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A catalogue of jovian decametric radio observations from January 1978 to December 1979

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Summary. — This catalogue contains a complete list of all Jupiter decameter (DAM) emissions recorded on the Nançay Spectrograph, over the period January 1978 to December 1979. A brief description of the equipment and its characteristics are presented. The observing program and the limitations arising from day-time observations are developed. A list of observing times as well as histograms showing the occurrence probability of emission are also given.

Key words : Jupiter — radio radiation — decametric.

This catalogue contains a complete list of all Jupiter decameter (DAM) emissions recorded on the Nançay radiospectrograph, over the period January 1978 to December 1979. A list of observing times as well as histograms showing the occurrence probability of emission are also given. The catalogue is available on magnetic tape and a copy can be provided on request.

Since the discovery, by Burke and Franklin (1955), of decametre wave jovian emission, regular ground-based observations of Jupiter have been conducted in the 10-40 MHz radio-band. These observations have been carried out at fixed frequencies at the University of Florida, at the University of Texas (Bozyan *et al.,* 1972) and at the Goddard Space Flight Center (Thieman, 1979) and with broad-band spectrographs by the University of Colorado at Boulder (Warwick *et al.,* 1975). The latter were discontinued in 1976.

Jupiter emission occurs only sporadically and exhibits periodicities on time scales from milliseconds to hours and even years. To have a complete picture of the phenomena, it is necessary to work on a large data set and, despite much research, we do not yet have a comprehensive explanation of the phenomenon.

Ground-based observations are often limited to night-time hours because of terrestrial interference and of the effects of solar activity. Broad-band observations can be carried out even during day-time since the spectra of solar radio events are easily distinct from the spectra of jovian origin. However, when the level of terrestrial interference is too high, the probability of observing the jovian emission decreases (this will be developed in a next section). Therefore, to increase the chances of favorable observing conditions, it is necessary to establish many monitoring programs performed in widely scattered observing sites. Moreover, since the Voyager Mission, the research on jovian radioemission has been stimulated and ground-based observations will be very useful for many comparative studies.

In this context, the Decameter Radio Astronomy Group of Meudon-Nançay has undertaken to carry out an extensive survey of Jupiter, by using a very high performance equipment in the decameter range (Boischot *et al.,* 1980). This survey, similar to that carried out by Warwick *et al.* (1975) but with better sensitivity and frequency resolution, is especially important as the Radio Astronomy Observatory at Boulder is no longer operative.

The next section presents a brief description of the equipment and its characteristics. This is followed by the observing program and the limitations arising from day-time observations. The final section presents the catalogue itself ; all of the Central Meridian Longitudes in the report are given in terms of system III (1965.0).

1. **Equipment.** — The equipment has already been described by Boischot *et al.* (1980). This consists of a large array of 144 antennas electronically steerable within the main lobe. The total covered area is close to 8 000 m^2. The array consists of two parts, 72 conical helices (or T.P. antennas) right-hand polarized and 72 conical helices left-hand polarized. The antennas are very broad-band (10 MHz to 120 MHz) and their directivity pattern has a half-power width of 90°, centered on the cone axis. The main characteristics of the array can be summarized as follows :

— The maximum gain (in the direction of the cone axis, which is inclined 20° South in the meridian plane) is 25 db, independent of the frequency except for the lowest frequencies ($\lesssim$ 30 MHz) where the distance between two consecutive antennas is less than a half wavelength. In this case, the gain decreases because the effective area cannot be much larger than the physical area covered by the array.

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— The array is fully steerable within the main lobe of the helices. The traking time is greater than ± 3^h to each side of the meridian transit of a source, with very little change in gain.

— The effective bandwidth is of the order of two octaves for declinations near the ecliptic plane, decreasing for larger declinations, positive or negative. The frequency range can be chosen anywhere between 10 and 120 MHz. The large array can be connected simultaneously to several receivers to give the dynamic spectrum of the jovian emission with different times and different spectral resolutions. The receivers are commercial spectrum analysers, i.e. swept-frequency spectrographs with adjustable frequency ranges, bandwidths and sweep rates. Outputs from the receivers can be directed to different recording and display devices, for example a *fac-simile* recorder (for a real-time survey of Jovian activity), and/or 35 mm films.

2. **Observations.** — The instruments described above are particularly suitable for monitoring the jovian emission since the planet can be tracked 8 hours daily throughout the year (which represents over 2800 hours of observation).

The frequency range of observation can be either 10 to 40 MHz or 20 to 40 MHz, depending on interference level and ionospheric decrease. During the night-time, the interference level is low, and the minimum frequency of observation can be as low as 10 MHz. During day-time, the interference level is fairly high and the minimum observing frequency may be about 20 MHz. In all cases, emission extends to the lowest observing frequency but often this cannot be distinguished if interference is present. The result of this is that :

- the lowest frequency of emission is not known,
- very few jovian emissions are observed at frequencies below 25 MHz.

This is well illustrated in figure 1 where we have plotted the probability of observing an emission against Universal Time (at Nançay, the local time is U.T. minus 8 min. 47 s). In the frequency range of 20-40 MHz, the probability for observing an emission is a maximum during the night-time from 21 U.T. to 8 U.T., and becomes very low during day-time. If we consider the different ranges of the maximum frequency of emission separately (Figs. 2a, b, c) we see, as might be expected, that the effect is more pronounced for emission occurring at low frequencies. It is still pronounced for emissions whose maximum frequency is within the range of 26-30 MHz (Fig. 2b) disappearing only for emissions reaching the highest frequencies (Fig. 2c). This has already been noticed for the observations of Boulder (Lecacheux, 1979).

Therefore, in using the catalogue, it is necessary to take into account these local time effects. Moreover, one must keep in mind that the lowest indicated frequency of emission is generally not intrinsic to the jovian emission (it has been shown from PRA-Voyager records that jovian emission extends down to hectometric and kilometric wavelengths). On the other hand the upper frequencies reported are characteristic of the jovian emission. During 717 observing days, 9 emissions reached frequencies as high as 39.5 MHz.

3. **The catalogue.** — The data are divided into two parts : one, on the left corresponds to the observations, the second on the right, to the emissions.

For each observing day, the catalogue lists the data (Year, Month, Day), the day of the year, the beginning and the end of the observing times (hours, minutes). The calculated CML (System III (1965.0) in degrees) the Io phase (in degrees) and the bandwidth within which the observations are carried out (in MHz).

When emissions are observed, we give the starting and ending times (hours, minutes) the calculated CML and Io phase (degrees) and the frequency range, in which this emission occurs (the lowest frequency is generally not intrinsic to the jovian emission, as noticed above). When an emission or an observation spans 24.00 U.T., the two corresponding days are indicated with a cut at 24.00 U.T. When several emissions are observed during the same day, they are listed separately and the characteristics of the observations are not repeated.

4. **Conclusion.** — Over 717 days of observations, we have recorded 1449 emissions. The occurrence diagram (Fig. 3a, b) shows the high probability of the Io-related sources and a peak of probability of the Non-Io emission in the range of $200° \leq \text{CML} \leq 360°$. By comparing the ground-based data (within ± 11° from the jovian noon) and the PRA-Voyager data after encounters (120° from the Sun direction) Leblanc (1981) and Alexander *et al.* (1981) showed that this emission is affected by local time effects. Other studies on the beaming and on the upper frequency limit of the emission (Barrow and Desch, 1980 ; Barrow, 1981) have made use of this catalogue.

To summarize, the synoptic monitoring from ground-based observations represents a valuable aid to the interpretation of Voyager findings and remains a useful tool for many statistical studies. This catalogue will be followed by, at least another covering 1980 observations.

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TABLE I. — *Catalogue.*

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
78/ 1/ 3	3	1930 - 24 0	248 - 51	119 - 157	10 - 50	2054 - 2156	299 - 336	131 - 139	10 - 30
78/ 1/ 4	4	0 0 - 230	51 - 142	157 - 178	10 - 50				
78/ 1/ 4	4	1930 - 24 0	39 - 202	322 - 1	10 - 50				
78/ 1/ 5	5	0 0 - 230	202 - 293	1 - 22	10 - 50				
78/ 1/ 5	5	1930 - 24 0	189 - 353	166 - 204	10 - 30	1959 - 2320	207 - 328	170 - 198	10 - 28
78/ 1/ 6	6	0 0 - 146	353 - 57	204 - 219	10 - 30				
78/ 1/ 6	6	19 0 - 24 0	322 - 143	5 - 48	10 - 40	22 9 - 24 0	76 - 143	32 - 48	10 - 20
78/ 1/ 7	7	0 0 - 2 0	143 - 216	48 - 65	10 - 40	0 0 - 039	143 - 167	48 - 53	10 - 20
78/ 1/ 7	7	19 0 - 24 0	113 - 294	209 - 251	10 - 40	1941 - 2013	137 - 157	215 - 219	10 - 35
						2117 - 24 0	195 - 294	228 - 251	10 - 35
78/ 1/ 8	8	0 0 - 056	294 - 328	251 - 259	10 - 40	0 0 - 056	294 - 328	251 - 259	10 - 35
78/ 1/ 9	9	1930 - 24 0	72 - 235	260 - 299	10 - 50				
78/ 1/10	10	0 0 - 230	235 - 326	299 - 320	10 - 50	010 - 219	241 - 319	300 - 318	10 - 20
78/ 1/10	10	1930 - 24 0	223 - 26	104 - 142	10 - 50	20 6 - 20 8	244 - 246	109 - 109	10 - 13
						2036 - 2242	262 - 339	113 - 131	10 - 20
78/ 1/11	11	0 0 - 230	26 - 116	142 - 163	10 - 50				
78/ 1/11	11	1930 - 24 0	13 - 176	308 - 346	10 - 50	2320 - 2330	152 - 158	340 - 341	10 - 15
78/ 1/12	12	0 0 - 138	176 - 236	346 - 0	10 - 50				
78/ 1/12	12	1845 - 24 0	137 - 327	145 - 189	10 - 40	2037 - 24 0	204 - 327	161 - 189	10 - 28
78/ 1/13	13	0 0 - 2 0	327 - 40	189 - 206	10 - 40	0 0 - 036	327 - 349	189 - 194	10 - 28
78/ 1/13	13	19 0 - 24 0	296 - 118	351 - 33	10 - 40	1933 - 2018	316 - 343	355 - 2	12 - 15
						2248 - 23 9	74 - 87	23 - 26	10 - 15
						2325 - 24 0	96 - 118	28 - 33	10 - 30
78/ 1/14	14	0 0 - 1 0	118 - 154	33 - 41	10 - 40	0 0 - 057	118 - 152	33 - 41	10 - 30
78/ 1/14	14	1845 - 24 0	78 - 268	192 - 237	10 - 40				
78/ 1/15	15	0 0 - 2 0	268 - 341	237 - 253	10 - 40				
78/ 1/15	15	19 0 - 24 0	237 - 59	38 - 80	10 - 40				
78/ 1/16	16	0 0 - 1 0	59 - 95	80 - 89	10 - 40				
78/ 1/16	16	19 0 - 24 0	28 - 209	241 - 284	10 - 40				
78/ 1/17	17	0 0 - 2 0	209 - 282	284 - 301	10 - 40				
78/ 1/17	17	1745 - 2153	133 - 283	74 - 109	10 - 40	1930 - 2153	197 - 283	89 - 109	10 - 27
78/ 1/18	18	1745 - 24 0	284 - 151	278 - 331	10 - 40	18 8 - 1911	298 - 336	281 - 290	10 - 23
78/ 1/19	19	0 0 - 2 0	151 - 223	331 - 348	10 - 40				
78/ 1/19	19	1730 - 2255	65 - 262	119 - 165	10 - 40	1839 - 2028	107 - 173	129 - 144	10 - 22
						22 8 - 2253	234 - 261	159 - 165	10 - 27
78/ 1/20	20	1730 - 24 0	216 - 92	323 - 18	10 - 40	18 6 - 1849	238 - 264	328 - 334	15 - 20
						2318 - 24 0	66 - 92	12 - 18	10 - 25
78/ 1/21	21	0 0 - 2 0	92 - 164	18 - 35	10 - 40	0 0 - 152	92 - 160	18 - 34	10 - 25
78/ 1/21	21	1730 - 24 0	7 - 242	166 - 222	10 - 40				
78/ 1/22	22	0 0 - 2 0	242 - 315	222 - 239	10 - 40				
78/ 1/22	22	1715 - 24 0	148 - 33	8 - 65	10 - 40	1859 - 22 8	211 - 325	23 - 49	10 - 30
78/ 1/23	23	0 0 - 2 0	33 - 106	65 - 82	10 - 40	1 5 - 157	72 - 104	74 - 82	15 - 25
78/ 1/23	23	17 0 - 24 0	290 - 184	209 - 269	10 - 30	2129 - 2130	92 - 93	247 - 248	17 - 20
78/ 1/24	24	0 0 - 2 0	184 - 256	269 - 286	10 - 30	136 - 149	242 - 250	282 - 284	10 - 25
78/ 1/24	24	17 0 - 1910	80 - 159	53 - 71	20 - 40				
78/ 1/24	24	1910 - 24 0	159 - 334	71 - 112	13 - 33				
78/ 1/25	25	0 0 - 2 0	334 - 47	112 - 129	13 - 33				
78/ 1/25	25	17 0 - 24 0	231 - 125	256 - 316	10 - 40	17 1 - 1750	231 - 261	257 - 264	20 - 24
78/ 1/26	26	0 0 - 2 0	125 - 197	316 - 333	10 - 40				
78/ 1/26	26	17 0 - 24 0	21 - 275	100 - 159	10 - 40	1935 - 1948	115 - 123	122 - 124	15 - 30
						2059 - 2110	166 - 173	134 - 135	10 - 20
						2338 - 2339	262 - 263	156 - 156	14 - 17
78/ 1/27	27	0 0 - 2 0	275 - 348	159 - 176	10 - 40				
78/ 1/27	27	17 0 - 24 0	172 - 66	304 - 3	10 - 40	1827 - 20 8	225 - 286	316 - 330	15 - 25
						2119 - 2135	329 - 338	340 - 342	10 - 15
78/ 1/28	28	0 0 - 2 0	66 - 138	3 - 20	10 - 40	029 - 035	83 - 87	7 - 8	15 - 25
78/ 1/28	28	17 0 - 24 0	323 - 216	147 - 207	10 - 40	2048 - 21 5	100 - 111	179 - 182	15 - 25

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
						2155 - 2226	141 - 160	189 - 193	15 - 25
						2259 - 24 0	180 - 216	198 - 207	10 - 30
78/ 1/29	29	0 0 - 2 0	216 - 289	207 - 223	10 - 40	0 0 - 144	216 - 279	207 - 221	10 - 30
78/ 1/29	29	1645 - 24 0	104 - 7	349 - 50	10 - 40	20 8 - 2145	227 - 285	17 - 31	10 - 31
						2229 - 2230	312 - 313	37 - 37	13 - 17
						2336 - 2338	352 - 354	47 - 47	10 - 13
78/ 1/30	30	0 0 - 130	7 - 61	50 - 63	10 - 40	0 3 - 110	9 - 49	50 - 60	10 - 20
78/ 1/30	30	1645 - 24 0	255 - 158	192 - 254	10 - 40				
78/ 1/31	31	0 0 - 2 0	158 - 230	254 - 271	10 - 40				
78/ 1/31	31	1645 - 19 6	45 - 130	36 - 56	15 - 35	18 5 - 1838	93 - 113	47 - 52	15 - 25
						20 4 - 2030	165 - 181	64 - 67	15 - 18
						22 8 - 24 0	240 - 308	81 - 97	15 - 25
						0 0 - 038	308 - 331	97 - 103	15 - 25
78/ 2/ 1	32	1630 - 24 0	187 - 99	237 - 301	10 - 40				
78/ 2/ 2	33	0 0 - 1 0	99 - 135	301 - 309	10 - 40				
78/ 2/ 2	33	1845 - 24 0	59 - 249	100 - 144	10 - 40	21 8 - 2114	145 - 149	120 - 121	20 - 23
						2338 - 24 0	236 - 249	141 - 144	10 - 23
78/ 2/ 3	34	0 0 - 1 0	249 - 285	144 - 153	10 - 40	0 0 - 046	249 - 277	144 - 151	10 - 23
78/ 2/ 3	34	1617 - 24 0	120 - 40	282 - 348	10 - 40	1954 - 2217	251 - 337	313 - 333	10 - 22
78/ 2/ 4	35	0 0 - 1 0	40 - 76	348 - 356	10 - 40				
78/ 2/ 4	35	1630 - 24 0	278 - 190	128 - 191	10 - 40	2223 - 2250	132 - 148	178 - 181	15 - 22
78/ 2/ 5	36	0 0 - 1 0	190 - 226	191 - 200	10 - 40	016 - 054	200 - 223	194 - 199	13 - 27
78/ 2/ 5	36	1612 - 24 0	58 - 341	329 - 35	10 - 40	1833 - 1921	143 - 172	349 - 355	11 - 22
						2112 - 2212	239 - 275	11 - 20	10 - 25
						23 2 - 2330	306 - 323	27 - 31	15 - 25
78/ 2/ 6	37	0 0 - 1 0	341 - 17	35 - 43	10 - 40				
78/ 2/ 6	37	1558 - 24 0	200 - 131	170 - 238	10 - 40	1839 - 19 9	297 - 315	193 - 197	15 - 23
						1958 - 1959	345 - 346	204 - 204	15 - 20
78/ 2/ 7	38	0 0 - 1 0	131 - 168	238 - 247	10 - 40				
78/ 2/ 7	38	1550 - 24 0	346 - 282	13 - 82	10 - 40	1847 - 19 7	93 - 105	38 - 40	20 - 28
78/ 2/ 8	39	0 0 - 1 0	282 - 318	82 - 90	10 - 40				
78/ 2/ 8	39	1620 - 24 0	154 - 72	220 - 285	10 - 40	1735 - 2019	200 - 299	231 - 254	10 - 34
78/ 2/ 9	40	0 0 - 020	72 - 84	285 - 288	10 - 40				
78/ 2/ 9	40	1715 - 24 0	338 - 223	72 - 129	15 - 35	1743 - 1744	355 - 356	76 - 76	25 - 35
						20 8 - 2012	83 - 85	96 - 97	15 - 30
						2059 - 21 1	113 - 115	103 - 104	28 - 35
						2335 - 24 0	208 - 223	125 - 129	15 - 22
78/ 2/10	41	0 0 - 018	223 - 234	129 - 131	15 - 35	0 0 - 018	223 - 234	129 - 131	15 - 22
78/ 2/10	41	16 5 - 22 5	86 - 304	265 - 316	10 - 40	2027 - 2129	245 - 282	302 - 311	15 - 25
78/ 2/11	42	16 8 - 24 0	238 - 164	109 - 176	10 - 40	1626 - 1635	249 - 255	112 - 113	20 - 25
						1824 - 1834	321 - 327	128 - 130	15 - 20
						2235 - 2353	112 - 160	164 - 175	10 - 20
78/ 2/12	43	0 0 - 0 6	164 - 169	176 - 177	10 - 40				
78/ 2/12	43	16 4 - 24 0	27 - 3[illegible]	312 - 19	10 - 40	2217 - 2251	252 - 273	5 - 10	10 - 20
78/ 2/13	44	0 0 - 0 4	314 - 317	19 - 20	10 - 40				
78/ 2/13	44	1557 - 24 0	173 - 105	155 - 223	10 - 40				
78/ 2/14	45	0 0 - 030	105 - 123	223 - 227	10 - 40				
78/ 2/14	45	1546 - 24 0	317 - 255	357 - 66	10 - 40	2027 - 2045	127 - 137	36 - 39	15 - 27
						2255 - 24 0	216 - 255	57 - 66	13 - 25
78/ 2/15	46	0 0 - 030	255 - 273	66 - 71	10 - 40	0 0 - 028	255 - 272	66 - 70	13 - 25
78/ 2/15	46	1546 - 24 0	107 - 46	200 - 270	10 - 40	1811 - 2129	195 - 314	221 - 249	15 - 26
78/ 2/16	47	0 0 - 030	46 - 64	270 - 274	10 - 40				
78/ 2/16	47	1543 - 24 0	256 - 196	43 - 113	15 - 35	2047 - 22 2	80 - 125	86 - 97	17 - 35
78/ 2/17	48	0 0 - 030	196 - 214	113 - 118	15 - 35				
78/ 2/17	48	1542 - 24 0	46 - 347	246 - 317	10 - 40	2020 - 22 4	214 - 277	286 - 300	15 - 25
78/ 2/18	49	0 0 - 030	347 - 5	317 - 321	10 - 40				
78/ 2/18	49	1640 - 1819	231 - 291	98 - 112	10 - 40				

TABLE I *(continued).*

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
78/ 2/19	50	1630 - 24 0	16 - 288	300 - 4	10 - 40	2316 - 24 0	261 - 288	358 - 4	17 - 30
78/ 2/20	51	0 0 - 1 0	288 - 324	4 - 12	10 - 40				
78/ 2/20	51	1621 - 24 0	161 - 78	142 - 207	10 - 40				
78/ 2/21	52	1620 - 24 0	311 - 229	346 - 51	15 - 35				
78/ 2/22	53	1613 - 21 4	97 - 273	188 - 229	10 - 40	19 4 - 2027	200 - 250	212 - 224	18 - 30
78/ 2/23	54	1738 - 24 0	299 - 169	44 - 98	10 - 40				
78/ 2/24	55	1524 - 24 0	8 - 320	228 - 301	10 - 40				
78/ 2/25	56	1520 - 24 0	156 - 110	71 - 145	10 - 60				
78/ 2/26	57	1520 - 2345	306 - 252	275 - 346	10 - 60				
78/ 2/27	58	1555 - 23 8	118 - 20	123 - 184	10 - 60				
78/ 2/28	59	1617 - 23 0	282 - 165	330 - 26	10 - 60				
78/ 3/ 1	60	1530 - 23 0	44 - 316	166 - 230	10 - 60	1733 - 1734	118 - 119	184 - 184	26 - 27
						2017 - 2259	217 - 315	207 - 230	18 - 32
78/ 3/ 2	61	17 0 - 23 0	249 - 106	22 - 73	10 - 60	17 8 - 1721	254 - 261	24 - 25	18 - 28
						2151 - 2153	65 - 66	64 - 64	18 - 20
						2245 - 23 0	97 - 106	71 - 73	18 - 30
78/ 3/ 3	62	17 0 - 23 0	39 - 257	226 - 277	10 - 60	1929 - 1938	129 - 135	247 - 248	18 - 32
						2223 - 2248	234 - 249	272 - 275	18 - 25
78/ 3/ 4	63	1520 - 2315	129 - 56	55 - 122	10 - 60				
78/ 3/ 5	64	1520 - 1935	279 - 74	259 - 295	10 - 60				
78/ 3/ 6	65	1533 - 23 0	78 - 348	104 - 167	10 - 60	2012 - 2054	246 - 272	143 - 149	18 - 30
78/ 3/ 7	66	1543 - 23 0	234 - 138	309 - 10	10 - 60				
78/ 3/ 8	67	1528 - 23 0	16 - 289	150 - 214	10 - 60				
78/ 3/ 9	68	1550 - 23 0	179 - 79	357 - 57	10 - 60				
78/ 3/10	69	1533 - 23 0	319 - 230	198 - 261	10 - 60	2230 - 2236	211 - 215	256 - 257	18 - 22
78/ 3/11	70	1520 - 23 0	102 - 20	39 - 104	10 - 60				
78/ 3/12	71	15 4 - 23 0	243 - 170	240 - 308	10 - 60	1515 - 1516	249 - 250	242 - 242	20 - 23
78/ 3/13	72	1530 - 23 0	49 - 321	87 - 151	10 - 60	16 7 - 16 9	71 - 72	93 - 93	30 - 30
						1744 - 1816	130 - 149	106 - 111	20 - 32
						2019 - 2115	223 - 257	128 - 136	18 - 22
78/ 3/14	73	1534 - 23 0	202 - 111	291 - 354	10 - 60				
78/ 3/15	74	1542 - 2230	357 - 243	136 - 194	10 - 60	2134 - 2230	210 - 243	186 - 194	18 - 28
78/ 3/16	75	1512 - 2230	129 - 34	335 - 37	10 - 60	1756 - 1825	228 - 246	358 - 2	20 - 25
78/ 3/17	76	1446 - 2230	264 - 184	175 - 240	10 - 60				
78/ 3/18	77	1524 - 2230	77 - 334	24 - 84	18 - 38	20 6 - 2041	247 - 269	63 - 68	18 - 29
						22 5 - 2216	319 - 326	80 - 82	20 - 25
78/ 3/19	78	14 1 - 2230	177 - 125	215 - 287	18 - 38	1523 - 1614	227 - 258	227 - 234	22 - 27
						1714 - 1722	294 - 299	242 - 244	24 - 26
78/ 3/20	79	1515 - 2230	12 - 275	69 - 130	18 - 38	1829 - 1843	130 - 138	96 - 98	27 - 38
78/ 3/21	80	1523 - 2230	168 - 66	274 - 334	18 - 38	1744 - 1755	253 - 259	293 - 295	24 - 25
78/ 3/22	81	15 5 - 2230	307 - 216	114 - 177	18 - 38	1914 - 1924	97 - 104	150 - 151	30 - 35
78/ 3/23	82	15 4 - 22 0	97 - 348	318 - 16	18 - 38	1854 - 21 0	236 - 312	350 - 8	18 - 32
78/ 3/24	83	1518 - 22 0	256 - 139	163 - 220	18 - 38				
78/ 3/25	84	1540 - 1932	59 - 199	9 - 42	18 - 38				
78/ 3/26	85	1517 - 1836	196 - 316	210 - 238	18 - 38	1544 - 1646	212 - 249	213 - 222	22 - 27
78/ 3/27	86	1519 - 22 0	347 - 230	53 - 110	18 - 38	1735 - 2110	69 - 199	72 - 103	18 - 32
78/ 3/28	87	1439 - 22 0	113 - 20	251 - 313	18 - 38	1839 - 1856	258 - 269	285 - 287	18 - 25
78/ 3/29	88	1439 - 22 0	264 - 170	94 - 157	18 - 38				
78/ 3/30	89	1416 - 2145	40 - 312	294 - 358	18 - 38				
78/ 3/31	90	1454 - 2145	214 - 102	143 - 201	18 - 38	1543 - 1622	243 - 267	150 - 156	22 - 24
78/ 4/ 1	91	1436 - 2145	353 - 252	344 - 45	18 - 38				
78/ 4/ 2	92	1420 - 2145	134 - 43	185 - 248	18 - 38	1614 - 1745	203 - 258	201 - 214	25 - 30
78/ 4/ 3	93	1320 - 21 0	248 - 166	20 - 85	18 - 38	1343 - 1350	262 - 266	23 - 24	30 - 30
						19 4 - 1933	96 - 113	63 - 73	24 - 28
78/ 4/ 4	94	1311 - 21 0	33 - 316	222 - 288	18 - 38	1839 - 21 0	231 - 316	268 - 288	20 - 29
78/ 4/ 5	95	1311 - 21 0	183 - 106	65 - 132	18 - 38	1433 - 1512	232 - 256	77 - 82	18 - 23
78/ 4/ 6	96	14 5 - 21 0	6 - 257	276 - 335	18 - 38	2024 - 2030	235 - 239	330 - 331	18 - 20
78/ 4/ 7	97	14 6 - 21 0	157 - 47	120 - 178	18 - 38				
78/ 4/ 8	98	1327 - 18 6	284 - 92	318 - 357	18 - 38				
78/ 4/10	100	13 7 - 1912	212 - 73	1 - 53	18 - 38				
78/ 4/11	101	1243 - 21 0	348 - 208	201 - 272	18 - 38	1839 - 2053	203 - 284	252 - 271	18 - 35
78/ 4/12	102	1235 - 21 0	133 - 79	44 - 115	18 - 38				
78/ 4/13	103	13 3 - 21 0	301 - 229	251 - 318	18 - 38				
78/ 4/14	104	1252 - 2015	84 - 352	93 - 155	18 - 38	1344 - 1354	116 - 122	100 - 101	20 - 37
78/ 4/15	105	1215 - 2015	212 - 142	291 - 359	18 - 38				
78/ 4/16	106	1215 - 1552	3 - 134	134 - 165	18 - 38				
78/ 4/17	107	1225 - 2045	159 - 101	339 - 49	18 - 38				
78/ 4/18	108	1243 - 2115	320 - 270	185 - 257	18 - 38				
78/ 4/19	109	1230 - 2045	103 - 42	26 - 96	18 - 38				
78/ 4/20	110	1217 - 2045	245 - 192	228 - 299	18 - 38	1217 - 1246	245 - 263	228 - 232	20 - 32
						1339 - 14 8	295 - 312	239 - 243	20 - 30
78/ 4/21	111	12 0 - 2045	25 - 342	69 - 143	18 - 38	1339 - 1639	85 - 194	83 - 108	20 - 37
78/ 4/22	112	12 2 - 2030	177 - 124	272 - 344	18 - 38				
78/ 4/23	113	1154 - 2030	322 - 274	114 - 187	18 - 38				
78/ 4/24	114	1154 - 2030	112 - 64	318 - 30	18 - 38				
78/ 4/25	115	11 9 - 2030	235 - 215	155 - 234	18 - 38				
78/ 4/26	116	1154 - 2015	53 - 356	4 - 75	18 - 38				
78/ 4/27	117	1154 - 2015	203 - 146	208 - 278	18 - 38	1158 - 1319	206 - 255	208 - 220	20 - 30
						1418 - 1513	290 - 324	228 - 236	25 - 36
78/ 4/28	118	1155 - 20 0	354 - 287	51 - 119	18 - 38	1425 - 1428	85 - 87	72 - 73	28 - 29
						1446 - 1710	98 - 185	75 - 95	18 - 32
78/ 4/29	119	1130 - 20 0	129 - 78	251 - 323	18 - 38				
78/ 4/30	120	1130 - 20 0	280 - 228	94 - 166	18 - 38	1628 - 1633	100 - 103	136 - 137	25 - 28
78/ 5/ 1	121	1130 - 20 0	70 - 18	297 - 9	18 - 38				
78/ 5/ 2	122	1130 - 20 0	220 - 168	141 - 213	18 - 38	1222 - 1228	252 - 255	148 - 149	23 - 25
78/ 5/ 3	123	1124 - 1945	7 - 310	343 - 54	18 - 38				
78/ 5/ 4	124	1115 - 1945	152 - 100	185 - 257	18 - 38	1348 - 1412	244 - 259	207 - 210	22 - 29
78/ 5/ 5	125	1251 - 1945	0 - 250	42 - 100	18 - 38	1454 - 1458	74 - 77	59 - 60	28 - 30
78/ 5/ 6	126	1228 - 1945	136 - 41	242 - 304	18 - 38				
78/ 5/ 7	127	11 9 - 1820	239 - 140	74 - 135	18 - 38				
78/ 5/ 8	128	11 5 - 1945	27 - 341	277 - 350	18 - 38				
78/ 5/ 9	129	11 5 - 1945	177 - 131	120 - 194	18 - 38				
78/ 5/10	130	1252 - 1945	32 - 282	339 - 37	18 - 38				
78/ 5/11	131	1054 - 1913	111 - 53	165 - 236	18 - 38	1328 - 1342	204 - 213	187 - 189	20 - 25
78/ 5/12	132	1054 - 1930	261 - 213	8 - 81	18 - 38				
78/ 5/13	133	1050 - 15 0	49 - 200	211 - 246	18 - 38	1533 - 1613	220 - 244	251 - 257	25 - 35
78/ 5/14	134	1040 - 1730	194 - 81	53 - 111	18 - 38				
78/ 5/15	135	1113 - 1915	4 - 295	261 - 329	18 - 38				
78/ 5/16	136	1046 - 1930	138 - 94	100 - 174	18 - 38				
78/ 5/17	137	1043 - 1930	286 - 245	303 - 18	18 - 38				
78/ 5/18	138	1038 - 1930	73 - 35	146 - 221	18 - 38	1122 - 1123	100 - 101	152 - 152	25 - 27
						1151 - 1155	118 - 120	156 - 157	25 - 29
						1222 - 1235	136 - 144	161 - 162	23 - 31
						1526 - 1530	248 - 250	187 - 187	22 - 25
78/ 5/19	139	1033 - 1823	221 - 145	348 - 55	18 - 38	1045 - 1048	228 - 230	350 - 351	21 - 23
78/ 5/20	140	1021 - 19 0	4 - 317	190 - 263	18 - 38	1533 - 1717	192 - 255	234 - 249	20 - 33
78/ 5/21	141	1023 - 1915	155 - 117	34 - 109	18 - 38	1239 - 1324	237 - 265	53 - 59	21 - 24
78/ 5/22	142	1023 - 19 0	306 - 258	237 - 310	18 - 38	1031 - 1043	310 - 318	238 - 240	23 - 28
78/ 5/23	143	1018 - 19 0	93 - 48	79 - 153	18 - 38	1021 - 1459	95 - 263	80 - 119	20 - 37
78/ 5/24	144	1030 - 19 0	250 - 199	284 - 356	18 - 38	1559 - 1612	89 - 97	331 - 333	26 - 28
						1730 - 1734	144 - 147	344 - 344	24 - 26
78/ 5/25	145	1018 - 19 0	33 - 349	126 - 200	18 - 38	15 2 - 1620	205 - 252	166 - 177	22 - 28
						1719 - 1749	288 - 306	185 - 190	22 - 28
78/ 5/26	146	1019 - 19 0	184 - 139	329 - 43	18 - 38				

TABLE I *(continued).*

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
78/ 5/27	147	10 5 - 1845	326 - 280	171 - 244	18 - 38	1636 - 18 0	202 - 253	226 - 238	22 - 30
78/ 5/28	148	1017 - 20 0	124 - 116	16 - 98	18 - 38				
78/ 5/29	149	10 4 - 1220	266 - 348	217 - 236	18 - 38	1129 - 1148	317 - 329	229 - 232	23 - 25
78/ 5/31	151	951 - 1830	199 - 152	262 - 335	18 - 38				
78/ 6/ 1	152	1016 - 1830	4 - 303	109 - 178	18 - 38	1627 - 1640	228 - 236	161 - 163	25 - 27
78/ 6/ 2	153	1456 - 1830	324 - 93	351 - 22	18 - 38				
78/ 6/ 3	154	10 1 - 1830	296 - 243	153 - 225	18 - 38				
78/ 6/ 4	155	945 - 1830	76 - 34	354 - 68	18 - 38				
78/ 6/ 5	156	938 - 1830	222 - 184	196 - 271	18 - 38				
78/ 6/ 6	157	938 - 1830	13 - 334	40 - 115	18 - 38	12 1 - 12 8	99 - 103	60 - 61	25 - 30
78/ 6/ 7	158	940 - 1830	164 - 124	243 - 318	18 - 38				
78/ 6/ 8	159	930 - 18 0	308 - 257	85 - 157	18 - 38				
78/ 6/ 9	160	921 - 18 0	93 - 47	287 - 0	18 - 38				
78/ 6/10	161	921 - 18 0	243 - 197	130 - 203	18 - 38				
78/ 6/11	162	930 - 18 0	39 - 347	335 - 47	18 - 38				
78/ 6/12	163	910 - 18 0	177 - 138	175 - 250	18 - 38				
78/ 6/13	164	941 - 18 0	346 - 288	23 - 93	18 - 38				
78/ 6/14	165	925 - 18 0	127 - 78	224 - 297	18 - 38	1225 - 1242	236 - 246	249 - 252	25 - 36
78/ 6/15	166	910 - 18 0	268 - 229	65 - 140	18 - 38				
78/ 6/16	167	9 4 - 1620	55 - 318	267 - 329	18 - 38				
78/ 6/17	168	9 8 - 1745	208 - 160	111 - 184	18 - 38				
78/ 6/18	169	910 - 1730	359 - 301	315 - 25	18 - 38				
78/ 6/19	170	859 - 1730	143 - 92	157 - 229	18 - 38	12 7 - 1215	256 - 261	183 - 184	21 - 25
78/ 6/20	171	859 - 1730	293 - 242	0 - 72	18 - 38				
78/ 6/21	172	1035 - 1830	141 - 68	217 - 284	18 - 38	1249 - 1350	222 - 259	235 - 244	23 - 33
78/ 6/22	173	1022 - 1630	284 - 146	58 - 110	18 - 38	1448 - 1548	85 - 121	96 - 104	23 - 33
78/ 6/23	174	948 - 1435	54 - 227	256 - 297	18 - 38				
78/ 6/24	175	851 - 1715	169 - 114	92 - 163	18 - 38	849 - 915	168 - 184	91 - 95	23 - 28
						1034 - 11 1	232 - 248	106 - 110	22 - 28
78/ 6/25	176	847 - 1715	317 - 264	294 - 6	18 - 38				
78/ 6/26	177	845 - 1715	106 - 55	137 - 209	18 - 38				
78/ 6/27	178	845 - 1715	257 - 205	341 - 53	18 - 38				
78/ 6/28	179	836 - 17 0	42 - 346	183 - 254	18 - 38	1130 - 1148	147 - 158	207 - 210	23 - 30
						13 5 - 1420	204 - 249	221 - 231	23 - 31
78/ 6/29	180	1051 - 17 0	273 - 136	45 - 97	18 - 38	1543 - 17 0	90 - 136	86 - 97	21 - 30
78/ 6/30	181	831 - 1220	339 - 118	228 - 261	20 - 40				
78/ 7/ 1	182	916 - 1651	157 - 72	78 - 142	20 - 40	9 7 - 954	151 - 180	77 - 83	21 - 25
78/ 7/ 2	183	835 - 17 0	282 - 227	276 - 347	20 - 40	844 - 852	288 - 292	277 - 278	21 - 25
						922 - 932	311 - 317	282 - 284	21 - 23
78/ 7/ 3	184	827 - 1645	68 - 9	118 - 188	20 - 40				
78/ 7/ 4	185	814 - 1645	210 - 159	319 - 31	20 - 40				
78/ 7/ 5	186	818 - 1645	3 - 309	163 - 234	20 - 40	14 0 - 15 6	209 - 249	211 - 221	20 - 30
78/ 7/ 6	187	835 - 1656	163 - 106	9 - 79	20 - 40	1121 - 1143	264 - 277	32 - 35	20 - 30
78/ 7/ 7	188	820 - 1630	305 - 241	210 - 279	20 - 40				
78/ 7/ 8	189	8 3 - 1630	85 - 31	51 - 122	20 - 40				
78/ 7/ 9	190	7 7 - 1630	201 - 181	246 - 325	20 - 40				
78/ 7/13	194	755 - 1545	111 - 35	346 - 52	20 - 40				
78/ 7/14	195	745 - 1545	256 - 186	188 - 255	20 - 40				
78/ 7/15	196	745 - 1545	46 - 336	31 - 99	20 - 40				
78/ 7/16	197	745 - 1545	196 - 126	234 - 302	20 - 40	750 - 926	199 - 257	235 - 248	22 - 35
78/ 7/17	198	740 - 16 0	344 - 286	77 - 147	20 - 40				
78/ 7/18	199	746 - 1623	137 - 90	281 - 354	20 - 40				
78/ 7/19	200	10 8 - 16 0	14 - 226	144 - 194	20 - 40				
78/ 7/20	201	755 - 16 0	84 - 17	329 - 37	20 - 40				
78/ 7/21	202	8 8 - 16 8	242 - 172	174 - 241	20 - 40	8 9 - 838	242 - 260	174 - 178	23 - 28
78/ 7/22	203	753 - 1554	23 - 314	15 - 83	20 - 40				
78/ 7/23	204	730 - 14 2	159 - 36	215 - 270	20 - 40	918 - 10 5	225 - 253	230 - 237	22 - 31

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
78/ 7/24	205	715 - 1555	301 - 255	56 - 129	20 - 40	1127 - 1231	93 - 132	92 - 101	20 - 38
78/ 7/25	206	728 - 1545	99 - 39	261 - 331	20 - 40				
78/ 7/26	207	732 - 15 0	252 - 162	105 - 168	20 - 40				
78/ 7/27	208	729 - 1530	40 - 331	308 - 16	20 - 40				
78/ 7/28	209	1149 - 1530	348 - 121	188 - 219	20 - 40				
78/ 7/29	210	7 0 - 1530	323 - 271	350 - 62	20 - 40				
78/ 7/30	211	741 - 15 0	138 - 44	199 - 261	20 - 40				
78/ 7/31	212	712 - 1515	271 - 203	39 - 107	20 - 40	1210 - 1443	91 - 184	81 - 102	23 - 37
78/ 8/ 1	213	724 - 1442	69 - 333	243 - 305	20 - 40				
78/ 8/ 2	214	7 4 - 1442	207 - 124	84 - 149	20 - 40				
78/ 8/ 3	215	947 - 1442	96 - 274	310 - 352	20 - 40				
78/ 8/ 4	216	651 - 1442	140 - 64	129 - 195	20 - 40				
78/ 8/ 5	217	626 - 1442	275 - 215	328 - 38	20 - 40				
78/ 8/ 6	218	655 - 1442	83 - 5	176 - 242	20 - 40	1221 - 1314	280 - 312	222 - 229	23 - 30
78/ 8/ 7	219	630 - 1455	218 - 163	16 - 87	20 - 40	1235 - 1455	79 - 163	67 - 87	22 - 31
78/ 8/ 8	220	630 - 1430	8 - 299	219 - 287	20 - 40				
78/ 8/ 9	221	643 - 1430	167 - 89	64 - 130	20 - 40				
78/ 8/10	222	630 - 1420	309 - 233	265 - 332	20 - 40				
78/ 8/11	223	630 - 1345	100 - 2	109 - 170	20 - 40				
78/ 8/12	224	620 - 1420	244 - 174	311 - 18	20 - 40				
78/ 8/13	225	620 - 1420	34 - 324	154 - 222	20 - 40	1137 - 12 5	226 - 243	199 - 202	23 - 27
78/ 8/14	226	620 - 1420	185 - 115	357 - 65	20 - 40				
78/ 8/15	227	620 - 1420	335 - 265	200 - 268	20 - 40				
78/ 8/16	228	624 - 1420	128 - 55	44 - 111	20 - 40				
78/ 8/17	229	6 0 - 14 0	264 - 194	244 - 312	20 - 40				
78/ 8/18	230	6 0 - 14 0	54 - 344	87 - 155	20 - 40				
78/ 8/19	231	6 0 - 14 0	204 - 134	291 - 358	20 - 40	749 - 828	270 - 294	306 - 312	26 - 29
78/ 8/20	232	6 0 - 14 0	355 - 285	134 - 202	20 - 40				
78/ 8/21	233	6 0 - 1350	145 - 69	337 - 44	20 - 40				
78/ 8/22	234	550 - 1350	289 - 219	179 - 247	20 - 40				
78/ 8/23	235	550 - 1345	80 - 7	22 - 89	20 - 40				
78/ 8/24	236	540 - 1345	224 - 157	224 - 293	20 - 40	546 - 6 0	228 - 236	225 - 227	26 - 28
78/ 8/25	237	540 - 1345	14 - 308	68 - 136	20 - 40	719 - 734	74 - 83	82 - 84	22 - 33
						734 - 921	83 - 148	84 - 99	22 - 39
78/ 8/26	238	549 - 1345	170 - 98	272 - 339	20 - 40				
78/ 8/27	239	6 9 - 1345	333 - 248	118 - 183	20 - 40	1135 - 1154	170 - 181	164 - 167	23 - 27
78/ 8/28	240	530 - 1337	99 - 34	316 - 25	20 - 40	1011 - 1048	269 - 292	356 - 1	20 - 30
78/ 8/29	241	530 - 1337	250 - 184	159 - 228	20 - 40				
78/ 8/30	242	530 - 1337	40 - 335	3 - 71	20 - 40	1211 - 1232	283 - 295	59 - 62	26 - 29
78/ 8/31	243	519 - 1319	184 - 114	204 - 272	20 - 40	548 - 733	201 - 265	209 - 223	20 - 29
78/ 9/ 1	244	519 - 1319	334 - 264	48 - 116	20 - 40	756 - 11 8	69 - 185	70 - 97	21 - 35
78/ 9/ 2	245	513 - 1313	121 - 51	250 - 318	20 - 40				
78/ 9/ 3	246	553 - 1313	296 - 202	99 - 161	20 - 40				
78/ 9/ 4	247	5 0 - 1027	54 - 252	295 - 341	20 - 40				
78/ 9/ 5	248	628 - 13 0	258 - 135	151 - 206	20 - 40				
78/ 9/ 6	249	628 - 13 0	48 - 285	354 - 49	20 - 40				
78/ 9/ 7	250	645 - 13 0	209 - 75	200 - 253	20 - 40				
78/ 9/ 8	251	635 - 13 0	353 - 226	42 - 96	20 - 40	825 - 1132	60 - 173	57 - 84	21 - 28
78/ 9/ 9	252	810 - 1331	201 - 35	258 - 304	20 - 40				
78/ 9/10	253	828 - 1350	2 - 185	104 - 147	20 - 40				
78/ 9/11	254	5 0 - 13 0	27 - 317	278 - 346	20 - 40	1058 - 11 7	243 - 249	329 - 330	23 - 27
78/ 9/12	255	633 - 13 0	233 - 107	135 - 189	20 - 40				
78/ 9/13	256	638 - 1253	27 - 254	339 - 32	20 - 40				
78/ 9/15	258	12 7 - 13 0	167 - 199	72 - 79	20 - 40				
78/ 9/16	259	543 - 13 0	85 - 349	221 - 283	20 - 40	857 - 1021	202 - 253	248 - 260	23 - 36
78/ 9/17	260	6 1 - 1136	246 - 89	67 - 114	20 - 40				
78/ 9/18	261	626 - 1245	52 - 281	274 - 327	20 - 40				

TABLE I *(continued)*.

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
78/ 9/19	262	416 - 13 2	124 - 81	99 - 173	20 - 40	416 - 431	124 - 133	99 - 101	27 - 38
78/ 9/20	263	633 - 16 0	357 - 340	321 - 41	20 - 40				
78/ 9/21	264	6 1 - 1245	128 - 12	160 - 217	20 - 40	812 - 9 2	207 - 237	179 - 186	24 - 29
78/ 9/22	265	330 - 1245	187 - 163	342 - 60	20 - 40				
78/ 9/23	266	330 - 1223	337 - 300	185 - 261	20 - 40	923 - 11 9	191 - 255	235 - 250	20 - 40
78/ 9/24	267	348 - 12 6	139 - 80	31 - 102	20 - 40				
78/ 9/25	268	4 0 - 1230	296 - 245	236 - 308	20 - 40	4 5 - 518	299 - 344	237 - 247	20 - 29
78/ 9/26	269	346 - 1230	78 - 35	78 - 152	20 - 40	4 2 - 655	88 - 193	80 - 104	20 - 35
78/ 9/27	270	350 - 1230	231 - 186	282 - 355	20 - 40				
78/ 9/28	271	637 - 1220	123 - 330	148 - 197	20 - 40	916 - 922	219 - 222	171 - 172	23 - 25
78/ 9/29	272	345 - 1220	169 - 120	328 - 40	20 - 40	546 - 6 3	242 - 253	345 - 347	20 - 23
78/ 9/30	273	345 - 1220	320 - 271	171 - 244	20 - 40	1040 - 1145	210 - 250	230 - 239	24 - 33
78/10/ 1	274	345 - 1220	110 - 61	14 - 87	20 - 40				
78/10/ 2	275	345 - 1220	261 - 212	218 - 290	20 - 40				
78/10/ 3	276	330 - 1220	42 - 2	59 - 134	20 - 40	427 - 722	76 - 182	67 - 92	20 - 31
78/10/ 4	277	330 - 1130	192 - 123	262 - 330	20 - 40				
78/10/ 5	278	326 - 1130	340 - 273	105 - 173	20 - 40				
78/10/ 6	279	330 - 1130	133 - 63	309 - 17	20 - 40	410 - 429	157 - 169	315 - 317	20 - 24
78/10/ 7	280	849 - 1140	117 - 220	197 - 221	20 - 40				
78/10/ 8	281	315 - 1045	65 - 337	354 - 57	20 - 40				
78/10/ 9	282	310 - 1130	213 - 155	196 - 267	20 - 40				
78/10/10	283	3 0 - 1130	357 - 305	38 - 110	20 - 40	455 - 6 4	67 - 108	54 - 64	20 - 30
						630 - 631	124 - 125	68 - 68	22 - 25
78/10/11	284	3 0 - 1130	148 - 96	242 - 314	20 - 40	5 1 - 530	221 - 238	259 - 263	20 - 24
						554 - 729	253 - 310	266 - 280	20 - 32
78/10/12	285	3 0 - 1130	298 - 246	85 - 157	20 - 40	3 5 - 329	301 - 316	86 - 89	20 - 23
78/10/13	286	3 0 - 1115	88 - 28	288 - 358	20 - 40				
78/10/14	287	255 - 1115	236 - 178	131 - 202	20 - 40				
78/10/15	288	255 - 1115	26 - 329	334 - 45	20 - 40	549 - 6 6	132 - 142	359 - 1	22 - 29
78/10/16	289	250 - 1115	174 - 119	177 - 248	20 - 40	359 - 4 1	216 - 217	187 - 187	20 - 25
						429 - 5 4	234 - 255	191 - 196	20 - 25
78/10/17	290	215 - 720	303 - 128	15 - 59	10 - 40				
78/10/17	290	720 - 1115	128 - 270	59 - 92	20 - 40				
78/10/18	291	215 - 1110	94 - 57	219 - 294	20 - 40	233 - 327	105 - 137	221 - 229	20 - 34
						458 - 657	192 - 264	242 - 259	20 - 37
78/10/19	292	235 - 1115	256 - 211	65 - 139	20 - 40				
78/10/20	293	235 - 1044	47 - 342	268 - 338	20 - 40				
78/10/21	294	230 - 1045	194 - 134	111 - 181	20 - 40	237 - 244	199 - 203	112 - 113	24 - 28
						356 - 417	246 - 259	123 - 126	20 - 25
78/10/22	295	225 - 1038	342 - 280	314 - 23	20 - 40				
78/10/23	296	225 - 1030	132 - 65	157 - 226	20 - 40	421 - 548	202 - 255	174 - 186	20 - 29
78/10/24	297	220 - 1030	280 - 216	0 - 69	20 - 40	225 - 320	283 - 316	1 - 8	20 - 22
78/10/25	298	145 - 1030	49 - 7	198 - 273	20 - 40	543 - 7 8	193 - 244	232 - 244	20 - 33
78/10/26	299	145 - 1030	200 - 157	42 - 116	20 - 40	258 - 356	244 - 279	52 - 60	20 - 27
						420 - 525	293 - 333	64 - 73	20 - 27
78/10/27	300	130 - 1030	341 - 308	243 - 319	20 - 40	522 - 535	121 - 129	276 - 278	20 - 23
						9 6 - 925	257 - 268	308 - 310	30 - 34
78/10/28	301	2 0 - 945	150 - 71	91 - 156	20 - 40	2 9 - 323	155 - 200	92 - 103	20 - 34
						539 - 6 4	282 - 297	122 - 125	20 - 26
78/10/29	302	2 0 - 1010	300 - 237	294 - 3	20 - 40				
78/10/30	303	2 0 - 10 6	91 - 25	138 - 206	20 - 40	5 4 - 633	202 - 256	164 - 176	20 - 30
78/10/31	304	2 0 - 1030	241 - 190	341 - 53	20 - 40	2 3 - 219	243 - 253	341 - 344	20 - 24
78/11/ 1	305	2 0 - 10 0	32 - 322	184 - 252	20 - 40				
78/11/ 2	306	2 0 - 1030	182 - 131	28 - 100	20 - 40				
78/11/ 3	307	130 - 10 0	315 - 263	227 - 299	20 - 40	150 - 2 6	327 - 337	230 - 232	20 - 25
78/11/ 4	308	130 - 10 0	105 - 54	71 - 143	20 - 40	130 - 352	105 - 191	71 - 91	20 - 28
						528 - 539	249 - 256	104 - 106	20 - 23

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
78/11/ 5	309	130 - 10 0	256 - 204	274 - 346	20 - 40				
78/11/10	314	120 - 940	283 - 225	210 - 280	20 - 40				
78/11/11	315	115 - 940	70 - 15	53 - 124	20 - 40	119 - 219	73 - 109	53 - 62	20 - 31
						3 4 - 431	136 - 189	68 - 80	20 - 28
78/11/14	318	1 0 - 9 5	153 - 86	301 - 9	20 - 40	336 - 529	247 - 315	323 - 339	20 - 23
78/11/15	319	1 0 - 9 5	303 - 237	144 - 213	20 - 40	516 - 530	98 - 107	180 - 182	20 - 24
78/11/16	320	057 - 9 5	92 - 27	347 - 56	20 - 40	420 - 556	215 - 273	16 - 30	20 - 28
78/11/17	321	052 - 930	240 - 193	190 - 263	20 - 40	055 - 129	242 - 262	191 - 195	20 - 26
						2 6 - 2 8	284 - 286	201 - 201	22 - 24
						249 - 3 6	310 - 321	207 - 209	20 - 23
78/11/18	322	050 - 930	29 - 343	33 - 107	20 - 40	143 - 312	61 - 115	41 - 53	20 - 28
						417 - 429	154 - 161	63 - 64	20 - 24
78/11/19	323	046 - 852	177 - 111	236 - 305	20 - 40	1 4 - 256	138 - 256	239 - 255	20 - 27
						346 - 454	286 - 327	262 - 271	20 - 26
78/11/20	324	040 - 9 2	324 - 268	79 - 150	20 - 40				
78/11/21	325	038 - 840	114 - 45	282 - 350	20 - 40				
78/11/22	326	035 - 840	262 - 196	125 - 194	20 - 40				
78/11/23	327	030 - 9 0	50 - 358	328 - 40	20 - 40				
78/11/24	328	025 - 9 0	198 - 149	171 - 243	20 - 40	041 - 046	207 - 210	173 - 174	20 - 25
						132 - 2 6	238 - 259	180 - 185	20 - 26
						255 - 357	288 - 326	192 - 201	20 - 26
78/11/25	329	020 - 830	345 - 281	13 - 83	20 - 40				
78/11/26	330	020 - 225	136 - 211	217 - 235	20 - 40				
78/11/26	330	025 - 830	139 - 72	218 - 286	15 - 35	221 - 416	209 - 278	234 - 250	15 - 35
78/11/27	331	020 - 227	286 - 3	60 - 78	15 - 35	034 - 148	295 - 340	62 - 73	15 - 28
78/11/28	332	010 - 810	71 - 1	263 - 330	10 - 40	239 - 3 3	161 - 175	284 - 287	15 - 22
						323 - 618	188 - 293	290 - 315	10 - 28
78/11/29	333	0 5 - 945	218 - 209	105 - 187	10 - 40	0 6 - 1 1	219 - 252	106 - 113	13 - 24
78/11/30	334	0 1 - 725	7 - 275	308 - 11	10 - 40	144 - 441	69 - 176	323 - 348	12 - 26
						545 - 640	215 - 248	357 - 5	16 - 28
78/11/30	334	725 - 8 0	275 - 296	11 - 16	20 - 40				
78/11/30	334	2330 - 24 0	139 - 157	147 - 152	10 - 40				
78/12/ 1	335	0 0 - 8 0	157 - 87	152 - 220	10 - 40	131 - 136	212 - 215	165 - 165	20 - 23
						156 - 3 2	227 - 267	168 - 177	10 - 28
						353 - 4 8	298 - 307	185 - 187	10 - 15
78/12/ 1	335	2330 - 24 0	289 - 307	351 - 355	10 - 40				
78/12/ 2	336	0 0 - 8 0	307 - 238	355 - 63	10 - 40	025 - 030	322 - 325	359 - 359	15 - 18
						048 - 058	336 - 342	2 - 3	16 - 18
						2 7 - 210	24 - 26	13 - 14	15 - 17
						312 - 313	63 - 64	22 - 23	15 - 20
						334 - 335	77 - 77	25 - 26	15 - 20
						5 7 - 550	133 - 159	39 - 45	20 - 32
78/12/ 2	336	2330 - 24 0	80 - 98	195 - 199	10 - 40				
78/12/ 3	337	0 0 - 653	98 - 348	199 - 257	10 - 40	354 - 450	239 - 273	232 - 240	21 - 29
78/12/ 3	337	2330 - 24 0	230 - 249	38 - 42	20 - 40				
78/12/ 4	338	0 0 - 730	249 - 161	42 - 106	20 - 40	511 - 657	77 - 141	86 - 101	15 - 32
78/12/ 4	338	2315 - 24 0	12 - 39	239 - 246	10 - 40				
78/12/ 5	339	0 0 - 730	39 - 311	246 - 309	10 - 40	311 - 325	155 - 163	273 - 275	16 - 18
78/12/ 5	339	2315 - 24 0	163 - 190	83 - 89	10 - 40	2315 - 24 0	163 - 190	83 - 89	17 - 26
78/12/ 6	340	0 0 - 730	190 - 102	89 - 153	10 - 40	212 - 243	270 - 288	108 - 112	15 - 20
78/12/ 6	340	23 0 - 24 0	304 - 340	284 - 293	10 - 40				
78/12/ 7	341	0 0 - 730	340 - 253	293 - 357	10 - 40	345 - 4 5	116 - 129	325 - 328	24 - 29
						635 - 645	219 - 225	349 - 350	20 - 26
78/12/ 7	341	23 0 - 24 0	95 - 131	128 - 136	10 - 40				
78/12/ 8	342	0 0 - 730	131 - 43	136 - 200	10 - 40				
78/12/ 8	342	23 0 - 24 0	245 - 282	332 - 340	10 - 40	2312 - 24 0	253 - 282	333 - 340	15 - 25
78/12/ 9	343	0 0 - 641	282 - 164	340 - 37	10 - 40				

TABLE I *(continued)*.

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
78/12/ 9	343	23 0 - 24 0	36 - 72	175 - 184	10 - 40				
78/12/10	344	0 0 - 730	72 - 344	184 - 247	10 - 40	326 - 527	197 - 270	213 - 230	15 - 28
78/12/10	344	2245 - 24 0	178 - 223	16 - 27	10 - 40				
78/12/11	345	0 0 - 538	223 - 67	27 - 75	10 - 40				
78/12/11	345	2245 - 24 0	328 - 14	220 - 231	10 - 40				
78/12/12	346	0 0 - 730	14 - 286	231 - 294	10 - 40	551 - 6 5	226 - 234	280 - 282	21 - 24
78/12/12	346	2230 - 24 0	110 - 164	61 - 74	10 - 40				
78/12/13	347	0 0 - 541	164 - 10	74 - 122	10 - 40	122 - 159	214 - 236	86 - 91	13 - 23
						259 - 450	273 - 340	99 - 115	12 - 18
78/12/13	347	23 0 - 24 0	279 - 315	269 - 278	15 - 35				
78/12/14	348	0 0 - 7 0	315 - 209	278 - 337	15 - 35				
78/12/14	348	23 0 - 24 0	69 - 106	113 - 121	10 - 40				
78/12/15	349	0 0 - 7 0	106 - 0	121 - 181	10 - 40	139 - 146	165 - 170	135 - 136	16 - 18
						246 - 249	206 - 208	145 - 145	16 - 24
						5 9 - 521	292 - 300	165 - 167	15 - 20
78/12/15	349	2245 - 24 0	211 - 256	314 - 325	10 - 40	2317 - 2322	230 - 233	319 - 319	15 - 18
						2347 - 2357	248 - 254	323 - 324	15 - 18
78/12/16	350	0 0 - 644	256 - 141	325 - 22	10 - 40	0 5 - 154	259 - 325	326 - 341	14 - 23
						548 - 550	107 - 108	14 - 14	15 - 22
78/12/16	350	2245 - 24 0	2 - 47	158 - 168	10 - 40				
78/12/17	351	0 0 - 645	47 - 292	168 - 226	10 - 40	222 - 558	133 - 263	189 - 219	10 - 31
78/12/17	351	2245 - 24 0	152 - 198	1 - 12	10 - 40	2247 - 24 0	153 - 198	2 - 12	15 - 20
78/12/18	352	0 0 - 650	198 - 85	12 - 70	10 - 40	0 0 - 023	198 - 211	12 - 15	10 - 13
						1 0 - 650	234 - 85	20 - 70	10 - 24
78/12/19	353	2230 - 24 0	84 - 139	46 - 59	15 - 35				
78/12/20	354	0 0 - 456	139 - 318	59 - 101	15 - 35	028 - 1 5	156 - 178	63 - 68	15 - 18
						2 7 - 359	216 - 283	77 - 93	15 - 30
						437 - 456	306 - 318	98 - 101	15 - 27
78/12/20	354	2215 - 24 0	226 - 290	248 - 263	10 - 40	2239 - 2334	241 - 274	251 - 259	15 - 29
78/12/21	355	0 0 - 7 0	290 - 183	263 - 322	10 - 40	029 - 148	307 - 355	267 - 278	12 - 20
						5 2 - 5 4	112 - 113	305 - 306	15 - 18
78/12/21	355	2230 - 24 0	26 - 80	94 - 106	10 - 40				
78/12/22	356	0 0 - 645	80 - 325	106 - 164	10 - 40				
78/12/22	356	2230 - 24 0	176 - 231	297 - 310	10 - 40				
78/12/23	357	0 0 - 350	231 - 10	310 - 342	10 - 40	037 - 046	253 - 259	315 - 316	15 - 20
						119 - 130	279 - 285	321 - 323	14 - 20
						320 - 323	352 - 354	338 - 339	15 - 35
78/12/23	357	22 0 - 24 0	309 - 22	137 - 153	10 - 40				
78/12/24	358	0 0 - 7 0	22 - 275	153 - 213	10 - 40	540 - 6 1	227 - 240	202 - 205	20 - 26
78/12/24	358	22 0 - 24 0	100 - 172	340 - 357	10 - 40				
78/12/25	359	0 0 - 7 0	172 - 66	357 - 56	10 - 40	110 - 149	215 - 238	7 - 12	10 - 23
						249 - 3 6	274 - 285	21 - 23	12 - 22
						322 - 359	294 - 317	26 - 31	17 - 27
78/12/25	359	22 0 - 24 0	250 - 323	184 - 201	10 - 40				
78/12/26	360	0 0 - 7 0	323 - 217	201 - 260	10 - 40				
78/12/26	360	2145 - 24 0	32 - 114	25 - 44	10 - 40				
78/12/27	361	0 0 - 630	114 - 349	44 - 99	10 - 40	129 - 143	167 - 176	57 - 59	10 - 15
						211 - 215	193 - 195	63 - 63	10 - 13
						332 - 622	242 - 345	74 - 98	10 - 25
78/12/27	361	2145 - 24 0	183 - 264	229 - 248	10 - 40	22 6 - 24 0	195 - 264	232 - 248	15 - 25
78/12/28	362	0 0 - 630	264 - 140	248 - 303	10 - 40	0 0 - 150	264 - 331	248 - 263	14 - 35
78/12/28	362	2145 - 24 0	333 - 55	72 - 91	10 - 40				
78/12/29	363	0 0 - 618	55 - 283	91 - 145	10 - 40	210 - 311	134 - 170	110 - 118	12 - 20
						338 - 559	187 - 272	122 - 142	10 - 23
78/12/29	363	2130 - 24 0	115 - 206	274 - 295	10 - 40				
78/12/30	364	0 0 - 630	206 - 81	295 - 350	10 - 40	012 - 427	213 - 7	297 - 333	10 - 25
78/12/30	364	2130 - 24 0	266 - 356	117 - 139	10 - 40	2130 - 2323	266 - 334	117 - 133	13 - 25

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
78/12/31	365	0 0 - 630	356 - 232	139 - 194	10 - 40	229 - 445	86 - 169	160 - 179	11 - 24
						539 - 620	201 - 226	187 - 192	15 - 28
78/12/31	365	2130 - 24 0	56 - 147	321 - 342	10 - 40	23 8 - 24 0	115 - 147	335 - 342	14 - 29

TABLE I *(continued).*

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
79/ 1/ 1	1	0 0 - 630	147 - 23	342 - 37	10 - 40	0 0 - 058	147 - 182	342 - 350	14 - 29
						145 - 512	210 - 336	357 - 26	10 - 23
79/ 1/ 1	1	2130 - 24 0	207 - 298	165 - 186	10 - 40	23 6 - 24 0	265 - 298	178 - 186	10 - 20
79/ 1/ 2	2	0 0 - 630	298 - 173	186 - 241	10 - 40	0 0 - 120	298 - 346	186 - 197	10 - 20
79/ 1/ 2	2	2130 - 24 0	358 - 88	8 - 29	10 - 40	2359 - 24 0	88 - 88	29 - 29	10 - 28
79/ 1/ 3	3	0 0 - 6 0	88 - 306	29 - 80	10 - 40	0 0 - 2 7	88 - 165	29 - 47	10 - 28
						318 - 552	208 - 301	57 - 79	10 - 29
79/ 1/ 3	3	2115 - 24 0	139 - 239	210 - 233	10 - 40	2249 - 24 0	196 - 239	223 - 233	10 - 32
79/ 1/ 4	4	0 0 - 6 0	239 - 97	233 - 284	10 - 40	0 0 - 3 5	239 - 351	233 - 259	10 - 32
79/ 1/ 4	4	21 0 - 24 0	281 - 30	51 - 77	10 - 40				
79/ 1/ 5	5	0 0 - 6 0	30 - 247	77 - 128	10 - 40	135 - 428	87 - 192	90 - 115	10 - 37
						530 - 548	229 - 240	123 - 126	15 - 23
79/ 1/ 5	5	21 0 - 24 0	72 - 180	255 - 280	10 - 40				
79/ 1/ 6	6	0 0 - 516	180 - 11	280 - 325	10 - 40	059 - 412	216 - 333	289 - 316	10 - 25
79/ 1/ 6	6	21 0 - 24 0	222 - 331	98 - 124	10 - 40				
79/ 1/ 7	7	0 0 - 6 0	331 - 189	124 - 175	10 - 40				
79/ 1/ 7	7	21 0 - 24 0	13 - 122	302 - 328	10 - 40	2315 - 2318	94 - 96	321 - 322	18 - 22
79/ 1/ 8	8	0 0 - 6 0	122 - 339	328 - 18	10 - 40	014 - 021	130 - 134	329 - 330	17 - 27
						316 - 351	240 - 261	355 - 0	15 - 21
						513 - 538	311 - 326	12 - 15	15 - 20
79/ 1/ 8	8	2045 - 24 0	154 - 272	144 - 171	10 - 40	2230 - 2358	218 - 271	158 - 171	15 - 30
79/ 1/ 9	9	0 0 - 545	272 - 121	171 - 220	10 - 40	113 - 2 0	317 - 345	181 - 188	10 - 20
79/ 1/ 9	9	2045 - 24 0	305 - 63	347 - 15	15 - 40				
79/ 1/10	10	0 0 - 5 0	63 - 244	15 - 57	15 - 40	433 - 445	228 - 235	53 - 55	12 - 25
79/ 1/10	10	2035 - 24 0	90 - 214	189 - 218	10 - 40	2336 - 24 0	199 - 214	215 - 218	10 - 33
79/ 1/11	11	0 0 - 545	214 - 62	218 - 267	10 - 40	0 0 - 4 5	214 - 2	218 - 253	10 - 33
79/ 1/11	11	2018 - 24 0	230 - 4	31 - 62	10 - 40				
79/ 1/12	12	0 0 - 533	4 - 206	62 - 109	10 - 40	118 - 120	52 - 53	73 - 73	10 - 20
						149 - 529	70 - 203	77 - 108	10 - 36
79/ 1/12	12	2118 - 24 0	57 - 155	243 - 266	10 - 40				
79/ 1/13	13	0 0 - 530	155 - 355	266 - 312	10 - 40	155 - 220	225 - 240	282 - 285	15 - 25
						251 - 259	259 - 263	290 - 291	13 - 22
79/ 1/13	13	2022 - 24 0	174 - 306	78 - 109	10 - 40				
79/ 1/14	14	0 0 - 530	306 - 145	109 - 156	10 - 40				
79/ 1/14	14	2048 - 23 0	340 - 60	286 - 304	10 - 40				
79/ 1/15	15	2015 - 24 0	111 - 247	125 - 156	10 - 40	2257 - 2312	209 - 218	148 - 150	15 - 25
						2347 - 24 0	239 - 247	155 - 156	20 - 25
79/ 1/16	16	0 0 - 5 0	247 - 69	156 - 199	10 - 40	0 0 - 010	247 - 253	156 - 158	20 - 25
						145 - 217	311 - 330	171 - 176	15 - 21
79/ 1/18	18	2015 - 24 0	203 - 339	16 - 47	10 - 40				
79/ 1/19	19	0 0 - 5 0	339 - 161	47 - 90	10 - 40	244 - 247	78 - 80	71 - 71	28 - 31
						312 - 340	95 - 112	74 - 78	17 - 29
79/ 1/19	19	20 0 - 24 0	345 - 130	217 - 251	10 - 40				
79/ 1/20	20	0 0 - 430	130 - 293	251 - 289	10 - 40				
79/ 1/20	20	2120 - 24 0	184 - 281	72 - 95	10 - 40	2345 - 2353	271 - 276	92 - 94	15 - 21
79/ 1/21	21	0 0 - 320	281 - 41	95 - 123	10 - 40	046 - 119	308 - 328	101 - 106	12 - 22
79/ 1/21	21	2115 - 24 0	331 - 71	275 - 298	10 - 40				
79/ 1/22	22	0 0 - 320	71 - 192	298 - 326	10 - 40				
79/ 1/22	22	2110 - 24 0	119 - 222	118 - 142	10 - 40	2330 - 24 0	204 - 222	138 - 142	10 - 26
79/ 1/23	23	0 0 - 320	222 - 343	142 - 170	10 - 40	0 0 - 121	222 - 271	142 - 153	10 - 26
79/ 1/23	23	20 1 - 24 0	230 - 13	312 - 345	10 - 40				
79/ 1/24	24	0 0 - 2 0	13 - 85	345 - 2	10 - 40				
79/ 1/24	24	20 0 - 24 0	18 - 163	155 - 189	10 - 40	2337 - 24 0	149 - 163	186 - 189	10 - 20
79/ 1/25	25	0 0 - 1 0	163 - 200	189 - 198	10 - 40	0 0 - 021	163 - 176	189 - 192	10 - 20
						114 - 3 0	200 - 272	200 - 215	12 - 31
79/ 1/25	25	20 0 - 24 0	169 - 314	359 - 33	10 - 40	2159 - 24 0	241 - 314	16 - 33	16 - 26
79/ 1/26	26	0 0 - 4 0	314 - 99	33 - 67	10 - 40	0 0 - 022	314 - 327	33 - 36	16 - 26

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
						335 - 422	84 - 112	63 - 70	15 - 28
79/ 1/27	27	2215 - 24 0	192 - 255	65 - 80	10 - 40				
79/ 1/28	28	0 0 - 030	255 - 273	80 - 84	10 - 40				
79/ 1/28	28	2010 - 24 0	267 - 46	251 - 284	10 - 40				
79/ 1/29	29	0 0 - 4 0	46 - 191	284 - 317	10 - 40	154 - 317	115 - 165	300 - 311	15 - 25
79/ 1/30	30	2030 - 24 0	220 - 347	301 - 331	10 - 40				
79/ 1/31	31	0 0 - 245	347 - 87	331 - 354	10 - 40				
79/ 1/31	31	2030 - 24 0	11 - 138	145 - 174	15 - 35	2113 - 2130	37 - 47	151 - 153	20 - 29
79/ 2/ 1	32	0 0 - 245	138 - 238	174 - 198	15 - 35				
79/ 2/ 1	32	19 0 - 24 0	107 - 289	336 - 18	15 - 35	2352 - 24 0	284 - 289	17 - 18	15 - 20
79/ 2/ 2	33	0 0 - 430	289 - 92	18 - 56	15 - 35	0 0 - 052	289 - 320	18 - 25	15 - 20
79/ 2/ 2	33	19 0 - 24 0	258 - 79	179 - 222	10 - 40				
79/ 2/ 3	34	0 0 - 4 0	79 - 224	222 - 256	10 - 40				
79/ 2/ 3	34	19 0 - 24 0	48 - 230	23 - 65	10 - 40				
79/ 2/ 4	35	0 0 - 4 0	230 - 15	65 - 99	10 - 40				
79/ 2/ 4	35	19 0 - 24 0	199 - 20	226 - 269	10 - 40				
79/ 2/ 5	36	0 0 - 4 0	20 - 166	269 - 303	10 - 40				
79/ 2/ 5	36	19 0 - 24 0	350 - 171	70 - 112	10 - 40				
79/ 2/ 6	37	0 0 - 212	171 - 251	112 - 131	10 - 40				
79/ 2/ 6	37	19 0 - 24 0	140 - 322	274 - 316	15 - 35				
79/ 2/ 7	38	0 0 - 3 0	322 - 71	316 - 342	15 - 35				
79/ 2/ 7	38	1845 - 24 0	282 - 112	115 - 160	15 - 35				
79/ 2/ 8	39	0 0 - 3 0	112 - 221	160 - 185	15 - 35				
79/ 2/ 8	39	1845 - 24 0	73 - 263	319 - 3	10 - 40				
79/ 2/ 9	40	0 0 - 241	263 - 0	3 - 26	10 - 40				
79/ 2/ 9	40	1820 - 24 0	208 - 54	159 - 207	10 - 40				
79/ 2/10	41	0 0 - 320	54 - 175	207 - 235	10 - 40				
79/ 2/10	41	1815 - 24 0	356 - 204	2 - 51	15 - 35				
79/ 2/11	42	0 0 - 320	204 - 325	51 - 79	15 - 35				
79/ 2/11	42	1815 - 2226	146 - 298	205 - 241	15 - 35	1956 - 2244	207 - 309	220 - 243	15 - 30
79/ 2/12	43	18 7 - 24 0	292 - 146	48 - 98	10 - 40	22 9 - 24 0	78 - 146	82 - 98	17 - 35
79/ 2/13	44	0 0 - 3 0	146 - 254	98 - 123	10 - 40	0 0 - 026	146 - 161	98 - 101	17 - 35
						050 - 2 1	176 - 219	105 - 115	15 - 30
79/ 2/13	44	18 0 - 24 0	79 - 296	250 - 301	10 - 40				
79/ 2/14	45	0 0 - 3 0	296 - 45	301 - 327	10 - 40				
79/ 2/14	45	18 0 - 24 0	229 - 87	94 - 145	15 - 35				
79/ 2/15	46	0 0 - 3 0	87 - 196	145 - 170	15 - 35				
79/ 2/15	46	18 0 - 24 0	20 - 237	298 - 349	10 - 40				
79/ 2/16	47	0 0 - 3 0	237 - 346	349 - 14	10 - 40				
79/ 2/16	47	1750 - 24 0	164 - 28	140 - 192	10 - 40	2019 - 2055	254 - 276	161 - 166	15 - 33
79/ 2/17	48	0 0 - 250	28 - 131	192 - 216	10 - 40				
79/ 2/17	48	1745 - 24 0	312 - 179	343 - 36	10 - 40				
79/ 2/18	49	0 0 - 245	179 - 278	36 - 59	10 - 40				
79/ 2/18	49	1741 - 24 0	100 - 329	186 - 239	10 - 40	2038 - 22 3	207 - 258	211 - 223	15 - 29
						2218 - 24 0	268 - 329	225 - 239	15 - 33
79/ 2/19	50	0 0 - 241	329 - 67	239 - 262	10 - 40	0 0 - 120	329 - 18	239 - 251	15 - 33
79/ 2/19	50	1730 - 24 0	244 - 120	28 - 83	10 - 40	22 6 - 24 0	51 - 120	67 - 83	15 - 34
79/ 2/20	51	0 0 - 230	120 - 211	83 - 104	10 - 40	0 0 - 215	120 - 201	83 - 102	15 - 34
79/ 2/20	51	1730 - 24 0	35 - 270	231 - 286	10 - 40	2249 - 2312	227 - 241	276 - 280	15 - 22
79/ 2/21	52	0 0 - 230	270 - 1	286 - 308	10 - 40				
79/ 2/21	52	1730 - 24 0	185 - 61	75 - 130	10 - 40	2017 - 2057	286 - 310	98 - 104	18 - 26
79/ 2/22	53	0 0 - 230	61 - 152	130 - 151	10 - 40				
79/ 2/22	53	1715 - 24 0	327 - 212	276 - 334	10 - 40	22 8 - 2240	144 - 163	318 - 322	15 - 24
79/ 2/23	54	0 0 - 215	212 - 293	334 - 353	10 - 40				
79/ 2/23	54	1715 - 24 0	117 - 2	120 - 177	10 - 40	2059 - 2112	253 - 261	152 - 153	20 - 25
79/ 2/24	55	0 0 - 215	2 - 84	177 - 196	10 - 40				
79/ 2/24	55	1715 - 24 0	268 - 153	323 - 21	10 - 40	2256 - 23 6	114 - 120	12 - 13	18 - 30

TABLE I *(continued).*

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
						2335 - 24 0	138 - 153	17 - 21	14 - 25
79/ 2/25	56	0 0 - 215	153 - 234	21 - 40	10 - 40	0 0 - 0 5	153 - 156	21 - 21	14 - 25
						2 6 - 215	229 - 234	39 - 40	15 - 25
79/ 2/25	56	1710 - 24 0	55 - 303	166 - 224	10 - 40	22 9 - 2255	236 - 264	209 - 215	15 - 29
79/ 2/26	57	0 0 - 215	303 - 25	224 - 243	10 - 40	0 4 - 056	306 - 337	225 - 232	15 - 23
79/ 2/26	57	1738 - 24 0	223 - 94	14 - 68	10 - 40	2310 - 24 0	64 - 94	61 - 68	15 - 30
79/ 2/27	58	0 0 - 3 0	94 - 203	68 - 93	10 - 40	0 0 - 230	94 - 185	68 - 89	15 - 30
79/ 2/27	58	17 0 - 24 0	351 - 244	212 - 271	10 - 40	2322 - 24 0	222 - 244	266 - 271	15 - 26
79/ 2/28	59	0 0 - 2 0	244 - 317	271 - 288	10 - 40	0 0 - 135	244 - 302	271 - 285	15 - 26
79/ 2/28	59	17 0 - 24 0	141 - 35	56 - 115	10 - 40	20 5 - 2027	253 - 266	82 - 85	15 - 26
79/ 3/ 1	60	0 0 - 2 0	35 - 100	115 - 132	10 - 40				
79/ 3/ 1	60	1653 - 24 0	287 - 186	258 - 319	10 - 40				
79/ 3/ 2	61	0 0 - 2 0	186 - 258	319 - 335	10 - 40	110 - 149	228 - 252	328 - 334	17 - 22
79/ 3/ 2	61	1710 - 24 0	88 - 336	104 - 162	10 - 40	2025 - 2151	206 - 258	132 - 144	16 - 30
79/ 3/ 3	62	0 0 - 130	336 - 31	162 - 175	10 - 40				
79/ 3/ 3	62	1645 - 24 0	224 - 127	304 - 6	10 - 40				
79/ 3/ 4	63	0 0 - 145	127 - 190	6 - 20	10 - 40				
79/ 3/ 4	63	1640 - 24 0	11 - 277	147 - 209	10 - 40	22 1 - 2342	205 - 266	192 - 207	15 - 26
79/ 3/ 5	64	0 0 - 140	277 - 338	209 - 223	10 - 40	037 - 041	300 - 302	214 - 215	20 - 25
						058 - 140	312 - 338	217 - 223	16 - 25
79/ 3/ 5	64	17 0 - 24 0	174 - 68	353 - 53	10 - 40				
79/ 3/ 6	65	0 0 - 120	68 - 116	53 - 64	10 - 40	014 - 1 0	76 - 104	55 - 61	20 - 30
79/ 3/ 6	65	1724 - 24 0	339 - 218	200 - 256	10 - 40				
79/ 3/ 7	66	0 0 - 120	218 - 267	256 - 268	10 - 40	1 1 - 118	255 - 266	265 - 267	15 - 20
79/ 3/ 7	66	1720 - 24 0	127 - 9	43 - 100	20 - 40				
79/ 3/ 8	67	0 0 - 1 0	9 - 45	100 - 108	20 - 40				
79/ 3/ 8	67	1737 - 24 0	288 - 159	249 - 303	20 - 40				
79/ 3/ 9	68	0 0 - 1 0	159 - 196	303 - 312	20 - 40				
79/ 3/ 9	68	1745 - 24 0	83 - 310	94 - 147	20 - 40	1836 - 1849	114 - 122	101 - 103	30 - 35
79/ 3/10	69	0 0 - 1 0	310 - 346	147 - 155	20 - 40				
79/ 3/10	69	17 0 - 24 0	207 - 100	291 - 350	20 - 40				
79/ 3/11	70	0 0 - 1 0	100 - 137	350 - 359	20 - 40				
79/ 3/11	70	1729 - 24 0	15 - 251	139 - 194	20 - 40	2242 - 2315	204 - 224	183 - 188	20 - 27
79/ 3/12	71	0 0 - 1 0	251 - 287	194 - 202	20 - 40				
79/ 3/12	71	16 0 - 24 0	111 - 42	330 - 37	20 - 40				
79/ 3/13	72	0 0 - 1 0	42 - 78	37 - 46	20 - 40				
79/ 3/13	72	16 0 - 24 0	262 - 192	173 - 241	20 - 40				
79/ 3/14	73	0 0 - 1 0	192 - 228	241 - 249	20 - 40	031 - 054	211 - 225	245 - 249	20 - 26
79/ 3/14	73	16 0 - 24 0	52 - 343	17 - 84	20 - 40				
79/ 3/15	74	0 0 - 1 0	343 - 19	84 - 93	20 - 40				
79/ 3/15	74	16 0 - 24 0	203 - 133	220 - 288	20 - 40				
79/ 3/16	75	0 0 - 1 0	133 - 169	288 - 296	20 - 40				
79/ 3/16	75	1540 - 24 0	341 - 284	61 - 131	20 - 40	1833 - 2159	86 - 210	85 - 114	20 - 37
79/ 3/17	76	0 0 - 040	284 - 308	131 - 137	20 - 40				
79/ 3/17	76	1540 - 24 0	132 - 74	264 - 335	20 - 40				
79/ 3/18	77	0 0 - 047	74 - 102	335 - 342	20 - 40				
79/ 3/18	77	1543 - 24 0	284 - 225	108 - 178	20 - 40	2334 - 24 0	209 - 225	175 - 178	20 - 37
79/ 3/19	78	0 0 - 043	225 - 251	178 - 185	20 - 40				
79/ 3/19	78	16 0 - 24 0	85 - 15	314 - 22	20 - 40				
79/ 3/20	79	0 0 - 010	15 - 21	22 - 23	20 - 40				
79/ 3/20	79	16 0 - 24 0	235 - 166	158 - 225	20 - 40				
79/ 3/21	80	0 0 - 010	166 - 172	225 - 227	20 - 40				
79/ 3/21	80	1545 - 24 0	17 - 316	359 - 69	20 - 40				
79/ 3/22	81	0 0 - 045	316 - 343	69 - 75	20 - 40				
79/ 3/22	81	1545 - 24 0	167 - 106	202 - 272	20 - 40	1645 - 1820	204 - 261	211 - 224	25 - 30
79/ 3/23	82	0 0 - 015	106 - 116	272 - 275	20 - 40				
79/ 3/23	82	1525 - 24 0	306 - 257	43 - 116	20 - 40	1936 - 22 8	97 - 189	79 - 100	20 - 34

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
79/ 3/24	83	0 0 - 025	257 - 272	116 - 119	20 - 40				
79/ 3/24	83	1535 - 24 0	102 - 47	248 - 319	20 - 40				
79/ 3/25	84	0 0 - 020	47 - 60	319 - 322	20 - 40				
79/ 3/25	84	1530 - 24 0	250 - 198	91 - 163	10 - 40				
79/ 3/26	85	0 0 - 020	198 - 210	163 - 166	10 - 40				
79/ 3/26	85	1530 - 24 0	40 - 348	294 - 6	20 - 40				
79/ 3/27	86	0 0 - 0 5	348 - 351	6 - 7	20 - 40				
79/ 3/27	86	1530 - 24 0	191 - 139	138 - 210	20 - 40				
79/ 3/28	87	0 0 - 1 0	139 - 175	210 - 218	20 - 40				
79/ 3/28	87	15 5 - 24 0	326 - 289	338 - 53	20 - 40				
79/ 3/29	88	15 5 - 24 0	116 - 80	181 - 257	20 - 40	1952 - 2055	290 - 328	222 - 231	23 - 29
						20 1 - 21 9	295 - 336	223 - 233	20 - 34
79/ 3/30	89	1455 - 24 0	261 - 230	23 - 100	20 - 40	1945 - 2248	76 - 187	64 - 90	20 - 29
79/ 3/31	90	1450 - 2350	48 - 15	226 - 302	20 - 40				
79/ 4/ 1	91	1445 - 2350	196 - 165	69 - 146	20 - 40				
79/ 4/ 2	92	1445 - 2345	346 - 312	272 - 348	20 - 40				
79/ 4/ 3	93	1445 - 2345	136 - 103	116 - 192	20 - 40	19 6 - 1949	294 - 320	152 - 159	20 - 25
79/ 4/ 4	94	1440 - 2330	284 - 244	318 - 33	20 - 40	15 1 - 1536	297 - 318	321 - 326	20 - 29
						21 6 - 21 7	157 - 158	13 - 13	29 - 29
						2237 - 2247	212 - 218	26 - 27	20 - 26
79/ 4/ 5	95	1438 - 2333	73 - 36	161 - 237	20 - 40	1913 - 1925	239 - 247	200 - 202	24 - 30
79/ 4/ 6	96	1440 - 2333	225 - 187	5 - 81	20 - 40	2015 - 2125	67 - 110	53 - 62	20 - 29
						2230 - 2255	149 - 164	72 - 75	20 - 24
79/ 4/ 7	97	1435 - 2325	12 - 332	208 - 283	20 - 40	20 1 - 20 8	209 - 213	254 - 255	20 - 29
79/ 4/ 8	98	1421 - 2321	154 - 120	49 - 126	20 - 40				
79/ 4/ 9	99	1425 - 23 0	307 - 258	253 - 326	20 - 40				
79/ 4/10	100	1415 - 23 0	91 - 49	95 - 170	20 - 40	20 4 - 2020	302 - 312	145 - 147	20 - 25
79/ 4/11	101	1420 - 23 0	245 - 199	300 - 13	20 - 40				
79/ 4/12	102	1416 - 23 0	33 - 349	142 - 216	20 - 40	19 3 - 1928	206 - 221	183 - 186	20 - 29
79/ 4/13	103	14 0 - 23 0	173 - 140	344 - 60	20 - 40	2113 - 2220	75 - 116	45 - 54	20 - 28
79/ 4/14	104	14 0 - 23 0	324 - 290	187 - 263	20 - 40	2115 - 2154	227 - 250	248 - 254	20 - 34
79/ 4/15	105	14 0 - 23 0	114 - 81	30 - 107	20 - 40				
79/ 4/16	106	14 0 - 23 0	265 - 231	234 - 310	20 - 40				
79/ 4/17	107	1345 - 2245	46 - 12	75 - 151	20 - 40	15 8 - 1750	96 - 194	87 - 110	20 - 36
79/ 4/18	108	1345 - 2245	196 - 163	278 - 355	20 - 40				
79/ 4/19	109	14 0 - 2341	356 - 347	124 - 206	20 - 40	1958 - 2010	212 - 219	175 - 176	22 - 28
						21 3 - 21 8	251 - 254	184 - 184	20 - 28
79/ 4/20	110	1340 - 2237	134 - 99	325 - 40	20 - 40				
79/ 4/21	111	1340 - 2237	284 - 249	168 - 244	20 - 40	2130 - 2237	209 - 249	234 - 244	20 - 34
79/ 4/22	112	1340 - 2237	75 - 39	11 - 87	20 - 40				
79/ 4/23	113	1327 - 2237	217 - 190	213 - 291	20 - 40	1337 - 14 0	223 - 237	214 - 218	22 - 31
						1551 - 1612	304 - 317	233 - 236	23 - 30
79/ 4/24	114	1339 - 2237	15 - 340	58 - 134	20 - 40	1524 - 1542	78 - 89	73 - 75	29 - 32
79/ 4/25	115	1333 - 2220	162 - 120	260 - 335	20 - 40				
79/ 4/26	116	1334 - 2220	313 - 271	104 - 178	20 - 40	2034 - 2138	207 - 245	163 - 172	22 - 29
79/ 4/27	117	13 6 - 22 0	86 - 49	303 - 19	20 - 40				
79/ 4/28	118	1749 - 22 0	48 - 199	187 - 222	20 - 40				
79/ 4/29	119	1335 - 22 0	44 - 350	354 - 66	20 - 40				
79/ 4/30	120	13 5 - 22 0	177 - 140	193 - 269	20 - 40				
79/ 5/ 1	121	1319 - 22 0	335 - 290	39 - 112	20 - 40	1659 - 1725	108 - 124	70 - 74	24 - 32
						1746 - 1842	137 - 171	76 - 84	20 - 27
79/ 5/ 2	122	13 0 - 22 0	114 - 81	239 - 316	20 - 40				
79/ 5/ 3	123	13 2 - 2145	266 - 222	83 - 157	20 - 40				
79/ 5/ 4	124	1311 - 2145	62 - 12	288 - 0	20 - 40	1738 - 1953	223 - 305	325 - 344	20 - 38
79/ 5/ 5	125	1245 - 2145	196 - 163	127 - 204	20 - 40				
79/ 5/ 6	126	1245 - 2145	347 - 313	331 - 47	20 - 40				
79/ 5/ 7	127	1252 - 2130	141 - 94	175 - 248	20 - 40				

TABLE I *(continued).*

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
79/ 5/ 8	128	1235 - 2130	281 - 245	16 - 92	20 - 40	15 5 - 1548	12 - 38	37 - 43	23 - 30
79/ 5/ 9	129	1245 - 2130	78 - 35	221 - 295	20 - 40	1622 - 1625	209 - 211	251 - 252	25 - 30
						1638 - 17 0	218 - 232	254 - 257	24 - 33
79/ 5/10	130	1230 - 13 0	219 - 237	62 - 66	20 - 40				
79/ 5/11	131	1413 - 2115	71 - 327	280 - 340	20 - 40				
79/ 5/12	132	1318 - 2115	189 - 117	116 - 183	20 - 40				
79/ 5/13	133	1257 - 2115	326 - 267	316 - 26	20 - 40	1733 - 1841	133 - 174	355 - 4	24 - 36
79/ 5/14	134	1231 - 2115	101 - 58	156 - 230	20 - 40				
79/ 5/15	135	12 9 - 2110	238 - 205	356 - 72	20 - 40				
79/ 5/16	136	1224 - 2110	37 - 355	201 - 276	20 - 40	1652 - 1821	199 - 253	239 - 252	23 - 37
79/ 5/17	137	12 3 - 21 3	175 - 141	42 - 118	20 - 40				
79/ 5/18	138	12 2 - 21 0	325 - 290	245 - 321	20 - 40				
79/ 5/19	139	12 0 - 21 0	114 - 80	88 - 164	20 - 40	12 3 - 1231	115 - 132	88 - 92	24 - 31
						1231 - 13 0	132 - 150	92 - 96	24 - 35
						13 0 - 1420	150 - 198	96 - 108	24 - 34
						15 5 - 1648	225 - 288	114 - 129	24 - 32
79/ 5/20	140	1156 - 21 0	262 - 230	291 - 7	20 - 40	1221 - 1326	277 - 316	294 - 303	20 - 30
79/ 5/21	141	1243 - 2030	80 - 3	141 - 207	20 - 40				
79/ 5/22	142	12 4 - 2039	207 - 158	338 - 51	20 - 40				
79/ 5/23	143	1143 - 2043	345 - 311	179 - 255	20 - 40	15 7 - 1630	108 - 158	208 - 219	24 - 33
						1752 - 1911	208 - 255	231 - 242	24 - 35
79/ 5/24	144	1151 - 2040	140 - 100	23 - 98	20 - 40				
79/ 5/25	145	1131 - 2040	278 - 250	224 - 301	20 - 40	1157 - 13 3	294 - 334	227 - 237	20 - 34
						1711 - 1715	124 - 126	272 - 272	25 - 31
						1722 - 1729	130 - 134	273 - 274	23 - 30
79/ 5/26	146	1138 - 21 0	73 - 52	68 - 147	20 - 40	1152 - 1246	81 - 114	70 - 78	23 - 32
						1246 - 1257	114 - 120	78 - 79	22 - 27
						13 8 - 1449	127 - 188	81 - 95	22 - 30
						1725 - 1752	282 - 299	117 - 121	22 - 24
79/ 5/27	147	11 7 - 2030	204 - 184	267 - 346	20 - 40	1158 - 1230	235 - 254	274 - 279	21 - 25
79/ 5/28	148	1151 - 2015	21 - 326	116 - 188	20 - 40	1651 - 1747	202 - 236	159 - 167	23 - 27
79/ 5/29	149	1143 - 2015	167 - 116	319 - 31	20 - 40				
79/ 5/30	150	1147 - 2015	319 - 266	163 - 234	20 - 40	20 1 - 2011	258 - 264	232 - 234	24 - 28
79/ 5/31	151	1132 - 2015	101 - 57	4 - 78	20 - 40				
79/ 6/ 1	152	1126 - 2015	247 - 207	206 - 281	20 - 40				
79/ 6/ 2	153	1142 - 2015	47 - 357	52 - 124	20 - 40	13 8 - 1358	99 - 129	64 - 71	23 - 25
79/ 6/ 3	154	1120 - 2015	184 - 148	252 - 327	20 - 40				
79/ 6/ 4	155	1115 - 2015	331 - 298	95 - 171	20 - 40				
79/ 6/ 5	156	1114 - 20 0	121 - 79	298 - 12	20 - 40	1447 - 15 0	250 - 258	328 - 330	22 - 26
79/ 6/ 6	157	1114 - 20 0	271 - 229	141 - 215	20 - 40				
79/ 6/ 7	158	11 2 - 20 0	54 - 20	343 - 59	20 - 40	1316 - 1321	135 - 138	2 - 2	23 - 27
79/ 6/ 8	159	11 3 - 20 0	205 - 170	186 - 262	20 - 40				
79/ 6/ 9	160	11 0 - 12 0	354 - 30	29 - 37	20 - 40				
79/ 6/11	162	1050 - 1945	288 - 252	74 - 150	20 - 40				
79/ 6/12	163	11 3 - 1945	87 - 42	279 - 353	20 - 40				
79/ 6/13	164	1038 - 1945	222 - 192	119 - 196	20 - 40				
79/ 6/14	165	1042 - 1920	14 - 328	323 - 36	20 - 40				
79/ 6/15	166	1051 - 1920	170 - 118	167 - 239	20 - 40	1238 - 1311	235 - 255	183 - 187	23 - 28
79/ 6/16	167	1458 - 1920	110 - 268	46 - 83	20 - 40				
79/ 6/17	168	1043 - 1920	106 - 58	213 - 286	20 - 40	13 8 - 15 4	194 - 264	233 - 250	22 - 35
79/ 6/18	169	1032 - 1920	250 - 209	55 - 129	20 - 40				
79/ 6/19	170	1019 - 1915	32 - 356	256 - 332	20 - 40				
79/ 6/20	171	1025 - 19 0	186 - 137	100 - 173	20 - 40				
79/ 6/21	172	1018 - 19 0	332 - 268	303 - 16	20 - 40				
79/ 6/22	173	1021 - 19 0	124 - 78	146 - 219	20 - 40	1230 - 1332	202 - 240	164 - 173	20 - 29
79/ 6/23	174	1017 - 19 0	272 - 228	349 - 63	20 - 40				
79/ 6/24	175	10 6 - 1514	56 - 242	191 - 234	20 - 40				

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
79/ 6/25	176	1030 - 19 0	220 - 169	37 - 109	20 - 40	17 1 - 18 2	97 - 134	93 - 101	24 - 37
79/ 6/26	177	1047 - 19 0	21 - 319	243 - 313	20 - 40				
79/ 6/27	178	958 - 1850	142 - 103	79 - 154	20 - 40				
79/ 6/28	179	1317 - 1850	52 - 254	311 - 358	20 - 40				
79/ 6/29	180	953 - 1845	79 - 41	125 - 200	20 - 40				
79/ 6/30	181	950 - 1842	228 - 189	328 - 43	20 - 40				
79/ 7/ 1	182	948 - 1840	17 - 338	171 - 246	20 - 40	1549 - 1629	235 - 259	222 - 228	23 - 32
79/ 7/ 2	183	940 - 1840	162 - 129	13 - 89	20 - 40	1753 - 1837	100 - 127	83 - 89	23 - 32
79/ 7/ 3	184	1017 - 1832	335 - 274	222 - 292	20 - 40				
79/ 7/ 4	185	944 - 1832	105 - 64	60 - 135	20 - 40				
79/ 7/ 5	186	940 - 1826	253 - 211	263 - 337	20 - 40				
79/ 7/ 6	187	923 - 1823	33 - 0	104 - 180	20 - 40				
79/ 7/ 7	188	910 - 1823	176 - 150	305 - 23	20 - 40				
79/ 7/ 8	189	910 - 1823	326 - 300	149 - 227	20 - 40				
79/ 7/ 9	190	925 - 1815	125 - 86	354 - 69	20 - 40	1223 - 1247	233 - 247	19 - 23	20 - 30
79/ 7/10	191	920 - 1815	273 - 236	197 - 272	20 - 40				
79/ 7/11	192	917 - 1815	61 - 26	39 - 115	20 - 40				
79/ 7/12	193	922 - 1815	214 - 176	243 - 319	20 - 40				
79/ 7/13	194	9 4 - 18 0	354 - 318	84 - 160	20 - 40				
79/ 7/14	195	9 0 - 18 0	142 - 108	287 - 3	20 - 40				
79/ 7/15	196	9 7 - 18 0	296 - 258	131 - 206	20 - 40				
79/ 7/16	197	855 - 18 0	79 - 49	333 - 50	20 - 40				
79/ 7/17	198	819 - 1813	208 - 207	171 - 255	20 - 40				
79/ 7/18	199	9 4 - 1745	25 - 340	21 - 94	20 - 40	1120 - 1126	107 - 111	40 - 41	27 - 29
79/ 7/19	200	856 - 1745	171 - 130	223 - 297	20 - 40	1010 - 1129	215 - 263	233 - 244	20 - 35
						1216 - 1242	292 - 307	251 - 255	26 - 32
79/ 7/20	201	858 - 1740	322 - 278	66 - 140	20 - 40	1256 - 13 6	106 - 112	100 - 101	26 - 32
79/ 7/21	202	836 - 1736	99 - 66	266 - 343	20 - 40				
79/ 7/22	203	834 - 1734	248 - 215	109 - 186	20 - 40	1455 - 1526	119 - 137	163 - 168	26 - 30
79/ 7/23	204	839 - 1730	42 - 3	313 - 28	20 - 40	1347 - 1422	228 - 249	357 - 2	21 - 27
79/ 7/24	205	833 - 1730	188 - 153	156 - 232	20 - 40				
79/ 7/25	206	832 - 1739	338 - 309	359 - 76	20 - 40				
79/ 7/26	207	823 - 1722	123 - 89	201 - 277	20 - 40	1115 - 1229	227 - 272	225 - 236	23 - 33
						1248 - 13 8	283 - 295	238 - 241	23 - 30
79/ 7/27	208	829 - 1718	277 - 236	45 - 120	20 - 40	13 6 - 1332	84 - 100	84 - 88	22 - 34
						1332 - 1559	100 - 189	88 - 109	22 - 36
79/ 7/28	209	820 - 1715	62 - 25	247 - 323	20 - 40	1326 - 1330	247 - 249	290 - 291	21 - 25
79/ 7/29	210	819 - 1712	211 - 173	90 - 165	20 - 40				
79/ 7/30	211	818 - 17 9	1 - 322	293 - 8	20 - 40				
79/ 7/31	212	815 - 17 6	150 - 110	136 - 211	20 - 40				
79/ 8/ 1	213	827 - 17 6	307 - 261	341 - 54	20 - 40				
79/ 8/ 2	214	817 - 17 6	91 - 51	183 - 258	20 - 40	1130 - 1434	208 - 319	210 - 236	21 - 33
79/ 8/ 3	215	813 - 17 0	239 - 198	26 - 100	20 - 40	927 - 951	284 - 298	36 - 39	21 - 28
						1323 - 1514	67 - 134	69 - 85	26 - 32
79/ 8/ 4	216	750 - 17 0	16 - 348	226 - 303	20 - 40				
79/ 8/ 5	217	8 0 - 17 0	172 - 138	70 - 147	20 - 40				
79/ 8/ 6	218	750 - 17 0	316 - 289	272 - 350	20 - 40				
79/ 8/ 7	219	8 4 - 17 0	115 - 79	117 - 193	20 - 40				
79/ 8/ 8	220	751 - 1620	257 - 205	319 - 31	20 - 40				
79/ 8/ 9	221	751 - 1630	48 - 1	162 - 235	20 - 40	10 4 - 11 6	128 - 166	181 - 190	23 - 27
						1212 - 1329	206 - 252	199 - 210	22 - 29
						15 6 - 15 8	311 - 312	224 - 224	25 - 25
79/ 8/10	222	730 - 1630	185 - 152	2 - 79	20 - 40				
79/ 8/11	223	721 - 1630	330 - 302	204 - 282	20 - 40				
79/ 8/12	224	729 - 1630	125 - 92	49 - 125	20 - 40				
79/ 8/13	225	736 - 1630	260 - 243	253 - 328	20 - 40				
79/ 8/14	226	733 - 1630	68 - 33	96 - 172	20 - 40				

TABLE I *(continued).*

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
79/ 8/15	227	720 - 1620	211 - 177	297 - 14	20 - 40				
79/ 8/16	228	720 - 1616	1 - 325	141 - 216	20 - 40				
79/ 8/17	229	720 - 1620	152 - 118	344 - 60	20 - 40				
79/ 8/18	230	720 - 1620	302 - 268	187 - 263	20 - 40				
79/ 8/19	231	7 5 - 16 8	83 - 51	28 - 105	20 - 40	11 1 - 1125	226 - 240	62 - 65	21 - 26
79/ 8/20	232	7 0 - 1134	230 - 36	231 - 270	20 - 40	818 - 820	278 - 279	242 - 242	22 - 31
						1128 - 1131	32 - 34	269 - 269	22 - 31
79/ 8/21	233	7 0 - 16 0	21 - 347	74 - 150	20 - 40	918 - 1023	104 - 143	94 - 103	20 - 35
						1255 - 1312	235 - 246	124 - 127	20 - 26
79/ 8/22	234	713 - 16 0	179 - 137	279 - 354	20 - 40				
79/ 8/23	235	8 0 - 16 0	358 - 288	129 - 197	20 - 40				
79/ 8/24	236	716 - 16 0	121 - 78	326 - 40	20 - 40				
79/ 8/25	237	7 5 - 16 0	265 - 228	168 - 244	20 - 40				
79/ 8/26	238	713 - 1545	60 - 10	12 - 85	20 - 40				
79/ 8/27	239	7 7 - 1545	207 - 160	215 - 288	20 - 40	8 7 - 841	243 - 264	223 - 228	21 - 26
79/ 8/28	240	737 - 1545	15 - 310	62 - 131	20 - 40	941 - 958	90 - 101	80 - 82	20 - 30
						1040 - 1123	126 - 152	88 - 94	29 - 30
						1123 - 12 6	152 - 178	94 - 100	20 - 34
79/ 8/29	241	7 1 - 1545	144 - 101	261 - 334	20 - 40				
79/ 8/30	242	741 - 1530	319 - 242	109 - 176	20 - 40				
79/ 8/31	243	718 - 1530	95 - 32	309 - 19	20 - 40				
79/ 9/ 1	244	710 - 1530	240 - 183	152 - 222	20 - 40				
79/ 9/ 2	245	7 3 - 1530	27 - 333	354 - 65	20 - 40	1028 - 1036	150 - 155	23 - 24	22 - 27
79/ 9/ 3	246	645 - 1520	166 - 117	195 - 267	20 - 40	751 - 855	206 - 245	204 - 213	22 - 28
						1025 - 11 8	299 - 325	226 - 232	23 - 28
79/ 9/ 4	247	645 - 1520	316 - 268	38 - 111	20 - 40	1043 - 1048	100 - 103	72 - 72	23 - 26
						1141 - 1242	135 - 172	80 - 88	20 - 27
79/ 9/ 5	248	1048 - 1515	254 - 55	276 - 313	20 - 40				
79/ 9/ 6	249	643 - 1515	256 - 205	84 - 156	20 - 40				
79/ 9/ 7	250	646 - 15 0	48 - 347	288 - 358	20 - 40	1220 - 1253	250 - 270	335 - 340	25 - 32
79/ 9/ 8	251	639 - 15 0	194 - 137	130 - 201	20 - 40				
79/ 9/ 9	252	623 - 15 2	335 - 288	331 - 44	20 - 40				
79/ 9/10	253	636 - 15 0	133 - 78	176 - 247	20 - 40				
79/ 9/11	254	646 - 15 0	289 - 228	21 - 91	20 - 40				
79/ 9/12	255	637 - 15 0	74 - 18	223 - 294	20 - 40	1032 - 1033	216 - 217	256 - 256	24 - 28
79/ 9/13	256	634 - 1445	223 - 160	66 - 135	20 - 40				
79/ 9/14	257	650 - 1637	23 - 18	271 - 354	20 - 40				
79/ 9/15	258	545 - 1430	134 - 91	106 - 180	20 - 40	819 - 820	227 - 228	127 - 127	24 - 25
79/ 9/16	259	545 - 1430	284 - 242	309 - 23	20 - 40				
79/ 9/17	260	545 - 1430	75 - 32	152 - 226	20 - 40				
79/ 9/18	261	545 - 1420	225 - 176	355 - 68	20 - 40				
79/ 9/19	262	530 - 1420	6 - 327	197 - 271	20 - 40	1051 - 1146	200 - 234	242 - 250	21 - 36
79/ 9/20	263	530 - 1420	157 - 117	40 - 115	20 - 40				
79/ 9/21	264	530 - 1420	307 - 267	243 - 318	20 - 40				
79/ 9/22	265	520 - 1415	91 - 55	85 - 161	20 - 40	531 - 814	98 - 197	87 - 110	22 - 36
79/ 9/23	266	520 - 1415	242 - 205	288 - 4	20 - 40				
79/ 9/24	267	520 - 1415	32 - 356	132 - 207	20 - 40				
79/ 9/25	268	512 - 645	178 - 234	334 - 347	20 - 40				
79/ 9/26	269	512 - 645	328 - 24	177 - 190	20 - 40				
79/ 9/27	270	520 - 1415	123 - 87	22 - 97	20 - 40				
79/ 9/28	271	5 0 - 14 0	262 - 228	222 - 298	20 - 40				
79/ 9/29	272	5 0 - 14 0	52 - 18	65 - 142	20 - 40	617 - 842	99 - 186	76 - 97	20 - 31
79/ 9/30	273	5 0 - 14 0	202 - 169	269 - 345	20 - 40	553 - 632	234 - 258	276 - 282	20 - 25
79/10/ 1	274	430 - 1330	335 - 301	108 - 184	20 - 40	934 - 936	158 - 160	151 - 151	24 - 26
79/10/ 2	275	520 - 1350	155 - 103	318 - 30	20 - 40				
79/10/ 3	276	450 - 1350	287 - 254	157 - 233	20 - 40				
79/10/ 4	277	450 - 1345	78 - 41	0 - 76	20 - 40				

DATE YY/MM/DD	DOY JJJ	OBSERVATIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	EMISSIONS TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
79/10/ 5	278	450 - 1345	228 - 192	204 - 279	20 - 40				
79/10/ 6	279	450 - 1345	19 - 342	47 - 123	20 - 40				
79/10/ 7	280	440 - 1340	163 - 129	249 - 325	20 - 40				
79/10/ 8	281	430 - 1330	307 - 274	91 - 167	20 - 40				
79/10/ 9	282	440 - 13 0	104 - 46	296 - 6	20 - 40				
79/10/10	283	420 - 13 0	242 - 196	136 - 210	20 - 40				
79/10/11	284	420 - 13 0	33 - 347	339 - 53	20 - 40				
79/10/12	285	420 - 13 0	183 - 137	183 - 256	20 - 40				
79/10/13	286	420 - 13 0	333 - 288	26 - 99	20 - 40				
79/10/14	287	415 - 13 0	121 - 78	229 - 303	20 - 40	649 - 723	214 - 234	250 - 255	23 - 31
79/10/15	288	415 - 13 0	271 - 229	72 - 146	20 - 40	826 - 845	63 - 74	107 - 110	29 - 33
79/10/16	289	4 5 - 1245	56 - 10	274 - 347	20 - 40				
79/10/17	290	4 5 - 10 0	206 - 61	117 - 167	20 - 40				
79/10/18	291	4 0 - 1117	353 - 258	320 - 22	20 - 40				
79/10/19	292	4 0 - 1135	144 - 59	163 - 227	20 - 40				
79/10/20	293	4 0 - 1224	294 - 239	7 - 78	20 - 40				
79/10/21	294	4 0 - 13 0	85 - 51	210 - 286	20 - 40	521 - 527	134 - 137	221 - 222	22 - 36
						7 0 - 825	193 - 245	235 - 247	22 - 36
79/10/22	295	4 0 - 1245	235 - 192	53 - 127	20 - 40				
79/10/23	296	345 - 1219	16 - 327	254 - 327	20 - 40				
79/10/24	297	3 0 - 1113	140 - 78	91 - 161	20 - 40	350 - 427	170 - 192	98 - 104	20 - 26
79/10/25	298	345 - 1230	317 - 275	301 - 15	20 - 40				
79/10/26	299	345 - 1214	108 - 55	144 - 216	20 - 40				
79/10/27	300	330 - 1230	249 - 216	346 - 62	20 - 40				
79/10/28	301	330 - 1230	40 - 6	189 - 265	20 - 40				
79/10/29	302	320 - 1258	184 - 173	31 - 113	20 - 40	1120 - 1150	114 - 132	99 - 103	25 - 35
79/10/30	303	320 - 1054	334 - 249	234 - 298	20 - 40				
79/10/31	304	330 - 1219	131 - 91	79 - 154	20 - 40	330 - 433	131 - 169	79 - 88	20 - 29
79/11/ 1	305	342 - 1142	289 - 219	284 - 352	20 - 40				
79/11/ 2	306	330 - 1140	72 - 8	126 - 195	20 - 40				
79/11/ 3	307	330 - 1130	222 - 152	329 - 37	20 - 40				
79/11/ 4	308	330 - 1130	13 - 303	173 - 240	20 - 40				
79/11/ 5	309	3 0 - 11 0	145 - 75	12 - 79	20 - 40				
79/11/ 6	310	250 - 11 0	290 - 226	214 - 283	20 - 40	325 - 355	311 - 329	219 - 223	20 - 25
79/11/ 7	311	250 - 11 0	80 - 16	57 - 126	20 - 40	3 2 - 540	87 - 183	59 - 81	20 - 30
79/11/ 8	312	250 - 1113	230 - 175	260 - 331	20 - 40				
79/11/ 9	313	250 - 1130	21 - 335	104 - 177	20 - 40	9 1 - 928	245 - 262	156 - 160	31 - 35
79/11/10	314	250 - 11 9	171 - 113	307 - 18	20 - 40				
79/11/11	315	250 - 1126	322 - 274	150 - 223	20 - 40				
79/11/12	316	230 - 1122	100 - 62	351 - 66	20 - 40				
79/11/13	317	230 - 12 8	251 - 240	194 - 276	20 - 40				
79/11/14	318	230 - 12 0	41 - 26	38 - 118	20 - 40	318 - 518	70 - 143	45 - 61	20 - 28
79/11/15	319	230 - 1130	192 - 158	241 - 317	20 - 40	235 - 322	195 - 223	242 - 248	20 - 26
79/11/16	320	230 - 1054	342 - 287	85 - 156	20 - 40	716 - 718	155 - 156	125 - 125	26 - 28
79/11/17	321	834 - 1043	353 - 71	339 - 358	20 - 40				
79/11/18	322	215 - 1047	274 - 224	129 - 202	20 - 40	211 - 315	272 - 310	129 - 138	20 - 23
						340 - 345	326 - 329	141 - 142	20 - 23
79/11/19	323	215 - 1110	65 - 28	333 - 48	20 - 40	4 5 - 428	131 - 145	348 - 351	20 - 26
79/11/20	324	215 - 10 6	215 - 140	176 - 243	20 - 40				
79/11/21	325	215 - 10 6	6 - 290	19 - 86	20 - 40	352 - 510	64 - 111	33 - 44	20 - 36
79/11/22	326	215 - 11 0	156 - 114	223 - 297	20 - 40				
79/11/23	327	750 - 11 0	149 - 264	114 - 140	20 - 40				
79/11/24	328	2 0 - 11 0	88 - 55	267 - 344	20 - 40				
79/11/25	329	2 0 - 11 0	239 - 205	111 - 187	20 - 40	335 - 412	296 - 318	124 - 130	20 - 23
79/11/26	330	2 0 - 1019	29 - 331	314 - 25	20 - 40				
79/11/27	331	145 - 1045	171 - 137	156 - 232	20 - 40	242 - 326	205 - 232	164 - 170	20 - 28
79/11/28	332	145 - 1045	321 - 288	359 - 75	20 - 40	453 - 5 5	75 - 82	26 - 27	22 - 26

TABLE I *(continued).*

		OBSERVATIONS				EMISSIONS			
DATE YY/MM/DD	DOY JJJ	TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ	TIME UT HHMM - HHMM	CML III (1965.0)	IO PHASE	WIDTH MHZ
79/11/29	333	145 - 1015	112 - 60	202 - 274	20 - 40				
79/11/30	334	130 - 1015	253 - 211	44 - 118	20 - 40	740 - 82	117 - 130	96 - 99	25 - 35
79/12/ 1	335	115 - 1015	35 - 1	245 - 321	20 - 40				
79/12/ 2	336	115 - 1015	185 - 152	88 - 165	20 - 40	155 - 30	209 - 249	94 - 103	20 - 26
79/12/ 3	337	120 - 100	339 - 293	293 - 6	20 - 40	543 - 559	138 - 147	330 - 332	20 - 27
79/12/ 4	338	120 - 100	129 - 84	136 - 210	20 - 40	326 - 413	205 - 234	154 - 160	20 - 29
79/12/ 5	339	70 - 100	125 - 234	28 - 53	20 - 40				
79/12/ 6	340	110 - 100	64 - 25	182 - 256	20 - 40				
79/12/ 7	341	120 - 100	221 - 175	26 - 100	15 - 40	25 - 230	248 - 263	33 - 36	15 - 38
						335 - 50	303 - 354	45 - 57	15 - 30
						749 - 830	96 - 121	81 - 87	15 - 38
						830 - 930	121 - 157	87 - 96	28 - 36
79/12/ 8	342	10 - 100	359 - 326	227 - 303	15 - 40	346 - 359	100 - 108	250 - 252	19 - 26
						429 - 53	126 - 146	257 - 261	19 - 26
79/12/ 9	343	10 - 100	150 - 116	70 - 147	15 - 40	32 - 60	224 - 331	88 - 113	15 - 26
79/12/10	344	10 - 944	300 - 257	274 - 348	15 - 40	112 - 149	308 - 330	276 - 281	15 - 26
79/12/11	345	10 - 929	91 - 39	117 - 189	15 - 40	145 - 212	118 - 135	124 - 128	15 - 28
						429 - 620	217 - 285	147 - 163	15 - 28
79/12/13	347	10 - 920	32 - 334	164 - 235	20 - 40	543 - 650	203 - 244	204 - 214	20 - 30
						822 - 830	299 - 304	227 - 228	20 - 30
79/12/14	348	10 - 916	183 - 123	8 - 78	15 - 40	230 - 330	237 - 273	20 - 29	15 - 24
						354 - 51	288 - 328	32 - 42	15 - 25
79/12/15	349	10 - 910	333 - 270	211 - 280	15 - 40	430 - 542	100 - 144	241 - 251	15 - 28
79/12/16	350	050 - 96	118 - 58	53 - 123	15 - 40	150 - 20	154 - 160	62 - 63	18 - 22
						532 - 550	288 - 299	93 - 96	18 - 22
79/12/17	351	050 - 95	268 - 208	257 - 327	15 - 40	214 - 222	319 - 324	269 - 270	15 - 26
						614 - 647	104 - 124	303 - 307	15 - 26
79/12/18	352	045 - 95	56 - 358	100 - 170	15 - 40	210 - 230	107 - 119	112 - 114	15 - 28
						254 - 323	134 - 152	118 - 122	15 - 30
						454 - 612	207 - 254	135 - 146	15 - 30
79/12/19	353	045 - 90	207 - 146	303 - 13	15 - 30	145 - 428	243 - 341	311 - 334	15 - 28
79/12/20	354	742 - 850	249 - 290	205 - 215	15 - 40				
79/12/21	355	045 - 850	148 - 81	350 - 58	15 - 40	36 - 344	233 - 256	10 - 15	20 - 28
79/12/22	356	030 - 850	289 - 232	191 - 262	15 - 40				
79/12/23	357	030 - 850	80 - 22	35 - 105	15 - 40	27 - 29	139 - 140	49 - 49	15 - 22
79/12/24	358	030 - 850	230 - 173	238 - 309	15 - 40	030 - 20	230 - 285	238 - 251	15 - 33
79/12/25	359	030 - 850	21 - 323	82 - 152	15 - 40	537 - 70	207 - 257	125 - 137	15 - 29
79/12/26	360	030 - 850	172 - 114	285 - 356	15 - 40	232 - 32	245 - 264	303 - 307	22 - 24
79/12/27	361	030 - 850	322 - 265	129 - 199	15 - 40	411 - 525	96 - 141	160 - 171	20 - 22
79/12/28	362	0 5 - 840	98 - 49	329 - 42	15 - 40	420 - 427	252 - 256	5 - 6	15 - 22
79/12/29	363	0 5 - 830	248 - 194	172 - 244	15 - 40	0 5 - 140	248 - 306	172 - 186	15 - 25
79/12/29	363	2345 - 24 0	27 - 36	13 - 15	20 - 40				
79/12/30	364	0 0 - 830	36 - 344	15 - 87	20 - 40				
79/12/30	364	2345 - 24 0	178 - 187	216 - 219	20 - 40				
79/12/31	365	0 0 - 830	187 - 135	219 - 291	20 - 40				
79/12/31	365	2345 - 24 0	328 - 337	60 - 62	20 - 40				

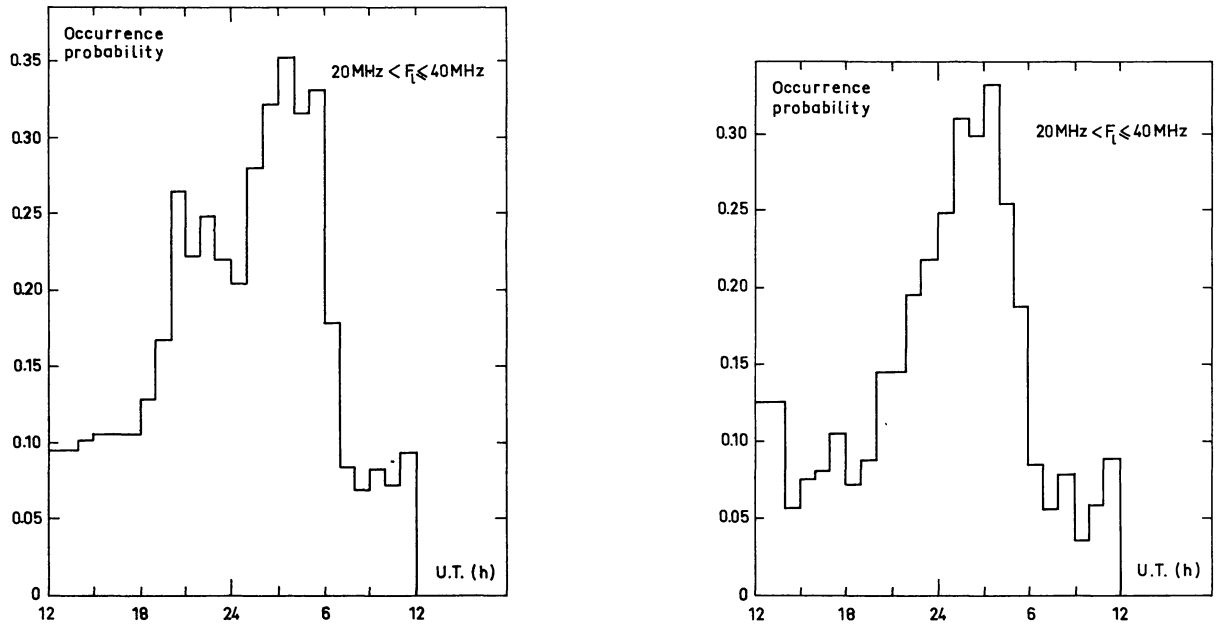
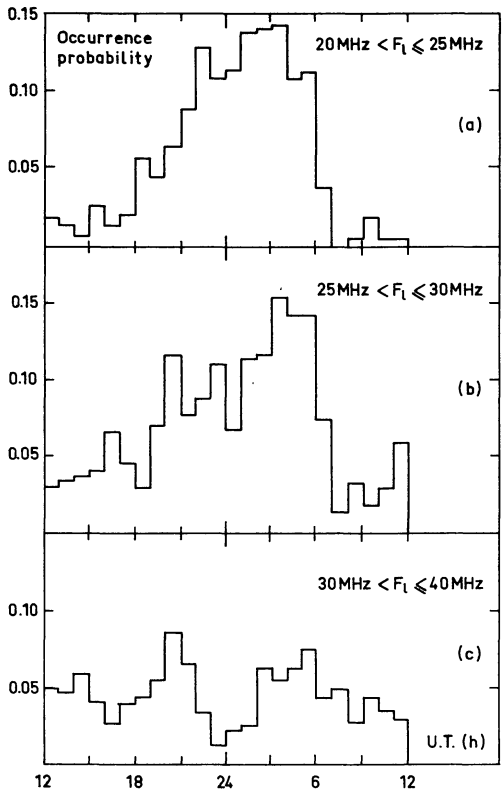
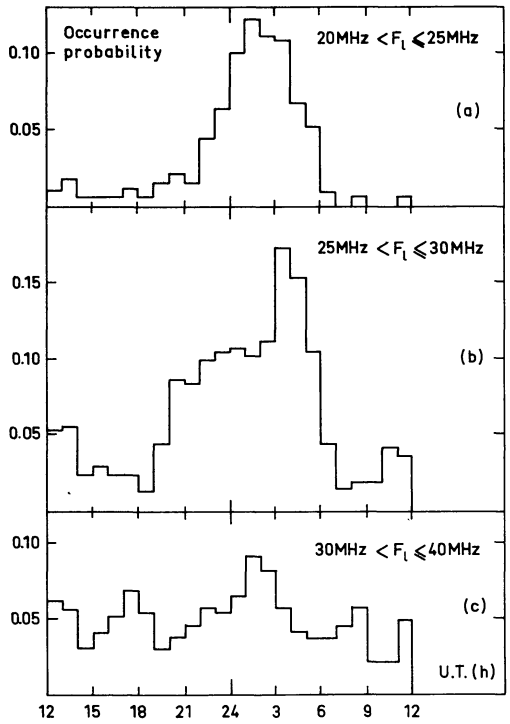


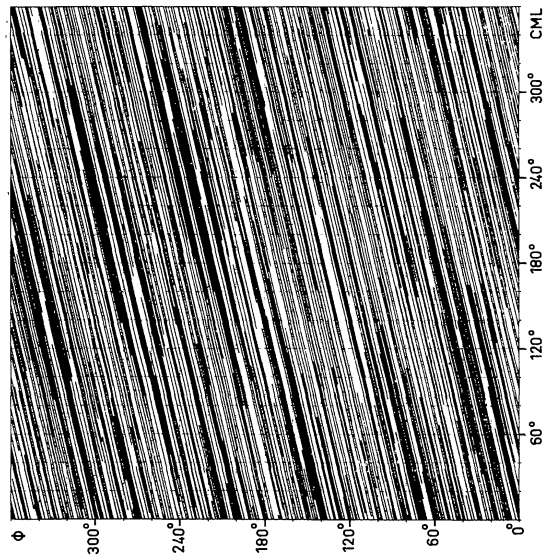
FIGURE 1. — Probability of observing an emission, in the frequency range of 20-40 MHz, *versus* Universal Time. We define the occurrence probability by the number of events divided by the number of observations per one hour interval : a) 1978 period ; b) 1979 period.



FIGURES 2a, b, c. — Probability of observing an emission plotted against U.T. for different ranges of the upper frequency limit (F_l), *1978 period.* a) $20 < F_l \leq 25$ MHz ; b) $25 < F_l \leq 30$ MHz ; c) $30 < F_l \leq 40$ MHz.



FIGURES 3a, b, c. — Probability of observing an emission plotted against U.T. for different ranges of the upper frequency limit (F_l), *1979 period.* a) $20 < F_l \leq 25$ MHz ; b) $25 < F_l \leq 30$ MHz ; c) $30 < F_l \leq 40$ MHz.



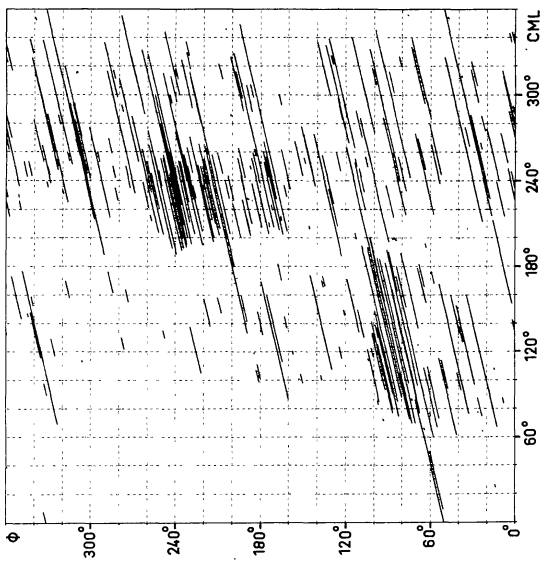
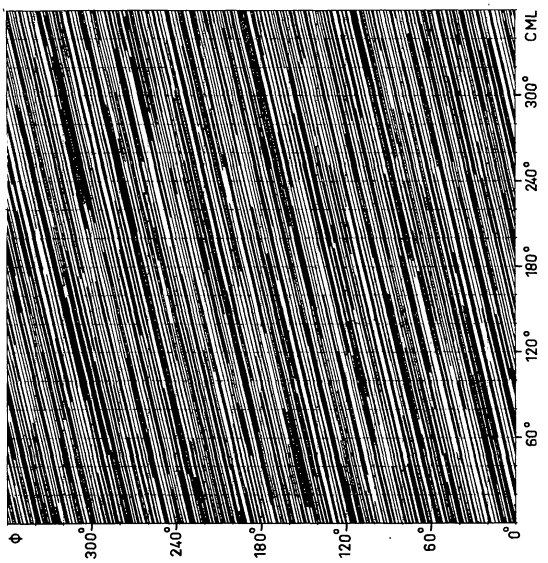


FIGURE 4. — The CML and Io-phase diagram for the period of January to December 1978. a) the observation tracks ; b) the emission tracks.



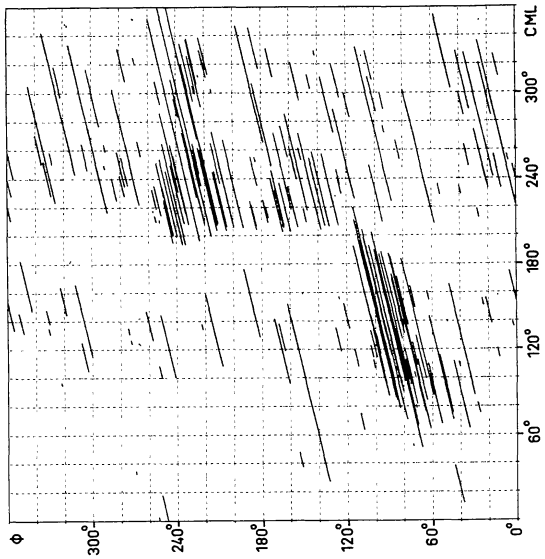
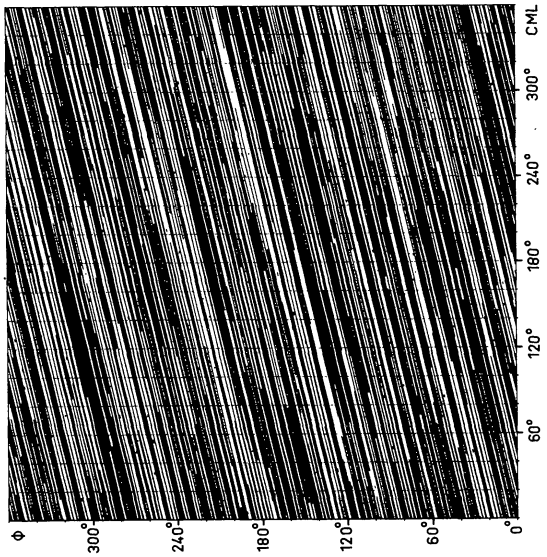


FIGURE 5. — The CML and Io-phase diagram for the period of January to December 1979. a) the observation tracks ; b) the emission tracks.



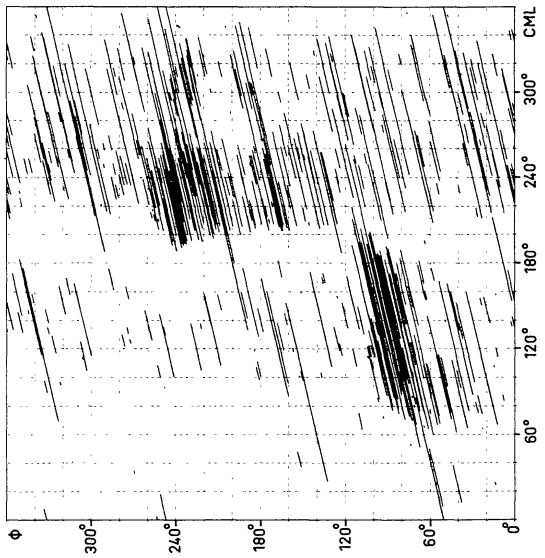


FIGURE 6. — The CML and Io-phase diagram for the period of January 1978 to December 1979. a) the observation tracks ; b) the emission tracks.