#598

VOYAGER 1 & 2

77-084A-10D
77-076A-10D

DECAMETRIC EMISSION CAT. 15-40 MHZ

Table of Contents

1. Introduction

2. Errata/Change Log

3. LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM

4. Catalog Materials

    a. Associated Documents

    b. Core Catalog Materials

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1. INTRODUCTION:

The documentation for this data set was originally on paper, kept in NSSDC's Data Set Catalogs (DSCs). The paper documentation in the Data Set Catalogs have been made into digital images, and then collected into a single PDF file for each Data Set Catalog. The inventory information in these DSCs is current as of July 1, 2004. This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system. The information existing in the DSCs is now not needed for locating the data files, but we did not remove that inventory information.

The offline tape datasets have now been migrated from the original magnetic tape to Archival Information Packages (AIP's).

A prior restoration may have been done on data sets, if a requestor of this data set has questions; they should send an inquiry to the request office to see if additional information exists.

2. ERRATA/CHANGE LOG:

NOTE: Changes are made in a text box, and will show up that way when displayed on screen with a PDF reader.

When printing, special settings may be required to make the text box appear on the printed output.

Version	Date	Person	Page	Description of Change
01				
02				

3 LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM:

http://nssdc.gsfc.nasa.gov/nmc/

[NOTE: This link will take you to the main page of the NSSDC Master Catalog. There you will be able to perform searches to find additional information]

4. CATALOG MATERIALS:

a. Associated Documents To find associated documents you will need to know the document ID number and then click here.
http://nssdcftp.gsfc.nasa.gov/miscellaneous/documents/

b. Core Catalog Materials

VOYAGER 1 & 2

JOVIAN DAM EMISSION CAT.15-40 MHZ

77-084A-10D PSFP-00058

77-076A-10D

These data sets have been restored. There was originally one 9-track, 1600 BPI tape written in ASCII. There is one restored tape. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The original tape was created on an IBM 360 computer and the restored tape was created on an IBM 9021 computer. The DR and DS numbers along with the corresponding D number are as follows:

DR#	DS#	D#	FILES	TIME SPAN
DR005501	DS005501	D058150	1	02/01/79 - 07/23/79

REQ. AGENT	RD NO.	ACQ. AGENT
DEW	V0193	CHB

VOYAGER 1 & 2

77-084A-10D
77-076A-10D

DECAMETRIC EMISSION CAT. 15-40 MHZ

THIS DATA SET CONSISTS OF 1 TAPE. THE TAPE IS 1600 BPI, 9 TRACK, ASCII WITH ONE FILE OF DATA. THE RECORDS ARE CARD IMAGES.

D#	C#
D-58150	C-23137

VOYAGER 1 CATALOGUE: BEFORE ENCOUNTER

JULIAN DATE	YYMMDD	TIME BEG	TIME END	FREQ LO	FREQ HI	CML BEGIN	CML END	IO-PHASE BEGIN	IO-PHASE END
43905	790201	0138	0227	15	29	241.2	271.6	217.1	224.6
43905	790201	0344	0515	15	29	317.8	372.4	234.9	248.0
43905	790201	1206	1220	16	22	261.0	269.4	306.8	308.7
43906	790202	0420	0558	15	34	108.4	188.8	83.8	96.8
43907	790203	1150	1251	15	26	192.5	229.1	350.9	360.0
43907	790203	1323	1512	15	32	249.3	314.7	4.3	19.8
43907	790203	2335	2413	15	26	258.5	281.8	90.9	95.5
43908									
43909	790205	2239	2305	15	19	165.9	181.5	130.4	133.9
43910									
43911	790207	1310	1334	15	32	123.5	137.9	096.1	099.3
43911	790207	1633	1708	15	25	245.3	267.3	125.2	129.9
43912									
43913									
43914	790210	0430	0500	15	28	260.0	278.0	273.2	277.2
43914	790210	1048	1058	15	34	128.8	133.6	326.6	327.7
43914	790210	1120	1330	15	33	148.0	227.0	330.9	349.2
43914	790210	1536	1642	15	25	302.6	342.2	007.0	016.8
43915	790211	1921	2039	15	33	229.1	275.9	241.7	253.1
43916	790212	1302	1331	16	24	151.2	168.6	032.5	036.3
43916	790212	1603	1614	20	24	259.8	266.4	058.6	060.1
43916	790212	2253	2308	15	22	147.8	156.8	116.2	118.3
43916	790212	2334	2344	15	20	172.4	178.4	121.7	123.1
43917	790213	1037	1052	17	28	213.6	223.2	214.6	216.6
43917	790213	1110	1144	20	30	233.4	253.8	219.0	223.6
43917	790213	1306	1342	15	30	304.0	325.6	235.5	240.3
43917	790213	1411	1442	15	24	343.0	361.6	245.2	249.3
43918	790214	1225	1328	20	32	068.9	107.7	074.1	082.5
43918	790214	1358	1516	20	35	125.7	172.5	086.5	097.9
43919									
43920	790216	1926	1947	15	29	264.4	277.0	179.6	182.4
43921	790217	0430	0458	15	33	227.2	244.0	256.8	260.5
43922	790218	1154	1213	15	25	292.0	303.4	161.7	165.2
43922	790218	2000	2103	15	33	225.6	264.4	231.5	239.9
43923	790219	1628	1705	15	25	247.8	271.0	045.4	050.4
43923	790219	1717	1731	15	21	278.2	286.6	052.0	053.8
43923	790219	2140	2202	18	34	077.0	090.2	089.0	093.0
43923	790219	2214	2306	15	35	097.4	128.6	094.6	101.5
43924	790220	1139	1227	17	28	223.8	252.6	206.3	213.7
43925	790221	1257	1418	16	30	060.2	110.5	061.7	073.5
43926	790222	0246	0312	15	28	202.6	218.2	177.9	181.4
43926	790222	0415	0514	15	27	256.0	291.4	190.8	198.7
43926	790222	1400	1454	15	27	250.0	282.4	273.8	281.0
43926	790222	1819	1826	15	17	046.4	050.6	310.3	311.3
43926	790222	2113	2155	15	27	151.8	177.0	334.5	340.1
43927	790223	0020	0041	15	24	264.2	276.8	000.8	003.6
43927	790223	0133	0148	15	21	308.0	317.0	010.5	012.3
43927	790223	0247	0255	15	18	353.4	358.2	021.4	022.4
43927	790223	0935	1001	15	25	239.2	255.8	078.8	083.2
43927	790223	1320	1447	15	18	016.2	068.4	110.8	123.4

(2)

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 59   43928 790224 0354 0606 15 36 183.8 264.0 233.6 253.2
 60   43928 790224 0932 1001 15 17 027.6 046.0 281.7 286.5
 61   43928 790224 1136 1227 15 16 103.0 133.6 299.2 307.0
 62   43928 790224 1620 1701 15 21 274.4 300.0 340.1 345.1
 63   43929 790225 0107 0138 15 25 232.7 251.3 052.8 057.0
 64   43929 790225 1120 1152 15 26 243.5 262.7 139.6 143.8
 65   43929 790225 2107 2158 15 31 238.7 269.3 222.8 229.6
 66   43929 790225 2258 2402 15 31 305.3 343.7 238.6 248.0
 67
 68   43930 790226 0737 0751 15 24 258.7 267.1 311.6 313.5
 69   43930 790226 0813 0821 15 20 280.3 285.1 317.4 318.5
 70   43930 790226 1419 1526 15 24 141.9 182.1 009.2 018.2
 71   43930 790226 1658 1824 15 30 237.3 289.9 031.4 043.9
 72   43930 790226 2246 2322 15 29 088.1 109.7 080.8 085.6
 73   43930 790226 2338 2548 15 35 119.3 197.2 087.8 103.9
 74   43931 790227 0227 0442 15 29 221.6 302.6 110.1 129.1
 75   43931 790227 1536 1557 15 19 338.0 350.6 221.3 224.1
 76   43931 790227 1844 1854 15 17 091.8 097.8 248.4 249.7
 77   43931 790227 2228 2313 15 23 227.2 254.2 280.2 286.2
 78   43931 790227 2334 2344 15 20 266.8 272.8 289.0 290.0
 79   43932 790228 0010 0035 15 19 288.0 303.0 294.2 297.6
 80   43932 790228 0828 1110 15 27 228.8 327.0 004.6 027.2
 81   43932 790228 1354 1533 15 28 066.4 125.0 050.1 064.3
 82   43932 790228 1624 1654 15 20 156.4 174.4 072.1 076.1
 83   43932 790228 1805 1828 15 19 240.8 254.6 086.5 089.6
 84   43932 790228 1843 2101 15 25 263.6 324.6 091.6 111.0
 85   43933 790301 0349 0612 15 27 203.4 295.7 166.7 187.0
 86   43933 790301 1423 1605 15 32 232.0 293.5 256.1 270.4
 87   43934 790302 0047 0203 15 32 248.2 294.1 342.9 353.3
 88   43934 790302 0956 1011 15 19 219.1 228.2 058.9 061.1
 89   43934 790302 1036 1107 15 20 243.3 261.9 064.6 068.9
 90   43934 790302 1144 1322 15 22 284.2 343.3 074.0 087.7
 91   43934 790302 1559 1834 15 20 077.8 171.2 109.6 131.0
 92   43934 790302 1933 2102 15 28 206.7 260.2 139.5 152.0
 93   43934 790302 2210 2317 15 18 301.1 341.4 161.4 170.8
 94
 95
 96
 97     VOYAGER 1 CATALOGUE: AFTER ENCOUNTER
 98
 99  JULIAN YYMMDD   TIME    FREQ      CML       IO-PHASE
100   DATE          BEG  END  LO HI BEGIN  END  BEGIN  END
101
102   43939 790307 2338 2523 15 25 136.0 199.1 220.0 234.6
103   43940 790308 0243 0354 15 33 247.2 290.0 245.7 255.7
104   43940 790308 0925 1100 15 27 129.3 186.5 302.0 315.3
105   43940 790308 1701 1734 15 18 044.0 063.9 005.6 010.3
106   43941 790309 0258 0459 15 34 043.8 116.8 088.5 105.4
107   43941 790309 1555 1634 15 22 152.4 176.0 196.8 202.3
108   43941 790309 1720 1757 15 25 203.7 226.0 208.7 213.9
109   43941 790309 1814 1907 15 30 236.3 268.3 216.4 223.9
110   43941 790309 2007 2209 15 32 304.5 378.1 232.3 249.6
111   43942 790310 0153 0241 15 24 152.9 182.7 280.2 287.7
112   43942 790310 1158 1239 15 21 158.9 183.5 005.9 011.4
113   43942 790310 1803 2031 15 32 019.9 108.7 058.6 079.3
114   43942 790310 2042 2252 15 34 113.3 194.3 080.8 099.1
115   43943 790311 1613 1803 15 32 102.1 169.1 244.9 260.6
116   43943 790311 2050 2123 15 22 269.3 290.1 283.9 288.3
```

3

291	44054	790630	1826	1859	15	26	237.5	257.3	76.2	80.6
292	44054	790630	1914	1950	15	26	266.3	287.9	82.6	87.4
293	44055	790701	0338	0346	17	27	210.3	215.1	152.8	153.8
294	44055	790701	0406	0420	15	22	227.1	235.5	157.5	159.4
295	44055	790701	0450	0626	15	27	253.5	312.1	163.4	177.2
296	44055	790701	1305	1651	15	38	193.5	329.1	233.4	265.5
297	44056	790702	0034	0304	15	27	250.0	340.0	328.8	349.8
298	44056	790702	1019	1147	15	28	242.3	295.1	51.8	63.6
299	44056	790702	1748	1836	15	24	153.7	182.5	114.7	122.1
300	44056	790702	1933	2200	15	30	216.7	305.9	129.7	151.3
301	44057	790703	0225	0308	18	24	105.1	130.9	187.6	193.4
302	44057	790703	0326	0341	18	26	141.7	150.7	195.8	197.8
303	44057	790703	0403	0416	16	21	163.9	171.7	201.7	203.4
304	44057	790703	0456	0942	15	35	195.7	368.3	208.8	248.9
305	44057	790703	1147	1412	16	25	84.3	172.3	266.6	287.9
306	44057	790703	1538	1821	15	28	223.9	322.7	299.4	323.1
307	44057	790703	1942	2008	15	22	11.3	26.9	333.9	338.4
308										
309	44058	790704	0134	0437	15	28	222.3	333.1	20.6	47.0
310	44058	790704	0602	1146	15	35	25.1	232.5	59.4	107.2
311	44058	790704	1212	1451	15	33	248.1	344.5	111.7	133.9
312	44058	790704	1808	1826	16	31	103.7	114.5	162.2	164.6
313	44058	790704	1857	1954	15	26	133.1	167.3	168.7	176.3
314	44058	790704	2054	2502	15	28	203.3	351.3	185.3	218.3
315										
316										
317										
318	VOYAGER 2 CATALOGUE: AFTER ENCOUNTER									
319										
320	JULIAN	YYMMDD	TIME		FREQ		CML		IO-PHASE	
321	DATE		BEG	END	LO	HI	BEGIN	END	BEGIN	END
322										
323	44067	790713	1647	1908	15	34	91.1	176.0	304.2	323.8
324	44067	790713	2030	2144	15	29	225.3	268.6	334.9	344.9
325	44068	790714	0202	0242	15	28	66.0	90.0	21.2	26.5
326	44068	790714	0345	0512	15	29	127.8	180.0	34.9	47.5
327	44068	790714	0609	0708	15	29	215.2	250.6	56.1	64.0
328	44068	790714	1358	1511	15	28	138.6	182.4	121.6	132.4
329	44069	790715	0003	0106	15	27	140.8	178.6	204.8	213.2
330	44069	790715	0301	0355	15	32	248.6	281.0	229.5	236.7
331	44069	790715	0408	0542	15	32	288.8	345.2	239.5	252.0
332	44069	790715	0829	0840	15	23	86.4	93.0	276.3	277.7
333	44069	790715	1820	1832	15	29	84.0	91.2	0.1	1.7
334	44069	790715	1944	2103	15	30	134.4	182.8	11.3	22.8
335	44069	790715	2320	2331	15	21	265.0	271.6	42.1	43.5
336	44070	790716	0301	0446	15	31	36.9	99.9	70.2	85.2
337	44070	790716	0506	0942	15	37	111.9	278.5	87.9	126.7
338	44070	790716	1557	1651	15	25	145.5	177.9	172.9	187.9
339	44070	790716	1742	1919	15	29	209.5	267.7	194.7	208.6
340	44070	790716	1932	1948	15	20	275.5	285.1	210.4	212.5
341	44070	790716	2013	2238	15	21	300.1	388.1	216.8	237.2
342	44071	790717	0205	0251	15	28	152.1	179.7	265.3	271.4
343	44071	790717	0940	0952	15	26	66.1	73.3	328.9	330.5
344	44071	790717	1208	1254	15	22	155.9	183.5	350.7	356.8
345	44071	790717	1406	1440	15	22	227.7	248.1	7.4	11.9
346	44071	790717	1828	2141	16	30	25.9	142.7	44.3	71.1
347										
348	44072	790718	0042	0058	15	21	250.5	260.1	94.4	96.5

(4)

349	44072	790718	0704	0853	15	29	121.7	187.1	148.3	163.9
350	44072	790718	1620	1652	15	28	97.3	116.5	227.5	231.7
351	44072	790718	1715	1836	15	22	131.3	179.9	234.8	246.6
352	44072	790718	2033	2111	15	22	250.1	273.9	263.2	268.3
353	44073	790719	0343	0412	15	21	152.4	166.8	323.5	327.7
354	44073	790719	0609	0625	16	26	238.0	247.6	344.3	346.4
355	44073	790719	0713	0731	15	20	276.4	287.2	351.4	353.8
356	44073	790719	1702	1722	15	20	272.8	284.8	76.4	79.0
357	44074	790720	1056	1140	15	26	200.8	227.2	226.4	232.2
358	44074	790720	1236	1353	15	34	260.8	308.0	240.7	251.0
359	44075	790721	0824	0932	15	24	258.4	299.2	48.2	57.3
360	44075	790721	1218	1345	15	25	39.8	93.0	81.4	93.0
361	44075	790721	1507	1609	15	23	142.2	179.4	104.9	114.2
362	44075	790721	1720	1902	15	29	223.0	284.2	123.7	138.3
363	44076	790722	2308	2331	15	22	222.7	236.5	15.9	18.9
364	44077	790723	0357	0626	15	32	36.9	127.3	55.0	76.9
365	44077	790723	0647	0842	15	27	139.9	208.9	79.7	96.0
366	44077	790723	0959	1007	15	23	255.1	260.9	106.3	108.3

367
368
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ASTRONOMY & ASTROPHYSICS
SUPPLEMENT SERIES

B35027-000A

OCTOBER 1981, PAGE 111

DSC # 598

Astron. Astrophys. Suppl. Ser. **46**, 111-114 (1981)

77-084A-10D
77-076A-10D

A catalogue of Jupiter's decametric emission observed by Voyager-1 and by Voyager-2 in the range 15-40 MHz

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Received March 18, accepted April 28, 1981

Summary. — The catalogue lists Jupiter's decametric emissions recorded by the Voyager Planetary Radio Astronomy Experiment during periods in 1979 adjacent to each encounter. The events have been read from the Voyager spectral records in the frequency range 15-40 MHz.

Key words : Jovian decametric emission — Voyager — Catalogue.

1. **Description of the catalogue.** — This paper lists the Jupiter decametric emissions recorded by the Voyager-1 (Warwick *et al.*, 1979a) and Voyager-2 (Warwick *et al.*, 1979b) Planetary Radio Astronomy Experiment during the periods, in 1979, immediately before and immediately after each encounter. The events have been read, from Voyager spectral records at Meudon, for the frequency range 15-40 MHz. These are listed in table I. Below 15 MHz, the character of the emissions appears to change (perhaps, in part, due to a change in system sensitivity) and it is doubtful if all of the activity here could be assessed reliably. The days adjacent to encounter (March 2 through March 7, and July 5 through July 12) are omitted because of the rapidly changing Spacecraft-Jupiter-Sun angle during these periods as well as the presence of ghost images in the records due to saturation effects in the high-frequency band of the PRA receiver.

The format of the listings follows that established by Warwick *et al.* (1975), for the catalogue of activity observed at the University of Colorado Radio Astronomy Observatory during 1960-75, except that, in the first column, the Julian date less 2400000.5 is given as a day number. The date of the event follows in the form YYMMDD and then the beginning and the ending times of each event in the form HHMM (Spacecraft Ephemeris Time). When an event continues through midnight, the date of the event refers to the period prior to midnight ; that is, the date of the beginning of the event. Ending times are then greater than 2400 hours.

The frequency range of the event gives the maximum and the minimum frequency of emission recorded during the event. No distinction is made between the three cases (i) where the lower frequency limit, intrinsic to the event, appears to be 15 MHz, (ii) where the emission extends below 15 MHz and (iii) where the lower limit cannot be distinguished because of noise close to 15 MHz. These are all listed as 15 MHz in the f_{min} column of the Table. The upper frequency limit of an event is, normally, always intrinsic to the emission.

The last four columns give the System III (1965.0) central meridian longitude and the Io-phase values for the event. These have been calculated from the Voyager Jupiter Ephemeris (version 4.0) using values of Spacecraft Ephemeris Time read from the records to the nearest minute. A very few times, at the beginning of the Voyager-2 data, were taken from records which could only be read to the nearest 5-minute accuracy. Angles are given to the nearest 0°.1.

Identification and record evaluation follow the general principles used for interpreting Earth-based observations. This is illustrated in figure 1. Both the total power and the polarization records have been consulted for establishing the extent of an event in both time and frequency. Periods of activity separated by less than 10 minutes, 6° of central meridian longitude, have been regarded as continuous.

No attempt has been made to assess the certainty of identification of each event as this can depend upon the record background. It is possible, therefore, that one or two misidentifications have been included in the listings. It is hoped that these are minimal, however, as the general policy has been to under-estimate rather than to over-estimate event occurrences by omitting uncertainties.

According to Alexander *et al.* (1980), unfavourable antenna geometry gives rise to uncertainties in the assessment of polarization for Voyager-2 after encounter. The assessment of total power, however, is not affected by this although there are fewer records available, to the writer, for this same period.

Occurrence probability histograms of the events, before and after each encounter, are shown in figures 2 and 3. Non-Io events are distinguished in these histograms. In accordance with the findings of Leblanc (1980) and of Alexander *et al.* (1980) it can be seen that the A-source predominates before encounter while the B-source predominates after each encounter. The numbers of events involved differ in the present case as the catalogue

includes non-arc structures and events which do not extend above 20 MHz.

It is interesting to note that the *subsidiary* or B-1 source ($60° \leq CML \leq 100°$) is more prominent in the Voyager-2 catalogue data than in the data given by Alexander *et al.* (1980). Again, this is probably due to the inclusion of lower frequency events in the catalogue data than in the work of Alexander *et al.*, which was confined to arc structures extending above 20 MHz. The subsidiary B-source peak can also be seen in Leblanc's data (1980) which is based primarily upon structural features.

It is hoped that the catalogue will be useful, not only for Voyager specialists, but also for others who do not have direct access to the Voyager PRA data. In this latter respect, it should complement the valuable listings of swept-frequency terrestrial observations of Jupiter compiled by Warwick *et al.* (1975) and by Leblanc *et al.* (1981).

Acknowledgements. — It is a privilege to acknowledge the achievement of the Planetary Radio Astronomy Team in obtaining the high quality data that forms the basis of this catalogue. The writer is indebted to Dr. A. Boischot for his comments on the first draft of the manuscript. The support of the Centre National de la Recherche Scientifique is also acknowledged.

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TABLE I. — *Catalogue list of jovian decametric events observed by Voyager-1 and by Voyager-2 in the frequency range 15-40 MHz.*

VOYAGER 1 CATALOGUE: BEFORE ENCOUNTER

JULIAN DATE	YYMMDD	TIME BEG	TIME END	FREQ LO	FREQ HI	CML BEGIN	CML END	IO-PHASE BEGIN	IO-PHASE END
43905	790201	0138	0227	15	29	241.2	271.6	217.1	224.6
43905	790201	0344	0515	15	29	317.8	372.4	234.9	248.0
43905	790201	1206	1220	16	22	261.0	269.4	306.8	308.7
43906	790202	0420	0558	15	34	108.4	188.8	83.8	96.8
43907	790203	1150	1251	15	26	192.5	229.1	350.9	360.0
43907	790203	1323	1512	15	32	249.3	314.7	4.3	19.8
43907	790203	2335	2413	15	26	258.5	281.6	90.9	95.5
43908									
43909	790205	2239	2305	15	19	165.9	181.5	130.4	133.9
43910									
43911	790207	1310	1334	15	32	123.5	137.9	96.1	99.3
43911	790207	1633	1708	15	25	245.3	267.3	125.2	129.9
43912									
43913									
43914	790210	0430	0500	15	28	260.0	278.0	273.2	277.2
43914	790210	1048	1058	15	34	128.8	133.6	326.6	327.7
43914	790210	1120	1330	15	33	148.0	227.0	330.9	349.2
43914	790210	1536	1642	15	25	302.6	342.2	7.0	16.8
43915	790211	1921	2039	15	33	229.1	275.9	241.7	253.1
43916	790212	1302	1331	16	24	151.2	168.6	32.5	36.3
43916	790212	1603	1614	20	24	259.8	266.4	58.6	60.1
43916	790212	2253	2308	15	22	147.8	156.8	116.2	118.3
43916	790212	2334	2344	15	20	172.4	178.4	121.7	123.1
43917	790213	1037	1052	17	28	213.6	223.2	214.6	216.6
43917	790213	1110	1144	20	30	233.4	253.8	219.0	223.6
43917	790213	1306	1342	15	30	304.0	325.6	235.5	240.3
43917	790213	1411	1442	15	24	343.0	361.6	245.2	249.3
43918	790214	1225	1328	20	32	68.9	107.7	74.1	82.5
43918	790214	1358	1516	20	35	125.7	172.5	86.5	97.9
43919									
43920	790216	1926	1947	15	29	264.4	277.0	179.6	182.4
43921	790217	0430	0458	15	33	227.2	244.0	256.8	260.5
43922	790218	1154	1213	15	25	292.0	303.4	161.7	165.2
43922	790218	2000	2103	15	33	225.6	264.4	231.5	239.9
43923	790219	1628	1705	15	25	247.8	271.0	45.4	50.4
43923	790219	1717	1731	15	21	278.2	286.6	52.0	53.8
43923	790219	2140	2202	18	34	77.0	90.2	89.0	93.0
43923	790219	2214	2306	15	35	97.4	128.6	94.6	101.5
43924	790220	1139	1227	17	28	223.8	252.6	206.3	213.7
43925	790221	1257	1418	16	30	60.2	110.5	61.7	73.5
43926	790222	0246	0312	15	28	202.6	218.2	177.9	181.4
43926	790222	0415	0514	15	27	256.0	291.4	190.8	198.7
43926	790222	1400	1454	15	27	250.0	282.4	273.8	281.0
43926	790222	1819	1826	15	17	46.4	50.6	310.3	311.3
43926	790222	2113	2155	15	27	151.8	177.0	334.5	340.1
43927	790223	0020	0041	15	24	264.2	276.8	0.8	3.6
43927	790223	0133	0148	15	21	308.0	317.0	10.5	12.5
43927	790223	0247	0255	15	18	353.4	358.2	21.4	22.4
43927	790223	0935	1001	15	25	239.2	255.8	78.8	83.2
43927	790223	1320	1447	15	18	16.2	68.4	110.8	123.4
43928	790224	0354	0606	15	36	183.8	264.0	233.6	253.2
43928	790224	0932	1001	15	17	27.6	46.0	281.7	286.5
43928	790224	1136	1227	15	18	103.0	133.6	299.2	307.0
43928	790224	1620	1701	15	21	274.4	300.0	340.1	345.1
43929	790225	0107	0138	15	25	232.7	251.3	52.8	57.0
43929	790225	1120	1152	15	25	243.5	262.7	139.6	143.8
43929	790225	2107	2158	15	31	238.7	269.3	222.8	229.6
43929	790225	2258	2402	15	31	305.3	343.7	238.6	248.0
43930	790226	0737	0751	15	24	258.7	267.1	311.6	313.5
43930	790226	0813	0821	15	20	280.3	285.1	317.4	318.5
43930	790226	1419	1526	15	24	141.9	182.1	9.2	18.2
43930	790226	1658	1824	15	30	237.3	289.9	31.4	43.9
43930	790226	2246	2322	15	29	88.1	109.7	80.8	85.6
43930	790226	2338	2548	15	35	119.3	197.2	87.8	103.9
43931	790227	0227	0442	15	29	221.6	302.6	110.1	129.1
43931	790227	1536	1557	15	19	338.0	350.6	221.3	224.1
43931	790227	1844	1854	15	17	91.8	97.8	248.4	249.7
43931	790227	2228	2313	15	25	227.2	254.2	280.2	286.2
43931	790227	2334	2344	15	20	266.8	272.8	289.0	290.0
43932	790228	0010	0035	15	19	288.0	303.0	294.2	297.6
43932	790228	0828	1110	15	27	228.8	327.0	4.6	27.2
43932	790228	1354	1533	15	28	66.4	125.0	50.1	64.3
43932	790228	1624	1654	15	20	156.4	174.4	72.1	76.1
43932	790228	1805	1828	15	19	240.8	254.6	86.5	89.6
43932	790228	1843	2101	15	25	263.6	324.6	91.6	111.0
43933	790301	0349	0612	15	27	209.4	295.7	166.7	187.0
43933	790301	1423	1605	15	32	232.0	293.5	256.1	270.4
43934	790302	0047	0203	15	32	248.2	294.1	342.9	353.3
43934	790302	0956	1011	15	19	219.1	228.2	58.9	61.1
43934	790302	1036	1107	15	20	243.3	261.9	64.6	68.9
43934	790302	1144	1322	15	22	284.2	343.3	74.0	87.7
43934	790302	1559	1834	15	20	77.8	171.2	109.6	131.2
43934	790302	1933	2102	15	28	206.7	260.2	139.5	152.0
43934	790302	2210	2317	15	18	301.1	341.4	161.4	170.8

VOYAGER 1 CATALOGUE: AFTER ENCOUNTER

JULIAN DATE	YYMMDD	TIME BEG	TIME END	FREQ LO	FREQ HI	CML BEGIN	CML END	IO-PHASE BEGIN	IO-PHASE END
43939	790307	2338	2523	15	25	136.0	199.1	220.0	234.6
43940	790308	0243	0354	15	33	247.2	290.0	245.7	255.7
43940	790308	0925	1100	15	27	129.3	186.5	302.0	315.3
43940	790308	1701	1734	15	18	44.0	63.9	5.6	10.3
43941	790309	0258	0459	15	34	43.8	116.8	88.5	105.4
43941	790309	1555	1634	15	22	152.4	176.0	196.8	202.3
43941	790309	1720	1757	15	25	203.7	226.0	208.7	213.9
43941	790309	1814	1907	15	30	236.3	268.3	216.4	223.9
43941	790309	2007	2209	15	32	304.5	378.1	232.3	249.6
43942	790310	0153	0241	15	24	152.9	182.7	280.2	287.7
43942	790310	1158	1239	15	21	158.9	183.5	5.9	11.4
43942	790310	1803	2031	15	32	19.9	108.7	58.6	79.3
43942	790310	2042	2252	15	34	115.3	194.3	80.8	99.1
43943	790311	1613	1803	15	32	102.1	169.1	244.9	260.6
43943	790311	2050	2123	15	22	269.3	290.1	283.9	288.3
43944	790312	1103	1212	17	28	64.7	106.1	43.7	53.9
43944	790312	1940	2026	15	17	16.9	44.5	116.6	123.8
43945	790313	1011	1058	15	25	183.3	211.5	238.7	244.9
43945	790313	1119	1159	15	36	244.1	248.1	247.7	253.1
43946	790314	0418	0436	17	32	119.4	130.2	32.4	34.8
43946	790314	1537	1557	15	20	169.8	181.8	127.9	130.6
43946	790314	1827	1932	15	25	272.8	311.8	152.6	161.3
43947	790315	0320	0432	15	32	234.6	277.8	225.9	236.5
43947	790315	1020	1126	15	30	128.6	168.2	285.9	294.7
43948	790316	0453	0700	15	36	80.5	157.7	83.0	100.9
43948	790316	0726	0813	23	35	173.3	201.5	104.4	111.6
43948	790316	1822	1826	16	25	209.9	212.3	197.8	198.4
43948	790316	1902	1945	20	28	233.9	259.7	203.1	208.9
43948	790316	2329	2354	15	18	35.1	50.1	240.8	244.1
43949	790317	1854	1931	15	24	19.3	41.5	45.0	49.9
43949	790317	2001	2048	16	30	59.5	87.7	54.9	61.2
43949	790317	2251	2328	15	19	162.5	184.7	78.6	83.5
43950	790318	0900	0911	15	18	170.1	176.7	163.9	165.4
43950	790318	1812	1924	15	35	144.3	187.5	242.5	252.1
43951	790319	1446	1508	15	18	170.0	183.2	56.7	57.8
43951	790319	2113	2130	15	16	44.2	54.4	111.3	113.6
43952	790320	0048	0056	15	18	173.5	178.5	140.5	141.6
43952	790320	1024	1100	15	20	162.1	183.7	222.3	227.1
43952	790320	1300	1412	15	36	256.7	299.9	244.1	254.7
43953	790321	0625	0647	15	19	168.0	181.2	32.6	35.6
43953	790321	1347	1400	15	32	75.2	83.0	94.6	96.3
43953	790321	1616	1645	15	18	164.6	182.0	116.4	120.3
43954	790322	0438	0511	15	30	253.2	273.0	219.8	224.2
43954	790322	0628	0810	15	27	320.2	381.4	235.4	250.0
43955	790323	0522	0533	27	32	69.9	76.5	69.7	71.2
43955	790323	0556	0621	15	31	90.3	106.3	74.3	78.6
43955	790323	0635	0903	15	35	114.7	203.5	80.4	101.2
43955	790323	2010	2036	20	27	246.7	262.7	196.1	199.6
43956	790324	2338	2412	15	23	162.9	183.7	67.8	72.7
43957	790325	1901	1924	23	31	146.1	159.9	232.2	235.3
43957	790325	2154	2222	15	33	250.9	267.7	248.3	261.0
43958	790326	0500	0613	15	26	147.9	192.7	316.8	327.5
43959	790327	0002	0109	15	18	118.5	158.7	117.9	126.8
43960	790328	1437	1451	25	34	77.9	86.3	85.7	87.6
43960	790328	1509	1525	15	33	97.1	106.7	90.0	92.1
43960	790328	1535	1620	23	35	112.7	139.7	93.5	100.5
43960	790328	1702	1711	15	17	165.9	171.3	106.1	107.3
43961	790329	0520	0552	15	28	251.1	270.3	209.5	213.7
43961	790329	0756	0817	15	17	345.7	358.3	231.3	235.1
43961	790329	0848	0938	15	18	16.9	46.9	239.2	245.9
43961	790329	1245	1333	15	26	160.1	189.9	272.8	279.2
43962	790330	0641	0750	15	29	91.1	132.5	65.3	74.5
43962	790330	0800	0924	15	27	138.5	188.9	76.8	88.0
43963	790331	0450	0507	15	17	173.9	184.1	252.0	254.2
43963	790331	1435	1507	15	18	167.9	187.1	335.0	339.2
43964	790401	0644	0730	15	19	33.8	61.4	111.9	118.0
43964	790401	2229	2320	15	34	244.8	275.4	245.9	252.7
43965									
43966	790403	1423	1500	17	31	252.1	274.3	223.6	228.5
43966	790403	1550	1740	15	33	304.3	371.3	235.2	250.8
43967	790404	1137	1143	15	18	301.9	305.5	43.6	44.4
43967	790404	1547	1833	15	35	92.9	193.5	79.0	103.1
43967	790404	2024	2031	20	25	260.1	264.3	118.9	119.8
43968	790405	0743	0753	15	19	311.0	317.0	212.9	214.3

VOYAGER 2 CATALOGUE: BEFORE ENCOUNTER

JULIAN DATE	YYMMDD	TIME BEG	TIME END	FREQ LO	FREQ HI	CML BEGIN	CML END	IO-PHASE BEGIN	IO-PHASE END
44028	790604	0455	0550	15	26	159.3	192.3	76.8	84.2
44029									
44030	790606	0315	0400	15	17	40.3	67.3	109.6	116.6
44030	790606	1830	1950	17	33	233.3	281.3	239.6	250.3
44031	790607	1215	1315	18	23	156.7	193.7	30.2	38.2
44031	790607	2247	2312	17	22	178.9	193.9	119.5	122.8
44032	790608	1115	1350	15	32	271.2	5.2	224.8	246.5
44033	790609	0655	0710	18	25	264.6	273.6	30.9	32.9
44033	790609	1150	1254	17	23	82.6	121.0	72.3	81.8
44033	790609	1301	1509	15	37	126.2	203.0	82.7	100.8
44033	790609	1705	1720	18	26	273.6	282.6	117.3	119.3
44033	790609	1736	1850	18	27	292.2	336.6	121.4	132.3
44034	790610	0231	0244	21	27	255.7	263.5	197.9	199.7
44034	790610	0305	0432	15	28	276.1	328.3	202.5	215.1
44034	790610	1116	1122	15	21	212.7	216.3	271.9	272.7
44034	790610	1250	1426	15	28	269.1	327.7	285.5	299.3
44034	790610	2221	2258	18	25	256.5	278.7	6.6	11.5
44034	790610	2324	2421	15	26	292.5	327.1	15.0	22.0
44035	790611	0511	0532	17	23	142.1	154.7	62.7	65.5
44035	790611	0544	0621	15	27	161.9	185.1	67.1	73.0
44035	790611	0830	0912	18	26	262.5	287.7	91.2	96.8
44035	790611	1647	1658	18	26	202.7	209.3	161.5	162.9
44035	790611	1724	1738	17	24	225.9	234.3	166.4	168.3
44035	790611	1808	1821	17	26	252.3	260.1	173.3	175.0
44035	790611	1831	1858	17	25	266.2	282.3	176.4	179.9
44036	790612	0335	0434	15	36	234.9	270.3	253.1	261.9
44036	790612	1143	1220	15	20	169.7	191.9	322.1	328.1
44036	790612	2353	2425	17	26	251.2	270.4	65.2	69.4
44037	790613	0039	0138	15	28	278.8	314.2	71.3	79.2
44037	790613	0709	0740	17	21	154.8	173.4	126.3	130.4
44037	790613	1945	2144	15	33	251.4	323.8	233.1	250.0
44038	790614	0306	0335	15	23	158.4	175.8	295.6	299.5
44038	790614	0612	0655	15	29	271.0	296.8	322.4	328.1
44038	790614	1540	1650	15	27	253.8	295.8	42.1	52.5
44038	790614	2133	2205	15	34	107.6	126.8	92.9	97.5
44039	790615	0200	0255	15	29	269.1	302.1	130.2	137.5
44039	790615	1129	1456	15	29	252.5	17.7	210.1	239.7
44039	790615	2148	2253	15	23	266.9	305.9	297.6	307.3
44040	790616	0845	0921	17	26	303.5	325.1	30.1	34.9
44040	790616	1104	1238	17	28	27.9	84.3	49.6	63.2
44040	790616	1307	1359	17	28	102.7	133.9	67.0	74.0
44040	790616	1426	1534	15	28	150.1	190.9	78.6	87.6
44040	790616	1834	1920	17	26	299.9	327.5	113.6	119.8
44041	790617	0421	0526	15	23	294.5	333.5	196.9	205.6
44041	790617	1359	1514	15	24	284.3	329.3	279.0	289.0
44041	790617	2340	2401	17	22	275.3	281.9	359.8	361.3
44042	790618	1946	1957	17	22	283.9	290.5	169.6	171.1
44043	790619	0313	0554	17	37	194.4	291.0	233.4	255.9
44043	790619	1525	1539	17	22	276.6	285.0	337.0	338.9
44044	790620	0119	0133	18	22	275.3	283.7	59.7	61.6
44044	790620	1909	1930	16	23	203.3	214.9	211.4	214.2
44044	790620	2017	2128	17	31	243.1	286.7	221.5	230.9
44044	790620	2138	2323	15	34	292.7	355.7	232.3	247.3
44045	790621	0705	0716	17	23	275.2	281.8	312.6	314.0
44045	790621	0729	0739	18	22	289.6	295.6	315.8	317.1
44045	790621	1954	2057	17	24	19.6	57.4	61.1	70.5
44045	790621	2117	2518	15	36	70.4	215.3	73.2	106.3
44046	790622	0241	0258	15	17	266.1	276.3	118.4	120.6
44046	790622	1058	1129	18	24	206.3	224.9	188.6	192.8
44046	790622	1202	1220	20	28	244.7	255.5	198.2	200.6
44047	790623	0855	1029	15	27	281.7	330.1	14.2	27.8
44047	790623	1153	1235	15	22	29.5	54.7	39.0	45.6
44047	790623	1529	1624	15	25	160.1	193.1	69.8	78.1
44047	790623	1805	2013	15	27	254.7	331.5	92.6	110.6
44048	790624	0244	0258	16	23	208.3	216.7	165.5	167.3
44048	790624	0353	0450	15	33	249.7	283.9	174.7	183.3
44048	790624	0504	0546	15	28	292.3	318.1	185.1	190.7
44048	790624	1048	1121	17	22	140.7	160.5	234.0	238.4
44048	790624	1202	1527	15	35	185.1	309.1	244.9	273.2
44049	790625	0002	0121	15	27	260.2	307.6	345.2	355.7
44049	790625	0928	1126	15	23	241.8	313.6	64.6	81.4
44049	790625	1604	1806	15	24	121.4	195.6	121.4	138.7
44049	790625	1847	2132	16	27	220.2	320.2	144.2	167.2
44050	790626	0417	0503	15	28	204.4	232.0	225.1	231.2
44050	790626	0526	0720	15	34	245.8	315.2	234.3	250.5
44050	790626	1306	1332	15	20	164.8	180.4	299.6	303.1
44050	790626	1513	1608	17	25	241.0	274.0	317.5	325.9
44051	790627	0040	0047	15	20	223.3	227.5	36.3	37.3
44051	790627	0317	0337	17	25	318.5	330.5	58.3	60.9
44051	790627	0544	0635	18	27	46.7	78.3	78.9	86.7
44051	790627	0707	0751	15	36	97.5	123.9	90.9	96.8
44051	790627	0836	1228	17	26	150.9	291.1	103.8	136.7
44051	790627	1323	1346	15	27	325.1	338.9	144.1	147.1
44051	790627	2113	2518	15	28	249.1	396.0	210.7	244.9
44052	790628	1426	1513	15	23	152.8	181.0	357.0	363.2
44052	790628	1655	1821	17	26	242.2	294.8	17.8	30.3
44052	790628	1834	1901	15	23	302.6	318.8	32.0	35.6
44052	790628	1914	1941	15	24	326.6	342.8	37.4	41.0
44052	790628	2055	2311	15	29	27.2	109.8	51.8	71.0
44052	790628	2354	2550	15	30	135.5	205.1	76.2	91.7
44053	790629	0412	0510	15	28	291.3	326.1	112.6	120.3
44053	790629	0909	0926	17	23	110.5	120.7	154.2	156.5
44053	790629	0947	1020	17	29	133.3	154.1	159.3	164.7
44053	790629	1250	1407	15	27	244.1	291.3	185.7	196.9
44053	790629	2259	2403	15	25	252.5	290.9	271.9	280.1
44054	790630	0826	1008	15	27	234.5	296.7	351.2	365.8
44054	790630	1319	1443	17	27	52.3	102.7	32.2	44.3
44054	790630	1826	1859	15	26	237.5	257.3	76.2	80.6
44054	790630	1914	1950	15	26	266.3	287.9	82.6	87.4
44055	790701	0338	0346	17	27	210.3	215.1	152.8	153.8
44055	790701	0406	0420	15	22	227.1	235.5	157.5	159.4
44055	790701	0450	0626	15	27	253.5	312.1	163.4	177.2
44055	790701	1305	1651	15	38	193.5	329.1	233.4	265.5
44056	790702	0034	0304	15	27	250.0	340.0	328.8	349.8
44056	790702	1019	1147	15	28	242.3	295.1	51.8	63.6
44056	790702	1748	1836	15	24	153.7	182.5	114.7	122.1
44056	790702	1933	2200	15	30	216.7	305.9	129.7	151.3
44057	790703	0225	0308	18	24	105.1	130.9	187.6	193.4
44057	790703	0326	0341	18	26	141.7	150.7	195.8	197.8
44057	790703	0403	0416	16	21	163.9	171.7	201.7	203.4
44057	790703	0456	0942	15	35	195.7	368.3	208.8	248.9
44057	790703	1147	1412	16	25	84.3	172.3	266.6	287.9
44057	790703	1538	1821	15	28	223.9	322.7	299.4	323.1
44057	790703	1942	2008	15	22	11.3	26.9	333.9	338.4
44058	790704	0134	0437	15	28	222.3	333.1	20.6	47.0
44058	790704	0602	1146	15	35	25.1	232.5	59.4	107.2
44058	790704	1212	1451	15	30	248.1	344.5	111.7	133.9
44058	790704	1808	1826	16	31	103.7	114.5	162.2	164.6
44058	790704	1857	1954	15	26	133.1	167.3	168.7	176.3
44058	790704	2054	2502	15	28	203.3	351.3	185.3	218.3

VOYAGER 2 CATALOGUE: AFTER ENCOUNTER

JULIAN DATE	YYMMDD	TIME BEG	TIME END	FREQ LO	FREQ HI	CML BEGIN	CML END	IO-PHASE BEGIN	IO-PHASE END
44067	790713	1647	1908	15	34	91.1	176.0	304.2	323.8
44067	790713	2030	2144	15	29	225.3	268.6	334.9	344.9
44068	790714	0202	0242	15	28	66.0	90.0	21.2	26.5
44068	790714	0345	0512	15	29	127.8	180.0	34.9	47.5
44068	790714	0609	0708	15	29	215.2	250.6	56.1	64.0
44068	790714	1358	1511	15	28	138.6	182.4	121.6	132.4
44069	790715	0003	0106	15	27	140.8	178.6	204.8	213.2
44069	790715	0301	0355	15	32	248.6	281.0	229.5	236.7
44069	790715	0408	0542	15	32	288.8	345.2	239.5	252.0
44069	790715	0829	0840	15	23	86.4	93.0	276.3	277.7
44069	790715	1820	1832	15	29	84.0	91.2	0.1	1.7
44069	790715	1944	2103	15	30	134.4	182.8	11.3	22.8
44069	790715	2320	2331	15	21	265.0	271.6	42.1	43.5
44070	790716	0301	0446	15	31	36.9	99.9	70.2	85.2
44070	790716	0506	0942	15	37	111.9	278.5	87.9	126.7
44070	790716	1557	1651	15	25	145.5	177.9	172.9	187.9
44070	790716	1742	1919	15	29	209.5	267.7	194.7	208.6
44070	790716	1932	1948	15	20	275.5	285.1	210.4	212.5
44070	790716	2013	2238	15	21	300.1	388.1	216.8	237.2
44071	790717	0205	0251	15	28	152.1	179.7	265.3	271.4
44071	790717	0940	0952	15	26	66.1	73.3	328.9	330.5
44071	790717	1208	1254	15	22	155.9	183.5	350.7	356.8
44071	790717	1406	1440	15	22	227.7	248.1	7.4	11.9
44071	790717	1828	2141	16	30	25.9	142.7	44.3	71.1
44072	790718	0042	0058	15	21	250.5	260.1	94.4	96.5
44072	790718	0704	0853	15	29	121.7	187.1	148.3	163.9
44072	790718	1620	1652	15	28	97.3	116.5	227.5	231.7
44072	790718	1715	1836	15	22	131.3	179.9	234.8	246.6
44072	790718	2033	2111	15	22	250.1	273.9	263.2	268.3
44073	790719	0343	0412	15	21	152.4	166.8	323.5	327.7
44073	790719	0609	0625	16	26	238.0	247.6	344.3	346.4
44073	790719	0713	0731	15	20	276.4	287.2	351.4	353.8
44073	790719	1702	1722	15	20	272.8	284.8	76.4	79.0
44074	790720	1056	1140	15	26	200.8	227.2	226.4	232.2
44074	790720	1236	1353	15	34	260.8	308.0	240.7	251.0
44075	790721	0824	0932	15	24	258.4	299.2	48.2	57.3
44075	790721	1218	1345	15	25	39.8	93.0	81.4	93.0
44075	790721	1507	1609	15	23	142.2	179.4	104.9	114.2
44075	790721	1720	1902	15	29	223.0	284.2	123.7	138.3
44076	790722	2308	2331	15	22	222.7	236.5	15.9	18.9
44077	790723	0357	0626	15	32	36.9	127.3	55.0	76.9
44077	790723	0647	0842	15	27	139.9	208.9	79.7	96.0
44077	790723	0959	1007	15	23	255.1	260.9	106.3	108.3

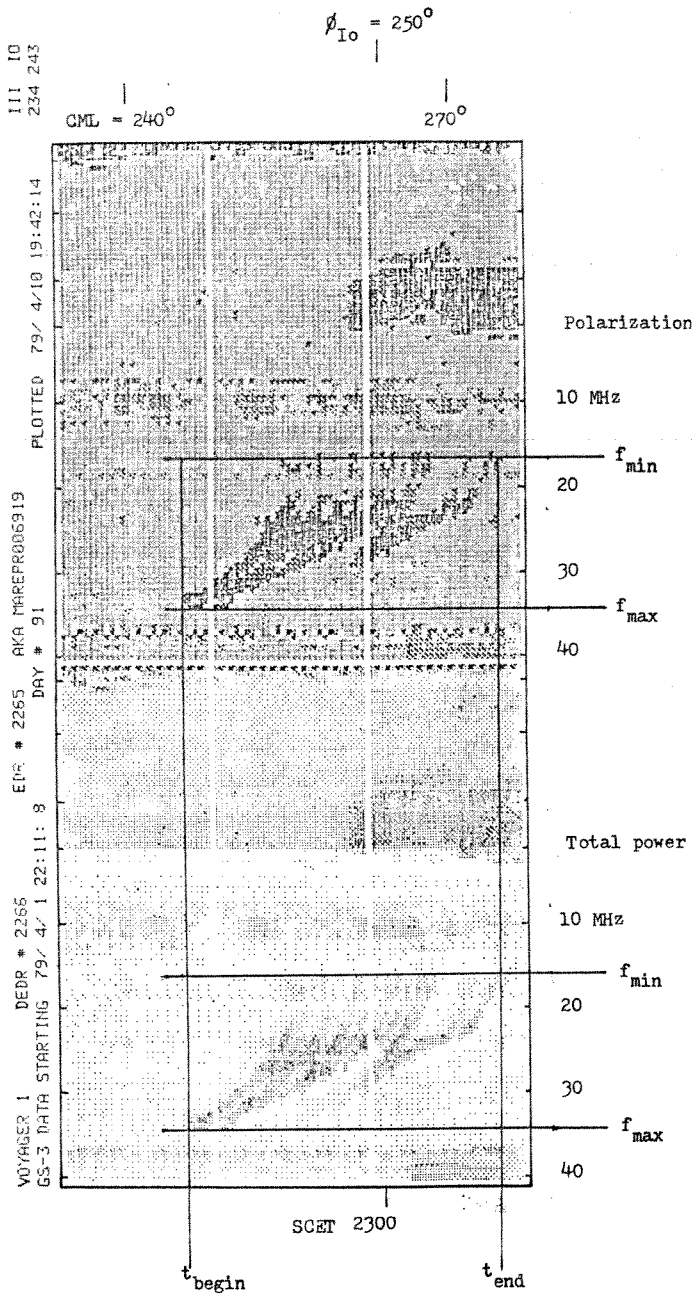

FIGURE 1. — Event duration and frequency extent, as read from a typical Voyager-1 dynamic spectrum. In the lower section, total power is represented by increasing tones of darkness. In the upper section, the polarization sense is represented by white (LH) and by black (RH).

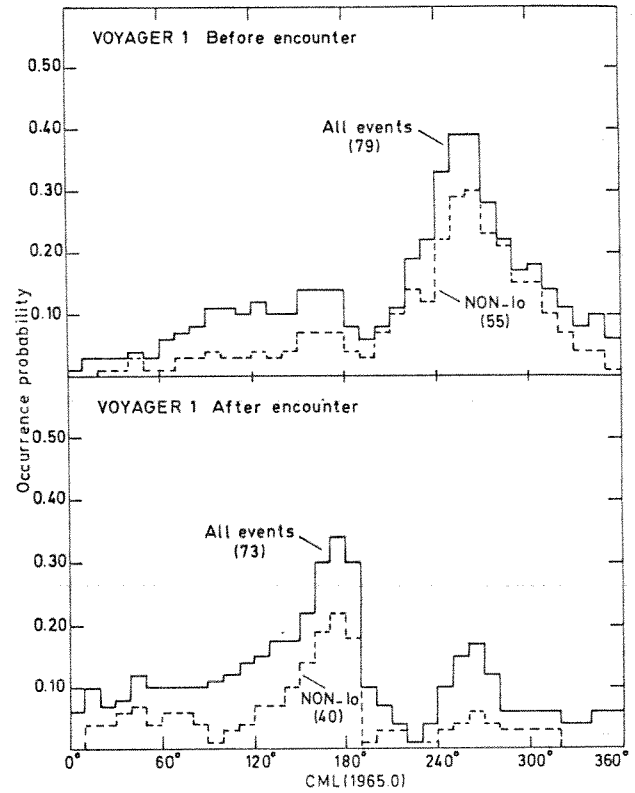

FIGURE 2. — Longitude histograms of occurrence probability at frequencies of 15 MHz and above observed by Voyager-1 before (upper section) and after (lower section) encounter.

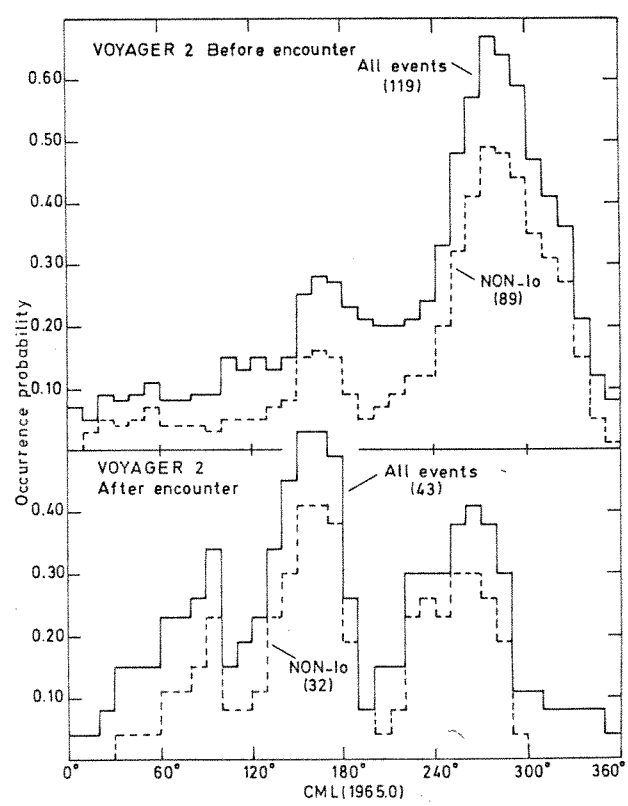

FIGURE 3. — Longitude histograms of occurrence probability at frequencies of 15 MHz and above observed by Voyager-2 before (upper section) and after (lower section) encounter.