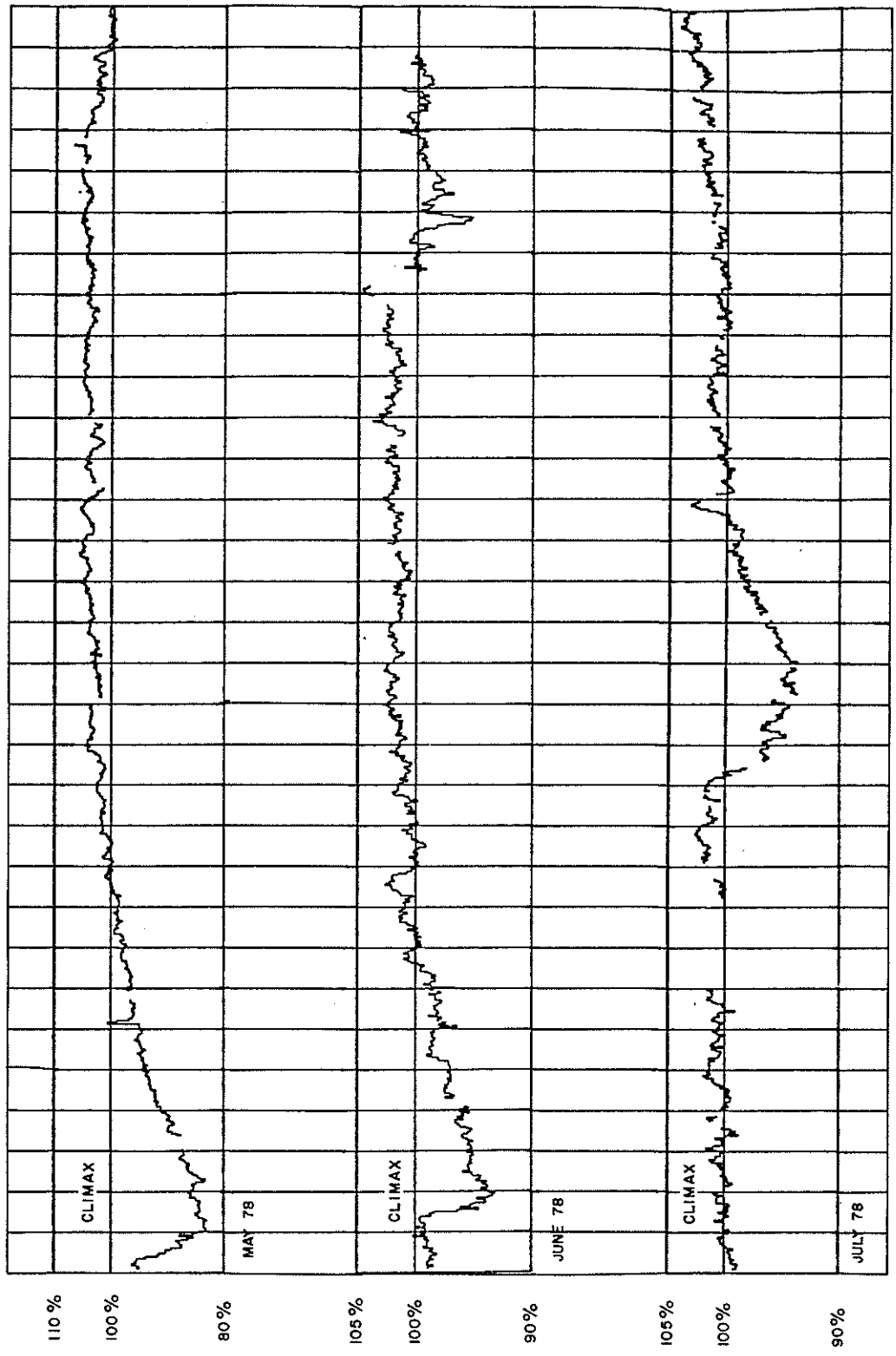
1978 Date	MAY Average cts/hr	JUNE Average cts/hr	JULY Average cts/hr
1	3607.7	4011.9	4053.3
2	3359.9	3927.8	4072.1
3	3420.2	3847.9	4075.3
4	3555.6(36)	3882.4	4080.0(38)
5	3687.7	3932.1	4081.9
6	3765.2	3983.3	4099.3
7	3836.3(38)	3977.8	4094.5
8	3869.2	4034.1	--
9	3922.5	4073.8	--
10	3967.0	4109.6	4078.2(24)
11	4003.9	4059.3	4144.4
12	4047.7	4089.7	4120.9
13	4070.1	4101.0	4003.9
14	4121.2	4122.8	3885.5
15	4069.8	4143.9	3842.4
16	4102.3	4132.1	3877.4
17	4133.1	4112.4	3958.6
18	4160.9	4105.9	4019.4
19	4146.7	4130.3	4077.9
20	4115.8	4137.0	4063.6
21	4093.2	4142.1	4086.7
22	4144.0	4140.7	4118.5
23	4160.5	4133.0	4096.5
24	4127.5	4162.0	4077.8
25	4132.7	4110.2(34)	4080.8
26	4159.2	4004.8	4095.8
27	4158.7	3992.4	4119.0
28	4173.7(38)	4038.7	4146.3
29	4102.5	4055.8	4142.2(36)
30	4062.6	4035.4	4159.8
31	3991.9		4193.1
MEAN	3976.4	4057.7	4067.1

( ) 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.

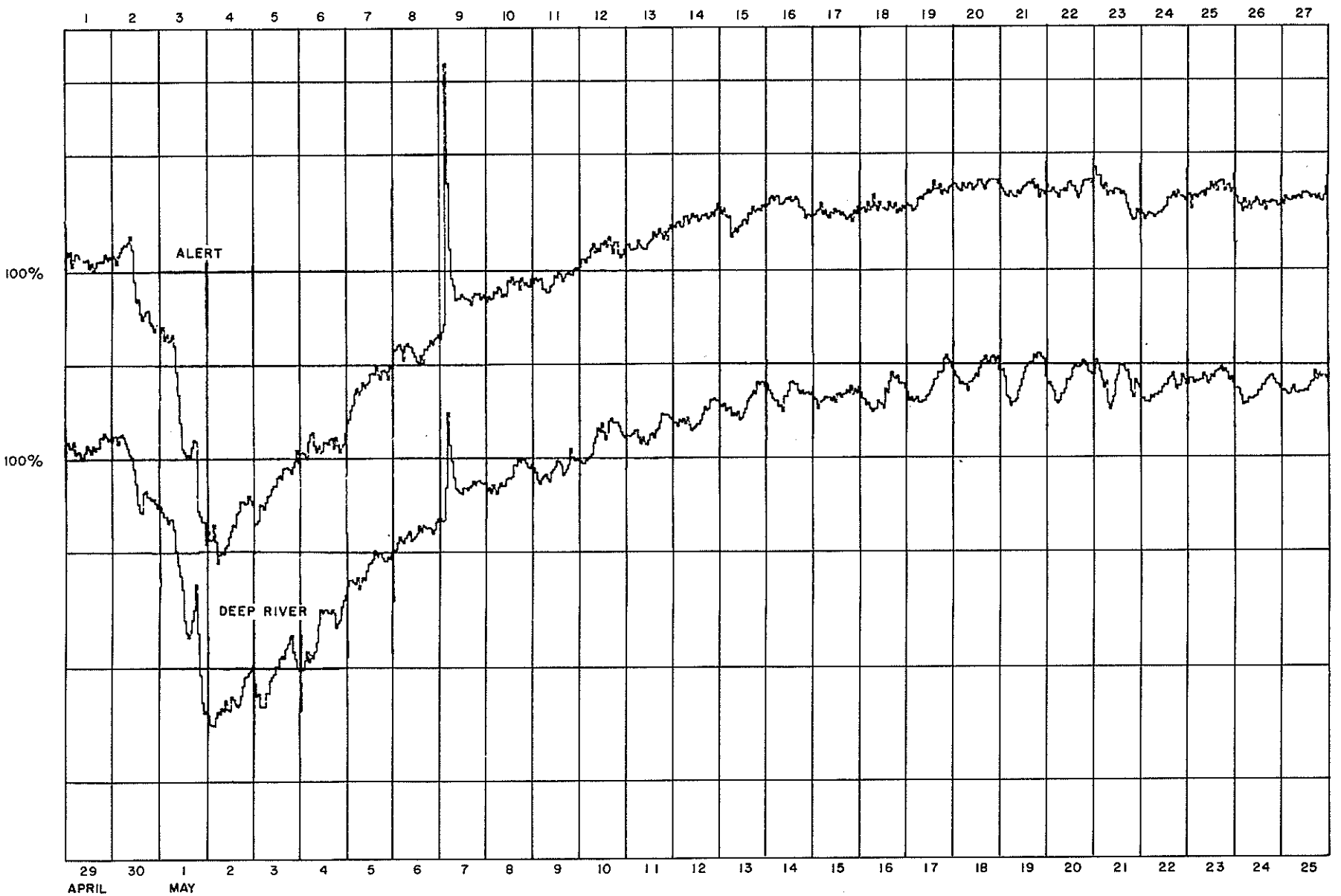
70
Misc
May-Jul 78

COSMIC RAY INDICES
(Neutron Monitors)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1979 (April - May 1978)



SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1978

JUL 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	1215	2255	HARV				1855	1858	3	1856	1858	3	IIIGG
02	1215	2245	HARV				1404	1408	3	1404	1408	3	IIIGG
			HARV				1458	1501	2	1458	1501	2	IIIGG
			HARV	2149		1							IIIG
03	1215	2310	HARV										
05	1517	2245	HARV	1531		1	1531		3				IIIG
			HARV				1556		1				IIIB
			HARV				2059	2101	2	2059	2101	2	IIIG
06	1230	2245	HARV	1512		3	1512	1513	3	1512	1513	3	IIIG,V
			HARV				1530	1545	3				UNCL,H
			HARV				1531	1535	3	1531	1535	3	IIIGG,V
			HARV				1539	1542	2	1539	1542	2	IIIGG
			HARV				2004		2	2004		3	IIIB
			HARV				2058	2059	3	2058	2059	3	IIIG,V
			HARV				2110		2	2110		3	IIIG
07	1230	2240	HARV										
08	1230	2245	HARV				1449	1450	2				IIIG
			HARV				1653		2				IIIG
			HARV				1747	1859	1				I
			HARV				1753		2				IIIG
			HARV				1835	1902	3	1835	1902	3	IIIN
			HARV				1920	1954	1				IN
			HARV	1950	2001	2	1950	2001	2				IVN
			HARV				1954	1957	3	1954	1957		IIIGG,V
			HARV				1954	1957	3				UNCL
			HARV				1958	2000	3	1958	2000		IIIGG
			HARV				2005	2138	2				IC
			HARV				2100	2101	3	2100	2101	3	IIIG
			HARV				2202	2210	1				I
09	1230	2245	HARV				1231	1832	1			1	I
			HARV	1232		2							IIIG
			HARV	1239	1246	2							IIIGG
			HARV	1251	1256	2							I
			HARV				1645		2				IIIG
			HARV				1648	1649	3	1648	1649	3	IIIGG,V
			HARV	1704		3							IIIGG
			HARV				1756		3	1756		3	IIIG,V
			HARV				1809	1827	3	1809	1827	3	IIIS
			HARV	1822	1849	3							IVN
			HARV				1832	1849	3	1832	1849	3	UNCL
			HARV				1832	2000	3	1832	2000	3	IC,IV
			HARV				1832	1839	3	1832	1839	3	IIIGG,V
			HARV	1903	1911	3							IIIGG
			HARV				2000	2013	1				I
10	1230	2245	HARV				1230	1530	1				I
			HARV				1305	1530	1	1230	1530	1	IIIN
			HARV				1530	2040	2				IC
			HARV				1530	1918	3	1530	1918	3	IIIN
			HARV	1654	1655	3	1654	1655	3	1654	1655	3	IIIGG
			HARV	1730	1740	3	1730	1740	3	1730	1738		IIIGG,V
			HARV				1740	1747	2				II
			HARV	1820	1821	2	1820	1822	3	1820	1822	3	IIIG,V
			HARV				1918	2235	2	1918	2235	2	IIIN
			HARV				2016	2021	3	2016	2021	3	IIIGG
			HARV				2040	2245	1				I
			HARV				2100	2103	2	2100	2103	2	IIIGG
			HARV				2225	2247	3	2225	2247	3	IIIGG
11	1230	2245	HARV	1238	1240	3	1239	1240	2	1239		2	IIIGG,V
			HARV	1246	1248	3	1246	1248	2	1247		2	IIIGG,V
			HARV				1351	1402	3	1351	1402	2	IIIN
			HARV				1416	2245	1	1416	2245	2	IIIN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1978

JUL 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
11			HARV				1423	2245	1				IN
			HARV				1443	1444	2	1443	1444	2	IIIG
			HARV				1522	1530	3	1522	1530	3	IIIGG
			HARV				1540	1543	3	1540	1543	3	IIIG
			HARV	1611	1613	3	1611	1614	3	1611	1614	3	IIIGG,V
			HARV	1618	1629	2	1615	1631	3	1615	1631	3	IIIGG,V
			HARV	1659		3	1659	1701	3	1659	1701	3	IIIG,V
			HARV				1718	1735	3	1718	1735	3	IIIN
			HARV				1753	1804	3	1753	1804	3	IIIN
			HARV				1816	1820	3	1816	1820	3	IIIGG
			HARV				1824	1825	3	1824	1825	3	IIIGG
			HARV	1841	1845	3	1835	1850	3	1835	1850	3	IIIN
			HARV				1858	1859	3	1858	1859	3	IIIG
			HARV	1906	1907	3	1906	1907	3	1906	1907	3	IIIGG
			HARV				1936	1938	3	1936	1938	3	IIIG
			HARV				1948		2	1948		3	IIIG
			HARV	2006	2007	3	2000	2007	3	2000	2007	3	IIIG
			HARV				2015	2028	3	2015	2028	3	IIIN
			HARV	2032	2034	2	2031	2034	3	2031	2034	3	IIIGG,V
			HARV				2048	2058	3	2048	2058	3	IIIN
			HARV				2112	2238	3	2112	2238	3	IIIN
12	1230	2245	HARV				1232	1850	1				IN
			HARV				1238	1241	2	1238	1241	2	IIIGG
			HARV				1254	1320	2	1254	1320	2	IIIN
			HARV				1328	1338	1				IIIN
			HARV				1340	1355	3	1340	1355	3	IIIN
			HARV				1414		2	1414		2	IIIG
			HARV				1444	1554	3	1444	1554	3	IIIN
			HARV	1601	1600	3	1556	1607	3	1556	1607	3	IIIGG,V
			HARV				1621	1741	3	1621	1741	3	IIIN
			HARV	1759	1801	3	1759	1803	3	1759	1803	3	IIIGG,V
			HARV				1806	1939	3	1806	1939	3	IIIN
			HARV				1850	2055	2				IC
			HARV				2004	2007	3	2004	2007	3	IIIGG
			HARV				2032	2055	3	2032	2055	3	IIIN
			HARV				2050	2245	1				IN
			HARV				2116	2119	3	2116	2119	3	IIIGG,V
			HARV				2127	2134	3	2127	2134	3	IIIN
			HARV				2144	2229	2	2144		2	IIIN
13	1230	2245	HARV				1630		3	1630		3	IIIB
			HARV				1723		3	1723		3	IIIB
14	1230	2245	HARV	1332		3	1332		3				IIIB,RS
			HARV				1535	1536	3	1535	1536	3	IIIG,V
			HARV				1559		2				IIIB
			HARV				1729		3	1729		3	IIIG
			HARV	1733	1734	2	1731	1735	3	1731	1735	3	IIIGG,V
			HARV				1737	1746	2	1737	1746	2	II
			HARV				1800		2				IIIG
			HARV				1919	1920	2				IIIG
			HARV				2037		1				IIIB
15	1230	2245	HARV	1306		2	1306		1				IIIG
			HARV	1424	1426	3	1424	1426	3				IIIGG,V
			HARV	1446		2							IIIG
16	1230	2245	HARV				1951		1	1951		2	IIIG
			HARV				2005		3	2005		3	IIIB
17	1230	2255	HARV	1354	1355	2							IIIG
			HARV	1427	1428	2							IIIG
			HARV				1719		1				IIIB
			HARV				1741		1	1741		2	IIIB
			HARV				1816		1	1816		1	IIIB
			HARV				1818		1				IIIG
			HARV				1905		1	1905		1	IIIG
			HARV				2027	2036	2	2027	2036	2	IIIN
18	1231	2245	HARV	1948	2001	2							IIIN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1978

JUL 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18			HARV				2010	2012	1				IIIN
			HARV				2017	2245	1				IN
			HARV	2017	2026	3	2017	2020	2				IV
			HARV				2122		1				U
19	1231	2245	HARV										
20	1231	2245	HARV	2127		2	2127		2				IIIG
21	1231	2310	HARV	1426		1							IIIG
22	1231	2300	HARV				1412	1443	1				IIIN,W
			HARV				1744		2				IIIG
23	1231	2245	HARV				1426	1427	3	1426	1427	3	IIIG
			HARV				1723	1725	2	1725		3	IIIG
			HARV				1823	1833	2	1823	1833	2	IIIN
			HARV				2023		2	2023		2	IIIB
24	1231	2245	HARV										
25	1231	2300	HARV										
26	1231	2245	HARV										
27	1231	2245	HARV										
28	1231	2245	HARV										
29	1231	2245	HARV				1543	1546	2	1543	1546	2	UNCL
30	1231	2255	HARV										
31	1245	2255	HARV										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

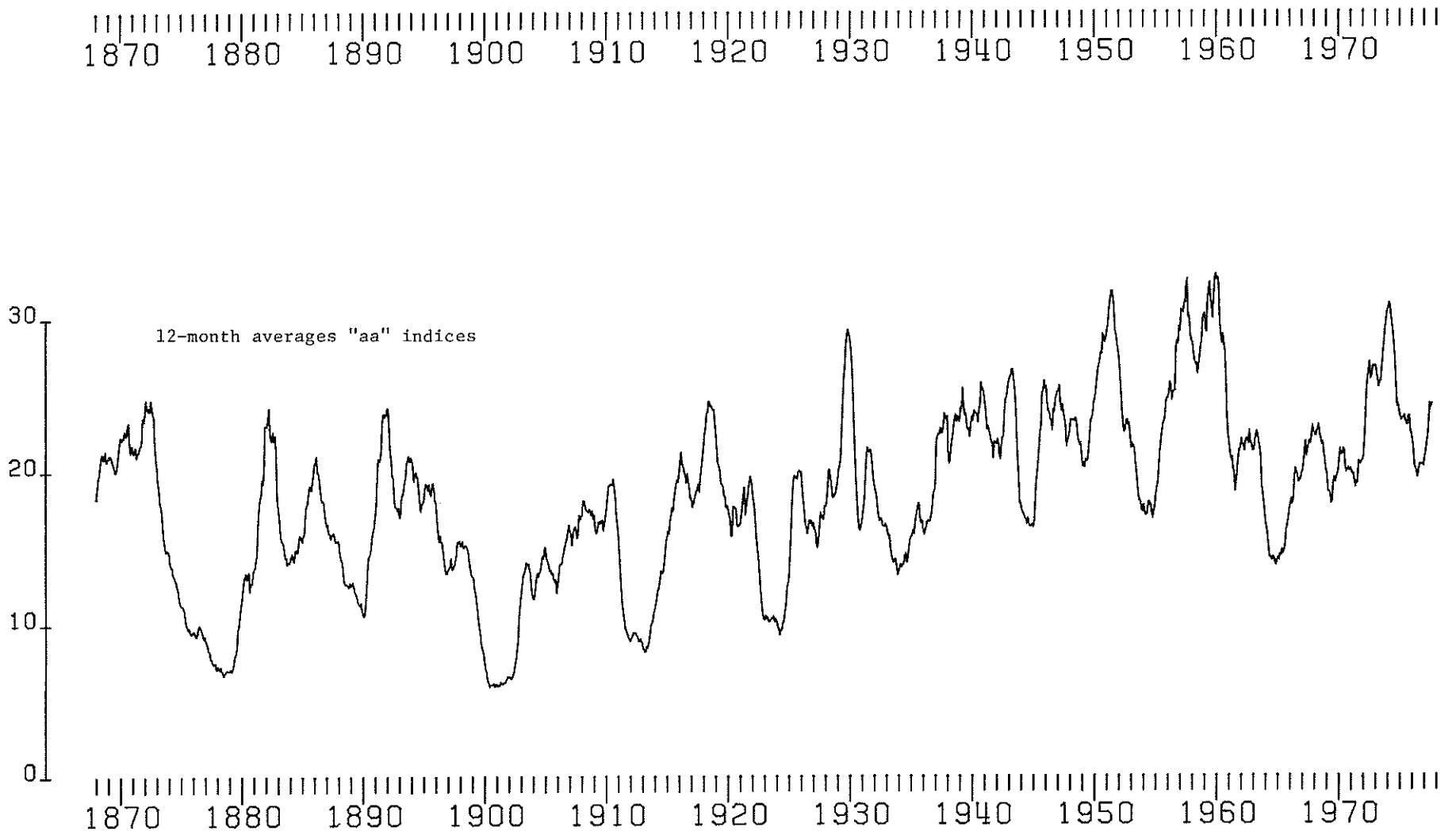
AUGUST 1978

AUG 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	1245	2250	HARV				1913		3	1913		3	IIIG
02	1245	2245	HARV				2034	2035	3	2034	2035	3	IIIG
03	1245	2245	HARV										
04	1245	2245	HARV	1624	1628	2							IIIGG
			HARV				1935		2	1935		2	IIIG
05	1245	2245	HARV	1356		1							IIIB
06	1245	2240	HARV										
07	1245	2245	HARV				1547		2	1547		2	IIIG
			HARV	1745	1746	1							IIIG
			HARV	1755	1756	1	1755	1756	1				IIIG
			HARV	1758	1759	1							IIIG
			HARV				1759	1807	2	1806	1807	2	II
			HARV	2214		3							
08	1245	2245	HARV										
09	1245	2210	HARV				1657		3	1657		3	IIIG
10	1245	2245	HARV				1323		1				IIIB
			HARV				1515		1	1515		2	IIIB
			HARV				1631	1632	1	1631	1632	1	IIIG
			HARV				1757	1758	2	1757	1758	2	IIIG
			HARV				1809		3	1809		3	IIIG
			HARV				1905	1906	2				IIIG
			HARV				1945	1948	2				IIIG
			HARV				2044		1				IIIG
			HARV				2138		2				IIIG
11	1245	2245	HARV	2024	2025	2							IIIG
12	1245	2245	HARV										
13	1245	1911	HARV				1703	1706	2	1703	1706	2	IIIG
14	1300	2245	HARV										
15	1250	2245	HARV	1328		2							IIIG
16	1245	2245	HARV										
17	1255	2245	HARV				1438	1439	1				IIIG
			HARV				1525		1				UNCL
			HARV				1648		1				UNCL
			HARV				2116		2				UNCL
18	1255	2245	HARV										
19	1440	2245	HARV										
20	1555	2245	HARV										
21	1300	2245	HARV										
22	1300	2245	HARV				1456	1457	1	1456	1457	1	IIIG
23	1300	2245	HARV										
24	1300	2245	HARV										
25	1300	2245	HARV				1543	1544	2	1544		1	IIIG
26	1300	2245	HARV										
27	1300	2250	HARV				1605		2	1605		2	IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
27			HARV				1817	1818	2	1817	1818	3	IIIG
			HARV				1945	1947	2	1945	1947	3	IIIG
28	1300	2240	HARV										
29	1300	2245	HARV				1412		1				UNCL
			HARV				1558		1				IIIBW
30	1300	2245	HARV	2059	2100	2	2059	2100	2				IIIG
31	1300	2245	HARV				2016	2129	1	2016	2129	1	IIIN,H
			HARV				2140	2141	2	2140	2141	2	IIIG



The above graph is computed from a series of points based on yearly averages of "aa" indices. The ordinate of each point (one point per month) is a twelve month average such that the points plotted at the marked year intervals are in each case averages for January to December of that year. The graph begins with the average for 1868 and ends with the average for 1977. This graph was provided by Dr. P. N. Mayaud of the Institut de Physique du Globe, Paris, France, who also provides the daily values of "aa" on a monthly basis.

77
Misc
1968-1977

"aa" INDICES CORRECTED DATA FOR 1968-1977

1968

JAN.

	N	S	M	
1	36	32	39	29
2	42	69	57	55
3	16	11	18	10
4	16	9	9	16QKK
5	19	22	12	29
6	37	21	26	32
7	18	12	19	11
8	13	11	11	12QKC
9	5	7	4	8QCK
10	10	16	17	10QCC
11	26	21	8	40
12	28	26	21	33
13	20	13	21	13
14	24	14	16	23
15	21	16	10	27
16	24	23	14	34
17	25	25	24	27
18	20	21	27	14
19	26	22	16	33
20	24	25	30	19
21	13	15	17	12
22	16	24	17	24
23	23	14	14	23
24	23	17	13	28
25	11	8	9	11QC
26	25	30	13	43
27	20	18	18	21
28	34	17	16	36
29	27	17	21	24
30	23	16	24	16
31	15	27	30	12

22.0
20.1
21.1

FEB.

	N	S	M	
1	18	14	12	20
2	33	32	26	39
3	26	27	26	28
4	23	30	42	11
5	19	14	9	24 K
6	6	2	5	3QCK
7	10	6	3	14QCK
8	29	28	29	29
9	28	30	29	29
10	60	56	25	91
11	60	81	84	58
12	23	19	24	18
13	28	28	22	34
14	10	13	11	12QC
15	51	37	28	60
16	24	27	21	30
17	41	23	20	44
18	42	38	33	47
19	21	11	26	5
20	50	70	70	50
21	45	30	38	37
22	16	13	19	11
23	10	5	5	11 CC
24	12	7	12	8 CC
25	10	5	6	9QCC
26	10	4	4	9QCC
27	21	13	9	26
28	51	45	21	75
29	29	24	33	21

27.8
25.2
26.5

MAR.

	N	S	M	
1	18	20	18	20
2	21	23	21	24
3	27	28	15	41
4	34	25	22	38
5	28	29	28	29
6	17	11	12	16
7	10	10	10	10QCK
8	11	6	8	10QCC
9	10	5	7	8QCK
10	25	24	22	27
11	16	13	20	10
12	18	13	13	19 K
13	10	7	11	6QC
14	45	28	27	47
15	47	37	39	45
16	42	29	28	43
17	23	16	22	18
18	19	15	19	16
19	20	22	25	17
20	35	26	35	26
21	16	11	13	14
22	12	8	11	9QCC
23	21	15	7	29
24	43	34	31	46
25	35	39	38	36
26	26	24	23	28
27	26	24	24	26
28	26	19	23	23
29	25	22	19	28
30	48	44	43	50
31	32	30	20	43

25.3
21.1
23.3

APR.

	N	S	M	
1	45	34	38	41
2	25	23	22	27
3	24	19	23	21
4	16	13	18	12
5	50	40	9	81
6	54	57	65	47
7	16	21	24	13
8	6	6	8	4QCC
9	5	4	3	6QCC
10	18	10	11	17 K
11	22	15	17	21
12	22	15	12	26
13	42	27	29	40
14	40	43	41	42
15	23	25	19	29
16	29	20	24	26
17	26	20	20	26
18	18	17	20	16
19	5	5	7	4QCC
20	5	4	5	4QCC
21	10	7	7	11QCC
22	20	17	19	19
23	24	21	27	19
24	21	8	18	13 K
25	15	9	5	19 K
26	42	29	21	50
27	32	33	39	27
28	26	29	36	19
29	26	29	27	28
30	17	7	13	11 C

24.1
20.2
22.3

MAY

	N	S	M	
1	21	22	9	35
2	24	22	33	13
3	21	12	22	11
4	12	6	11	7QCC
5	8	4	6	7QCC
6	8	5	5	8QC
7	66	76	82	61
8	15	8	13	10 C
9	36	31	30	38
10	21	12	15	18
11	30	24	31	24
12	45	27	47	26
13	29	19	27	22
14	25	15	23	18
15	20	12	18	14
16	21	18	19	20
17	29	22	11	41
18	36	17	13	40
19	26	18	12	33
20	36	33	39	30
21	42	27	23	46
22	32	17	29	21
23	26	14	13	27
24	31	20	29	22
25	14	8	8	14 CK
26	8	3	6	5QCC
27	10	4	5	9QCC
28	19	5	9	15 CK
29	22	16	16	22
30	21	14	17	19
31	23	13	17	19

25.1
17.5
21.4

JUNE

	N	S	M	
1	31	20	16	36
2	38	21	25	34
3	36	22	24	34
4	18	15	15	18
5	16	5	9	13QCC
6	12	7	7	12QCC
7	18	21	16	23
8	29	12	14	29
9	22	11	16	17
10	50	46	50	47
11	119	83	123	79
12	48	47	50	46
13	50	44	48	46
14	38	37	37	39
15	20	9	11	18
16	27	18	12	34
17	30	30	46	14
18	24	18	16	28
19	28	30	29	29
20	14	7	10	11 C
21	9	4	5	8QCK
22	25	21	23	23
23	19	13	19	13
24	5	2	3	4QCC
25	12	4	4	12QCK
26	30	17	24	24
27	24	19	18	25
28	16	6	9	13 C
29	26	15	9	33
30	26	16	26	21

26.8
20.7
24.9

JULY

	N	S	M	
1	25	13	20	18
2	25	18	24	19
3	31	26	41	16
4	23	15	23	16
5	19	11	17	13
6	16	6	14	8 CK
7	18	11	17	13 K
8	13	9	12	10 CC
9	11	7	7	12QC
10	54	46	45	56
11	22	14	19	17
12	21	5	12	14 C
13	37	21	11	48
14	38	28	39	27
15	21	10	16	15
16	22	15	13	25
17	16	7	9	14 C
18	24	14	17	22
19	19	13	13	19
20	15	4	12	7QCK
21	20	7	8	20
22	34	24	32	27
23	27	17	25	19
24	9	3	6	6QCK
25	18	7	9	17 KK
26	32	17	21	29
27	25	18	29	14
28	18	9	10	18 K
29	11	5	9	8QCC
30	18	7	9	16 CC
31	14	7	14	7QCC

22.4
13.3
18.0

AUG.

	N	S	M	
1	11	3	7	8QCC
2	9	4	6	8QCK
3	28	18	26	21
4	13	7	15	5 C
5	30	16	18	30
6	36	22	36	23
7	24	24	29	20
8	28	13	25	17
9	26	16	17	26
10	18	12	16	15
11	15	7	15	7 CC
12	13	6	9	10 CC
13	25	10	5	30
14	47	34	41	39
15	38	37	39	36
16	64	59	39	64
17	50	54	55	50
18	45	32	39	38
19	19	17	22	14
20	12	13	11	15 CC
21	8	7	9	7 CC
22	12	7	5	14 CC
23	26	21	17	31
24	40	32	46	26
25	10	2	4	9 CK
26	8	7	7	9 CC
27	11	5	10	6 CC
28	7	5	7	6QCC
29	5	3	3	5QCC
30	6	2	3	5QCK
31	27	31	21	38

23.0
17.0
20.1

SEP.

	N	S	M	
1	20	12	20	12
2	23	23	20	26
3	40	23	24	40
4	25	24	29	21
5	19	22	20	21
6	34	32	25	41
7	32	30	23	39
8	53	56	67	42
9	29	18	27	21
10	14	16	20	11
11	9	6	12	3 CC
12	33	30	13	50
13	62	42	47	58
14	45	45	45	46
15	52	39	43	48
16	21	16	23	15
17	12	8	13	8 CC
18	9	5	5	9QCK
19	18	18	27	10
20	13	10	14	10 KK
21	21	18	17	22
22	24	15	14	26
23	33	29	29	34
24	9	4	4	9QCK
25	6	4	4	6QCC
26	10	7	9	9QCC
27	6	4	5	5QCC
28	19	13	14	18 C
29	20	14	16	18
30	14	10	4	21 K

24.1
19.8
22.0

OCT.

	N	S	M	
1	30	26	31	26
2	57	57	68	46
3	40	47	78	8
4	7	5	5	7 CC
5	6	7	8	5QCK
6	16	14	17	14
7	36	24	20	40
8	15	11	12	14 C
9	19	11	11	19
10	9	6	11	4 CK
11	5	10	7	8QC
12	68	74	67	75
13	47	34	46	34
14	29	21	24	27
15	11	9	10	11 C
16	11	15	9	18 K
17	19	19	19	20
18	15	14	21	8
19	33	20	12	42
20	15	12	19	9
21	5	5	7	4QCC
22	4	3	3	4QCC
23	7	7	4	10QCC
24	15	15	8	23 K
25	12	17	12	17
26	11	8	7	13 C
27	15	14	18	12 K
28	12	13	9	17 K
29	68	57	38	88
30	27	27	19	35
31	126	140	98	169

25.5
24.0
24.8

NOV.

	N	S	M	
1	136	132	49	220
2	81	86	92	75
3	50	41	44	47
4	42	47	49	41
5	15	8	9	15 C
6	16	11	7	21
7	26	20	35	12
8	18	20	11	26
9	42	51	53	40
10	28	25	20	34
11	21	23	25	19
12	8	5	10	4QCK
13	14	10	10	14 CC
14	8	9	6	11QCC
15	5	10	11	4QCK
16	29	36	17	48
17	32	43	27	49
18	34	30	41	24
19	13	14	19	9
20	26	39	27	39
21	15	13	10	18
22	13	9	8	14 C
23	11	12	17	7 KC
24	11	12	8	16 KK
25	22	14	16	20
26	16	13	10	20
27	20	15	19	16
28	18	14	11	22
29	10	11	12	10QCK
30	6	4	2	7QCC

26.3
25.8
26.2

DEC.

	N	S	M	
1	19	22	16	26
2	12	18	12	19
3	37	27	25	36
4	43	38	35	46
5	36	29	37	30
6	14	11	18	8 K
7	10	8	7	12QCK
8	18	25	23	21
9	17	14	12	19
10	25	30	42	13
11	17	14	9	22
12	14	16	21	11
13	13	10	8	15 CC
14	7	7	7	8QCC
15	16	17	16	19
16	23	20	22	21
17	11	6	13	7QCK
18	16	15	13	18
19	24	31	28	26
20	6	7	11	5QC
21	27	35	25	37
22	28	20	25	24
23	29	27	18	40
24	18	13	13	19
25	37	57	77	17
26	7	11	10	6QC
27	28	31	42	18
28	15	11	9	16 C
29	22	17	11	29
30	15	12	12	15 C
31	24	14	15	24

20.5
19.9
20.3

ANNUAL MEAN N 24.58 S 20.40 M 22.58

JAN.

	N	S	M	
1	17	19	18	19
2	8	11	9	10 CC
3	4	6	4	5QCC
4	5	13	7	11 CC
5	4	7	8	4 CC
6	2	4	4	2QCK
7	15	26	15	27
8	16	19	18	17
9	9	12	13	9 CC
10	6	7	6	8QCC
11	11	12	8	16 CK
12	11	23	18	15
13	4	9	8	6QCK
14	18	20	17	22
15	30	20	24	28
16	21	18	16	23
17	38	36	32	41
18	41	44	46	39
19	27	26	29	25
20	20	22	17	25
21	13	13	15	11 C
22	7	7	8	6 CC
23	10	12	5	17 KC
24	25	22	6	41
25	50	59	53	57
26	36	51	50	37
27	23	25	18	31
28	11	9	12	9 C
29	6	6	7	5QCC
30	13	11	19	6 KK
31	15	12	11	18 K

16.7
18.7
17.8

FEB.

	N	S	M	
1	6	10	8	8QCC
2	88	75	8	155
3	81	74	62	94
4	24	26	22	29
5	20	17	24	14
6	26	24	39	12
7	22	23	20	25
8	24	15	22	18
9	7	8	8	8QCC
10	26	25	14	37
11	81	86	61	106
12	20	12	11	22
13	19	18	17	21
14	21	18	19	21
15	36	27	31	33
16	23	18	22	20
17	9	7	9	8QCK
18	4	4	2	5QCC
19	12	17	11	19 K
20	17	18	19	17
21	14	10	17	6 KK
22	9	9	4	13QCC
23	21	16	18	20
24	13	12	15	11 C
25	15	10	19	7 K
26	24	34	37	21
27	45	54	37	62
28	30	33	30	33

26.4
25.0
25.8

MAR.

	N	S	M	
1	27	19	12	34
2	18	15	22	11
3	4	6	4	7QCC
4	17	8	2	22QKK
5	23	20	23	21
6	36	29	25	40
7	36	30	24	43
8	26	25	29	23
9	27	19	17	30
10	15	12	20	8Q
11	36	43	21	58
12	50	48	67	32
13	20	11	14	18
14	17	14	9	23
15	32	30	30	32
16	28	29	35	22
17	64	56	58	62
18	23	16	23	17
19	29	21	13	37
20	32	32	34	31
21	21	21	23	19
22	19	26	22	22
23	63	53	12	105
24	63	79	119	23
25	30	38	34	35
26	20	18	17	22
27	14	7	13	9QC
28	12	12	11	14QCC
29	25	18	12	32
30	29	22	21	30
31	33	21	22	32

28.7
25.8
27.3

APR.

	N	S	M	
1	34	36	17	53
2	28	28	15	41
3	30	21	23	29
4	22	21	20	24
5	20	21	22	19
6	23	22	14	31
7	36	24	32	28
8	16	11	13	14 K
9	22	24	15	32
10	14	18	12	20Q
11	12	16	17	11
12	22	16	8	32
13	35	42	32	45
14	23	22	21	24
15	20	25	27	19
16	36	32	31	37
17	31	32	27	36
18	32	20	36	16
19	12	7	7	12QCK
20	18	9	11	16
21	16	9	16	10QK
22	21	21	27	15
23	10	10	9	11QCK
24	18	11	16	13
25	20	15	22	14
26	14	10	9	16QC
27	26	18	26	19
28	66	64	79	51
29	23	24	16	31
30	48	34	43	40

24.9
22.1
23.6

MAY

	N	S	M	
1	15	16	17	15
2	50	31	14	67
3	24	32	29	27
4	19	16	15	21
5	23	21	18	26
6	16	15	15	17
7	11	10	17	4QKK
8	15	8	6	18 KK
9	28	14	19	24
10	22	15	20	18
11	11	6	9	8QCC
12	17	8	4	21 K
13	56	56	53	58
14	69	49	40	79
15	130	132	133	128
16	54	35	67	22
17	24	20	23	22
18	40	28	30	38
19	26	13	18	22
20	18	9	14	13 C
21	28	24	29	23
22	24	18	18	25
23	24	14	16	23
24	20	12	14	19
25	16	7	13	11 CK
26	10	7	10	7QCC
27	7	5	6	7QCC
28	18	12	14	16 K
29	11	8	7	12QCK
30	24	19	17	26
31	26	22	19	29

28.2
22.1
25.2

JUNE

	N	S	M	
1	14	7	9	11 C
2	11	13	12	12 CC
3	18	7	11	15 CC
4	10	10	10	11 CC
5	14	7	13	8 CC
6	12	4	4	12QCC
7	18	10	14	14
8	32	17	26	24
9	26	17	13	31
10	22	13	20	15
11	18	11	18	12
12	34	19	30	24
13	33	26	27	33
14	59	41	51	49
15	15	17	15	18
16	33	25	26	33
17	40	21	38	24
18	13	5	7	12QCK
19	15	7	10	12 C
20	20	22	27	15
21	15	10	9	15 KK
22	6	4	6	4QCC
23	12	10	10	13 CC
24	25	17	21	22
25	23	13	10	26
26	14	17	15	16
27	14	10	10	14 CK
28	14	4	8	9QCC
29	10	4	6	9QCC
30	10	6	6	11 C

19.9
13.2
16.7

JULY

	N	S	M	
1	40	30	35	35
2	12	11	18	5 K
3	7	4	4	8 CC
4	6	3	4	4QCC
5	7	4	5	6QCC
6	14	6	4	17 KC
7	19	8	10	17 K
8	17	6	6	17 CK
9	17	12	14	15
10	15	12	8	19 KK
11	15	7	6	16 C
12	27	12	22	17
13	27	21	26	23
14	32	24	33	23
15	11	9	11	9 C
16	25	14	19	21
17	10	7	8	10 CK
18	8	9	5	12 CC
19	4	3	4	3QCC
20	10	6	8	9QCC
21	15	11	6	21 KK
22	22	14	13	23
23	16	9	5	20 K
24	12	5	8	10 CK
25	8	4	6	6 CK
26	45	30	20	56
27	57	49	78	28
28	10	6	10	7 CK
29	7	3	4	6QCC
30	29	14	8	35
31	19	7	13	13 C

18.2
11.5
15.0

AUG.

	N	S	M	
1	6	8	8	6QCC
2	15	4	4	15 CC
3	22	22	13	31
4	29	23	30	22
5	18	17	20	15
6	14	6	14	6 CK
7	17	12	14	15 C
8	22	14	15	22
9	23	16	22	18
10	14	13	18	10 K
11	10	5	4	11QC
12	34	36	41	30
13	15	15	18	13
14	12	12	13	12 CC
15	15	6	5	16 CC
16	9	7	5	11 CK
17	16	9	17	8 KK
18	16	11	8	20 K
19	25	24	18	31
20	13	20	20	12
21	16	10	11	16 CC
22	12	6	5	13 C
23	22	21	24	19
24	15	15	15	16
25	5	5	7	3QCK
26	27	24	24	28
27	32	37	49	20
28	15	9	11	13 CK
29	9	7	7	10QCC
30	7	8	7	9QCC
31	12	8	11	9 CC

16.8
13.8
15.3

SEP.

	N	S	M	
1	5	4	6	4QCC
2	4	3	4	3QCC
3	11	8	8	12 CC
4	12	7	10	10 CC
5	32	30	6	57
6	33	33	44	22
7	23	21	16	29
8	29	30	43	16
9	21	26	15	32
10	21	11	14	18
11	17	17	18	17
12	11	8	14	5 CC
13	5	5	5	5QCC
14	22	18	7	34
15	31	29	33	28
16	15	14	18	11
17	24	25	13	36
18	36	30	20	47
19	17	10	18	10
20	16	23	18	21
21	11	7	9	9 CK
22	8	6	10	4QCC
23	19	26	8	37
24	11	12	15	9 C
25	22	19	23	19
26	7	9	10	6QCC
27	13	9	4	18 K
28	69	74	64	79
29	85	93	67	111
30	85	105	133	57

23.8
23.8
23.8

OCT.

	N	S	M	
1	36	32	34	34
2	50	44	55	40
3	33	29	27	35
4	24	16	18	23
5	16	14	15	16
6	29	23	21	31
7	12	12	15	9 C
8	9	10	8	12QCC
9	31	11	7	34
10	45	37	34	48
11	22	17	19	21
12	18	17	19	17
13	10	10	12	8 KK
14	8	7	5	10QCC
15	7	6	7	6QCC
16	15	10	4	21 KK
17	13	7	7	14 K
18	11	13	15	10 C
19	21	26	29	19
20	10	5	6	9 CK
21	19	22	16	24
22	16	22	16	22
23	11	8	7	12 C
24	24	29	32	21
25	13	11	14	10 K
26	8	12	11	10QCC
27	18	14	10	23
28	13	14	12	15
29	8	5	8	6 CC
30	3	3	4	2QCC
31	9	14	12	12 CC

18.2
16.1
17.2

NOV.

	N	S	M	
1	5	3	3	5QCC
2	26	17	15	29
3	27	25	22	31
4	8	10	12	7 C
5	13	15	12	17 C
6	7	7	6	8QCK
7	23	20	19	25
8	22	29	14	37
9	55	67	70	53
10	58	52	54	57
11	23	28	18	34
12	14	11	15	10 K
13	11	12	11	12 CC
14	5	4	5	4QCC
15	4	2	3	3QCC
16	6	8	5	9 CC
17	6	7	5	9 CC
18	10	15	11	15 CC
19	13	13	7	20 KK
20	8	7	10	6 CC
21	6	11	8	10QCK
22	16	19	21	14 K
23	10	13	8	16 CC
24	19	14	11	23
25	14	18	13	19
26	24	17	11	31
27	40	42	39	43
28	18	17	21	15
29	26	25	17	35
30	37	33	41	29

18.5
18.8
18.7

DEC.

	N	S	M	
1	12	12	12	12 C
2	7	6	4	9 CC
3	10	6	3	15 KK
4	13	16	14	18
5	37	27	23	41
6	33	25	31	26
7	13	10	10	13 C
8	16	10	11	15 C
9	21	19	23	18
10	16	11	8	20 K
11	19	25	27	17
12	10	10	13	8 CC
13	6	6	6	7QCC
14	9	11	8	14 CC
15	13	12	11	14 C
16	25	27	29	24
17	9	6	8	8 CK
18	8	6	8	5 CC
19	7	8	7	9 CC
20	7	7	7	6QCC
21	5	5	6	4QCC
22	14	23	18	19
23	26	23	17	33
24	17	17	20	15
25	18	22	20	21
26	18	18	14	23
27	14	14	21	8
28	6	8	5	11 CC
29	8	6	11	6 CC
30	6	6	6	6QCC
31	5	9	8	6QCC

13.9
13.5
13.6

ANNUAL MEAN N 21.18 S 18.69 M 20.03

1970

	JAN.				FEB.				MAR.				APR.				MAY				JUNE			
	N	S		M	N	S		M	N	S		M	N	S		M	N	S		M	N	S		M
1	18	19	11	27	16	13	12	18	31	42	46	27	10	8	9	9 K	22	18	14	26	41	34	38	38
2	43	44	39	48	32	25	23	34	22	21	27	16	13	13	10	16 C	19	14	18	16	23	24	27	20
3	22	16	26	12	15	14	22	7	35	25	18	43	19	23	25	17	25	14	11	29	23	17	18	23
4	7	8	6	10QCC	26	25	17	34	32	30	24	39	16	18	22	12	16	10	14	12 C	22	16	15	23
5	12	13	11	15 KK	19	12	17	15	27	30	21	36	21	17	17	22	20	18	15	23	11	8	13	6 CK
6	10	14	14	12 KK	6	5	7	4 CC	46	41	41	46	33	28	37	24	14	6	7	13 C	7	5	9	3QCC
7	10	11	6	16 KK	5	2	3	4QCC	54	48	32	70	17	20	29	8	17	9	12	14 CC	19	10	6	24
8	13	12	7	19 K	5	5	4	7QCC	183	161	58	286	23	17	28	13	11	4	4	11QCC	23	26	35	15
9	16	21	24	16	5	4	5	4 CC	63	57	54	66	26	23	23	27	8	4	5	8QCC	12	6	8	11 CC
10	14	6	14	6 KK	13	14	8	20 K	13	14	15	13	10	4	5	9QC	2	2	2	2QCC	11	11	10	13 CC
11	8	7	8	7QCC	6	9	9	5QCK	5	4	2	6 CC	13	12	17	9 CC	6	3	2	7QCK	13	7	5	15QKC
12	15	13	13	15 C	8	6	5	9 CC	8	13	15	7 CK	11	12	10	13 CC	31	25	21	36	14	7	10	12QCK
13	12	15	12	16Q C	10	16	14	13 K	16	17	15	19 K	6	8	8	7QCC	18	7	14	11 C	18	18	14	22
14	6	8	7	7 CC	21	18	25	14	6	4	7	4 CK	7	4	6	5QCC	29	20	19	31	17	9	11	15 K
15	15	16	17	15	16	13	17	13 K	14	11	14	11 CC	9	10	7	13QCK	20	12	24	9	25	26	26	25
16	32	27	23	38	9	10	9	10 CC	5	6	6	5QCC	27	15	19	24	14	11	9	16 C	23	13	19	18
17	18	10	20	8	20	20	11	29	10	11	6	15 CC	43	32	39	36	25	20	32	13	24	22	15	31
18	10	14	13	11 CC	18	15	17	17	12	14	12	15 KC	26	35	24	40	12	9	15	6 CC	40	54	36	58
19	13	10	6	17 KK	9	7	10	7 CC	11	9	9	11 CC	30	35	46	19	14	11	14	12 C	19	13	13	20
20	17	17	12	23	5	7	5	7 CC	11	8	4	15 CC	40	27	20	48	26	27	23	29	29	28	22	36
21	11	15	12	15 K	5	5	5	5QCC	5	4	4	5QCC	92	103	53	142	22	16	15	23	34	20	34	21
22	12	8	11	9 CC	4	3	2	5QCC	4	6	7	4QCC	45	34	70	9	15	20	16	19	9	6	5	10QCK
23	14	7	10	12 CC	7	7	4	11 CC	9	13	13	9 CC	25	25	20	31	15	10	8	17 C	8	4	4	7QCC
24	16	11	14	13 CC	19	22	13	28	5	4	4	5QCC	31	30	24	37	18	11	12	17	14	7	5	16 CC
25	5	4	5	5QCC	7	10	12	5 C	6	4	4	6QCC	26	32	34	26	15	16	23	9 K	15	10	12	13 C
26	5	4	4	5QCC	17	15	11	21 K	11	7	10	8 CK	23	16	14	26	5	4	3	6QCC	22	18	15	26
27	12	12	13	12 CC	18	14	11	22	24	25	21	28	20	17	24	14	26	26	13	39	51	46	52	45
28	13	8	5	16 KK	24	25	21	29	34	33	36	32	10	6	9	8QCC	56	52	51	56	16	12	20	10
29	11	20	20	12					28	32	22	38	17	9	9	18 C	29	17	31	15	11	7	6	12 CC
30	19	36	20	35					32	28	29	32	31	26	36	21	21	20	24	17	6	7	9	6 CC
31	14	11	17	9 K					70	76	81	65					12	9	9	13 C				
	14.5				13.1				26.9				24.2				18.8				20.1			
		14.1				12.2				25.8				21.9				14.3				16.4		
			14.4				12.7				26.4				23.1				16.6				18.3	

	JULY				AUG.				SEP.				OCT.				NOV.				DEC.			
	N	S		M	N	S		M	N	S		M	N	S		M	N	S		M	N	S		M
1	24	20	18	27	8	6	9	8QC	32	38	34	36	20	16	14	23	4	4	4	4QCC	2	4	3	3QCC
2	19	22	30	12	14	10	16	8 CC	31	35	34	33	21	13	16	18	8	17	11	14 CC	12	13	4	21 KK
3	37	33	36	33	10	5	8	7QCC	22	25	15	33	30	20	19	32	21	17	14	25	7	10	11	7 CK
4	41	41	73	9	11	8	5	14QCC	24	23	24	24	36	36	48	25	15	12	14	13 C	11	12	9	15 C
5	26	30	29	27	7	3	5	4QCC	19	17	13	24	20	12	19	13	20	17	15	23	16	29	25	20
6	29	22	36	16	18	10	10	18 C	12	9	5	16QCK	13	11	12	13 CC	20	27	25	22	11	24	20	16
7	11	6	5	12QCK	35	15	13	37	14	10	7	18 KK	8	5	6	8QCC	71	69	97	43	17	15	10	23
8	16	12	8	20	34	44	36	43	15	23	11	27	5	3	4	4QCC	15	11	16	11 C	25	30	36	19
9	79	105	74	111	37	31	48	20	12	12	8	16QC	4	4	4	4QCC	15	17	15	18	10	10	14	7 CK
10	57	51	45	63	18	14	16	17	14	8	19	4 KK	16	15	10	21	30	30	27	33	7	10	8	10QCC
11	23	17	19	22	19	15	16	19	4	4	3	5QCC	20	30	32	18	38	28	31	36	2	6	5	4QCC
12	29	21	22	29	17	15	20	12	9	9	14	4QCK	23	25	41	8	16	19	20	16	7	7	7	9 CC
13	24	12	18	18	13	14	9	19 C	37	35	26	46	13	21	17	18	15	18	15	18	11	9	9	12 C
14	23	16	18	22	11	2	5	8 CC	31	44	34	41	15	11	16	10 CK	16	14	15	16	62	105	111	56
15	12	7	10	9QC	17	9	8	19 KK	19	18	23	15	7	7	8	6QCK	8	10	7	11QCC	23	18	26	15
16	17	15	17	15 K	33	18	10	41	15	17	19	13	45	54	23	77	12	17	10	20	6	8	8	7 CC
17	20	13	6	28	144	110	164	89	14	17	18	14	62	37	29	70	12	16	20	8	6	6	7	5QCC
18	12	6	9	9QCK	47	49	43	53	21	18	20	20	52	41	64	29	31	37	12	56	6	7	2	10 KK
19	10	6	8	9QCC	26	19	24	21	31	33	30	34	21	15	21	16	22	30	48	5	21	24	20	25
20	16	8	7	18 K	7	8	8	7 CK	26	23	26	23	11	13	14	10 CC	7	8	7	8QC	13	21	25	10
21	48	44	31	62	10	4	9	6 CC	31	30	28	33	5	4	3	6QCC	32	56	41	48	8	8	10	7 CC
22	22	15	18	20	14	12	6	20 KK	24	17	20	22	34	37	18	53	28	34	36	26	10	12	10	13 CK
23	26	14	18	22	19	14	21	12	12	12	14	11 C	52	37	34	55	34	53	34	53	12	20	20	12
24	50	29	31	48	9	6	6	9QCC	16	11	15	12 CC	23	18	26	15	26	47	46	27	23	17	28	13
25	90	99	128	62	13	13	12	14 C	8	9	12	6 CC	14	13	11	16 KK	27	17	18	28	11	13	9	17 CC
26	27	28	36	20	28	36	29	35	14	13	14	14	7	8	10	5 CK	21	12	10	24	8	9	10	8 CC
27	30	24	22	33	21	22	16	27	38	30	29	39	13	10	9	14 C	19	21	15	25	13	22	14	22
28	9	4	6	8QC	25	25	14	36	14	10	17	8 K	31	35	27	39	16	16	12	21	36	34	20	49
29	52	71	72	52	19	14	22	12	10	13	12	12QK	28	25	16	38	4	6	5	5QCK	26	26	17	36
30	18	10	12	16	9	6	11	5 CK	19	23	27	15	16	14	22	9	3	6	4	4QCC	22	25	26	22
31	29	21	22	29	24	24	20	28					9	8	9	9 CC					7	11	9	9QC
	29.9				23.1				19.6				21.8				20.2				14.7			
		26.6				18.8				19.6				19.2				22.9				18.2		
			28.4				21.0				19.7				20.6				21.6				16.5	

ANNUAL MEAN N 20.58 S 19.17 M 19.95

	JAN.				FEB.				MAR.				APR.				MAY				JUNE			
	N	S	M		N	S	M		N	S	M		N	S	M		N	S	M		N	S	M	
1	14	12	15	11 C	28	35	36	27	9	9	11	7 CC	20	20	31	9	17	9	9	17 C	35	41	25	51
2	33	26	29	30	20	13	13	20	8	12	10	11 CC	10	24	12	22	33	20	40	13	54	49	50	53
3	68	52	48	72	7	9	10	7QCC	22	15	14	24	29	31	25	36	18	11	8	21	46	37	51	34
4	27	29	32	25	10	11	6	16QCC	26	24	31	20	40	48	37	51	13	6	13	6 CK	22	17	19	21
5	19	18	17	21	9	7	11	5QCC	8	11	11	9 CK	20	19	15	25	18	13	6	25	14	6	11	9 C
6	10	11	12	9 CC	14	13	14	13 CC	10	5	6	10 CC	20	22	25	17	57	52	44	65	12	11	16	8 CC
7	2	4	3	3QCC	14	13	16	12	9	8	8	10 C	9	9	13	6 CC	56	49	58	47	7	3	4	7QCC
8	2	3	3	2QCC	21	15	16	20	35	21	28	29	12	12	10	15QC	23	31	26	27	17	10	17	10 C
9	3	4	4	4QCC	19	29	25	23	14	15	20	10	66	81	58	89	24	19	19	25	9	10	8	12QCC
10	10	13	8	16 KK	21	17	10	29	24	23	25	22	41	37	37	41	24	16	22	19	11	7	8	11 CC
11	16	19	16	20	12	11	9	15 C	14	15	17	12	36	49	44	41	10	8	11	8 CK	12	11	12	11 CC
12	8	8	8	9QCK	15	12	11	16 CC	39	30	13	56	17	19	16	21	8	6	6	9QCC	7	7	9	6QCC
13	10	22	15	17	8	6	11	4QCK	64	61	46	79	13	18	15	16	10	6	7	9QCC	16	20	4	32 K
14	16	12	14	15	30	33	20	43	40	49	44	45	69	42	11	101	31	21	17	36	9	10	8	11 C
15	22	15	22	16	58	37	26	67	39	41	56	24	46	35	46	36	21	18	21	19	12	9	12	9 CC
16	16	12	17	12	43	34	41	36	27	24	26	25	30	23	27	26	10	13	7	17 K	12	9	6	15 C
17	14	17	15	17	25	25	24	27	23	23	19	27	11	12	15	9 C	95	69	67	98	21	17	27	12
18	28	40	21	48	27	25	22	31	19	11	15	15	23	15	15	24	47	58	62	44	13	11	15	9 CC
19	30	30	18	43	15	12	20	8	35	29	18	46	14	14	20	9	21	17	19	20	6	3	4	4QCC
20	42	56	61	37	22	15	17	21	25	15	33	8	10	7	10	8QCC	10	9	12	7 CK	7	4	7	5QCC
21	20	17	22	16	12	21	16	17	7	6	8	6QCC	28	41	13	56	14	7	9	13 CC	12	5	6	12 CC
22	19	12	17	14	7	5	10	2QCK	7	4	4	6QCC	24	28	29	24	12	7	11	9 C	12	8	7	14 CK
23	14	14	17	12	29	27	10	46	7	7	5	9QCK	24	15	14	26	28	18	24	23	16	18	20	14 K
24	23	18	14	28	23	13	9	28	28	25	25	30	5	4	4	4QCK	16	12	7	22	13	6	5	15 C
25	17	21	26	13	69	49	29	89	23	26	33	16	3	4	4	3QCC	15	11	12	14 C	43	33	25	52
26	4	4	4	4QC	42	37	48	31	29	29	33	24	13	10	4	19QKK	19	20	20	20	21	27	37	11
27	53	81	56	79	22	15	16	22	16	18	17	17	15	14	18	12	4	2	4	3QCK	10	9	8	10 CC
28	66	54	39	81	10	7	13	4 CK	5	4	5	4QCC	29	35	26	39	12	4	3	13QCC	21	10	4	27
29	25	46	53	19					5	4	4	4QCC	17	18	19	17	15	6	10	12 C	36	42	22	57
30	44	46	48	43					19	11	5	24	13	17	20	10	33	35	32	37	22	17	16	24
31	33	28	29	33					51	42	37	56					8	4	8	4QC				
	22.9				22.6				22.2				23.7				23.3				18.3			
		24.1				19.5				19.8				24.1				18.6				15.5		
			23.5				21.2				21.1				23.9				21.1				17.0	

	JULY				AUG.				SEP.				OCT.				NOV.				DEC.			
	N	S	M		N	S	M		N	S	M		N	S	M		N	S	M		N	S	M	
1	26	17	22	22	13	11	9	15 C	22	17	25	15	38	44	46	36	10	8	13	5 CC	11	13	12	13 CC
2	26	27	27	26	32	33	48	16	4	2	3	4QCC	34	32	34	32	6	4	3	8 CC	11	12	6	17 K
3	16	10	9	17 C	11	6	5	12QCK	10	11	12	9QCC	41	26	41	27	5	5	5	5QCC	27	27	24	31
4	18	12	11	19	18	15	15	18	17	12	3	27	31	22	24	29	10	8	9	9 CC	15	14	16	14
5	20	10	13	17	23	19	33	10	29	33	28	34	30	29	32	28	8	11	8	11 CC	8	10	11	8 CC
6	20	10	16	15	7	2	2	7QCC	22	19	14	28	32	43	36	38	6	5	5	6 CC	6	7	9	4QCC
7	8	5	7	6QCK	12	5	5	13 CK	41	30	30	41	32	30	12	51	11	14	18	8 KK	5	6	5	6QCC
8	19	12	15	16 K	24	24	25	22	20	15	21	15	40	32	43	30	20	16	10	27 K	6	8	8	7QCC
9	12	8	13	7 CC	22	19	16	26	18	12	11	19	71	39	67	43	6	6	7	5 CK	13	15	17	11 C
10	7	4	4	7QCC	22	16	18	21	11	10	16	5 CK	17	13	19	12	11	9	5	16 CK	7	6	5	9QCC
11	15	16	9	22 K	28	19	30	18	14	15	13	17 C	21	18	11	28	28	25	24	29	13	21	8	27 K
12	18	11	9	20	24	22	23	23	13	13	16	11 C	17	15	5	27	19	11	15	15	19	19	10	20
13	20	20	23	18	19	14	17	16	35	25	41	19	29	28	25	32	9	6	8	8 CC	26	23	19	31
14	15	19	16	18	9	10	7	13QCK	17	20	22	15	21	22	14	29	5	4	3	6QCC	4	9	9	5QCK
15	16	13	18	12	14	7	4	16 CK	16	17	18	15	19	16	19	17	6	4	7	4QCC	7	7	7	7 CC
16	13	11	10	15 CC	23	9	17	16	22	14	21	15	8	9	6	11 CC	3	4	4	3QCC	21	14	7	26
17	12	4	11	6QCC	22	13	7	29	28	21	15	35	7	7	7	7QCC	4	3	2	4QCK	87	89	56	120
18	17	10	11	16 KK	30	15	27	19	48	54	73	29	5	4	4	5QCC	15	20	22	14 K	31	50	46	36
19	21	10	18	13 K	10	4	10	5 CK	14	23	22	15	5	2	4	4QCC	13	19	12	21	19	24	25	18
20	11	7	5	12QCC	7	5	3	10QCC	22	29	22	29	12	9	8	13 CC	12	14	13	14	10	7	4	14 CK
21	31	42	15	58	16	14	11	19	10	9	8	12QC	12	7	8	12 CK	21	24	19	26	19	18	9	29
22	15	8	17	7 K	19	24	16	27	9	7	8	8QCC	19	20	15	24	50	52	46	56	31	30	27	34
23	23	8	10	22 K	27	18	27	18	6	6	4	8QCC	12	19	8	23	73	64	72	65	24	26	23	27
24	12	7	12	7 KK	19	13	11	21	24	7	3	28	23	29	20	33	68	54	53	69	15	18	19	14
25	8	4	4	9QCC	19	13	13	19	40	41	48	33	16	11	12	15 C	58	69	73	54	13	15	13	16
26	35	21	4	52	27	28	32	23	40	29	11	59	7	4	3	8QCC	31	37	42	26	26	16	21	23
27	21	12	17	16	8	4	5	6QCK	54	53	65	42	8	7	8	8QCK	18	19	16	22	9	7	13	3 CK
28	11	10	18	4 KK	14	12	5	21 KK	18	18	21	16	35	25	17	43	21	16	21	17	6	13	7	12 CK
29	16	13	6	24 K	14	9	11	14 C	14	9	12	12 C	57	43	55	45	11	11	7	16 CK	23	25	22	27
30	15	18	19	14	14	10	11	13 K	38	34	19	53	26	23	34	14	10	11	10	12 CC	25	31	40	16
31	21	21	16	26	61	36	47	50					12	9	9	13 CK					17	13	14	16
	17.4				19.7				22.6				23.8				19.0				17.9			
		12.9				14.4				20.1				20.5				18.5				19.1		
			15.2				17.1				21.4				22.2				18.8				18.6	

ANNUAL MEAN N 21.12 S 18.93 M 20.10

1972

JAN.

	N	S		M	
1	16	13	10	19	
2	16	18	13	21	
3	12	18	19	11	
4	18	16	24	10	
5	9	13	13	10	CC
6	5	7	9	3	QCC
7	9	7	7	10	QCC
8	8	10	10	9	QCC
9	15	11	12	14	CC
10	16	14	8	24	
11	26	29	34	22	
12	9	10	9	10	CK
13	7	7	6	8	QCC
14	8	6	8	6	QCK
15	37	37	21	53	
16	43	49	42	50	
17	32	27	25	34	
18	34	39	39	35	
19	18	22	16	24	
20	19	15	12	23	
21	23	41	20	45	
22	41	41	27	55	
23	54	36	48	42	
24	18	17	16	20	
25	35	23	22	36	
26	32	32	37	27	
27	24	30	21	33	
28	36	44	21	59	
29	23	25	16	33	
30	18	10	14	14	
31	14	11	7	19	KK

21.8
21.8
21.9

FEB.

	N	S		M	
1	16	18	14	20	
2	21	23	25	19	
3	17	20	14	23	
4	14	22	21	14	
5	11	13	8	17	KC
6	15	11	10	16	KK
7	19	13	10	22	
8	12	12	16	8	CK
9	6	7	6	8	QCC
10	19	24	18	25	
11	8	17	15	11	K
12	7	7	9	6	QCK
13	34	34	16	53	
14	29	18	29	19	
15	22	19	23	17	
16	14	13	13	15	
17	52	36	24	65	
18	20	15	13	23	
19	22	30	27	24	
20	18	17	21	15	
21	20	14	15	20	
22	9	10	8	11	QCK
23	12	14	11	15	C
24	43	60	48	55	
25	34	25	22	38	
26	13	8	11	10	K
27	10	8	5	13	QCC
28	11	8	12	7	CC
29	4	6	5	4	QCC

18.4
17.9
18.3

MAR.

	N	S		M	
1	16	16	11	22	K
2	22	18	9	31	
3	27	33	28	32	
4	15	16	18	16	
5	13	8	8	13	CC
6	33	31	14	50	
7	59	83	102	40	
8	20	22	16	26	
9	19	23	19	23	
10	7	5	4	8	QCK
11	15	12	17	9	KK
12	9	6	4	11	QCK
13	11	14	16	10	KK
14	7	6	7	8	QCC
15	13	12	6	20	K
16	36	31	41	26	
17	32	23	24	32	
18	21	21	30	12	
19	10	9	8	12	QCC
20	10	8	11	8	CC
21	12	9	12	9	QCC
22	22	15	18	20	
23	15	23	19	20	
24	30	30	29	32	
25	19	18	23	14	
26	22	17	8	31	
27	31	22	23	31	
28	29	9	31	7	
29	37	39	29	47	
30	38	40	39	38	
31	34	22	23	34	

22.1
20.7
21.5

APR.

	N	S		M	
1	28	24	18	36	
2	13	15	21	8	
3	8	4	3	9	QCK
4	32	26	24	38	
5	30	18	34	14	
6	16	16	13	19	
7	14	20	14	20	
8	10	11	4	17	KK
9	7	4	8	3	QCK
10	9	9	8	11	CC
11	9	5	8	7	CC
12	18	14	10	23	
13	20	18	18	21	
14	11	12	12	11	CK
15	12	11	10	13	CC
16	14	8	11	12	CC
17	25	18	3	40	
18	14	16	17	16	
19	9	6	9	7	QCC
20	16	11	9	20	
21	29	33	34	28	
22	25	18	3	40	
23	14	16	17	16	
24	9	6	9	7	QCC
25	6	4	4	6	QCC
26	6	4	4	6	QCC
27	19	8	4	24	K
28	26	39	28	38	
29	57	69	51	76	
30	32	34	39	26	

18.5
17.6
18.1

MAY

	N	S		M	
1	31	32	31	32	
2	33	26	31	29	
3	15	10	11	14	C
4	12	10	8	14	CC
5	12	6	8	11	CC
6	20	14	13	22	K
7	7	4	5	5	QCK
8	9	6	2	13	QCK
9	27	33	26	34	
10	16	21	15	22	
11	15	13	10	18	
12	17	17	18	16	
13	16	12	12	17	
14	15	12	12	16	K
15	11	5	12	5	CK
16	27	17	36	10	
17	20	17	20	18	
18	17	18	25	9	
19	9	5	7	7	QCC
20	11	5	9	7	QCC
21	8	3	5	6	QCC
22	14	4	8	10	CC
23	22	6	7	23	K
24	11	5	11	5	CK
25	9	6	7	9	CC
26	24	11	12	24	K
27	16	12	5	24	
28	39	27	23	43	
29	22	17	22	18	
30	30	14	19	26	
31	23	17	23	18	

19.0
14.0
16.6

JUNE

	N	S		M	
1	12	7	12	7	CC
2	15	7	8	14	CC
3	23	16	15	22	
4	34	16	22	30	
5	22	23	25	20	
6	16	10	4	22	K
7	20	15	15	20	
8	14	11	9	17	CK
9	7	5	7	5	QCC
10	7	4	5	5	QCC
11	7	4	5	5	QCC
12	17	13	15	15	C
13	75	89	81	133	
14	130	110	134	106	
15	25	31	44	13	
16	18	11	20	10	K
17	11	4	4	12	CK
18	25	22	16	31	
19	23	21	20	24	
20	31	23	17	39	
21	14	8	6	16	C
22	19	19	14	25	
23	29	24	14	40	
24	26	24	31	20	
25	18	24	17	25	
26	4	5	6	3	QCK

23.3
19.4
21.5

JULY

	N	S		M	
1	11	7	4	14	CC
2	19	8	7	20	
3	17	10	14	13	K
4	8	3	4	7	CC
5	7	3	5	5	QCC
6	8	3	4	7	CC
7	21	16	12	25	
8	19	14	23	11	
9	16	16	11	22	
10	18	12	12	19	
11	15	13	13	15	
12	16	12	10	19	K
13	7	3	4	6	QCK
14	9	4	5	8	QCC
15	14	6	10	11	CC
16	20	12	13	20	
17	17	14	14	17	
18	13	8	12	10	CC
19	18	13	12	19	K
20	10	8	10	9	CC
21	5	2	4	4	QCC
22	22	12	4	30	K
23	22	14	15	21	
24	33	27	11	50	
25	57	46	48	55	
26	27	32	27	32	
27	14	16	19	13	
28	10	10	12	8	CC
29	8	4	4	8	QCC
30	10	6	4	11	CC
31	11	5	4	12	CK

16.2
11.6
14.0

AUG.

	N	S		M	
1	20	11	19	13	K
2	11	6	10	7	CC
3	12	6	7	14	QC
4	202	158	125	236	
5	194	236	261	170	
6	119	76	123	72	
7	32	34	44	22	
8	23	16	6	33	
9	90	103	147	47	
10	35	25	22	38	
11	33	27	23	38	
12	16	9	10	15	C
13	15	8	9	14	QCK
14	24	16	14	27	
15	22	11	22	11	
16	13	9	10	12	CC
17	13	13	10	17	CC
18	23	19	13	28	
19	23	17	18	23	
20	25	17	12	31	
21	26	20	23	24	
22	15	19	23	11	
23	23	12	12	34	
24	32	32	25	39	
25	10	10	8	13	QK
26	28	27	34	21	
27	29	50	60	20	
28	16	12	9	20	
29	17	12	12	17	
30	13	9	11	12	CC
31	9	6	9	7	CC

36.1
32.1
34.2

SEP.

	N	S		M	
1	10	7	11	6	QCC
2	11	15	9	18	KC
3	8	9	7	11	CK
4	10	9	12	8	CC
5	9	6	8	8	QCK
6	26	14	22	19	
7	7	13	11	10	C
8	18	25	23	20	
9	14	12	16	10	C
10	30	19	18	32	
11	17	23	22	18	
12	6	12	13	5	CK
13	71	63	10	123	
14	67	57	88	36	
15	31	39	42	27	
16	31	35	21	46	
17	44	39	46	36	
18	19	23	27	15	
19	9	8	13	4	CC
20	6	5	7	4	QCC
21	4	4	5	3	QCC
22	8	8	5	12	QCC
23	23	23	12	34	
24	32	32	25	39	
25	9	10	13	7	C
26	12	16	14	15	C
27	13	10	13	10	CC
28	17	14	12	20	
29	45	37	26	57	
30	16	8	16	11	C

20.9
19.8
20.4

OCT.

	N	S		M	
1	12	12	13	11	CC
2	15	5	6	14	CC
3	10	8	8	11	QCK
4	11	11	18	5	KK
5	4	4	3	5	QCC
6	4	3	2	4	QCC
7	15	17	6	27	K
8	8	4	7	6	QCK
9	9	7	3	13	CC
10	14	14	11	18	
11	25	23	30	18	
12	47	28	12	64	
13	32	20	24	29	
14	42	42	46	38	
15	16	12	10	18	
16	24	22	24	22	
17	21	22	12	31	
18	45	43	58	30	
19	29	25	27	27	
20	21	23	28		
21	30	22	21	32	
22	25	22	20	28	
23	34	25	25	34	
24	21	20	15	26	
25	11	18	15	14	
26	14	15	15	15	
27	18	16	16	20	
28	19	17	25	11	
29	26	42	32	36	
30	31	32	32	32	
31	48	44	9	63	

21.5
19.3
20.4

NOV.

	N	S		M	
1	90	93	142	41	
2	69	61	66	64	
3	31	14	38	7	
4	12	8	10	12	CC
5	9	6	7	9	QCC
6	12	12	12	13	CK
7	14	17	16	15	
8	14	11	11	14	CC
9	17	16	11	22	K
10	7	7	5	8	QCK
11	17	15	11	23	
12	9	15	16	8	CK
13	4	3	4	4	QCC
14	5	8	5	8	QCC
15	35	28	17	46	
16	50	35	45	41	
17	21	16	18	22	
18	15	18	14	20	
19	20	20	22	19	
20	44	35	36	44	
21	17	10	18	9	
22	27	31	11	46	
23	22	18	18	23	
24	21	29	42	7	
25	15	13	12	16	
26	17	22	24	16	
27	25	22	15	32	
28	21	33	22	32	
29	19	13	16	17	
30	13	10	8	15	QC

22.7
20.7
21.8

DEC.

	N	S		M	
1	9	11	16	4	CC
2	10	12	11	12	CC
3	15	12	14	14	K
4	6	9	9	7	CC
5	4	4	4	4	QCC
6	5	5	4	6	QCC
7	19	20	18	22	
8	13	15	11	16	
9	9	6	5	10	CC
10	4	7	6	4	QCC
11	6	4	6	4	CC
12	12	19	8	24	
13	56	59	57	58	
14	14	14	14	15	
15	56	38	25	69	
16	57	44	58	43	
17	26	27	29	24	
18	17	20	15	22	
19	12	13	9	17	C
20	6	6	6	7	CC
21	4	9	4	9	QCC
22	26	27	11	45	
23	69	37	59	48	
24	21	29	42	7	
25	9	10	6	13	CC
26	7	15	12	11	CC
27	4	7	7	4	QCC
28	10	14	9	16	CK
29	26	25	24	27	
30	41	27	25	43	
31	24	24	22	20	

19.3
18.4
18.9

ANNUAL MEAN N 21.67 S 19.44 M 20.62

	JAN.				FEB.				MAR.				APR.				MAY				JUNE			
	N	S	M		N	S	M		N	S	M		N	S	M		N	S	M		N	S	M	
1	19	17	29	8	29	34	31	32	42	21	17	46	112	81	28	165	26	26	17	37	7	3	4	5QCK
2	3	4	3	4QCC	26	21	19	29	62	52	57	59	62	77	85	55	19	14	17	17	37	31	30	38
3	5	7	4	8QCC	34	29	27	37	28	16	27	17	38	36	43	31	16	13	19	11	30	19	25	25
4	21	23	17	28	14	11	13	12QC	10	5	11	5QCC	16	16	18	14	12	13	11	15 KC	27	27	21	33
5	39	33	21	52	13	25	26	13	13	14	3	23 K	11	8	14	5QKK	12	5	6	12 CC	22	19	24	17
6	32	22	36	19	28	32	20	41	36	47	32	51	6	6	8	4QCC	28	15	4	39	19	17	22	13
7	14	15	9	21	24	30	19	36	12	16	13	15	6	7	10	4QCC	31	19	25	26	7	4	6	5QCC
8	26	27	18	36	38	37	34	41	13	12	6	19 K	11	11	8	15 KK	30	33	24	40	16	6	9	13 CC
9	34	30	23	41	31	28	34	26	19	19	23	16	12	7	11	9 CK	18	24	18	25	22	8	10	21
10	52	37	43	47	21	19	17	24	16	14	12	19	4	4	3	5QC	13	13	15	12 C	42	30	15	36
11	40	30	31	40	15	18	20	14Q	15	19	15	20	31	43	45	30	14	8	10	12 CC	44	54	43	55
12	44	41	29	55	16	13	12	17 C	25	19	19	27	5	5	4	7QC	14	10	11	13 C	52	47	46	54
13	25	34	30	28	5	6	4	9QCK	11	12	11	13QK	51	67	61	58	29	25	27	28	39	41	44	36
14	15	13	20	9	11	16	16	12QKK	5	7	7	5QCC	71	62	87	46	74	101	92	83	35	32	44	21
15	15	21	19	17	15	11	16	10QCC	4	5	4	5QCK	14	11	13	12 C	45	47	36	57	26	25	22	29
16	18	10	16	13	21	15	6	30	22	27	20	29	74	93	87	80	42	48	46	43	22	22	19	25
17	8	11	10	9QCC	28	28	32	24	14	13	10	17Q	66	74	70	70	40	56	51	44	32	25	24	34
18	4	8	7	5QCC	23	18	10	31	30	33	17	46	66	61	58	69	40	36	43	33	47	44	50	41
19	21	21	7	36	20	18	12	27	93	96	83	106	52	64	58	58	38	32	34	36	62	46	62	47
20	48	28	48	28	19	19	8	31	111	86	92	104	61	59	58	62	42	52	41	53	34	37	39	32
21	31	32	45	19	85	66	26	125	68	77	66	79	52	61	59	53	71	77	111	37	11	11	15	7 C
22	10	9	8	12QC	74	62	39	98	59	71	63	67	45	62	68	39	36	24	36	24	6	2	4	4QCC
23	21	25	23	23	68	77	62	84	73	83	67	89	34	36	41	29	26	40	48	18	21	9	11	19
24	42	39	31	50	79	69	56	92	60	69	51	79	24	23	27	20	9	6	8	7QCC	54	43	38	59
25	35	36	31	40	56	42	34	64	64	69	63	70	35	18	23	31	14	11	9	17QCK	12	7	7	12 C
26	46	32	31	48	56	41	38	58	54	38	36	56	54	43	25	72	18	9	18	10	10	7	11	6QCC
27	54	56	48	62	73	61	50	84	46	47	39	55	33	40	44	29	19	14	14	20	8	4	4	8QCK
28	48	44	45	48	29	25	31	24	38	38	26	50	35	35	21	48	21	12	17	16	30	36	30	36
29	38	32	30	40					35	29	28	36	71	57	62	67	6	4	5	5QCC	62	56	67	52
30	25	12	20	17					25	25	22	29	27	30	29	29	5	3	2	5QCC	48	47	48	48
31	15	20	19	17					54	51	19	86					9	3	4	9QCC				
	27.4				34.0				37.3				39.2				26.4				29.4			
		24.7				31.2				36.5				39.9				25.6				25.2		
			26.1				32.7				36.9				39.6				26.1				27.3	

	JULY				AUG.				SEP.				OCT.				NOV.				DEC.			
	N	S	M		N	S	M		N	S	M		N	S	M		N	S	M		N	S	M	
1	32	38	34	37	26	31	36	21	7	7	7	7 CC	11	4	5	11QC	9	13	7	15QCC	6	6	10	4QCC
2	20	16	21	16	31	30	31	31	14	8	7	16 CC	43	40	48	36	13	11	11	13 CC	3	6	5	4QCC
3	16	12	14	14 C	15	11	10	17 K	13	6	6	14 C	48	61	72	37	9	9	10	8QCC	11	13	8	16 KK
4	9	5	8	6QCC	15	12	11	16 KK	27	19	20	27	22	19	15	26	42	28	11	58	51	42	23	70
5	8	5	6	8QCC	19	9	8	21	38	20	24	34	28	15	7	36	21	32	25	28	28	26	26	29
6	5	5	4	6QCC	29	23	28	24	15	15	15	15	28	19	21	26	15	16	12	20	16	18	19	16
7	6	3	4	4QCK	17	18	8	27	16	18	19	15	14	6	14	6 K	50	39	41	48	14	10	12	12 CK
8	24	33	21	36	20	13	19	15	14	17	11	21	11	12	14	9 CC	15	19	20	15	14	14	12	17
9	20	25	17	29	9	10	12	7 CC	66	46	23	89	24	14	7	33	19	28	23	24	32	39	27	44
10	13	8	13	8QC	8	7	10	5 CC	47	44	27	65	40	37	34	43	13	13	18	9 K	15	11	16	8 K
11	14	9	10	13 CC	7	9	7	10QCC	28	18	22	24	21	19	19	22	9	15	12	13 CC	15	18	17	16 K
12	14	9	8	16 CK	10	5	3	12 CK	17	10	9	19	25	25	23	27	6	7	7	7QCC	4	11	9	7 CC
13	21	16	15	23	23	17	17	24	17	17	14	20	28	31	37	22	22	21	13	30	7	7	10	4 CC
14	18	8	12	14 C	22	13	16	19	5	6	7	4QCK	16	13	12	17	14	16	13	18	12	17	4	26 K
15	46	47	37	57	11	7	8	11QCC	23	20	13	31	8	11	16	4QC	13	23	17	19	9	19	13	15
16	30	29	38	21	7	4	3	8QCC	21	23	29	14	44	45	40	50	20	22	13	30	6	7	6	8QCK
17	11	13	17	8 K	3	3	2	4QCC	15	16	18	13	43	45	42	46	31	25	29	28	12	11	10	13 CC
18	17	6	11	13 CK	8	10	8	11QCC	17	13	15	15 K	34	31	23	43	25	30	38	17	5	5	5	6QCC
19	19	19	18	20	13	8	9	13 CK	5	4	4	6QCC	27	32	33	26	6	7	7	6QCC	32	29	10	51
20	21	15	18	19	17	18	16	19	24	16	9	31	36	40	36	41	7	10	7	11 CK	59	42	33	66
21	10	10	10	10 CK	11	9	13	8 CC	24	25	27	23	60	49	44	65	38	41	21	56	54	57	41	70
22	13	5	11	8 C	25	14	6	34	37	27	15	50	34	28	36	26	9	12	14	6 C	36	36	36	36
23	28	28	36	20	43	44	26	61	85	83	75	93	11	9	10	10 C	16	17	10	24 K	32	24	26	31
24	10	14	12	12 C	52	49	69	33	42	41	32	50	12	14	11	15 CC	42	49	12	79	5	7	9	3 CK
25	19	21	25	14	42	45	52	35	38	34	24	48	11	9	10	10QCC	55	61	63	53	6	6	4	11QCC
26	48	47	36	60	34	27	33	29	28	44	46	26	7	6	10	3QCC	24	24	31	18	6	10	8	9 CC
27	40	44	44	39	47	36	44	39	16	21	18	20	7	7	5	9QCK	22	25	15	32	11	14	9	17 KK
28	26	25	27	25	47	37	33	52	8	13	9	13QCK	36	32	18	50	13	14	13	14	21	23	19	26
29	35	30	36	29	33	30	36	27	8	7	9	7QCC	130	88	75	142	7	9	8	9 CC	38	32	32	38
30	31	26	24	34	18	29	30	17	7	6	5	8QCC	34	43	42	35	11	7	4	15QCC	25	25	24	27
31	41	52	65	28	16	19	20	16					22	24	36	11					26	32	29	29
	21.4				21.9				24.2				29.6				19.9				19.8			
		20.1				19.2				21.4				26.7				21.4				19.9		
			20.9				20.6				22.8				28.2				20.7				19.9	

ANNUAL MEAN N 27.55 S 25.99 M 26.82

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	JAN.				FEB.				MAR.				APR.				MAY				JUNE			
	N	S		M	N	S		M	N	S		M	N	S		M	N	S		M	N	S		M
1	32	26	31	28	25	23	14	34	29	35	27	37	29	26	26	29	17	9	7	20 K	36	37	39	34
2	20	18	17	22	20	15	19	16	29	26	27	29	26	23	16	34	34	30	22	43	34	24	32	27
3	20	23	20	23	12	13	17	9 C	32	39	30	41	64	61	43	82	36	28	45	20	33	37	40	30
4	28	21	19	31	13	11	13	11 KC	19	19	26	13	40	49	46	43	54	37	34	57	16	17	20	14
5	36	23	29	30	16	16	8	24 K	36	29	17	48	22	35	26	31	42	47	50	39	12	10	11	11QCC
6	25	17	29	14	12	13	9	17 K	40	29	31	39	38	36	43	31	13	9	15	7QC	14	11	14	12QKK
7	5	5	6	4QCC	17	15	18	14	28	24	15	38	30	33	37	26	22	21	13	30	6	4	3	7QCC
8	22	16	8	31	12	10	6	17QKK	24	27	23	28	24	24	19	29	21	15	12	24	13	10	8	15QKC
9	10	19	14	16	10	7	9	8QCK	57	34	29	62	30	30	23	58	20	19	24	15	17	13	6	25Q
10	24	27	18	34	33	23	16	41	57	39	48	48	38	44	41	41	5	3	4	4QCC	32	19	21	31
11	11	11	15	7 C	44	40	25	60	54	41	45	50	28	32	36	24	9	6	6	9QCC	46	49	26	70
12	9	11	10	11QCC	76	48	74	51	25	22	23	24	4	4	4	4QCK	10	4	8	5QCC	50	38	62	27
13	8	12	11	10 CC	45	24	26	44	13	14	19	8QK	12	8	9	12 CC	9	7	6	10QCC	40	42	43	39
14	17	14	13	19	20	18	20	19	34	27	24	38	9	4	6	8QCC	24	15	10	30	30	32	22	41
15	19	39	17	41	6	5	6	5QCC	6	4	3	7QC	6	4	5	5QCC	43	47	38	53	50	61	41	70
16	26	26	25	27	16	12	6	22	54	61	25	90	8	4	4	8QCC	46	49	43	53	26	39	41	46
17	33	22	28	28	21	20	22	19	11	12	16	7QC	13	9	6	16QC	48	57	56	50	35	32	31	34
18	44	39	33	50	2	5	4	3QCC	4	5	4	5QCC	64	66	74	57	32	47	44	34	20	22	16	26
19	14	15	14	16	7	7	6	8QCC	5	6	5	6QCC	48	54	36	67	33	45	36	42	17	25	15	28
20	25	17	20	23	24	20	10	34	28	32	9	52	60	72	59	74	32	39	34	37	32	30	27	36
21	25	23	29	19	33	37	33	36	88	69	56	101	54	56	56	53	32	43	40	35	12	7	9	10 C
22	10	7	8	11QCK	25	26	17	34	48	57	65	41	45	44	44	45	44	41	33	52	18	15	16	17
23	8	7	11	4QCC	76	54	43	88	46	47	39	55	43	61	59	45	43	46	36	53	16	13	13	17
24	12	8	6	13QK	48	37	43	43	42	42	39	45	32	30	25	37	57	63	62	58	22	14	17	19
25	85	86	65	106	54	50	46	58	47	37	41	43	32	37	35	34	26	31	28	29	18	10	10	19
26	54	44	53	45	47	43	52	38	40	37	29	46	45	23	31	38	24	23	21	27	60	72	68	65
27	69	45	53	62	40	39	24	55	36	39	48	28	27	39	48	19	27	20	28	20	78	74	86	67
28	35	26	20	42	50	43	36	55	28	28	27	29	34	37	27	45	18	16	23	11	38	36	34	40
29	40	45	39	46					56	45	31	70	28	33	17	45	16	15	14	18	34	39	31	43
30	44	32	23	53					30	30	33	28	29	32	23	38	31	25	17	40	30	31	31	30
31	32	23	25	31					42	43	41	44					48	36	34	50				
	27.2				28.7				35.1				32.2				29.5				29.6			
		24.2				24.0				32.2				33.6				28.7				28.7		
			25.8				26.4				33.7				32.9				29.2				29.2	

	JULY				AUG.				SEP.				OCT.				NOV.				DEC.			
	N	S		M	N	S		M	N	S		M	N	S		M	N	S		M	N	S		M
1	20	15	18	18	14	8	11	11QCC	40	44	39	45	48	49	47	51	10	8	9	9 CC	13	17	6	24Q
2	21	22	23	20	32	39	8	63	61	44	53	52	57	48	22	64	10	11	13	8QCC	23	27	23	27
3	17	16	16	17	54	61	43	72	24	36	30	29	19	19	24	15	9	11	10	10 CC	28	30	25	34
4	48	32	31	50	42	28	41	29	41	27	25	43	16	13	12	18Q	5	8	6	5QCC	12	17	22	8
5	78	74	72	80	31	35	34	32	30	32	44	18	19	13	11	21	11	9	7	13QCC	22	16	10	29Q
6	116	127	164	79	41	32	25	48	22	25	23	24	16	18	25	10	12	22	16	18	7	9	10	6QC
7	23	16	21	19	34	36	25	45	21	23	23	21	11	11	10	12QCC	15	17	16	17	12	21	16	18
8	52	41	31	62	29	30	35	24	12	14	15	12	20	21	10	32	37	33	9	62	26	32	17	41
9	31	21	32	20	28	25	25	29	11	5	9	8QCC	56	66	53	68	41	55	56	40	72	69	54	67
10	38	37	32	43	30	24	34	21	10	10	11	9QCC	19	16	22	14	19	12	13	19	38	27	34	31
11	26	21	21	27	17	19	19	18	7	5	8	4QCC	11	8	14	5QKK	74	72	24	123	36	31	24	43
12	40	33	19	55	12	7	10	10QCC	10	9	4	14QKK	30	22	11	41	85	93	95	83	25	31	28	28
13	27	24	29	23	11	9	11	9QCC	24	22	17	29	90	94	111	73	66	44	41	69	44	30	20	55
14	31	31	35	28	9	6	10	6QCC	17	14	11	21	42	31	17	57	38	45	48	36	22	16	24	14
15	21	14	18	18	11	4	7	9QCC	69	70	11	128	64	47	74	38	18	19	12	25	26	20	20	27
16	15	19	19	15	12	8	9	12 CC	91	102	154	40	81	71	64	89	25	25	20	31	16	14	6	25Q
17	19	10	13	16	10	10	7	13 CC	4	7	6	5QC	68	74	64	79	24	15	19	21	33	32	22	43
18	9	10	10	9QCC	21	13	11	24	23	31	6	48	59	44	53	50	16	12	15	14	45	56	51	50
19	13	11	9	16QCC	48	56	43	62	52	46	60	38	57	44	39	62	24	20	16	29	50	41	36	55
20	20	19	16	23	59	48	62	46	52	54	52	53	68	59	61	65	41	37	41	38	42	37	41	38
21	17	13	11	19	42	69	63	48	66	56	24	98	18	18	22	15	41	30	27	45	34	32	25	41
22	14	13	12	16Q	50	49	46	53	31	37	37	31	26	26	21	32	28	26	27	27	26	21	26	22
23	95	83	84	94	47	54	58	43	26	26	16	39	8	8	8	8QC	28	23	21	31	40	35	19	56
24	55	74	75	55	46	41	48	40	34	43	40	38	54	64	78	39	50	30	29	52	26	24	20	31
25	33	32	36	29	24	25	25	24	50	37	25	62	46	35	35	46	35	26	29	32	26	21	10	37
26	31	25	29	28	17	13	10	21	54	57	53	58	48	47	45	51	32	30	20	43	19	22	22	19
27	33	39	43	29	30	28	30	28	36	54	36	54	45	42	37	50	13	17	13	18	40	39	44	34
28	30	28	39	19	38	26	24	41	25	26	19	33	42	45	34	53	7	14	15	7 CC	16	22	23	15
29	24	24	28	20	43	53	56	40	24	30	22	32	27	30	34	24	3	7	6	4QCC	13	18	15	17 C
30	14	19	23	10Q	35	23	29	29	30	37	28	39	18	18	15	22	4	6	5	5QCC	10	9	8	12QC
31	12	11	11	12QCC	41	29	31	40					12	9	11	11QCK					20	21	22	20
	33.0				30.9				33.3				38.6				27.4				27.8			
		30.7				29.3				34.1				35.9				26.0				27.0		
			32.0				30.2				33.7				37.3				26.8				27.5	

ANNUAL MEAN N 31.11 S 29.53 M 30.39

	JAN.				FEB.				MAR.				APR.				MAY				JUNE			
	N	S	M		N	S	M		N	S	M		N	S	M		N	S	M		N	S	M	
1	18	17	22	14	68	49	53	64	38	32	36	34	13	10	14	9 C	12	12	9	16 C	46	27	11	62
2	9	5	6	8QCC	46	40	50	36	17	19	21	16	12	6	8	11 CC	30	36	21	45	50	54	72	33
3	12	21	16	18	21	18	23	17	24	14	15	24	13	9	11	11 CC	34	34	34	34	23	23	22	24
4	73	54	46	81	18	16	13	22	17	14	17	14	16	12	10	19 C	28	23	25	27	22	23	25	20
5	59	47	44	62	38	28	22	45	50	47	43	56	21	11	11	21	57	37	45	50	27	31	25	33
6	51	32	17	66	15	15	14	16Q	34	32	26	41	31	25	19	38	54	47	60	41	26	23	22	26
7	52	54	84	22	22	25	20	27	5	7	5	7QC	44	28	16	57	37	46	30	53	13	9	11	12 C
8	54	72	66	60	13	11	15	9QC	2	4	4	3QCC	49	51	31	69	28	23	18	34	9	7	7	10QCC
9	13	13	12	14 C	26	18	22	22	22	14	7	30	68	69	56	79	28	34	21	41	11	9	12	8 CC
10	9	10	14	6 CC	64	54	44	74	100	99	99	101	57	52	53	57	32	32	43	22	6	8	4	10QCK
11	8	8	10	7QCC	78	49	38	89	76	77	99	55	50	59	62	48	3	2	3	2QCK	25	18	19	25
12	7	10	6	11QC	61	57	55	64	56	64	44	75	40	47	37	50	5	3	2	6QCC	45	39	34	50
13	57	64	54	67	45	36	27	53	54	34	29	58	38	34	46	26	12	7	6	14 CK	26	22	24	25
14	57	57	47	67	45	37	38	45	47	47	36	58	31	25	32	25	18	24	26	17	19	21	18	22
15	29	28	21	38	34	29	25	38	27	37	27	37	13	14	10	18	4	4	4	3QC	27	26	13	41
16	45	39	33	52	56	36	36	55	36	52	45	43	7	11	11	8 CC	41	49	36	55	31	30	27	34
17	43	36	34	45	31	25	25	31	23	21	23	22	11	9	8	13QCC	26	29	33	23	23	24	18	29
18	40	26	29	38	28	24	26	26	32	26	18	41	9	18	10	18 K	18	14	17	16	25	24	27	22
19	21	21	26	16	19	19	19	20	20	21	11	30	9	8	9	9QCK	32	18	22	28	26	21	19	29
20	20	14	15	20	13	13	18	9QK	36	29	25	40	39	32	10	62	34	30	47	18	11	9	8	12 C
21	15	11	8	19 KK	17	17	13	22	5	5	8	3QC	38	27	30	35	24	15	14	26	21	16	16	22
22	14	13	6	22	15	16	17	15Q	14	13	16	12Q	21	23	22	22	19	22	23	18	9	9	12	7 CK
23	30	21	18	34	46	66	65	48	19	17	27	9	40	28	36	32	17	12	17	12	8	4	4	8QCC
24	20	16	21	15	30	25	16	39	26	33	17	43	31	23	32	22	10	9	10	9 CC	5	3	5	3QCC
25	10	10	7	14QKK	39	34	43	30	13	18	13	18Q	12	13	15	11 C	36	18	14	40	9	10	7	13 CC
26	8	9	9	8QCK	13	16	19	10	27	33	31	30	19	16	20	16	24	20	35	9	12	9	12	9 CC
27	23	27	21	29	9	11	10	10QCC	40	52	17	75	8	10	14	4QCC	22	21	18	26	10	4	7	6QCC
28	21	22	28	16	29	14	13	31	62	47	52	58	7	3	5	5QCC	10	5	7	9QC	9	7	8	9 CC
29	8	12	11	9 CC					29	43	42	30	6	4	6	4QCC	26	23	26	23	41	36	14	63
30	16	17	14	19					17	16	17	17	11	11	12	11 CC	13	10	12	12 CK	45	35	51	29
31	42	34	20	57					25	17	15	28					9	4	4	9QCC				
	28.6				33.5				32.1				25.6				24.0				22.0			
		26.4				28.6				31.8				22.9				21.3				19.3		
			27.6				31.1				32.0				24.3				22.7				20.7	

	JULY				AUG.				SEP.				OCT.				NOV.				DEC.			
	N	S	M		N	S	M		N	S	M		N	S	M		N	S	M		N	S	M	
1	23	30	30	23	17	11	21	6 K	18	14	10	22	11	16	21	6 K	13	15	10	18	56	41	41	55
2	16	11	14	14	13	8	11	11 CC	13	10	14	9 CK	7	3	4	6QCC	56	43	26	73	34	44	37	41
3	15	13	13	15 C	9	6	6	10QCC	6	3	3	6QCC	18	17	9	26	88	67	73	82	22	22	19	26
4	15	8	8	16 CC	12	7	6	13 C	6	4	4	6QCC	20	10	20	11	68	55	65	58	22	21	19	24
5	11	7	8	11QCC	46	39	48	38	6	5	4	8 CK	12	11	14	8 C	44	34	39	39	17	18	14	21
6	13	7	4	16 CK	14	11	21	4 K	30	22	26	27	40	38	32	46	21	22	22	21	18	15	9	25
7	25	22	24	24	12	14	2	23 K	13	7	12	8 C	71	46	59	59	22	21	18	25	9	5	7	8QC
8	42	52	55	39	23	21	36	9	14	15	11	19	68	59	48	79	16	11	13	14	35	34	18	51
9	46	46	48	44	29	28	21	37	43	42	26	60	57	54	67	45	48	60	39	68	30	32	34	28
10	33	35	31	38	23	26	33	16	38	40	43	36	48	36	44	40	45	23	17	51	13	17	10	21
11	28	45	48	26	14	11	13	12 KK	52	36	46	41	18	20	13	25	30	32	26	36	9	12	10	12 CK
12	13	9	8	15QC	7	3	5	6QCC	34	29	34	30	23	18	18	24	14	16	18	13	4	8	8	4QCC
13	19	15	8	26	10	13	11	12QC	33	23	39	17	18	12	11	19	6	4	8	3QCC	5	6	4	8QCC
14	32	25	28	29	29	29	41	17	21	27	32	16	16	29	20	25	6	7	6	7QCC	10	12	7	16 CC
15	27	29	26	30	34	34	27	41	14	12	11	16 K	7	9	11	6QC	9	7	6	10QCC	15	15	17	13
16	24	27	27	24	13	12	10	16 K	7	6	7	7 CC	21	25	21	25	10	9	11	8QCK	26	18	20	25
17	27	24	23	29	20	17	20	18	22	18	13	27	17	17	19	15	38	35	14	60	16	17	15	19
18	27	24	26	25	14	10	13	11 CK	24	21	16	29	8	11	5	15 CC	12	15	19	9	13	13	10	17 C
19	19	15	12	23	8	7	6	10QCK	16	14	15	16	9	6	4	10QCC	14	16	20	11 K	13	12	9	16 KK
20	11	11	15	8 C	25	34	11	48	15	12	9	18 KK	11	8	8	12 CC	21	15	14	23	7	4	7	3QCK
21	14	15	11	19 K	31	21	18	35	12	8	8	12 CC	11	9	13	7 CC	30	27	36	22	18	26	10	34
22	13	10	9	14 CC	26	21	27	20	7	5	7	6 CC	14	12	13	14 CC	97	80	57	120	16	20	16	22
23	10	10	12	9 CC	17	18	20	15	9	5	11	4 CC	15	8	13	10 CC	14	11	18	8 K	15	17	16	16
24	14	11	15	10 C	15	11	7	19 K	4	5	5	4QCC	7	6	10	4QCC	25	23	10	38	10	5	4	10QC
25	54	59	56	57	18	19	16	22	4	3	3	4QCC	6	11	8	9QCC	26	23	26	24	29	36	31	34
26	34	41	30	45	11	6	8	10QCK	27	24	13	39	11	9	7	14 KK	21	34	37	18	54	54	43	65
27	22	25	27	20	11	5	11	5 CC	23	29	28	25	10	9	14	6 CK	10	7	12	6QCK	54	46	41	60
28	20	19	19	21	13	8	8	13 C	16	16	13	19	21	15	6	31	13	15	16	12	26	24	29	22
29	9	7	7	10QCK	47	32	43	36	7	9	11	6 CK	26	14	25	16	60	44	45	60	29	24	27	26
30	11	9	11	10QCC	26	20	33	14	4	4	4	4QCK	18	14	17	15	59	43	38	64	17	19	21	16
31	12	4	5	12QCK	17	11	12	16 C					28	29	37	20					16	10	15	11 CC
	21.9				19.6				18.0				21.5				31.2				21.3			
		21.3				16.5				15.6				18.7				27.1				20.9		
			21.7				18.1				16.9				20.2				29.3				21.1	

ANNUAL MEAN N 24.94 S 22.55 M 23.81

1976

JAN.

	N	S		M
1	7	12	9	10QCC
2	7	9	5	11QCC
3	35	36	19	52
4	18	22	17	24
5	19	18	22	16
6	26	19	11	34
7	21	19	21	20
8	13	9	8	15 CK
9	6	5	7	5QCK
10	68	75	23	119
11	70	46	66	51
12	21	21	20	23
13	14	16	19	11
14	16	21	19	19 K
15	15	10	4	21 K
16	24	19	12	31
17	24	24	20	29
18	20	17	22	15
19	14	14	12	17
20	22	23	12	33
21	34	42	34	43
22	49	39	29	59
23	36	37	32	41
24	33	34	36	31
25	16	18	17	18
26	9	14	14	9QCK
27	8	16	13	11 CC
28	8	7	8	8QCC
29	9	11	13	8 CC
30	18	17	5	30
31	45	49	28	67

23.3
23.1
23.3

FEB.

	N	S		M
1	41	29	27	43
2	40	32	24	46
3	27	28	30	25
4	28	20	17	32
5	16	17	9	25
6	18	14	19	13
7	47	36	30	53
8	55	50	42	63
9	41	41	41	41
10	43	35	34	44
11	28	23	20	31
12	31	23	26	29
13	45	34	39	40
14	26	31	29	28
15	19	15	10	25Q
16	12	11	10	14QC
17	28	26	12	43
18	45	37	50	32
19	47	36	36	49
20	31	33	29	35
21	28	23	26	26
22	24	18	24	19
23	7	9	9	7QCC
24	5	6	4	7QCC
25	7	7	8	6QCK
26	13	17	14	16
27	43	44	23	65
28	32	37	24	46
29	55	34	50	39

30.5
26.4
28.5

MAR.

	N	S		M
1	36	28	31	34
2	58	41	27	72
3	46	52	37	62
4	21	18	24	15
5	26	30	20	37
6	54	39	25	67
7	47	44	41	50
8	57	63	70	50
9	54	56	45	65
10	52	45	41	57
11	36	42	31	48
12	35	49	43	41
13	19	22	18	24
14	20	24	31	14
15	25	32	20	38
16	36	32	26	43
17	31	34	39	26
18	21	20	21	20
19	18	23	22	20
20	15	17	19	13
21	8	12	7	14QCK
22	4	5	5	4QCC
23	11	10	4	17QKC
24	7	5	8	4QCC
25	8	7	4	11QC
26	118	167	135	150
27	46	56	42	62
28	21	29	28	22
29	22	24	39	8
30	20	27	9	39
31	18	23	23	18

32.1
34.7
33.4

APR.

	N	S		M
1	102	141	192	51
2	29	20	18	32
3	53	53	35	70
4	40	47	50	38
5	38	42	41	39
6	36	64	56	44
7	39	40	37	42
8	22	21	23	21
9	29	24	23	31
10	16	20	23	12
11	28	24	22	31
12	17	14	21	11
13	19	17	14	23
14	26	25	18	34
15	6	4	5	5QC
16	11	11	14	9 CC
17	7	12	13	6 CC
18	3	3	4	2QCC
19	8	6	7	8QCC
20	4	4	4	4QCC
21	9	12	7	13QC
22	28	42	44	26
23	13	9	13	9 C
24	24	34	27	32
25	14	14	12	17
26	10	12	11	11 C
27	21	24	22	23
28	19	13	17	15
29	32	33	17	48
30	20	16	23	13

24.1
26.7
25.4

MAY

	N	S		M
1	20	19	12	27
2	81	77	42	116
3	121	120	192	50
4	34	39	31	43
5	22	30	32	20
6	16	22	19	20
7	23	17	20	21
8	20	12	21	11
9	10	6	11	6QCC
10	13	13	8	19 KK
11	22	18	17	24
12	15	13	17	11
13	17	10	11	17 C
14	6	4	4	5QCC
15	11	10	4	17 KC
16	13	7	13	7QCC
17	6	6	6	6QCC
18	7	3	3	7QCC
19	25	11	4	32
20	31	30	32	29
21	20	21	20	21
22	26	23	20	29
23	25	26	20	31
24	13	9	13	9 C
25	23	18	18	23
26	14	6	9	11 C
27	10	10	12	8 C
28	26	33	30	29
29	40	41	31	50
30	31	32	36	27
31	19	18	17	21

24.5
22.7
23.7

JUNE

	N	S		M
1	13	14	10	18
2	16	10	14	13 CK
3	18	13	9	23
4	36	29	43	22
5	40	32	34	38
6	18	17	16	20
7	29	22	24	26
8	15	16	20	12
9	7	6	9	4QCC
10	11	11	9	13 C
11	34	50	48	37
12	15	16	11	20
13	7	6	7	7 CK
14	7	5	7	5QCC
15	8	5	2	11 CC
16	13	6	10	9 C
17	27	26	25	29
18	36	36	46	27
19	8	6	7	8QCK
20	11	9	11	10 CC
21	6	4	3	7QCC
22	7	4	4	8QCC
23	9	5	7	6 CC
24	13	5	11	53
25	36	26	30	33
26	16	12	8	21
27	18	12	17	14
28	14	7	8	13 CC
29	13	5	9	10 C
30	34	44	51	27

18.8
15.9
17.5

JULY

	N	S		M
1	31	38	46	23
2	22	21	21	23
3	28	30	30	28
4	29	36	32	34
5	15	16	12	20
6	14	11	14	11 C
7	23	12	20	16
8	27	23	20	30
9	26	14	24	17
10	13	11	15	10 CC
11	11	6	8	10QCC
12	12	11	10	13 CC
13	10	5	8	7QCC
14	13	9	13	10 CC
15	36	23	13	46
16	29	32	32	29
17	11	8	9	10 C
18	13	8	11	10 CC
19	14	8	13	9 CC
20	10	4	8	7QCC
21	9	6	7	7QCC
22	11	10	14	8 CC
23	15	8	9	14 CC
24	12	7	5	15 C
25	22	17	22	18
26	11	6	8	10QCK
27	19	21	16	24
28	38	36	36	38
29	33	34	36	31
30	42	28	39	32
31	19	16	20	16

19.9
16.6
18.4

AUG.

	N	S		M
1	17	16	12	21
2	19	12	21	11
3	23	19	16	27
4	14	11	11	14 C
5	14	12	9	17 KK
6	13	7	11	9 CC
7	12	14	10	16 KC
8	11	7	9	9QC
9	24	29	31	22
10	19	20	22	17
11	9	9	12	7 CC
12	10	6	5	11QCC
13	10	5	8	6QCC
14	10	12	12	10 KC
15	6	6	4	8QCK
16	19	17	12	24 K
17	14	6	9	12 CK
18	12	6	9	10QCC
19	11	13	13	11 CC
20	13	5	9	10 CC
21	20	19	16	24
22	13	7	11	10 C
23	56	66	30	92
24	36	46	50	33
25	45	39	45	40
26	32	30	34	28
27	30	24	30	25
28	23	23	17	29
29	12	14	14	12 C
30	12	8	8	13 CC
31	15	12	7	21

18.5
16.7
17.7

SEP.

	N	S		M
1	24	18	19	24
2	33	48	53	29
3	22	25	24	23
4	26	24	23	28
5	21	21	27	16
6	17	14	17	14
7	18	19	18	20
8	18	13	17	14
9	11	11	15	8QCC
10	11	11	8	14QCC
11	11	10	10	11QCC
12	22	17	19	21
13	13	8	12	10QC
14	22	18	20	21
15	20	20	25	15
16	13	9	11	11 CC
17	21	15	15	22
18	35	52	62	25
19	37	36	25	48
20	71	61	65	67
21	43	35	29	50
22	36	33	33	37
23	22	26	26	22
24	15	11	16	11 K
25	46	41	34	53
26	29	22	28	24
27	18	26	25	20
28	16	8	12	13QC
29	20	16	14	23
30	23	13	10	27

24.4
22.8
23.7

OCT.

	N	S		M
1	26	30	33	23
2	31	33	43	22
3	16	16	18	14
4	12	11	10	13 C
5	20	17	27	10
6	20	20	25	15
7	14	7	7	14 CK
8	13	13	8	20 K
9	13	12	11	15 C
10	15	12	10	17
11	19	15	14	21
12	32	16	13	36
13	13	14	17	11
14	13	12	8	18 K
15	50	42	36	57
16	42	47	62	27
17	50	45	48	48
18	36	24	31	30
19	20	15	8	27
20	17	14	16	15
21	14	15	16	14
22	11	19	18	12Q
23	10	14	14	11 CC
24	14	12	9	18 KK
25	12	8	13	7QCK
26	9	4	6	7QCC
27	18	12	8	22 K
28	8	12	7	14QCK
29	5	4	5	4QCC
30	33	29	13	50
31	59	47	50	56

21.5
19.1
20.4

NOV.

	N	S		M
1	19	14	19	15
2	16	12	11	17
3	18	9	12	16 K
4	9	10	11	9 CK
5	7	11	10	9QCC
6	4	6	6	4QCC
7	6	9	10	5 CC
8	11	12	7	18 KK
9	13	15	18	13
10	41	33	21	53
11	47	38	26	58
12	48	30	38	42
13	48	46	50	45
14	30	24	19	37
15	20	19	15	24
16	9	14	9	14 C
17	13	14	16	11 CC
18	10	4	5	8 CC
19	18	17	18	18
20	15	20	20	15
21	7	8	8	8 CC
22	7	11	11	8 CC
23	8	7	8	8QCC
24	5	6	7	4QCC
25	20	20	19	22
26	19	24	17	26
27	14	13	17	11
28	4	6	4	7QCC
29	13	10	7	17 CK
30	52	85	102	34

17.4
16.1
16.9

DEC.

	N	S		M
1	13	14	7	21 K
2	4	7	5	7QCC
3	7	6	5	8QCK
4	28	38	31	36
5	10	12	11	11 C
6	7	6	4	9QCC
7	19	20	14	25
8	26	34	38	23
9	26	30	26	31
10	24	20	15	30
11	26	22	31	18
12	29	26	20	37
13	13	14	14	13 K
14	6	4	5	4QCC
15	3	4	4	3QCC
16	12	20	12	20 K
17	19	24	13	30
18	42	34	55	22
19	11	12	13	10 C
20	9	10	9	10 CC
21	8	14	10	13 CC
22	15	22	16	22
23	8	11	13	6 C
24	12	14	14	12 CC
25	16	21	15	22
26	12	12	14	10 C
27	16	13	9	21 K
28	11	13	9	15 K
29	52	85	102	34
30	21	36	17	39
31	26	19	22	24

17.2
19.9
18.6

ANNUAL MEAN N 22.69 S 21.72 M 22.28

JAN.

	N	S		M
1	38	32	33	37
2	9	7	11	7QC
3	17	13	11	19 K
4	19	18	13	25
5	27	18	20	26
6	18	16	20	15
7	12	12	13	11 CC
8	12	16	13	18 K
9	9	14	10	13 CK
10	5	10	7	9QCC
11	22	26	6	42
12	24	20	20	24
13	17	12	15	14
14	40	25	26	39
15	22	17	24	16
16	12	12	8	17 KC
17	10	15	11	14 K
18	20	22	31	11
19	21	15	14	22
20	23	19	25	18
21	8	11	14	5QKK
22	16	15	8	24 K
23	13	13	9	18 K
24	16	16	16	17
25	17	19	11	26
26	9	5	8	6QCK
27	7	11	8	11QCC
28	24	22	7	40
29	32	27	41	19
30	47	52	38	62
31	31	21	36	16

19.4
17.9
18.7

FEB.

	N	S		M
1	14	10	10	15 K
2	39	28	38	29
3	22	15	18	20
4	7	8	10	6QC
5	14	22	24	13
6	34	33	14	53
7	32	32	27	38
8	36	18	17	38
9	46	36	25	57
10	23	27	21	30
11	27	25	26	26
12	17	9	14	12 C
13	20	21	17	25
14	27	23	14	36
15	22	13	10	25
16	12	11	17	7QC
17	19	25	10	34
18	28	27	34	23
19	13	19	13	20Q
20	10	13	10	13QC
21	16	18	14	20 K
22	17	15	7	26
23	32	31	19	45
24	28	23	13	39
25	26	17	14	30
26	16	10	13	13 C
27	6	5	4	8QCC
28	15	12	15	13 C

22.2
19.5
21.0

MAR.

	N	S		M
1	26	20	15	32
2	12	11	8	15QC
3	6	9	8	8QCC
4	6	5	3	9QCC
5	6	9	6	9QCC
6	17	15	7	26 K
7	9	10	12	8 CK
8	22	17	6	31
9	54	66	49	70
10	36	32	34	36
11	39	34	22	51
12	40	32	34	38
13	26	20	21	28
14	22	18	31	10
15	12	10	14	7 CC
16	13	10	11	12 CC
17	23	17	15	26
18	21	16	23	15
19	10	8	7	12 C
20	25	18	21	23
21	23	18	8	33
22	14	13	20	8
23	23	23	14	32
24	22	17	20	20
25	32	18	14	36
26	29	26	34	20
27	20	16	14	22
28	25	23	21	27
29	22	22	25	20
30	9	11	8	13 CK
31	6	9	9	7QCC

21.1
18.5
19.9

APR.

	N	S		M
1	7	10	10	8QCC
2	10	8	9	10QCK
3	21	16	23	15
4	40	36	39	36
5	19	19	15	24
6	61	49	22	89
7	54	59	67	46
8	41	56	43	54
9	33	40	41	32
10	25	25	21	30
11	27	23	16	34
12	20	18	12	27
13	10	8	10	9 C
14	21	19	21	20
15	16	13	20	9
16	36	25	13	48
17	18	14	22	11
18	17	14	12	19
19	60	83	90	53
20	42	45	41	47
21	22	16	21	18
22	11	11	12	11 CC
23	12	8	7	13 CC
24	23	21	13	31
25	24	31	46	10
26	9	6	10	6QCC
27	6	7	7	7QCC
28	9	6	5	11QC
29	31	47	44	35
30	18	13	13	19

24.8
24.9
24.9

MAY

	N	S		M
1	28	19	12	36
2	85	96	56	125
3	23	27	34	16
4	37	24	10	52
5	23	18	17	25
6	21	24	22	23
7	15	8	11	12 CK
8	6	5	4	6QCC
9	16	14	13	17 K
10	18	21	18	21
11	52	32	26	58
12	21	31	41	11
13	10	11	6	13 KK
14	16	15	17	15
15	24	25	26	24
16	42	36	41	36
17	29	41	44	25
18	23	25	31	17
19	14	6	9	11 CK
20	20	22	16	26
21	11	5	8	9QC
22	11	18	22	8 K
23	18	9	13	14 C
24	17	13	15	15
25	12	9	10	11 CC
26	7	3	3	7QCC
27	7	5	7	6QCC
28	13	11	11	13 CC
29	7	4	4	7QCC
30	10	6	9	8 CC
31	16	9	10	15 CC

20.9
19.1
20.1

JUNE

	N	S		M
1	20	14	12	23
2	26	25	21	31
3	11	8	11	9 C
4	14	10	15	9 CC
5	12	20	17	16 K
6	10	8	11	8QCK
7	12	7	9	10 CC
8	15	9	8	17 CC
9	15	6	9	12 C
10	17	15	24	8 K
11	7	4	5	7QCC
12	9	6	7	8QCC
13	12	10	8	15 C
14	21	13	24	11
15	9	4	5	8QCC
16	22	13	8	28
17	22	13	18	18
18	19	21	16	25
19	16	19	17	18
20	21	18	27	13
21	13	10	12	11 CC
22	25	17	10	33
23	22	13	21	14
24	14	9	13	10 CC
25	12	7	8	12QCC
26	14	8	11	11 CC
27	16	10	15	11 C
28	26	19	22	23
29	34	17	23	14
30	9	4	5	8QCC

16.3
11.9
14.2

JULY

	N	S		M
1	28	22	29	21
2	25	16	19	23
3	19	16	13	23
4	17	13	19	11
5	11	11	5	17 KK
6	45	26	12	59
7	25	23	33	16
8	28	22	26	25
9	29	23	22	30
10	28	34	31	31
11	19	16	23	13
12	10	4	7	7QCC
13	18	20	15	23
14	28	40	55	13
15	25	15	17	24
16	38	41	40	38
17	28	25	24	30
18	16	17	14	20
19	43	36	30	50
20	45	49	53	41
21	19	13	18	15
22	19	24	28	15
23	12	6	12	6 CC
24	18	10	11	17 C
25	12	7	10	10QCC
26	7	3	5	5QCC
27	7	2	3	6QCC
28	7	3	4	7QC
29	69	103	101	71
30	25	23	37	12
31	18	14	19	13 C

23.8
21.9
22.9

AUG.

	N	S		M
1	14	9	7	16 KK
2	9	8	10	9QCK
3	14	8	6	17 CK
4	20	14	16	19
5	62	67	70	60
6	36	36	36	36
7	30	37	30	37
8	26	18	25	19
9	40	32	30	43
10	24	24	25	23
11	48	30	35	43
12	19	23	25	17
13	25	24	20	29
14	21	27	14	34
15	21	23	29	15
16	13	18	9	23
17	40	56	41	55
18	19	25	22	22
19	36	38	39	35
20	16	12	18	10
21	6	9	10	8QCC
22	12	6	7	11QCC
23	15	12	8	19 K
24	20	19	18	22
25	39	49	26	61
26	28	25	27	24
27	29	32	35	26
28	13	12	13	12 C
29	11	9	10	10 CC
30	10	9	6	13QCC
31	6	5	6	6QCC

23.4
23.0
23.2

SEP.

	N	S		M
1	9	4	8	4QCC
2	15	9	5	19 KK
3	14	10	19	5 K
4	10	12	14	8 CC
5	7	4	5	7QCC
6	7	4	4	6QCC
7	10	6	5	12 CC
8	14	10	13	12 CK
9	19	21	17	23
10	24	25	29	21
11	29	28	28	29
12	15	9	15	10 K
13	40	46	33	53
14	15	11	18	9 K
15	14	15	22	8 K
16	17	11	8	20
17	14	17	20	11
18	11	8	10	10 CK
19	60	62	14	108
20	50	56	44	62
21	69	67	77	60
22	68	91	70	89
23	28	48	16	60
24	22	17	21	19
25	20	16	14	23
26	27	35	19	44
27	30	20	43	8
28	15	17	13	19 K
29	5	5	5	5QCK
30	6	8	7	8QCC

22.7
23.1
23.0

OCT.

	N	S		M
1	6	5	4	7QCC
2	9	12	15	7 CC
3	13	20	12	21
4	10	14	16	9 C
5	13	14	15	13 C
6	15	15	16	15 K
7	11	8	7	12QCC
8	4	11	6	9 CC
9	6	4	4	5QCC
10	9	6	6	9QCC
11	29	16	14	32
12	40	57	67	31
13	24	27	24	28
14	28	19	13	33
15	36	37	50	23
16	15	12	12	16
17	25	17	16	27
18	34	27	22	39
19	38	45	62	22
20	14	13	9	19
21	12	7	10	9 C
22	34	36	39	31
23	14	7	13	9 C
24	11	13	15	12 CC
25	8	8	5	11QCC
26	9	11	8	12 K
27	73	86	66	92
28	64	49	74	40
29	17	19	16	20
30	17	20	11	26
31	9	9	11	8 CK

20.9
20.7
20.9

NOV.

	N	S		M
1	7	7	8	6 CC
2	12	6	8	10 CC
3	6	9	8	7 CC
4	13	14	5	23 K
5	19	11	17	14
6	11	16	14	13 KC
7	8	10	8	10 CC
8	7	8	7	8QCC
9	5	8	6	8QCC
10	13	23	5	32
11	12	12	12	12 C
12	29	39	32	36
13	52	39	43	48
14	71	59	48	62
15	42	39	51	29
16	27	30	27	31
17	17	13	16	13
18	11	14	12	14 CK
19	15	11	12	14 CC
20	7	7	8	6 CC
21	8	6	9	5 CC
22	6	6	10	8QCC
23	4	4	2	5QCC
24	4	4	5	5QCC
25	27	27	4	50
26	30	24	33	22
27	22	15	28	10
28	7	12	13	8 CC
29	15	12	10	16
30	23	23	30	17

17.7
16.9
17.3

DEC.

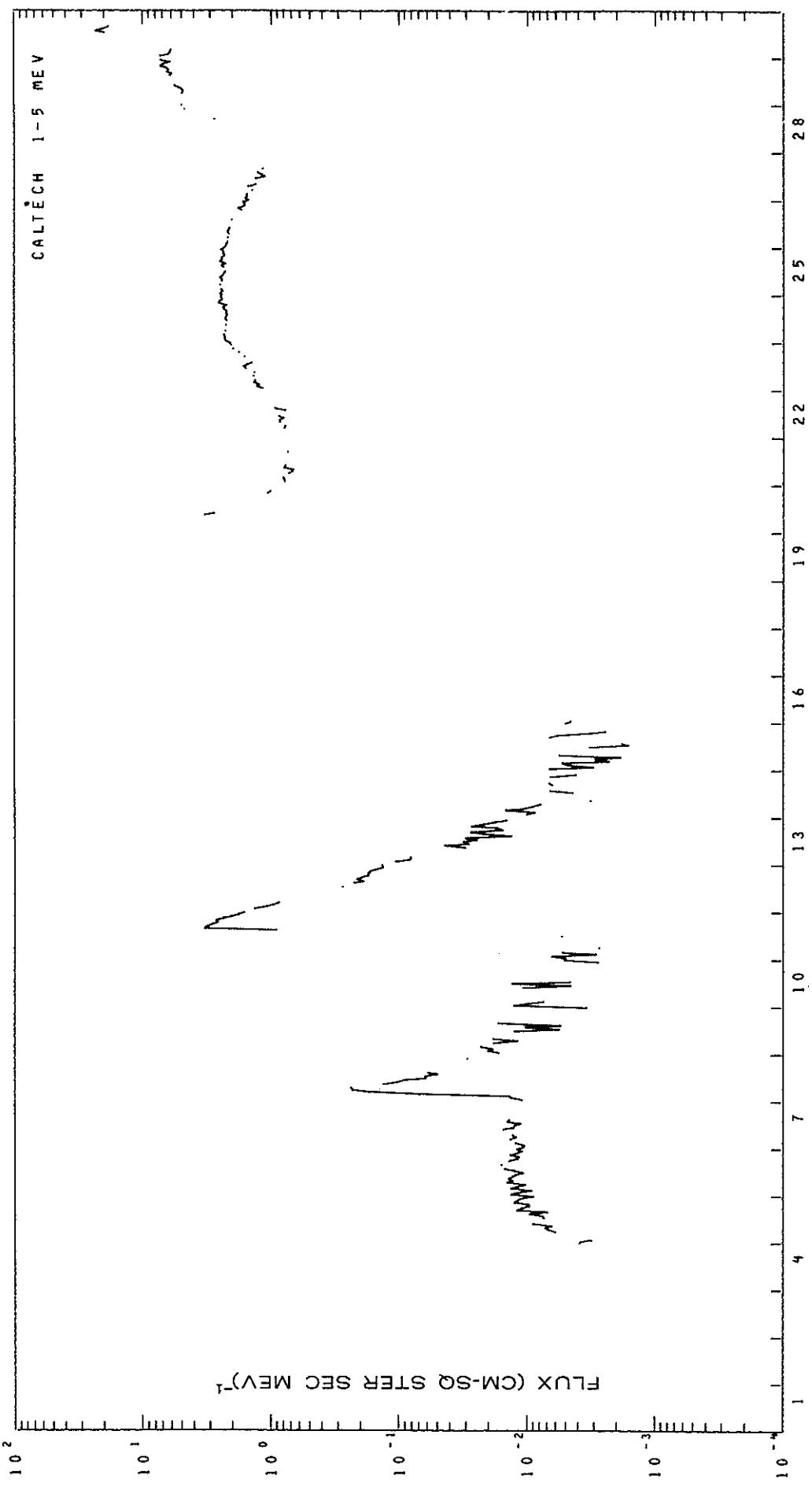
	N	S		M
1	15	13	4	24
2	90	74	62	103
3	19	13	13	19
4	25	26	7	43
5	27	26	38	17
6	9	11	15	9 CK
7	6	7	5	8QCC
8	3	5	6	2QCC
9	4	10	10	4 CC
10	8	11	6	13 K
11	55	63	68	50
12	27	31	34	24
13	34	27	27	34
14	12	11	13	10 C
15	9	10	12	8 CC
16	10	16	6	20
17	17	16	27	9
18	4	7	7	4QCC
19	4	7	6	5QCC
20	7	7	7	8QCC
21	11	12	7	16 CC
22	10	10	14	7 CC
23	7	6	4	10 CC
24	6	11	11	5 CC
25	7	9	4	12 CK
26	21	17	19	20
27	8	14	14	9 CC
28	20	22	12	31
29	15	16	20	12
30	12	11	11	12 CC
31	10	15	10	14 C

16.7
17.2
17.0

ANNUAL MEAN N 20.83 S 19.54 M 20.27

IMP 7 AND 8 ELECTRONS

APRIL 1978



IMP 7 AND 8 LOW ENERGY PROTONS

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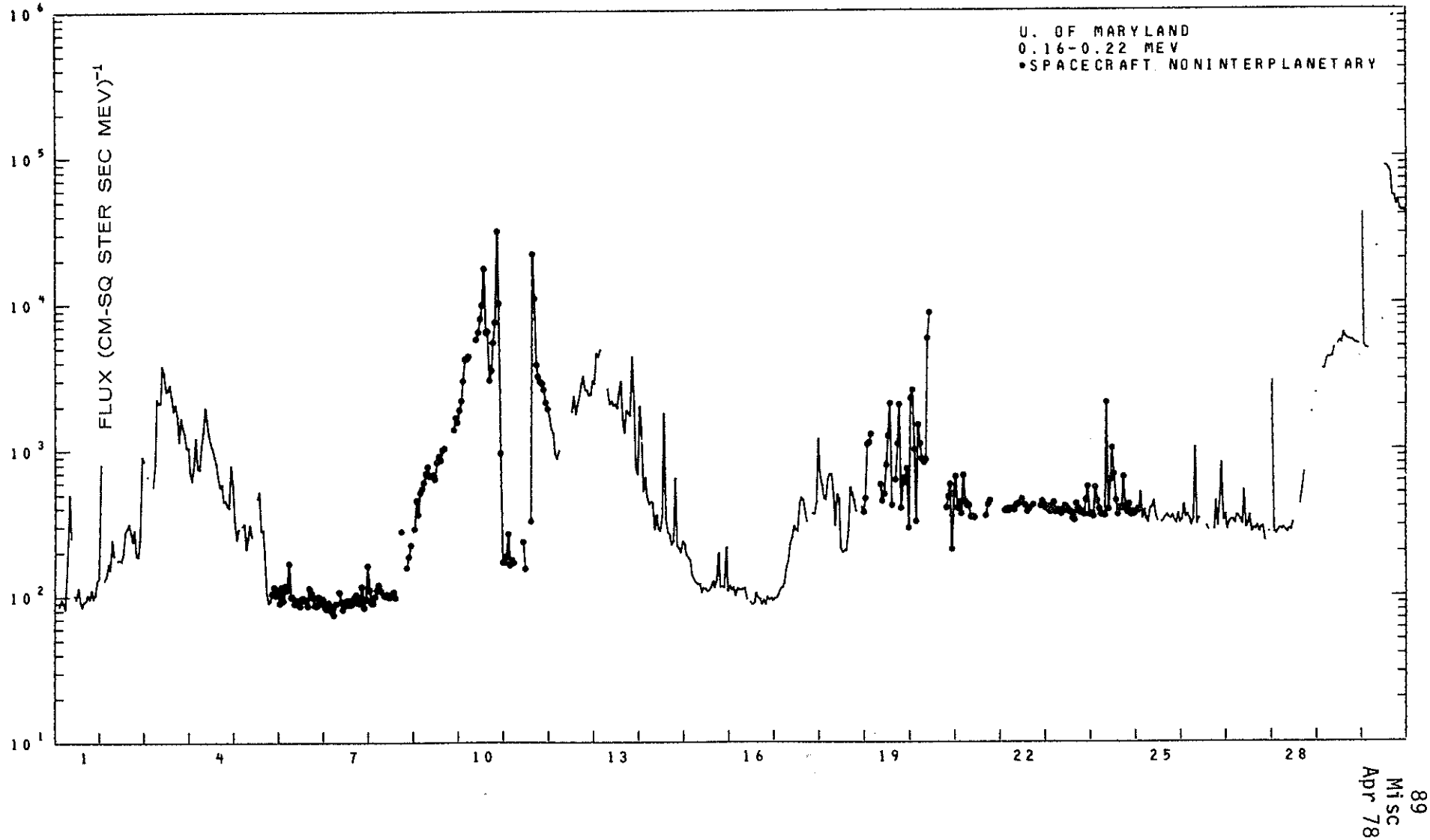

89
Misc
Apr 78

IMP 7 AND 8 INTERMEDIATE ENERGY PROTONS

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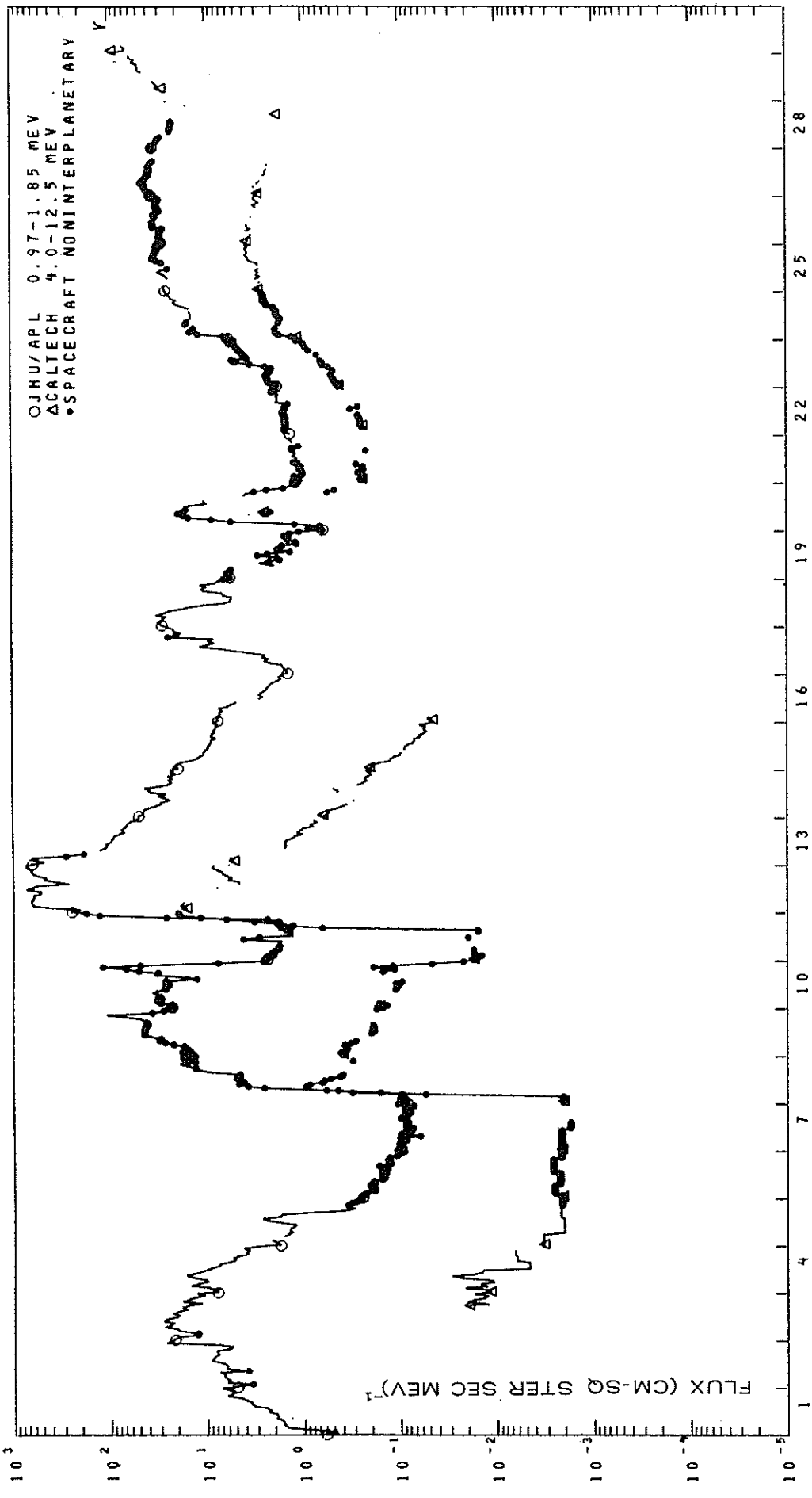

IMP 7 AND 8 HIGH ENERGY PROTONS

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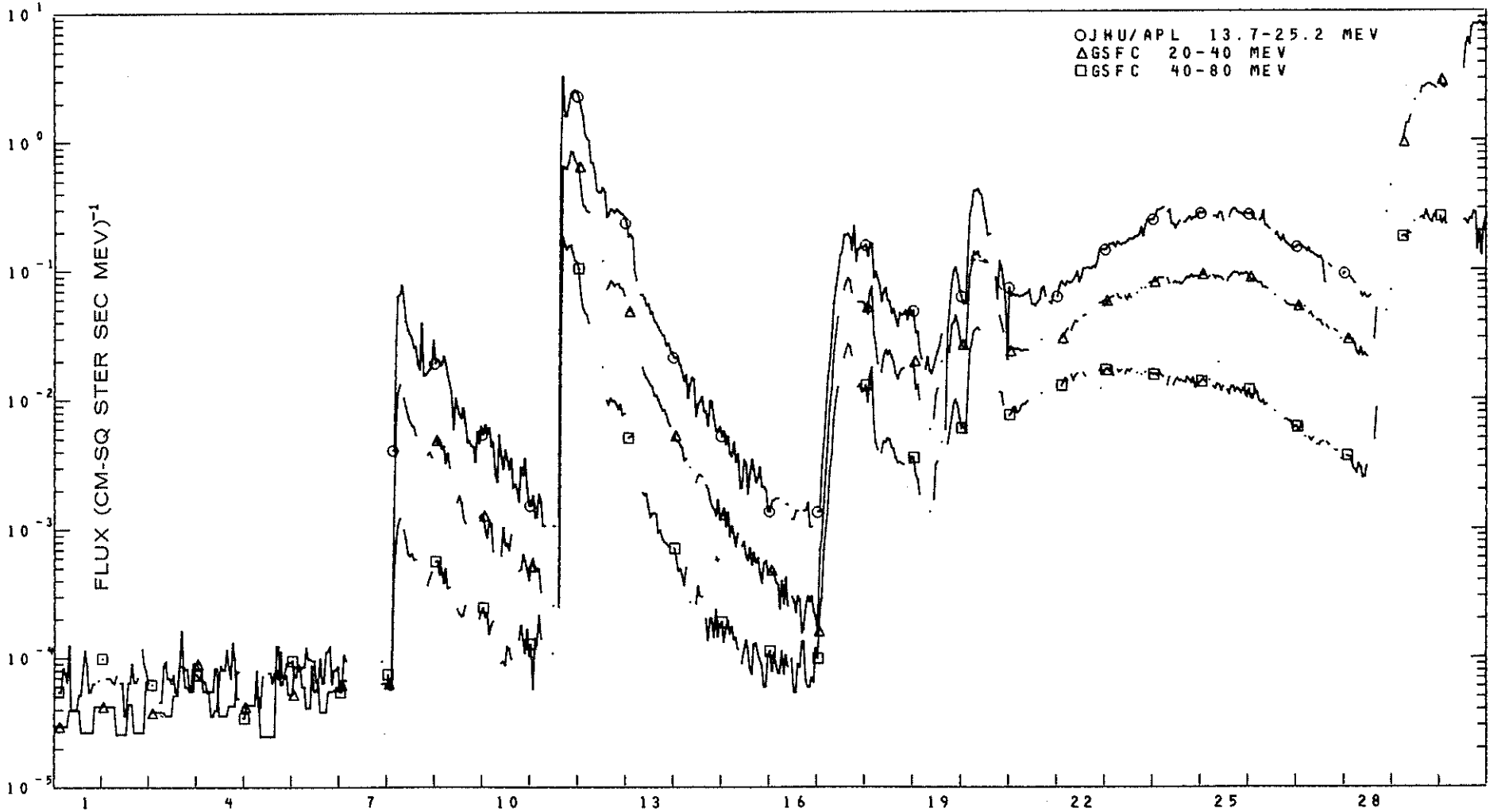
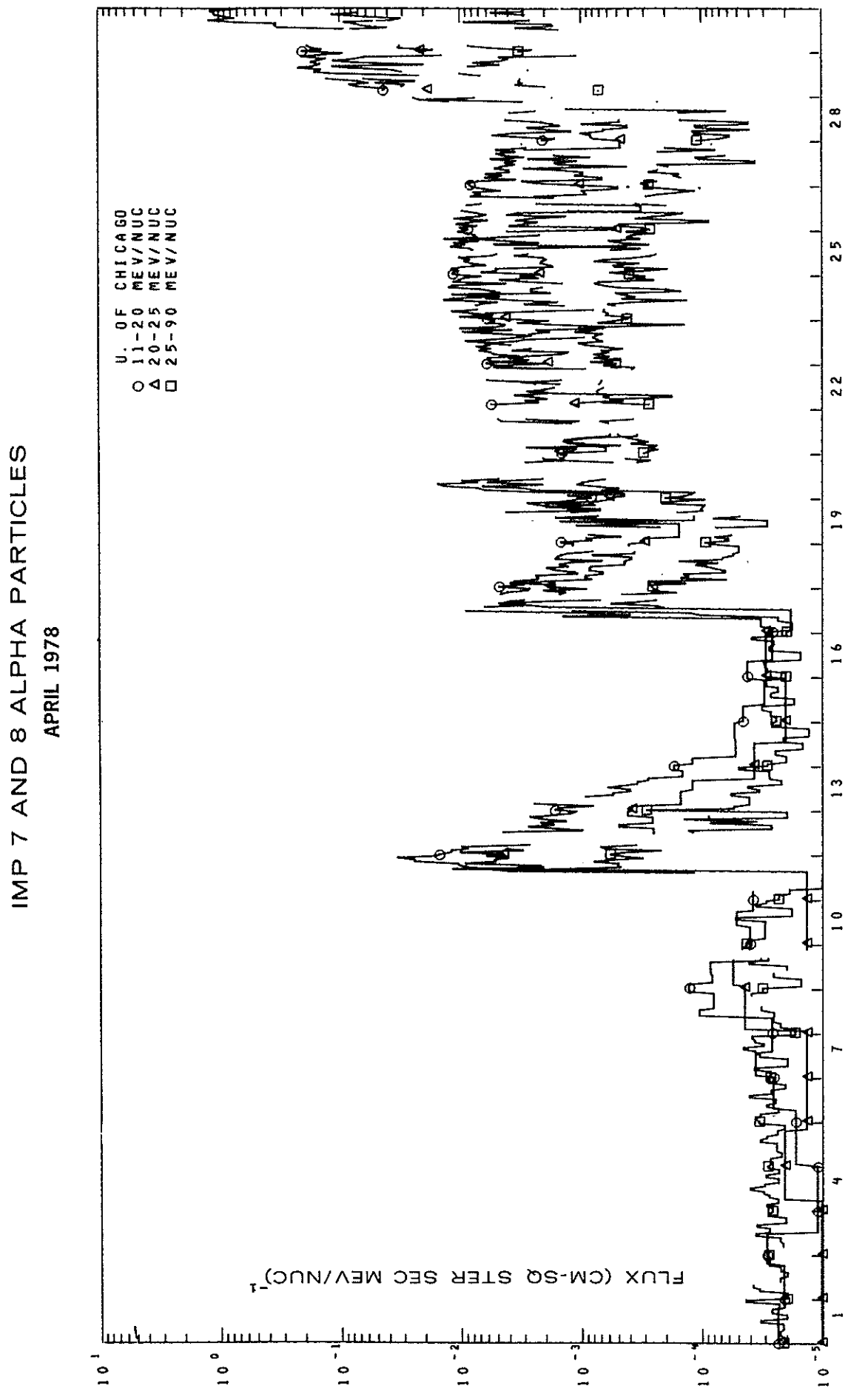


91
Misc
Apr 78


IMP 7 AND 8 ALPHA PARTICLES
APRIL 1978
U. OF CHICAGO
○ 11-20 MEV/NUC
△ 20-25 MEV/NUC
□ 25-90 MEV/NUC
FLUX (CM-SQ STER SEC MEV/NUC)$^{-1}$
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
1
4
7
10
13
16
19
22
25
28

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