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Simultaneous spectra of complete sample of sources from the PMN survey

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Abstract. In this report we present the results of observations of a complete sample of sources from the PMN Survey. The adopted selection criteria were: flux density $\geq$ 200 mJy at the PMN Survey frequency 4.8 GHz; $0^h \leq RA \leq 24^h$; $-21° \leq Dec \leq -17°$; $|b| \geq 10°$ to exclude the galactic plane. Five runs of observations were accomplished in 1995–1996. The observations were made at 0.96, 2.3, 3.9, 7.7 and 11.2 GHz at the RATAN-600 radio telescope. For all sources of the sample, flux densities at five frequencies and their simultaneous spectra were determined, accuracies in RA were improved 5–10 times. Identifications with data from the Texas Survey were performed.

Key words: surveys – extragalactic sources – radio continuum

1. Introduction

Broad waveband spectra of radio sources including high frequency data are desirable for a number of reasons. Over the last decade researchers have identified a new class of very high-redshift objects that are more closely related to normal galaxies than to quasars. Surveys with radio telescopes have been instrumental in finding these extremely distant galaxies, which are barely visible at optical wavelengths. The selection of candidates with steep radio spectra has proved to be a particular effective means for finding galaxies with redshifts greater than 2. On the other hand, they uncover flat spectrum sources which are likely to be compact and useful as radio astrometric standards as well as candidates for further interferometric observations. Third, they provide information about physics and, in particular, about the high-energy particles responsible for radio emission. And last but not least, simultaneous observations at several wavelengths will exclude variability of sources in interpretation of their spectra.

This paper continues the series of articles devoted to the research of complete samples of sources from different radio catalogues (see, e.g. Mingaliev and Khabrakhmanov, 1995) at the RATAN-600 radio telescope. Here we present the results of investigation of a complete sample of radio sources from the PMN Survey (Griffith et al., 1994).

2. Observations

The adopted selection criteria of the complete sample from the PMN Survey (Griffith et al., 1994) were as follows:

- flux density $S_\nu \geq$200 mJy at the PMN Survey frequency (4.8 GHz);
- $00^h \leq RA \leq 24^h$;
- $-21° \leq Dec \leq -17°$;
- galactic latitude $|b| \geq 10°$ to exclude the galactic plane.

A total of 262 objects have been selected.

The observations were made in the frequency bands 0.96, 2.3, 3.9, 7.7 and 11.2 GHz using a complex of broad-band radiometers of the RATAN-600 (Nizhel'skij, 1995; Berlin, 1997). The observations were conducted with the North sector of the telescope in a transit mode during several runs in 1995–1996. The gain of the receivers was controlled by the reference noise generator during each passage of the source. Each source was observed 5–8 times. Unfortunately, because of bad weather conditions and malfunction of the receivers, five sources from the sample were not observed. As a flux density and coordinate standard we used the strong radio source 1245-197 ($RA_{1950.0} = 12^h45^m45\overset{s}{.}22$, $Dec_{1950.0} = -19°42'57\overset{''}{.}5$). The adopted flux densities are listed in Table 1.

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Table 1: *The flux densities for the reference source 1245-197*

Frequency, GHz	11.2	7.7	3.9	2.3	0.96
Flux density, Jy	1.24	1.75	3.0	4.0	6.3

3. Data reduction

3.1. Right ascension measuring

A differential method used for measuring RA in combination with the fixed focus mode (Soboleva et al., 1986) excluded completely the pointing error. The observations at 3.9 GHz (λ=7.6 cm) were used for these purposes because, according to formula (1) and taking into account the sensitivity of the radiometer, observations at this wavelength had the best coordinate accuracy:

$$\sigma_n = \frac{1}{2}\frac{\Delta T_n}{T_s}\theta_{0.5}, \qquad (1)$$

where

σ_n — fluctuation sensitivity of the radio telescope;
T_c — antenna temperature of the observed source;
$\theta_{0.5}$ — full width at half maximum (FWHM).

The exact time of passage of a source across the beam and the antenna temperature were determined for each source using the optimum automatic fitting of the gaussian into the drift scan of the source with the help of the "FGR" data reduction programme (Verkhodanov, 1995). The next step was the determination of the average crossing times. The measurement errors were defined as standard deviations. One can find the achieved accuracy for each source in Table 2. A more detailed description of the methods and the accuracy of coordinate measurements on the radio telescope can be found in (Mingaliev and Chernenkov, 1991).

3.2. Flux density measurement

The flux density was determined as an average value over ≈8 observations, and the error as a standard deviation. The accuracy of a single measurement is found from the sum of errors of

- gaussian fitting of the passage curve (in general, it is determined from signal-to-noise ratio;
- statistics of antenna setting from one observation to another;
- gain and calibration signal stability.

The accuracy of flux density measurements at 11.2, 7.7 and 3.9 GHz was mostly affected by receiver's noises and statistics of antenna settings; so the accuracy at the best sensitivity band, 3.9 GHz, is in general 2–3 % or better. The accuracy at 2.3 and 0.96 GHz was impaired by strong interferences from traffic, satellites and military radar systems, atmospheric electricity.

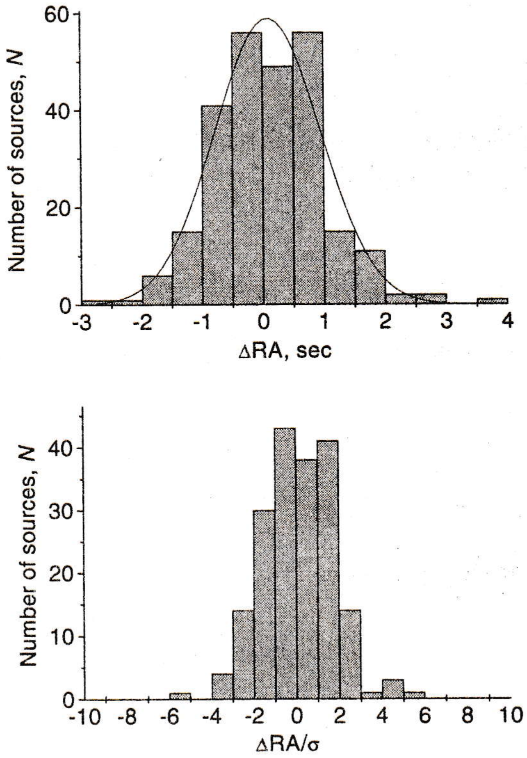

Figure 1: *The distribution of ΔRA and $\Delta RA/\sigma$ for the PMN survey. The parameters of the gaussian curve (on the upper histogram) are $M = 0.081$ s, $sd = 0.864$ s.*

The results of flux measurements for every source (flux densities and their errors) are listed in Table 3. The technique of flux measurements with the RATAN-600 broad-band radiometers is described in more detail by Mingaliev et al. (1978) and Aliakberov et al. (1985).

4. Results

Thanks to good sensitivity and resolving power in RA at 7.6 cm we have improved the RA of these sources too. These results will be helpful in further optical identifications. For most sources (≈70 %) the accuracy in RA is equal to or better than $0^s.1$, for the rest of them it is better than $0^s.2$. The RA determined in the framework of this programme were compared with positions from the PMN (ν_c=4.85 GHz) and Texas (interferometric survey with high angular resolution and multibeam shape of the diagram, ν_c=0.365 GHz, see Douglus, 1980) surveys. In Fig. 1(a,b) one can see the histograms of the residuals

$$\Delta RA = RA_{RATAN} - RA_{PMN} \qquad (2)$$

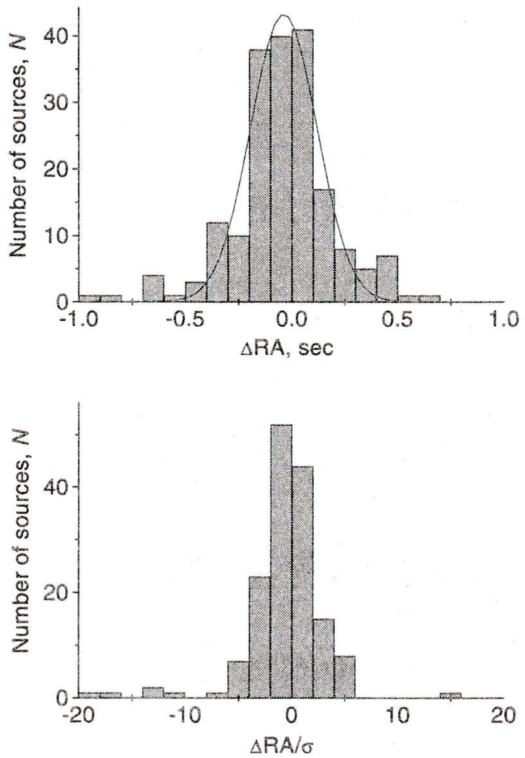

Figure 2: *The distribution of ΔRA and $\Delta RA/\sigma$ for the Texas survey. The parameters of the gaussian curve (upper panel) are $M = -0.038$ s, $sd = 0.156$ s.*

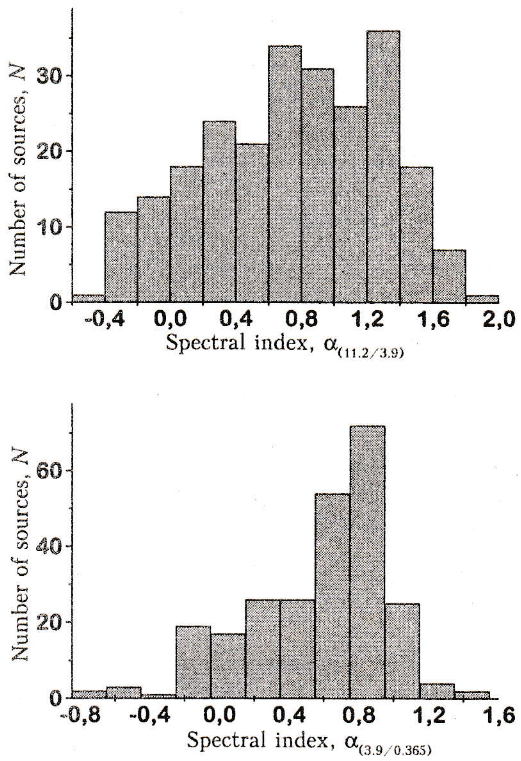

Figure 3: *The distribution of two-frequency spectral indices $\alpha_{11.2/3.9}$ between 11.2 and 3.9 GHz (upper panel) and $\alpha_{3.9/0.365}$ between 3.9 and 0.365 GHz (lower panel).*

and the residuals normalized to the standard sum of the quoted rms errors

$$\frac{\Delta RA}{\sigma} = \frac{(RA_{RATAN} - RA_{PMN})^2}{(\sigma^2_{RATAN} + \sigma^2_{PMN})^{1/2}} \quad (3)$$

and in Fig. 2(a,b) the same distributions for the Texas catalogue. The distribution of the residuals ΔRA is gaussian in both cases.

The improved values of coordinates which are possible to use in further identifications are listed in Table 2. Column 1 gives the names of the sources according to the PMN catalogue; columns 2 and 3 contain RA_{2000} and its error for each source from our observations; column 4 is Dec_{2000} of the sources according to the PMN survey.

The results of flux density measurements are listed in Table 3 and the spectra of the sources are shown in Fig. 4. In order to derive additional information about the variability of the sources, we have added the flux densities from the Texas Sky Survey at the frequency 0.365 GHz and of the PMN catalogue at 4.85 GHz to the spectra of the sources. A comparison between the sources of our list (after improving the RA in the course of our observations) and the Texas Survey has revealed a match for ≈80 % of the sources. Table 3 presents the followings:

column 1: the source name according to the PMN notation;

column 2: the number of the run of observations, where 1 is July 1995, 2 is August 1995, 3 is December 1995, 4 and 5 are January and October 1996, respectively;

columns 3–16: the flux density in mJy and its standard error at 11.2, 7.7, 4.85 (PMN), 3.9, 2.3, 0.96, and 0.365 GHz (Texas), respectively;

column 17: the two-frequency spectral index $\alpha_{11.2/3.9}$, computed from the formula

$$\alpha = -\log(S(\nu_1)/S(\nu_2))/\log(\nu_1/\nu_2)$$

for the fluxes at 11.2 and 3.9 GHz;

column 18: the spectral index $\alpha_{3.9/0.365}$ (if there is no counterpart in the Texas catalogue, the spectral index $\alpha_{3.9/0.96}$ is used instead).

One can see the two-frequency spectral index distribution in the bands of 11.2–3.9 GHz and 3.9–0.365(0.96) GHz in Fig. 3(a,b).

5. Conclusions

For 262 radio sources from the PMN Tropical Survey the following has been done:

– the flux densities in the 11.2, 7.7, 3.9, 2.3 and 0.96 GHz frequency bands have been measured;
– simultaneous spectra in the 11.2 – 0.96 GHz bands have been determined;
– the accuracy in RA has been improved by a factor of 5–7.

Making further steps in the accomplishment of this research programme, the following is supposed to be done: optical identification of the PMN sources with the Digitized Sky Survey (Lasker et al., 1990), identification in other wavebands, selection of variable sources with the help of the simultaneous spectra taken in the course of fulfilment of this programme and data obtained with other telescopes for different epochs.

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Table 2: *The coordinates for the complete sample of sources*

Object name	RA_{2000}	RMS, sec	Dec_{2000}
0001-1741	00:01:06.52	0.089	-17:41:31.8
0003-1727	00:03:21.83	0.02	-17:27:12.1
0003-1941	00:03:15.81	0.15	-19:41:49.9
0008-1939	00:08:18.25	0.21	-19:39:36.8
0009-2056	00:09:05.91	0.15	-20:56:11.7
0015-1807	00:15:34.30	0.14	-18:07:14.0
0015-1812	00:15:02.05	0.07	-18:12:51.0
0015-1929	00:15:59.99	0.09	-19:29:10.6
0020-2014	00:20:26.21	0.16	-20:14:50.9
0021-1910	00:21:12.97	0.073	-19:10:38.0
0026-2004	00:26:13.96	0.057	-20:04:54.9
0034-1759	00:34:24.14	0.18	-17:59:31.2
0035-2004	00:35:08.83	0.029	-20:04:01.2
0039-1854	00:39:16.95	0.243	-18:54:09.5
0040-2043	00:40:48.25	0.053	-20:43:41.2
0054-1952	00:54:32.94	0.065	-19:52:47.9
0059-1700	00:59:06.80	0.028	-17:00:38.2
0100-1749	01:00:10.19	0.062	-17:48:59.5
0116-2052	01:16:51.38	0.035	-20:52:09.9
0118-1849	01:18:34.19	0.034	-18:49:13.9
0119-1940	01:19:08.64	0.074	-19:40:05.8
0135-2008	01:35:37.56	0.041	-20:08:47.7
0140-1729	01:40:23.22	0.05	-17:29:29.9
0142-1714	01:42:23.56	0.22	-17:14:10.9
0151-1732	01:51:06.00	0.118	-17:32:44.1
0202-1948	02:02:14.07	0.058	-19:48:13.7
0204-1701	02:04:57.86	0.031	-17:01:19.8
0205-1801	02:05:19.84	0.20	-18:01:13.0
0219-1842	02:19:21.47	0.062	-18:42:41.1
0227-1713	02:27:06.22	0.072	-17:13:19.2
0231-2040	02:31:35.99	0.099	-20:40:26.3
0237-1932	02:37:43.97	0.089	-19:32:22.2
0248-2002	02:49:00.94	0.146	-20:02:34.2
0249-1928	02:49:00.47	0.05	-19:28:46.2
0255-2027	02:55:54.81	0.21	-20:27:44.6
0307-1748	03:07:55.83	0.25	-17:48:08.7
0320-1702	03:20:19.04	0.07	-17:02:36.0
0325-1802	03:25:53.31	0.049	-18:02:00.3
0335-1832	03:35:05.00	0.075	-18:32:28.5
0354-1755	03:54:20.63	0.072	-17:55:02.1
0405-1831	04:05:56.27	0.029	-18:31:04.9
0409-1757	04:09:06.72	0.028	-17:57:06.5
0415-2022	04:15:08.24	0.23	-20:22:18.8
0416-1851	04:16:36.54	0.064	-18:51:00.5
0416-2056	04:16:04.27	0.047	-20:56:21.3
0425-1700	04:25:28.75	0.19	-17:00:19.1
0431-1704	04:31:58.55	0.086	-17:04:02.1
0437-1844	04:37:01.49	0.16	-18:44:53.2
0438-2012	04:38:50.65	0.045	-20:12:25.9
0444-1822	04:44:57.17	0.109	-18:22:36.8
0444-2051	04:44:09.64	0.03	-20:51:01.1
0448-2032	04:48:30.54	0.21	-20:32:06.3
0450-1837	04:50:35.93	0.026	-18:37:10.7
0451-1730	04:51:18.40	0.24	-17:30:16.3
0455-2034	04:55:23.51	0.097	-20:34:18.5
0501-1706	05:01:42.89	0.029	-17:06:11.9
0514-1957	05:14:52.72	0.064	-19:57:36.4
0514-2029	05:14:17.34	0.08	-20:29:21.7
0517-1756	05:17:23.95	0.23	-17:56:12.0
0521-1737	05:21:23.67	0.071	-17:37:27.5

Table 2: *The coordinates for the complete sample of sources (continued)*

Object name	RA_{2000}	RMS, sec	Dec_{2000}
0521-2047	05:21:39.07	0.022	-20:47:34.0
0525-2010	05:25:27.92	0.043	-20:10:54.3
0546-1725	05:46:17.76	0.044	-17:25:52.3
0547-1958	05:47:55.04	0.065	-19:58:06.2
0553-1709	05:53:51.44	0.039	-17:09:57.6
0559-1817	05:59:46.28	0.042	-18:17:29.2
0603-1716	06:03:57.76	0.038	-17:16:16.8
0605-1755	06:05:57.72	0.069	-17:55:15.3
0606-2022	06:06:33.62	0.026	-20:22:01.7
0610-1847	06:10:17.78	0.15	-18:47:49.0
0617-1715	06:17:33.51	0.079	-17:15:15.4
0618-2051	06:18:27.78	0.042	-20:51:51.7
0619-2054	06:19:37.22	0.046	-20:54:13.6
0621-1715	06:21:01.55	0.058	-17:15:52.0
0623-1708	06:23:07.30	0.059	-17:08:26.0
0629-1959	06:29:23.87	0.085	-19:59:18.4
0633-1802	06:33:09.94	0.035	-18:02:50.4
0636-2031	06:36:32.06	0.07	-20:31:14.7
0636-2041	06:36:31.92	0.04	-20:41:54.0
0824-1827	08:24:03.93	0.16	-18:27:44.5
0828-1952	08:28:02.85	0.089	-19:52:33.0
0836-2017	08:36:39.11	0.027	-20:17:05.5
0837-1951	08:37:11.01	0.044	-19:51:53.5
0844-1846	08:44:58.27	0.25	-18:46:06.1
0847-1755	08:47:11.10	0.093	-17:55:02.1
0847-2057	08:47:05.20	0.071	-20:57:49.4
0852-2047	08:53:00.25	0.106	-20:47:21.7
0858-1950	08:58:05.23	0.103	-19:50:34.3
0859-1922	08:59:38.71	0.06	-19:22:25.1
0902-1721	09:03:00.06	0.22	-17:21:05.2
0904-1957	09:04:41.16	0.225	-19:57:36.0
0906-2019	09:06:51.23	0.048	-20:19:57.4
0907-2026	09:07:54.51	0.109	-20:26:54.0
0909-1808	09:09:45.10	0.046	-18:08:36.9
0914-1842	09:14:27.70	0.11	-18:42:52.9
0927-2034	09:27:51.91	0.045	-20:34:51.4
0929-1820	09:29:02.26	0.31	-18:20:35.6
0931-1830	09:31:22.98	0.098	-18:30:14.2
0932-2017	09:32:46.04	0.06	-20:17:59.2
0935-1939	09:35:15.91	0.075	-19:39:10.1
0939-1731	09:39:19.17	0.19	-17:31:47.0
0945-1953	09:45:17.11	0.21	-19:53:27.3
0946-2020	09:46:50.55	0.064	-20:20:48.4
0948-1828	09:48:43.19	0.196	-18:28:32.2
0953-1947	09:53:47.21	0.06	-19:47:38.1
1006-1743	10:06:18.45	0.065	-17:43:10.1
1017-2016	10:17:10.11	0.17	-20:16:36.2
1020-1924	10:20:48.33	0.091	-19:24:51.9
1023-1933	10:23:18.26	0.088	-19:33:41.5
1024-1838	10:24:45.96	0.033	-18:38:31.2
1028-2027	10:28:59.25	0.046	-20:27:33.8
1029-1852	10:29:33.05	0.037	-18:52:43.1
1035-2011	10:35:02.27	0.07	-20:11:30.1
1036-1955	10:36:40.51	0.114	-19:55:50.0
1040-1924	10:40:57.21	0.053	-19:24:05.6
1048-1909	10:48:06.73	0.03	-19:09:25.1
1051-2023	10:51:32.22	0.027	-20:23:41.7
1052-1845	10:52:34.60	0.054	-18:45:11.3
1105-1851	11:05:24.63	0.063	-18:51:37.7
1110-1858	11:10:00.24	0.068	-18:58:49.4

Table 2: *The coordinates for the complete sample of sources (continued)*

Object name	RA_{2000}	RMS, sec	Dec_{2000}
1127-1857	11:27:04.21	0.14	-18:57:10.2
1133-1954	11:33:36.82	0.117	-19:54:10.3
1134-1727	11:34:23.56	0.104	-17:27:48.4
1136-1733	11:36:03.15	0.038	-17:33:02.6
1144-1741	11:44:26.81	0.104	-17:41:22.3
1149-1943	11:49:56.31	0.16	-19:43:47.0
1150-1930	11:50:31.22	0.244	-19:30:34.2
1151-1723	11:51:03.11	0.102	-17:23:59.0
1153-1816	11:53:32.64	0.075	-18:16:12.2
1155-1804	11:55:29.32	0.13	-18:04:41.1
1201-1852	12:01:53.90	0.099	-18:52:29.2
1209-2032	12:09:14.65	0.06	-20:32:34.1
1211-1926	12:11:57.92	0.027	-19:26:01.3
1215-1731	12:15:46.72	0.038	-17:31:41.6
1240-1717	12:40:25.75	0.042	-17:17:18.6
1243-1833	12:43:35.63	0.087	-18:33:50.6
1249-2055	12:49:21.33	0.118	-20:55:18.8
1251-1717	12:51:14.48	0.21	-17:17:01.1
1254-1845	12:54:11.73	0.136	-18:45:29.1
1258-1750	12:58:55.22	0.252	-17:50:27.9
1258-1759	12:58:38.07	0.071	-17:59:58.9
1301-2020	13:01:52.61	0.17	-20:20:41.6
1304-1932	13:04:33.69	0.042	-19:32:46.1
1306-1719	13:06:32.69	0.16	-17:19:14.5
1312-2027	13:12:08.00	0.049	-20:27:03.7
1315-1858	13:15:05.46	0.092	-18:58:20.6
1330-2056	13:30:07.50	0.053	-20:56:15.0
1337-1811	13:37:37.50	0.039	-18:11:34.1
1342-2051	13:42:04.56	0.089	-20:51:19.5
1343-1748	13:43:37.36	0.061	-17:48:05.0
1344-1723	13:44:14.36	0.094	-17:23:40.9
1356-1724	13:56:06.96	0.23	-17:24:37.6
1356-1751	13:56:53.12	0.224	-17:51:51.4
1357-1744	13:57:05.47	0.184	-17:44:02.4
1402-1840	14:02:48.33	0.074	-18:40:43.4
1413-2020	14:13:35.02	0.18	-20:20:32.7
1416-1705	14:16:34.47	0.121	-17:05:40.3
1419-1928	14:19:49.73	0.079	-19:28:20.9
1421-1931	14:21:28.76	0.21	-19:31:40.1
1423-1816	14:23:36.04	0.072	-18:16:09.5
1425-1756	14:25:57.85	0.05	-17:56:44.1
1432-1801	14:32:57.61	0.059	-18:01:29.9
1454-1925	14:54:23.46	0.086	-19:25:01.9
1455-1700	14:55:02.72	0.085	-17:00:15.9
1515-1939	15:15:40.37	0.13	-19:39:54.0
1525-1903	15:25:12.45	0.21	-19:02:59.7
1530-2013	15:30:17.23	0.062	-20:13:41.4
1542-1803	15:42:04.58	0.151	-18:03:43.3
1551-1754	15:51:14.38	0.047	-17:54:58.1
1605-1734	16:05:01.99	0.07	-17:34:13.7
1607-2039	16:07:57.25	0.29	-20:39:36.1
1616-1723	16:16:59.82	0.064	-17:23:21.0
1619-1817	16:19:16.56	0.22	-18:17:23.5
1642-2006	16:42:03.27	0.28	-20:06:58.0
1644-1804	16:44:35.61	0.096	-18:04:29.6
1647-1926	16:47:53.78	0.06	-19:26:31.5
1657-2004	16:57:33.24	0.19	-20:04:42.0
1658-2011	16:58:04.71	0.072	-20:11:38.3
1701-1903	17:01:26.64	0.15	-19:03:38.8
1702-1758	17:02:38.24	0.035	-17:58:07.3

Table 2: *The coordinates for the complete sample of sources (continued)*

Object name	RA_{2000}	RMS, sec	Dec_{2000}
1703-2031	17:03:16.77	0.105	-20:31:36.1
1709-1728	17:09:34.15	0.042	-17:28:55.0
1710-2030	17:10:09.73	0.113	-20:30:25.9
1712-1819	17:12:31.56	0.11	-18:19:54.9
1911-1712	19:11:40.75	0.029	-17:12:05.6
1911-1908	19:11:29.65	0.097	-19:08:27.0
1911-1921	19:11:56.40	0.129	-19:21:57.7
1911-2006	19:11:09.56	0.099	-20:06:55.4
1917-1921	19:17:44.79	0.064	-19:21:38.2
1925-1836	19:25:59.22	0.116	-18:36:55.1
1932-1931	19:32:07.14	0.025	-19:31:46.8
1936-1711	19:36:13.39	0.27	-17:11:22.8
1938-1749	19:38:04.93	0.057	-17:49:24.2
1948-1857	19:48:47.69	0.21	-18:57:37.3
1949-1957	19:49:53.45	0.023	-19:57:16.9
1952-1936	19:52:43.84	0.102	-19:36:22.9
1955-1925	19:55:15.11	0.062	-19:25:49.1
2000-1748	20:00:56.92	0.025	-17:48:56.2
2000-1921	20:00:08.54	0.028	-19:21:41.8
2005-1822	20:05:17.14	0.03	-18:22:01.8
2015-1703	20:15:57.66	0.103	-17:03:18.7
2022-2007	20:22:18.00	0.087	-20:07:05.0
2022-2058	20:22:59.31	0.26	-20:58:04.7
2023-1911	20:23:36.11	0.23	-19:11:38.2
2030-1702	20:30:29.90	0.22	-17:02:06.6
2035-1745	20:35:34.04	0.22	-17:45:21.9
2038-2011	20:38:29.38	0.099	-20:11:09.3
2047-1821	20:47:16.80	0.17	-18:21:16.3
2053-1838	20:53:19.00	0.08	-18:38:37.6
2056-1956	20:56:04.25	0.025	-19:56:31.6
2101-1747	21:01:43.28	0.19	-17:47:58.1
2114-1819	21:14:17.41	0.125	-18:19:01.4
2116-2055	21:16:36.17	0.021	-20:55:45.7
2129-1821	21:29:21.36	0.039	-18:21:16.4
2135-1734	21:35:16.90	0.049	-17:34:24.6
2137-2042	21:37:49.91	0.039	-20:42:36.8
2138-1810	21:38:41.86	0.043	-18:10:35.8
2138-1843	21:38:04.99	0.031	-18:43:28.8
2139-1838	21:39:39.42	0.048	-18:38:03.7
2147-1740	21:47:03.22	0.039	-17:40:11.5
2148-1723	21:48:36.70	0.027	-17:23:45.3
2149-1859	21:49:58.62	0.27	-18:59:27.8
2149-1912	21:49:41.84	0.22	-19:12:29.9
2151-1946	21:51:51.05	0.072	-19:46:07.9
2156-1813	21:56:57.22	0.039	-18:13:53.7
2157-1807	21:57:28.86	0.038	-18:07:01.6
2206-1800	22:06:55.11	0.27	-18:00:33.3
2206-1835	22:06:10.42	0.036	-18:35:34.1
2214-1701	22:14:25.62	0.034	-17:01:51.4
2233-2024	22:33:25.30	0.123	-20:24:57.0
2234-2055	22:34:56.99	0.05	-20:55:07.9
2235-1826	22:35:56.12	0.28	-18:26:16.4
2236-1706	22:36:09.68	0.23	-17:06:27.3
2237-1712	22:37:37.23	0.03	-17:12:45.5
2239-1720	22:39:10.70	0.063	-17:20:52.2
2245-1737	22:45:59.09	0.25	-17:37:20.4
2251-1848	22:51:31.16	0.07	-18:48:04.1
2252-2047	22:52:28.65	0.28	-20:47:23.2
2256-2011	22:56:41.21	0.16	-20:11:41.2

Table 2: *The coordinates for the complete sample of sources (continued)*

Object name	RA_{2000}	RMS, sec	Dec_{2000}
2257-1828	22:57:32.28	0.29	-18:28:44.2
2303-1841	23:03:02.90	0.042	-18:41:20.6
2304-1939	23:04:39.19	0.077	-19:39:25.4
2315-1800	23:15:48.06	0.027	-18:00:44.8
2320-1919	23:20:49.79	0.023	-19:19:17.3
2329-1923	23:29:33.69	0.045	-19:23:13.2
2330-1808	23:30:03.24	0.146	-18:08:04.8
2337-1752	23:37:56.43	0.064	-17:52:23.6
2347-1856	23:47:08.59	0.046	-18:56:31.2
2355-1810	23:55:55.46	0.19	-18:10:07.1
2357-1817	23:57:07.80	0.072	-18:17:44.1
2359-2048	23:59:19.71	0.063	-20:48:04.3

Table 3: *The fluxes for the complete sample of sources*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
0001-1741	3	89	13	124	19	205	15	250	11	347	17	801	42	989	104	0.98	0.58
0003-1727	5	474	11	684	21	894	48	1148	20	1578	60	3139	79	6764	134	0.84	0.75
0003-1941	1	140	10	–	–	229	16	292	9	332	24	248	25	–	–	0.70	-0.12
0008-1939	5	44	2	81	4	241	16	198	10	296	15	832	83	887	76	1.42	0.63
0009-2056	2	114	6	–	–	204	15	273	7	414	21	833	83	1203	120	0.83	0.63
	5	91	5	116	6	204	15	255	13	406	20	718	72	1203	35	0.98	0.66
0015-1807	5	129	6	190	10	251	17	293	15	328	16	388	39	306	30	0.78	0.02
0015-1812	3	331	24	341	17	324	20	417	7	378	19	344	25	306	30	0.22	-0.13
	5	–	–	–	–	324	20	323	16	314	16	292	29	306	30	-	-0.02
0015-1929	1	101	8	–	–	306	19	347	11	584	30	1208	121	2353	86	1.17	0.81
0020-2014	5	73	4	116	6	270	18	246	12	618	31	1611	120	–	–	1.16	1.34
0021-1910	2	110	6	–	–	456	26	421	6	635	32	1302	130	3231	132	1.27	0.86
	5	118	6	139	7	456	26	467	10	629	32	1542	67	3231	131	1.30	0.82
0026-2004	1	119	9	–	–	390	23	452	12	732	38	2058	103	3520	64	1.27	0.87
0034-1759	3	74	11	115	17	243	16	245	12	400	20	838	44	–	–	1.13	0.88
0035-2004	1	196	14	–	–	513	29	650	11	1163	60	780	78	7070	147	1.14	1.01
	5	170	9	302	15	513	29	715	14	1241	43	3011	45	7070	147	1.36	0.97
0039-1854	5	165	8	159	8	225	16	266	15	222	11	262	26	–	–	0.45	-0.01
0040-2043	2	235	12	–	–	338	20	403	15	417	21	688	69	1264	36	0.51	0.48
	5	191	10	259	13	338	20	395	9	482	24	681	68	1264	35	0.69	0.49
0054-1952	2	299	15	–	–	276	18	285	10	235	12	288	29	580	74	-0.05	0.30
	1	237	17	–	–	276	18	234	8	297	21	358	36	580	73	-0.01	0.38
	5	201	10	244	12	276	18	299	10	281	14	393	39	580	73	0.38	0.28
0059-1700	3	108	16	208	21	415	24	565	6	1032	9	2534	85	6932	118	1.57	1.06
0100-1749	5	155	8	226	11	419	24	555	10	781	27	1789	26	3889	131	1.21	0.82
0116-2052	1	518	32	–	–	1415	74	1652	24	2701	40	5706	285	10616	172	1.10	0.79
	5	556	18	814	19	1415	74	1774	11	2690	60	5677	45	10616	172	1.10	0.76
0118-1949	3	370	20	425	22	467	26	677	6	825	25	1486	63	2998	125	0.57	0.63
0119-1940	2	117	6	–	–	242	16	212	22	299	15	513	51	1067	37	0.56	0.68
	5	127	6	155	8	242	16	281	10	317	16	583	58	1067	37	0.75	0.56
0135-2008	2	572	29	–	–	715	40	786	11	662	33	660	66	875	70	0.30	0.05
	1	532	20	–	–	715	39	780	18	676	35	576	58	875	69	0.36	0.05
	5	567	12	684	16	715	39	833	14	739	27	734	21	875	69	0.36	0.02
0140-1729	5	60	3	98	5	295	19	321	9	420	11	934	27	1683	88	1.59	0.70
0142-1714	3	95	14	91	14	209	15	198	10	193	14	580	30	–	–	0.70	0.77
0151-1732	5	397	17	429	21	340	21	318	12	191	10	143	20	–	–	-0.21	-0.57
0202-1948	2	275	14	–	–	224	16	358	8	335	17	–	–	–	–	0.25	-
	1	288	15	–	–	224	16	370	11	317	23	534	53	–	–	0.24	0.26
	5	190	10	235	12	224	16	331	10	306	15	201	20	–	–	0.52	-0.35
0204-1701	3	1286	37	1207	18	1350	71	1508	11	1355	15	1261	54	1248	65	0.15	-0.05
0205-1801	5	–	–	–	–	316	20	247	12	377	19	1052	105	–	–	-	1.03
0219-1842	3	379	19	315	16	258	17	360	5	306	15	577	41	–	–	-0.05	0.34
	5	314	16	273	14	258	17	346	15	243	12	519	52	–	–	0.09	0.29
0227-1713	5	103	5	232	12	353	21	428	19	597	30	1410	26	2877	45	1.35	0.80
0231-2040	1	88	6	–	–	526	29	354	11	625	32	1385	139	1772	46	1.32	0.65

Table 3: *The fluxes for the complete sample of sources (continued)*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	5	100	5	124	6	526	29	342	7	574	29	1439	19	1772	46	1.17	0.69
[illegible]-1932	2	372	19	–	–	1314	70	1576	3	2964	148	6489	649	14419	434	1.37	0.93
[illegible]-2002	1	88	6	–	–	243	16	307	10	439	23	1166	117	1772	46	1.18	0.74
	5	79	15	145	9	243	16	343	7	442	17	1344	23	1772	46	1.39	0.69
[illegible]-1928	3	88	13	132	20	287	18	346	4	514	15	1182	50	2154	91	1.30	0.77
[illegible]-2027	5	61	3	116	6	317	20	236	12	546	27	1577	51	–	–	1.29	1.35
[illegible]-1748	3	–	–	47	9	204	15	170	9	329	16	743	39	1640	58	-	0.96
	5	–	–	55	3	204	15	151	8	325	16	787	22	1640	58	-	1.01
[illegible]-1702	5	208	10	333	10	387	23	544	34	692	45	1350	24	2442	43	0.91	0.63
[illegible]-1802	3	129	13	150	15	231	16	288	5	360	18	551	39	900	29	0.76	0.48
	5	131	7	124	6	231	16	250	13	346	17	609	23	900	29	0.61	0.54
[illegible]-1832	5	62	3	131	7	268	17	296	7	466	23	1241	25	2351	60	1.48	0.87
[illegible]-1755	5	186	9	164	8	236	16	302	18	321	16	740	40	1286	79	0.46	0.61
[illegible]-1831	4	145	4	163	4	273	9	301	4	405	10	715	36	980	54	0.69	0.50
	5	135	7	211	11	273	18	308	8	323	16	865	68	980	54	0.78	0.49
[illegible]-1749	5	298	11	387	14	444	25	517	8	561	28	612	61	295	26	0.52	-0.24
[illegible]-1757	3	411	30	504	13	861	46	1048	10	1571	27	3054	55	5656	149	0.89	0.71
[illegible]-2022	1	115	8	–	–	245	17	258	8	533	27	1045	105	965	42	0.76	0.56
[illegible]-1851	5	1124	25	1178	18	770	41	1180	31	1138	43	1329	130	679	36	0.05	-0.23
[illegible]-2056	2	1339	67	–	–	1293	68	1610	10	1887	94	3644	364	7589	136	0.17	0.65
[illegible]-1700	3	96	15	102	15	318	20	253	10	482	15	1152	49	1821	87	0.92	0.83
	5	87	4	118	6	318	20	299	15	417	21	1207	34	1821	87	1.17	0.76
[illegible]-1704	5	56	3	150	8	307	19	344	10	495	25	1367	36	1990	92	1.72	0.74
[illegible]-1844	3	902	29	940	16	1089	58	1124	17	–	–	399	29	–	–	0.21	-0.74
[illegible]-2012	1	211	15	–	–	286	18	368	13	376	27	688	69	965	42	0.53	0.41
	5	202	10	263	13	286	18	360	6	355	18	680	19	965	42	0.55	0.42
[illegible]-1822	5	73	4	89	5	243	16	276	9	412	21	817	23	1715	78	1.27	0.77
[illegible]-2051	2	142	7	–	–	225	16	300	7	425	21	990	99	1324	199	0.71	0.63
[illegible]-2032	1	62	5	–	–	217	15	263	9	458	24	–	–	1091	77	1.36	0.60
[illegible]-1837	3	261	19	356	18	427	25	524	8	462	14	222	22	349	39	0.66	-0.17
[illegible]-1730	5	–	–	65	3	382	22	194	10	437	22	1040	33	742	65	-	0.57
[illegible]-2034	1	822	24	–	–	1978	99	2278	36	3207	52	–	–	11109	264	0.97	0.67
[illegible]-1706	3	218	16	280	14	435	25	520	5	711	21	831	43	666	32	0.82	0.10
	5	214	11	310	16	435	25	552	10	682	27	1056	88	666	32	0.90	0.08
[illegible]-1957	5	88	4	96	5	209	15	193	6	283	14	592	59	773	70	0.75	0.59
[illegible]-2029	1	407	16	–	–	431	25	433	14	364	26	488	49	635	32	0.06	0.16
[illegible]-1756	3	174	18	175	18	207	15	240	10	190	29	369	37	–	–	0.30	0.31
[illegible]-1737	5	238	12	329	16	470	27	400	19	452	23	587	59	657	33	0.49	0.21
[illegible]-2047	2	134	7	–	–	397	24	606	5	1061	53	2667	267	7401	200	1.43	1.06
	5	89	5	302	13	397	23	619	9	1158	53	2836	62	7401	99	1.84	1.05
[illegible]-2010	1	106	8	–	–	219	15	182	6	210	15	394	39	–	–	0.51	0.55
	5	156	8	163	8	219	15	196	9	181	9	458	46	–	–	0.22	0.61
[illegible]-1725	3	141	14	201	20	324	20	391	8	692	21	1348	58	3137	80	0.97	0.88
[illegible]-1958	2	162	8	–	–	428	26	476	23	616	31	1088	109	1546	95	1.02	0.50
	1	200	15	–	–	428	25	465	10	661	34	943	94	1546	93	0.80	0.51
	5	185	9	274	14	428	25	482	7	618	31	1014	101	1546	93	0.91	0.49
[illegible]-1709	5	88	4	167	8	239	16	289	13	422	21	1153	44	2226	109	1.12	0.86
[illegible]-1817	3	208	21	204	21	414	24	179	9	–	–	332	17	–	–	-0.14	0.44
[illegible]-1716	4	370	12	337	8	317	10	262	6	301	8	515	26	507	55	-0.33	0.28
	5	523	24	452	8	317	20	338	18	227	11	380	38	507	109	-0.41	0.17
[illegible]-1755	5	41	2	115	6	251	17	264	6	427	21	1014	101	1278	121	1.76	0.67
[illegible]-2022	2	421	21	–	–	1040	56	1268	21	1910	96	4247	425	8518	244	1.04	0.80
	1	383	20	–	–	1040	55	1271	23	1867	31	4344	217	8518	244	1.14	0.80
[illegible]-1847	3	982	31	818	30	286	18	605	10	485	15	541	28	–	–	-0.46	-0.08
[illegible]-1715	5	260	13	270	14	445	25	335	22	446	22	844	84	492	42	0.24	0.16
[illegible]-2051	1	117	8	–	–	267	17	324	10	466	24	713	71	1752	37	0.96	0.71
[illegible]-2054	2	389	20	–	–	590	32	624	26	846	42	1179	118	1842	92	0.45	0.46
[illegible]-1715	3	63	9	105	16	212	15	314	8	451	14	956	50	1594	46	1.52	0.69
[illegible]-1708	5	92	5	108	5	217	15	268	7	346	17	614	61	1080	40	1.02	0.59
[illegible]-1959	1	1038	39	–	–	784	42	769	14	699	36	724	72	592	45	-0.28	-0.11
[illegible]-1802	3	201	21	263	26	373	22	497	10	647	20	1155	49	1642	45	0.86	0.50

Table 3: *The fluxes for the complete sample of sources (continued)*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
0636-2031	2	417	21	–	–	1303	70	3040	16	4616	231	10794	1079	–	–	1.88
	5	509	29	976	38	1303	70	3054	24	5096	78	11037	85	–	–	1.70
0636-2041	4	635	15	1043	21	1303	35	2988	13	5295	106	11607	94	6816	190	1.47
0824-1827	3	180	18	225	23	319	20	342	9	300	15	119	24	–	–	0.61
0828-1952	1	83	8	–	–	212	15	247	8	323	23	997	100	2254	121	1.04
	5	100	5	130	7	212	15	275	11	417	21	799	80	2254	121	0.96
0836-2017	2	3045	152	–	–	1712	90	2251	31	1700	85	2431	243	10808	266	-0.29
0837-1951	1	717	11	–	–	1709	89	2043	25	3273	109	–	–	10972	247	0.99
0844-1846	3	160	16	191	19	245	17	248	10	299	15	351	25	–	–	0.42
0847-1755	5	178	9	191	19	203	15	334	113	217	11	–	–	–	–	0.60
0847-1756	5	–	–	–	–	220	16	189	10	460	23	1048	105	2126	57	-
0847-2057	2	93	5	–	–	231	16	266	12	324	16	537	54	1087	30	0.99
0852-2047	1	235	17	–	–	614	34	881	15	1551	52	3511	176	7966	173	1.25
0858-1950	2	751	38	–		710	38	845	19	920	46	1386	139	3150	84	0.11
0859-1922	4	225	6	255	6	403	11	500	9	703	18	1456	73	3070	47	0.76
	5	210	11	260	13	403	23	524	14	676	34	1422	142	3070	93	0.87
0902-1721	3	316	23	274	28	276	18	240	10	179	13	205	21	–	–	-0.26
0904-1957	1	89	6	–	–	205	15	211	7	274	20	610	61	1549	70	0.82
	5	–	–	180	9	205	15	221	15	266	13	545	55	1549	70	-
0906-2019	2	762	25	–	–	627	34	700	16	711	36	586	59	–	–	-0.08
	5	–	–	250	13	627	34	531	28	525	26	–	–	–	–	-
0907-2026	5	585	22	594	25	417	24	477	11	442	22	601	60	737	31	-0.19
0909-1808	5	258	15	285	6	255	17	300	8	325	16	–	–	473	34	0.14
0914-1842	3	98	15	149	15	224	16	269	11	354	18	541	28	1299	89	0.96
	5	56	1	164	8	224	16	282	18	439	22	575	58	1299	89	1.54
0927-2034	1	650	23	–	–	689	37	871	24	881	46	858	86	1380	65	0.28
0929-1820	3	169	17	154	15	207	15	227	9	190	13	288	29	–	–	0.28
0931-1830	5	90	5	140	7	205	15	334	12	460	23	844	84	2069	152	1.24
0932-2017	2	112	6	–	–	337	20	396	13	618	31	1483	148	3543	93	1.20
	5	113	6	163	8	337	20	413	18	686	34	1537	154	3543	93	1.23
0935-1939	5	170	9	238	12	213	15	235	15	202	10	–	–	206	50	0.31
0939-1731	3	171	18	156	16	234	16	202	8	198	14	198	30	–	–	0.16
0945-1953	1	103	8	–	–	271	18	208	7	459	24	1167	117	3056	70	0.67
0946-2020	2	167	8	–	–	239	16	267	5	337	17	650	65	644	33	0.45
	5	116	6	199	10	239	16	306	9	297	15	375	40	664	33	0.92
0948-1828	5	75	4	119	6	214	15	296	9	513	26	1200	120	2856	139	1.30
0953-1947	3	–	–	109	16	220	16	294	9	460	14	880	38	2313	49	-
	4	66	1	132	1	220	8	291	6	431	4	960	48	2313	49	1.41
	5	88	4	161	8	220	16	340	10	493	25	942	91	2313	49	1.29
1006-1743	3	118	18	164	17	291	18	339	7	512	15	923	39	1971	37	1.00
	5	125	6	252	13	291	18	347	9	464	23	1036	102	1971	37	0.97
1017-2016	1	165	12	–	–	263	17	311	10	478	25	775	78	1645	72	0.60
1020-1924	2	99	5	–	–	208	15	254	10	428	21	748	75	1908	56	0.89
	5	95	5	187	9	208	15	277	13	481	24	689	69	1908	56	1.01
1023-1933	5	102	5	127	6	207	15	307	23	417	21	712	71	1411	38	1.04
1024-1838	3	580	21	621	11	760	41	770	8	768	23	949	41	1891	114	0.27
1028-2027	2	58	3	–	–	229	16	311	6	456	23	1059	106	2097	64	1.59
1029-1852	5	575	15	546	21	594	33	627	12	528	26	275	28	551	35	0.08
1035-2011	1	1150	45	–	–	1024	54	767	24	755	39	1131	113	1392	65	-0.38
1036-1955	3	64	10	126	19	210	15	220	9	403	20	755	32	1600	37	1.17
	5	80	4	119	6	210	15	243	8	466	23	928	93	1600	37	1.06
1040-1924	2	98	5	–	–	301	19	351	8	530	27	969	97	1716	42	1.21
1048-1909	1	1138	20	–	–	879	47	893	28	972	50	1530	153	2687	105	-0.23
1051-2023	2	126	6	–	–	406	24	583	20	852	25	2158	216	4568	81	1.45
	5	163	8	235	12	406	24	625	14	937	47	2123	148	4568	81	1.27
1052-1845	3	158	16	164	17	231	16	310	7	447	13	722	31	1996	81	0.64
	5	117	6	210	11	231	16	334	10	463	23	886	89	2044	88	0.99
1105-1851	5	89	4	138	7	217	15	236	8	376	19	1124	112	1335	84	0.93
1110-1858	3	200	20	288	20	463	26	548	10	712	21	886	38	1034	203	0.96
1127-1857	3	1290	35	1094	19	1624	85	973	30	764	23	735	31	–	–	-0.27
1133-1954	2	104	5	–	–	290	18	350	14	683	34	1870	187	5277	154	1.15

Table 3: *The fluxes for the complete sample of sources (continued)*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	1	65	6	–	–	290	18	382	12	674	35	1911	96	5277	154	1.67	1.11
1134-1727	5	142	7	245	12	455	26	600	20	896	45	2546	108	5910	98	1.36	0.97
1136-1733	5	271	11	344	17	491	28	581	11	704	35	1370	69	2336	43	0.72	0.59
1144-1741	3	106	16	125	19	264	17	279	3	558	17	1146	38	2964	100	0.92	1.00
1149-1943	1	97	7	–	–	201	15	229	8	368	26	651	65	1514	37	0.82	0.80
1150-1930	2	123	6	–	–	388	23	206	20	260	13	489	49	661	38	0.49	0.49
1151-1723	5	356	11	391	20	514	29	565	10	659	33	839	64	1109	57	0.44	0.28
1153-1816	5	103	5	130	7	227	16	240	6	401	20	621	60	406	35	0.80	0.22
1155-1804	3	97	15	123	18	240	16	290	12	521	16	1210	41	–	–	1.04	1.02
1201-1852	5	57	3	80	4	246	17	217	9	346	17	604	27	656	37	1.27	0.47
1209-2032	1	731	25	–	–	573	32	644	21	401	29	525	53	–	–	-0.12	-0.15
1211-1926	2	193	10	–	–	358	21	388	13	457	23	548	55	–	–	0.66	0.25
	5	201	10	271	14	358	21	402	10	472	24	343	34	–	–	0.66	-0.11
1215-1731	3	2892	72	2438	125	1744	91	1977	31	1603	26	1854	62	3001	48	-0.36	0.18
1240-1717	3	173	18	274	19	398	23	495	11	683	21	–	–	2985	44	1.00	0.76
1243-1833	5	101	5	140	7	209	15	274	10	375	19	697	70	1690	40	0.95	0.77
1249-2055	2	–	–	–	–	220	16	174	6	302	15	607	61	1239	50	-	0.83
1251-1717	3	197	20	192	19	259	17	186	7	163	11	573	30	–	–	-0.05	0.80
1254-1845	5	–	–	111	6	292	18	300	21	566	28	1472	50	3275	120	-	1.01
1258-1750	5	271	22	–	–	509	28	497	40	842	42	929	51	979	33	0.57	0.29
1258-1759	5	392	14	289	14	894	48	374	19	301	15	–	–	–	–	-0.05	-
1301-2020	1	80	8	–	–	207	15	294	9	546	28	1563	156	3945	58	1.23	1.10
1304-1932	2	151	8	–	–	319	20	348	5	459	23	918	92	1544	41	0.79	0.63
1306-1719	3	351	16	315	16	347	21	318	10	250	13	332	24	–	–	-0.09	0.03
1312-2027	1	121	9	–	–	245	16	330	11	509	26	751	75	2094	50	0.95	0.78
	5	113	6	161	8	245	16	341	12	464	23	962	96	2094	50	1.05	0.77
1315-1858	5	–	–	117	6	243	16	385	27	679	34	2049	36	5996	235	-	1.16
1330-2056	2	179	9	–	–	347	21	337	10	384	19	1147	115	1467	121	0.60	0.62
	1	219	16	–	–	347	21	388	12	460	24	1332	133	1467	121	0.54	0.56
	5	233	12	245	12	347	21	361	9	386	19	798	80	1467	121	0.42	0.59
1337-1811	3	286	21	348	18	513	29	657	9	947	29	1943	65	4650	97	0.79	0.83
1342-2051	2	400	39	–	–	291	18	302	7	411	21	531	53	579	30	-0.27	0.28
	1	371	19	–	–	291	18	306	10	415	21	596	60	579	30	-0.18	0.27
1343-1748	5	259	13	366	18	566	31	580	25	547	27	875	90	1664	114	0.76	0.44
1344-1723	5	245	12	249	12	350	21	327	10	274	14	369	37	–	–	0.28	0.09
1354-1755	3	153	16	161	16	236	16	264	7	373	19	601	43	1286	79	0.52	0.67
1356-1724	3	190	14	169	17	203	15	178	7	194	10	1357	58	–	–	-0.06	1.45
1356-1751	5	–	–	176	9	287	18	387	23	651	33	2054	178	10180	463	-	1.38
1357-1744	5	815	31	1045	8	1009	54	1130	73	1185	59	–	–	10180	463	0.31	0.93
1402-1840	5	252	13	305	15	201	15	438	18	483	24	690	63	–	–	0.52	0.32
1413-2020	1	–	–	–	–	232	16	326	11	531	27	1218	122	2856	49	-	0.92
1416-1705	3	174	18	185	19	305	19	239	6	233	16	–	–	276	31	0.30	0.06
1419-1928	2	479	19	–	–	1021	54	1096	11	1407	30	2814	281	4463	117	0.78	0.59
1421-1931	4	236	6	172	4	219	8	173	4	127	3	498	25	1195	18	-0.29	0.82
1423-1816	5	85	4	173	9	306	19	432	15	650	33	1732	205	3891	74	1.54	0.93
1425-1756	5	128	6	223	11	513	29	541	3	766	38	1871	166	2692	95	1.37	0.68
1432-1801	3	560	18	619	16	846	45	753	6	874	26	1082	46	1031	35	0.28	0.13
	5	571	21	713	36	846	45	763	23	870	44	1039	66	1031	35	0.27	0.13
1454-1925	2	138	7	–	–	346	21	373	17	659	33	1564	156	3538	115	0.94	0.95
	1	145	11	–	–	346	21	325	11	656	34	1319	132	3538	115	0.77	1.01
	5	140	7	192	10	346	21	407	13	621	31	1464	46	3538	115	1.01	0.91
1455-1700	3	233	17	232	23	227	16	280	10	261	13	–	–	354	29	0.17	0.10
1515-1939	2	–	–	–	–	244	16	188	6	341	17	944	94	2130	98	-	1.02
	1	57	6	–	–	244	16	206	7	343	25	885	89	2130	98	1.22	0.99
	5	61	3	–	–	244	16	199	9	371	19	1041	49	2130	98	1.12	1.00
1525-1903	1	102	8	–	–	330	20	371	12	627	32	1528	76	3028	74	1.22	0.89
1530-2013	2	–	–	–	–	224	16	260	8	489	25	1211	121	2883	100	-	1.02
	5	51	3	114	6	224	16	271	16	474	24	1315	75	2883	100	1.58	1.00
1542-1803	3	77	12	106	16	209	15	261	11	424	13	594	31	1254	40	1.16	0.66
	5	93	5	147	7	209	15	281	25	341	17	516	52	1254	40	1.05	0.63
1551-1754	5	260	16	288	14	368	22	326	7	302	15	321	32	276	30	0.22	-0.07

Table 3: *The fluxes for the complete sample of sources (continued)*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1605-1734	3	112	17	160	16	337	20	468	9	841	25	2248	75	6011	199	1.36	1.08
1607-2039	2	167	8	–	–	245	17	166	8	347	17	793	79	1677	153	0.00	0.98
	1	141	10	–	–	245	17	230	8	383	27	1009	101	1677	153	0.46	0.84
	5	180	9	158	8	245	17	210	11	295	15	692	69	1677	153	0.15	0.88
1616-1723	5	49	3	121	6	205	15	268	14	399	20	1017	26	2251	106	1.61	0.90
1619-1817	3	246	18	268	27	311	19	295	12	277	14	–	–	–	–	0.17	-
1642-2006	1	153	11	–	–	262	17	172	6	268	19	593	59	636	83	0.11	0.55
1644-1804	3	252	18	232	23	358	21	247	5	227	16	–	–	–	–	-0.02	-
	5	248	12	282	14	358	21	265	19	212	11	354	35	–	–	0.07	0.21
1645-1835	5	90	5	113	6	233	16	347	10	534	27	1408	115	3598	170	1.29	0.99
1647-1926	2	197	10	–	–	255	17	251	15	–	–	468	47	769	37	0.23	0.47
1657-2004	1	203	15	–	–	215	15	253	8	290	21	–	–	–	–	0.21	-
1658-2011	5	71	4	121	6	238	16	279	7	401	20	913	91	2477	122	1.30	0.92
1701-1903	5	375	19	326	16	301	19	313	16	279	14	456	46	944	110	-0.17	0.47
1702-1758	3	97	15	138	21	252	17	382	6	562	17	1080	46	2839	141	1.30	0.85
1703-2031	2	209	10	–	–	346	21	403	7	579	29	1089	109	1940	85	0.62	0.66
1709-1728	5	642	31	760	28	570	31	755	27	583	29	297	30	529	40	0.15	-0.15
1710-2030	1	62	6	–	–	210	15	288	9	386	27	958	96	2134	104	1.46	0.85
	5	–	–	87	4	210	15	269	8	353	18	1006	53	2134	104	-	0.87
1712-1819	3	330	24	415	21	228	16	439	7	379	19	383	39	–	–	0.27	-0.10
1911-1712	3	108	16	193	19	400	23	525	13	933	28	2525	85	4393	161	1.50	0.90
1911-1908	5	117	6	159	8	238	16	267	11	299	15	277	28	948	39	0.78	0.54
1911-1921	1	184	13	–	–	222	16	254	8	447	23	–	–	–	–	0.30	-
	5	–	–	–	–	222	16	252	16	70	4	217	22	–	–	-	-0.11
1911-2006	2	2284	26	–	–	2053	99	2708	28	2695	53	3295	330	2193	117	0.16	-0.09
1917-1921	1	324	17	–	–	413	24	420	13	397	28	–	–	798	62	0.25	0.27
	5	306	15	363	18	413	24	437	9	431	22	596	60	798	62	0.34	0.25
1925-1836	5	88	4	137	7	393	23	276	18	605	30	1863	70	4543	187	1.09	1.18
1932-1931	2	145	7	–	–	380	22	453	9	746	24	1940	194	5463	235	1.08	1.05
	1	92	6	–	–	380	22	478	15	736	38	1860	93	5463	235	1.56	1.03
	5	127	6	177	9	380	22	509	9	830	42	1972	33	5463	235	1.32	1.00
1936-1711	3	–	–	75	11	200	15	130	7	250	13	761	32	–	–	-	1.26
1938-1749	5	223	11	237	12	274	18	256	5	197	10	–	–	–	–	0.13	-
1948-1857	3	68	10	109	16	214	15	250	10	430	13	999	43	–	–	1.23	0.99
1949-1957	1	1068	19	–	–	1332	70	1331	23	1401	48	1301	130	1508	42	0.21	0.05
1952-1936	2	225	11	–	–	368	22	390	16	604	30	1057	106	1743	53	0.52	0.63
	5	171	9	228	11	368	22	383	14	541	27	1017	47	1743	53	0.76	0.64
1955-1925	5	71	4	95	5	350	21	286	17	632	32	1259	25	1912	106	1.32	0.80
2000-1748	5	2194	53	1970	43	2700	99	1676	44	977	49	754	75	526	47	-0.26	-0.49
2000-1921	1	319	17	–	–	395	23	572	10	660	34	1056	106	1795	53	0.55	0.48
	5	242	8	338	10	395	23	531	11	652	33	960	96	1795	53	0.75	0.51
2005-1822	3	543	28	482	12	529	29	509	10	575	17	985	42	1644	128	-0.06	0.49
2015-1703	5	141	7	173	9	242	16	208	11	254	13	484	48	1040	79	0.37	0.68
2022-2007	1	110	8	–	–	293	18	396	22	536	28	821	82	1425	66	1.22	0.54
2022-2058	2	76	4	–	–	231	16	125	6	218	11	733	73	1355	66	0.47	1.01
	5	89	5	118	6	231	16	176	9	237	12	543	54	1355	66	0.64	0.86
2023-1911	5	64	3	113	6	239	16	232	12	402	20	1247	110	1754	124	1.23	0.85
2030-1702	3	51	8	79	12	225	16	252	10	445	13	1036	44	–	–	1.51	1.01
2035-1745	5	42	2	102	5	214	15	253	13	439	22	996	100	2292	102	1.71	0.93
2038-2011	2	139	7	–	–	374	22	277	4	524	26	1003	100	1754	88	0.66	0.78
	1	155	11	–	–	374	22	296	9	537	28	920	92	1754	88	0.61	0.75
	5	135	7	190	10	374	22	300	6	539	27	1023	90	1754	88	0.76	0.75
2047-1821	3	111	17	160	16	266	17	325	13	505	15	1026	44	–	–	1.02	0.82
2053-1838	5	51	3	89	4	201	15	220	10	430	22	573	57	2456	124	1.39	1.02
2056-1956	2	315	9	–	–	1094	58	1166	4	1739	27	3610	361	7063	244	1.24	0.76
	1	285	15	–	–	1094	58	1148	28	1778	56	3730	186	7063	244	1.32	0.77
	5	284	6	544	8	1094	58	1226	15	1851	34	3642	92	7063	244	1.39	0.74
2101-1747	3	161	16	206	21	338	20	362	11	604	18	1429	61	–	–	0.77	0.98
2114-1819	5	131	7	198	10	276	18	349	15	528	26	1101	32	2070	65	0.93	0.75
2116-2055	2	271	21	–	–	820	44	1106	19	1601	9	4114	411	9326	293	1.33	0.90
	1	262	19	–	–	820	44	1102	13	1718	25	–	–	9326	293	1.36	0.90

Table 3: *The fluxes for the complete sample of sources (continued)*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	5	259	7	431	13	820	44	1141	7	1736	33	4123	40	9326	293	1.41	0.89
2119-1821	3	574	22	680	13	951	51	1061	14	1251	38	1520	51	1142	80	0.58	0.03
2131-2036	1	212	15	–	–	608	33	791	19	1255	40	2699	135	6537	186	1.25	0.89
2135-1734	5	150	8	243	12	390	23	454	18	720	36	1376	44	2972	126	1.05	0.79
2137-2042	2	755	34	–	–	1549	81	1847	21	2536	31	–	–	9021	163	0.85	0.67
2138-1810	5	515	13	757	19	1056	56	1213	24	1763	42	2373	182	3161	196	0.81	0.40
2138-1843	5	222	22	307	9	504	28	677	8	931	47	2045	83	4501	99	1.06	0.80
2139-1838	3	135	14	170	17	276	18	322	4	–	–	800	42	1401	91	0.82	0.62
2147-1740	5	167	8	212	11	372	22	464	12	768	38	1453	30	3199	117	0.97	0.82
2148-1723	5	1119	11	1208	10	697	38	1292	16	1029	51	695	37	1583	77	0.14	0.09
2149-1859	4	–	–	61	2	245	9	184	5	335	8	–	–	990	66	-	0.71
	5	–	–	77	4	245	17	166	8	289	14	760	80	990	132	-	0.75
2149-1912	1	107	8	–	–	202	15	249	8	424	22	–	–	1603	95	0.80	0.79
2151-1946	2	339	12	–	–	767	41	940	8	1335	29	2759	276	5067	104	0.97	0.71
2156-1813	3	121	18	–	–	564	31	523	9	915	28	2334	78	5322	312	1.39	0.98
	5	–	–	–	–	564	31	436	22	906	54	2206	52	5322	312	-	1.06
2157-1807	5	281	5	435	10	554	31	743	22	1128	55	1834	36	1994	69	0.92	0.42
2206-1800	5	91	5	150	8	201	15	212	5	421	21	510	51	1288	118	0.80	0.76
2206-1835	4	3116	87	3636	83	4271	50	4750	41	5600	140	7239	362	10019	95	0.40	0.32
	5	2882	59	3617	35	4271	99	5130	50	5340	94	7208	73	10019	189	0.55	0.28
2214-1701	3	586	23	1059	12	2668	99	3008	28	5385	27	13077	229	18407	639	1.55	0.76
2233-2024	2	90	5	–	–	225	16	252	9	300	15	517	52	898	32	0.98	0.54
2234-2055	4	378	18	383	10	317	10	366	11	279	7	365	18	454	39	-0.03	0.09
2235-1826	5	129	7	142	7	215	15	181	9	115	6	–	–	251	40	0.32	0.14
2236-1706	3	341	19	319	16	332	20	326	10	332	17	414	62	–	–	-0.04	0.17
2237-1712	5	113	6	178	9	347	21	501	10	832	42	2150	46	4759	99	1.41	0.95
2239-1720	5	62	3	126	6	644	35	432	6	926	46	2351	76	1977	94	1.84	0.64
2245-1737	5	121	6	179	9	217	15	229	11	354	18	281	28	940	77	0.61	0.60
2251-1848	3	139	14	169	17	231	16	276	8	346	17	467	47	967	51	0.65	0.53
	4	132	3	188	5	231	8	277	4	334	8	490	25	967	51	0.70	0.53
2252-2047	1	141	10	–	–	236	16	228	8	265	19	–	–	–	–	0.45	-
	5	145	7	174	9	236	16	265	13	227	11	132	13	–	–	0.57	-0.50
2256-2011	2	552	8	–	–	454	26	507	10	419	21	314	31	–	–	-0.08	-0.34
2257-1828	5	–	–	–	–	267	17	189	9	400	20	585	59	1644	137	-	0.91
2303-1841	3	579	19	457	12	766	41	661	12	863	26	1757	75	864	78	0.13	0.11
2304-1939	1	102	8	–	–	217	15	232	8	296	21	454	45	975	91	0.78	0.61
	5	118	6	123	6	217	15	257	29	293	15	514	51	975	91	0.74	0.56
2315-1800	5	338	6	463	14	665	36	747	9	947	47	1563	38	2735	89	0.75	0.55
2320-1919	1	166	12	–	–	382	22	475	18	566	29	1117	112	3188	123	1.00	0.80
	5	226	11	269	14	382	22	505	20	616	31	1159	28	3188	123	0.76	0.78
2329-1923	2	132	7	–	–	483	27	526	8	836	11	1983	198	4275	122	1.31	0.88
2330-1808	3	95	14	117	18	202	15	250	10	369	18	724	73	2201	102	0.92	0.92
	5	83	4	143	7	202	15	250	12	434	22	853	38	2201	102	1.05	0.92
2337-1752	5	331	10	465	26	618	34	696	8	872	44	1309	46	2314	49	0.70	0.51
2347-1856	3	297	16	357	18	523	29	596	9	709	21	489	74	–	–	0.66	-0.14
	5	286	12	425	12	523	29	648	16	680	34	600	60	–	–	0.77	-0.05
2355-1810	5	88	4	153	8	305	19	391	20	571	29	1387	52	1641	128	1.41	0.61
2357-1817	5	56	3	144	7	240	16	308	14	536	27	1126	79	2644	124	1.62	0.91
2359-2048	2	167	8	–	–	256	17	277	13	368	18	681	68	1023	52	0.48	0.55

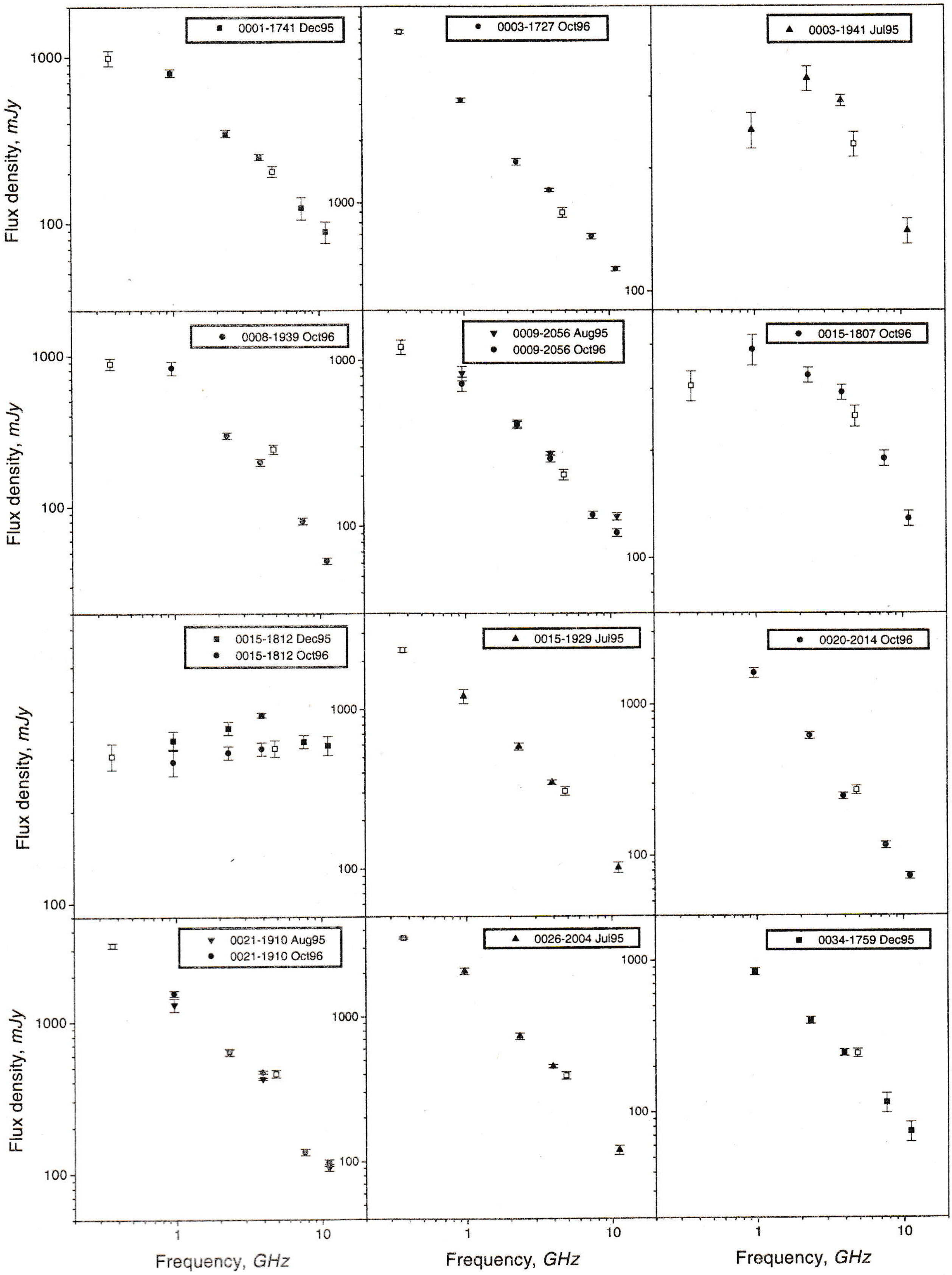


Figure 4: *The spectra of the complete sample of sources from PMN survey.*

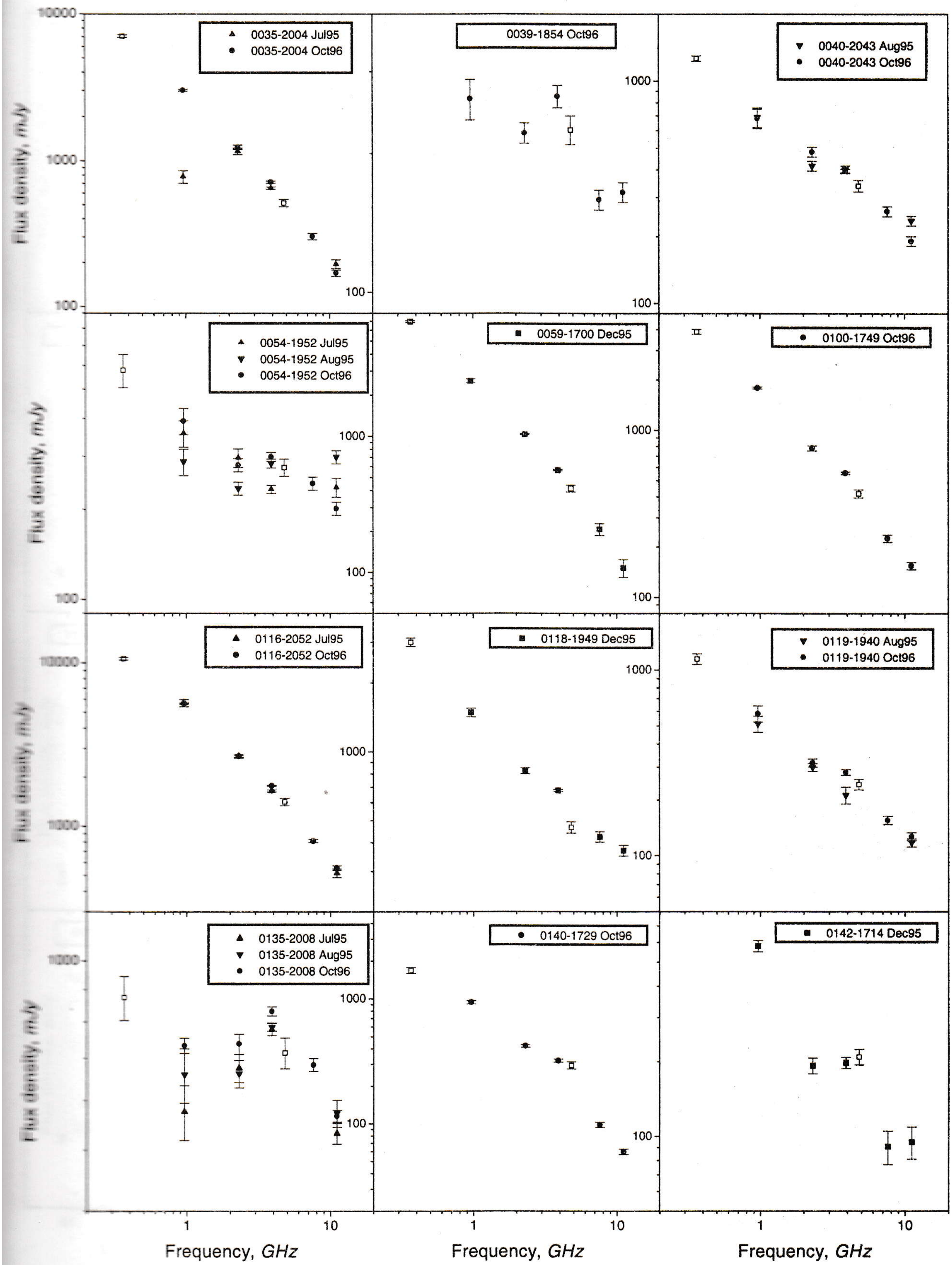
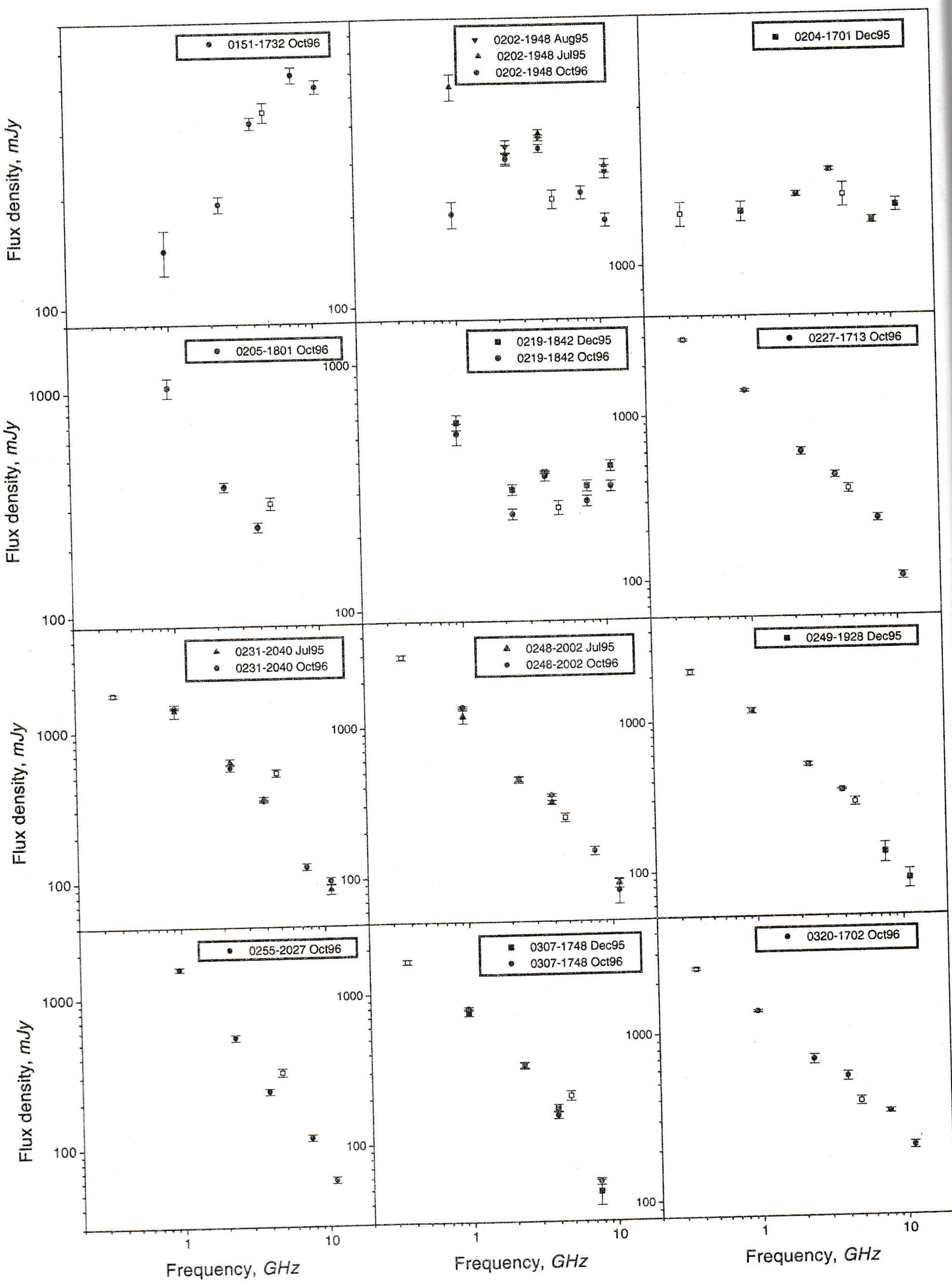


Figure 4: — *continued*



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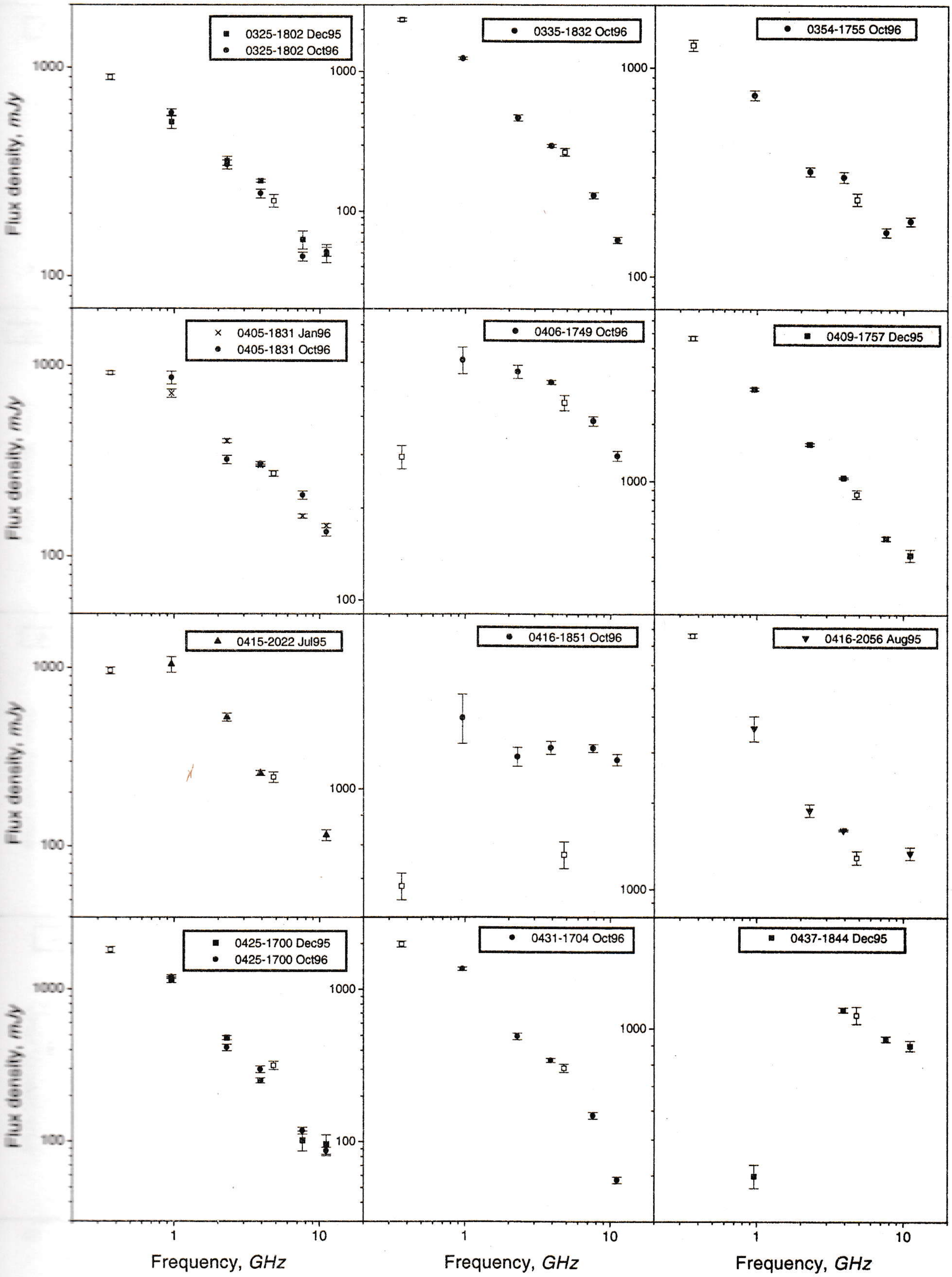

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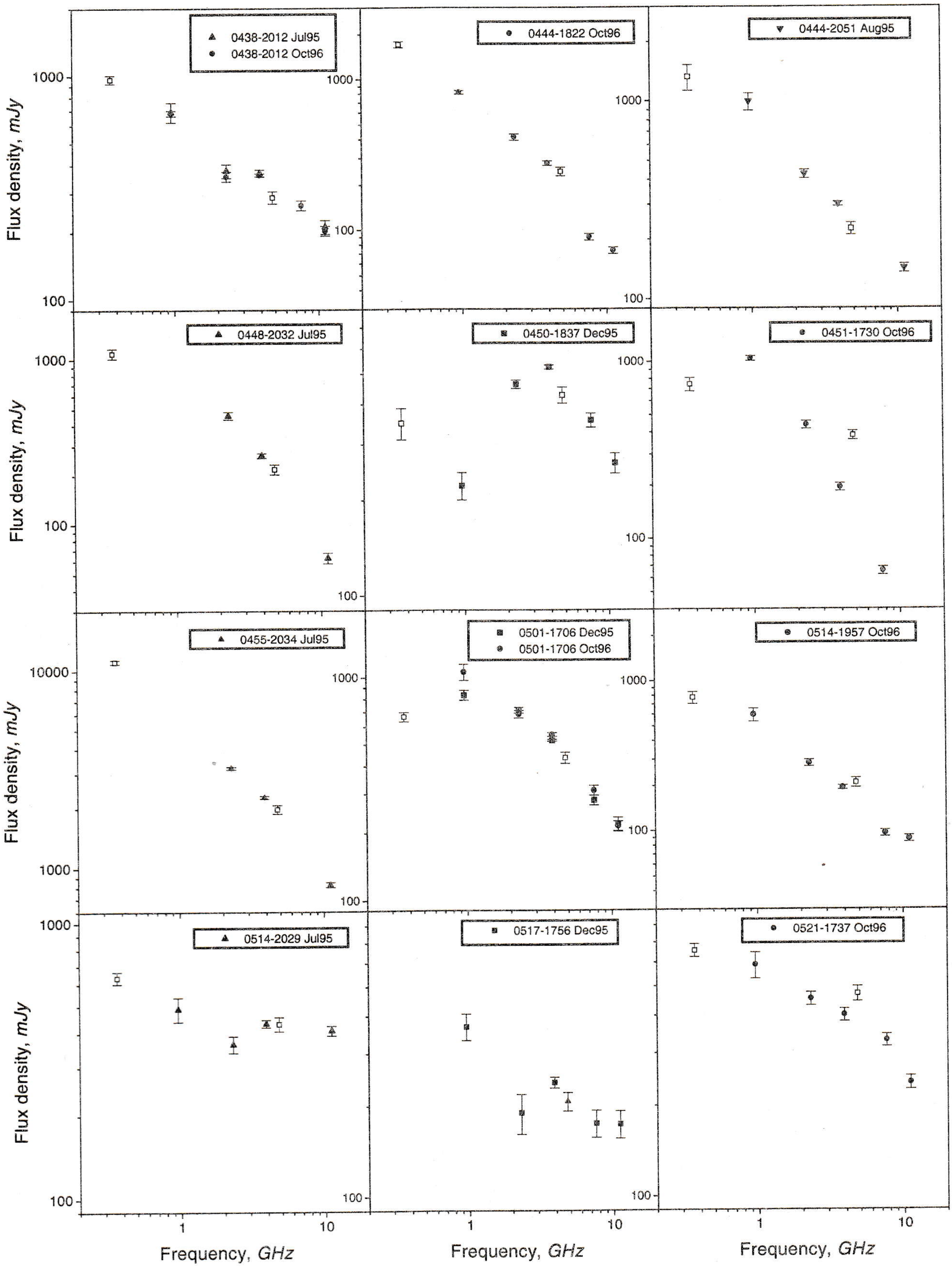


Figure 4: — *continued*

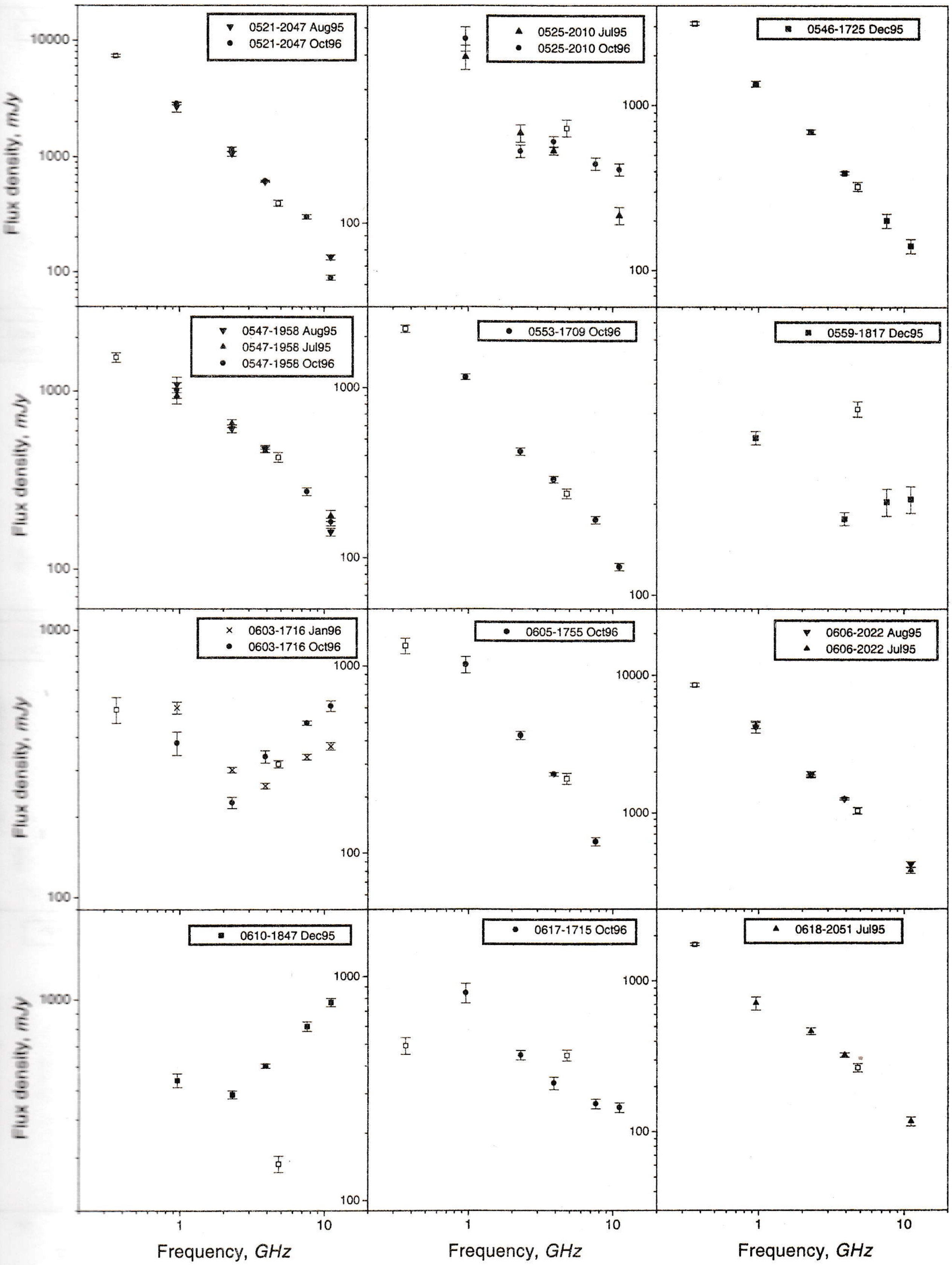


Figure 4: — *continued*

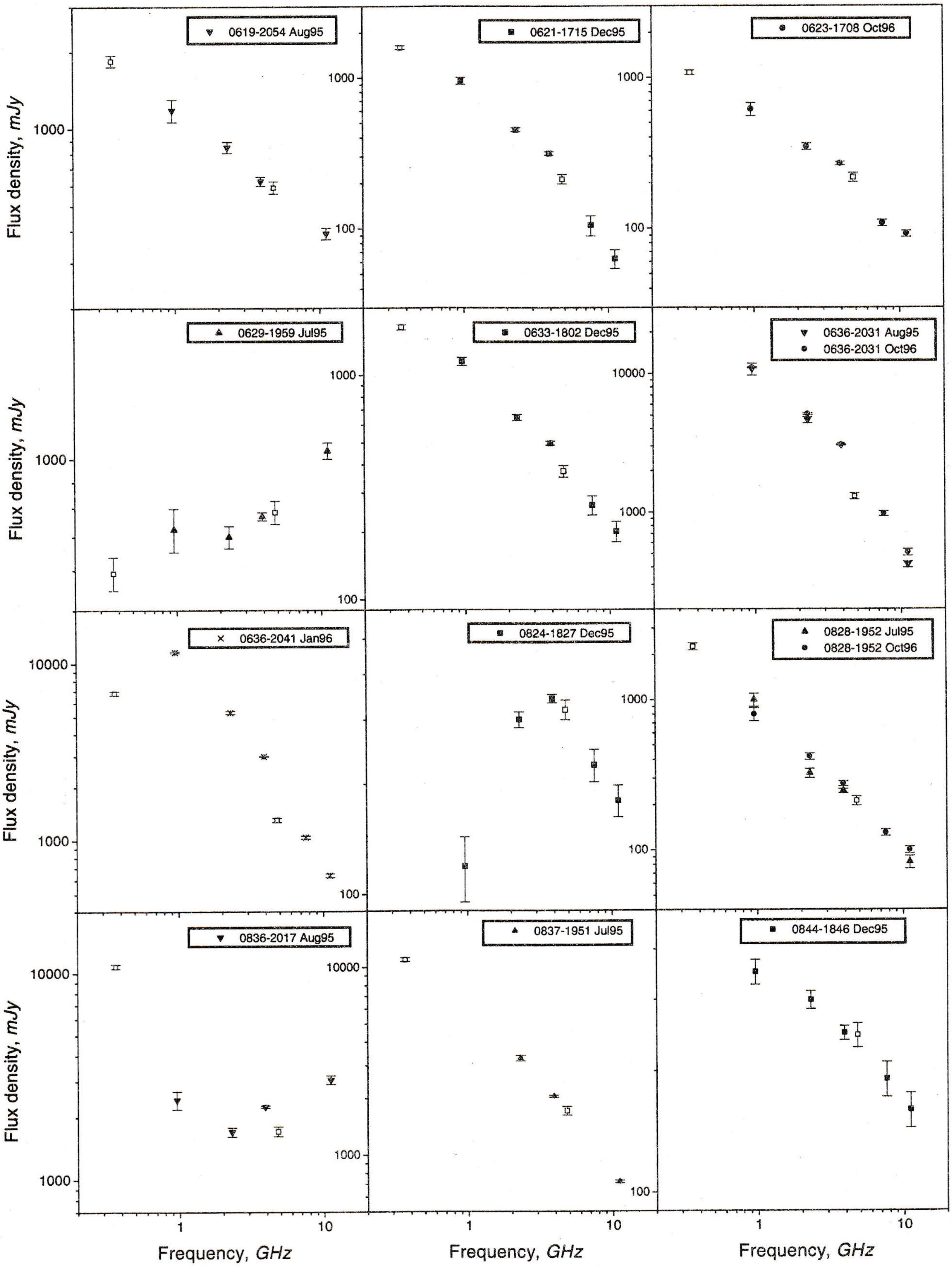
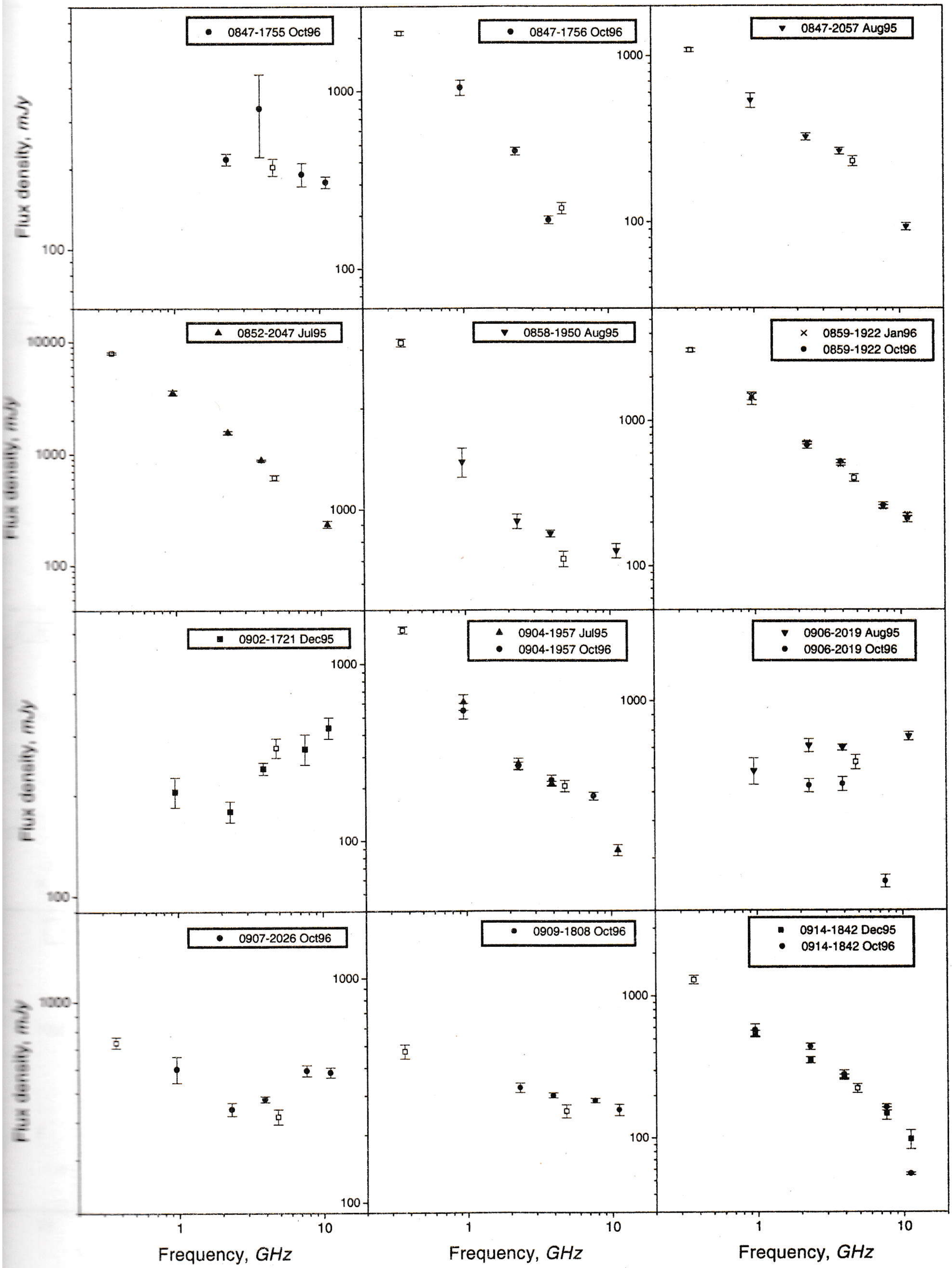


Figure 4: — *continued*



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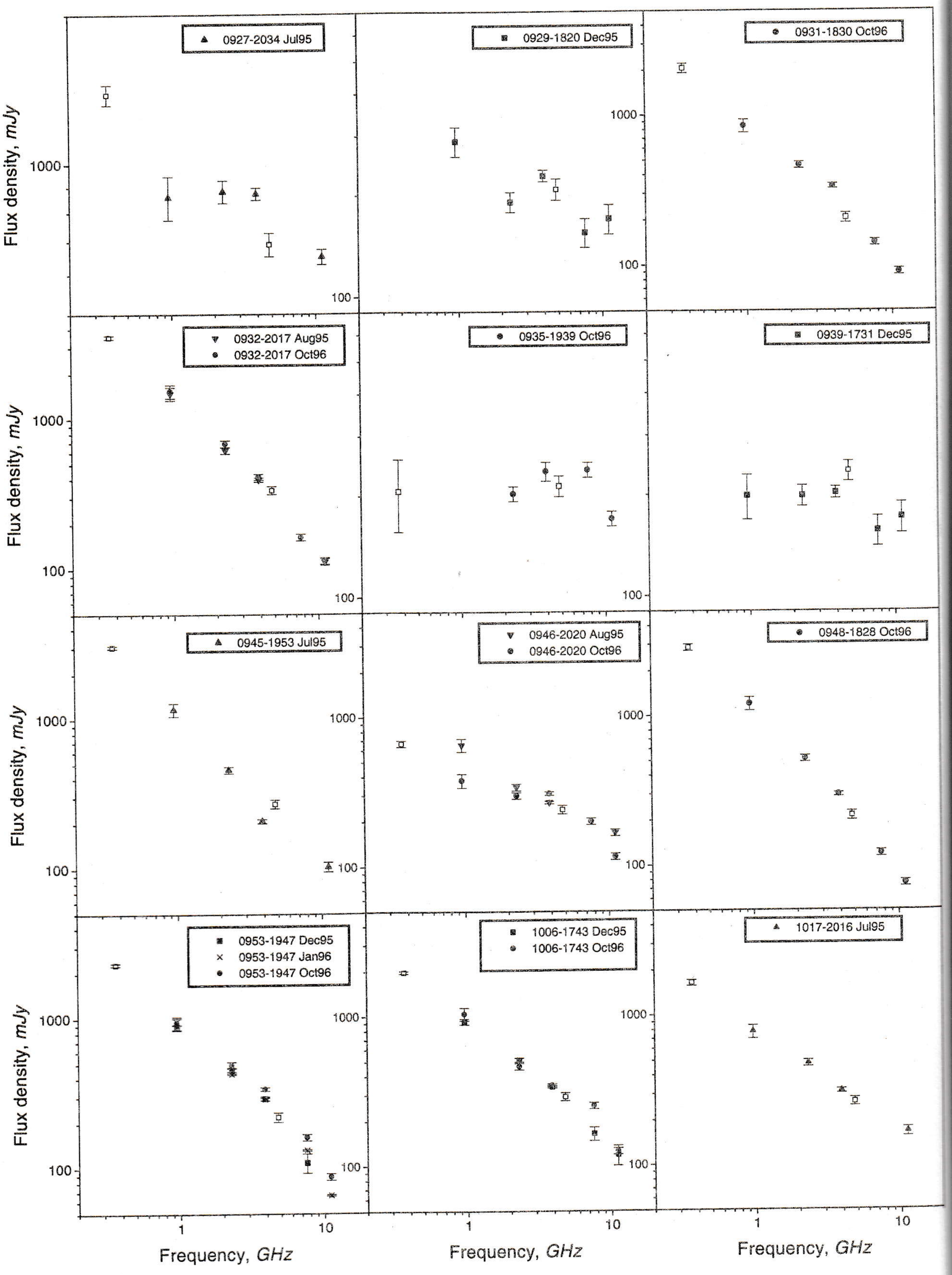

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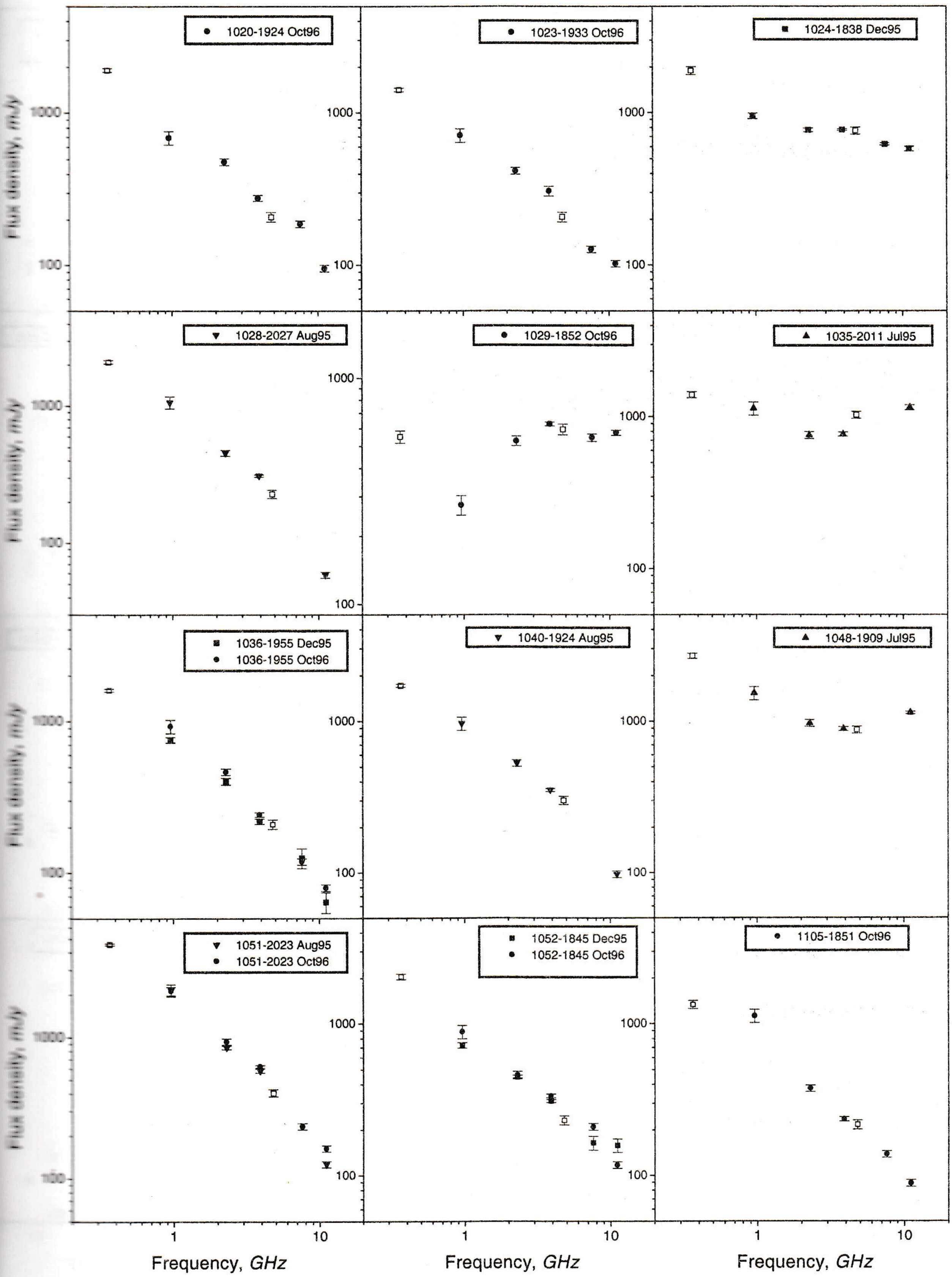

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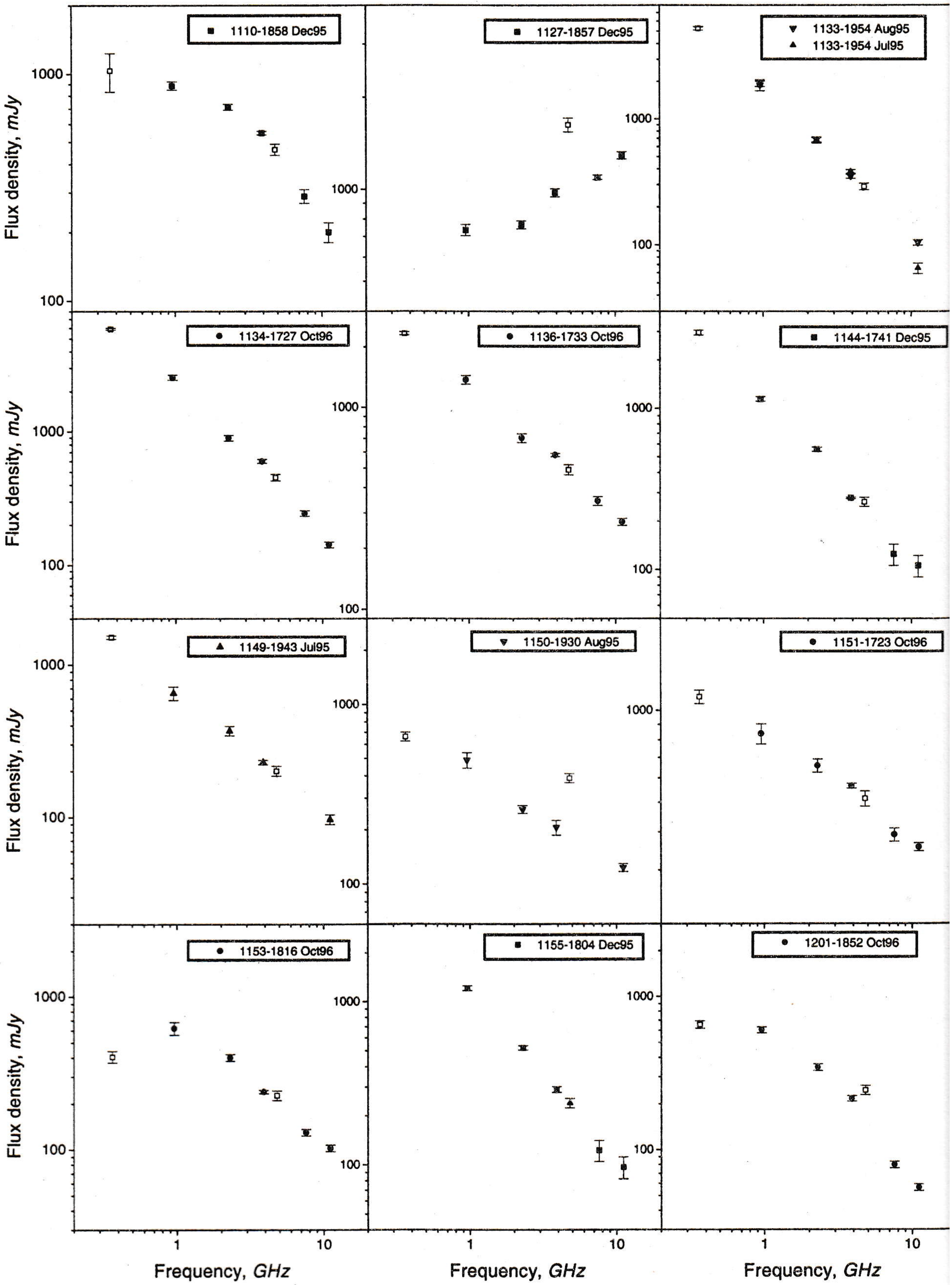

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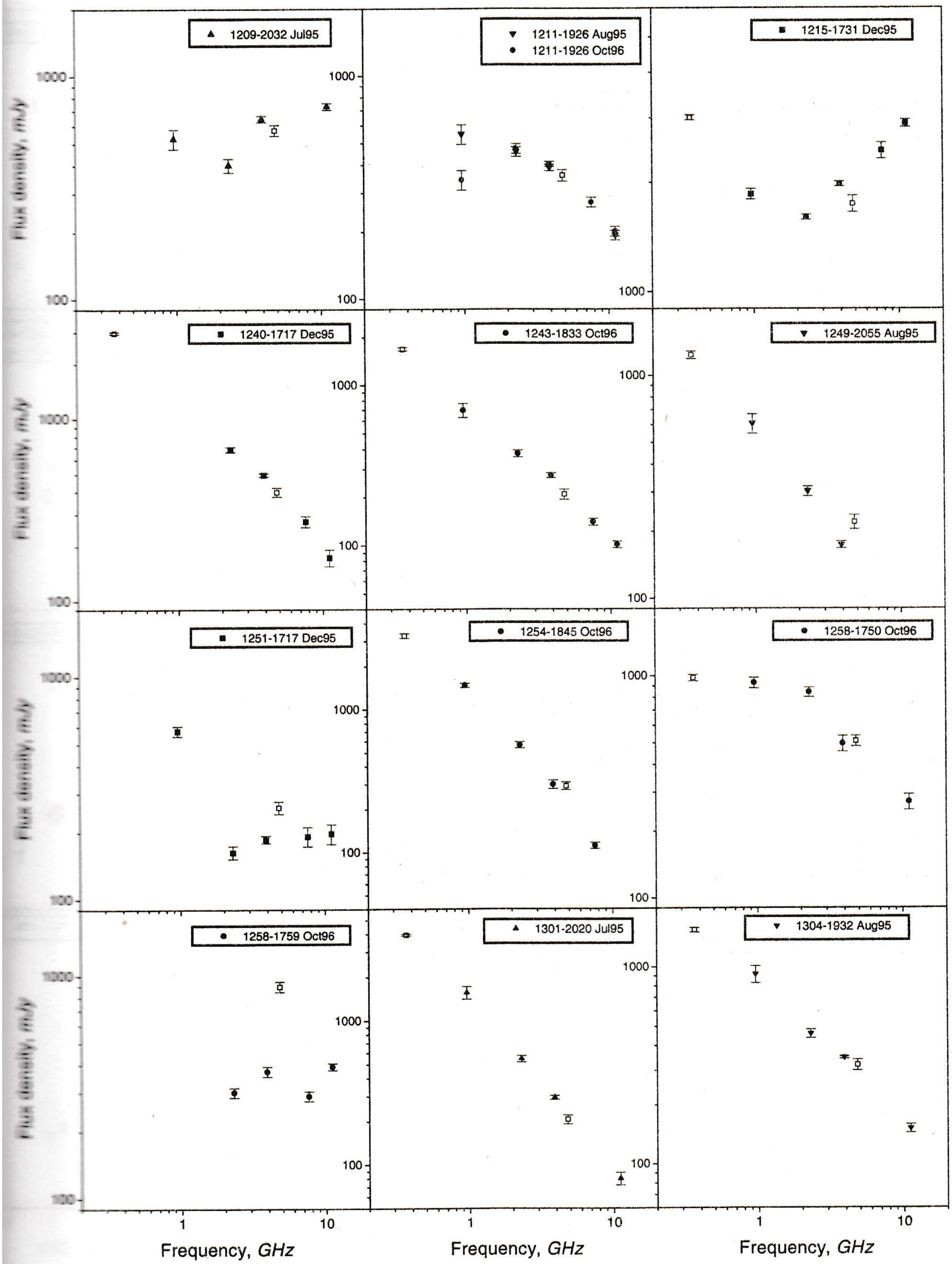

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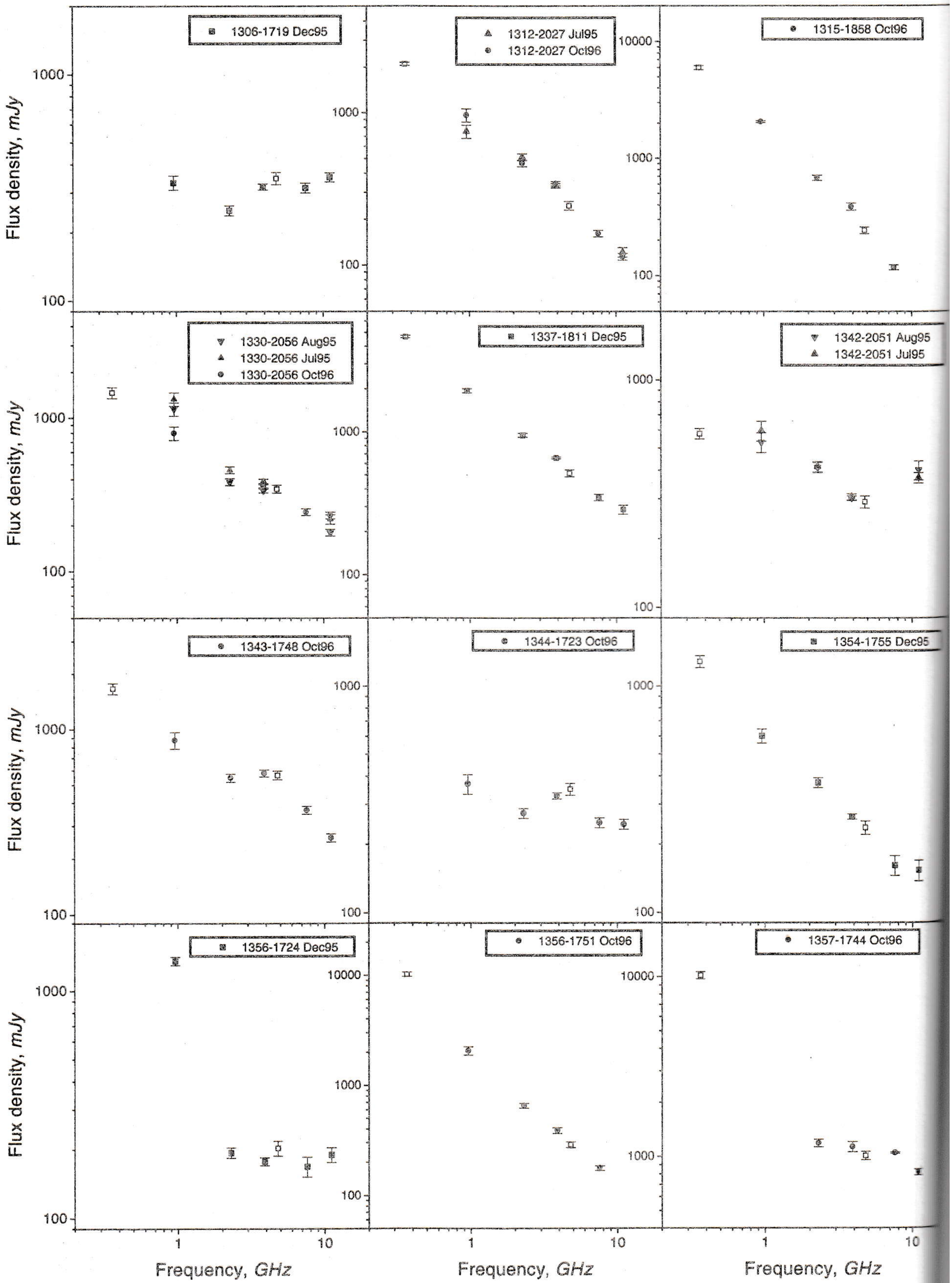

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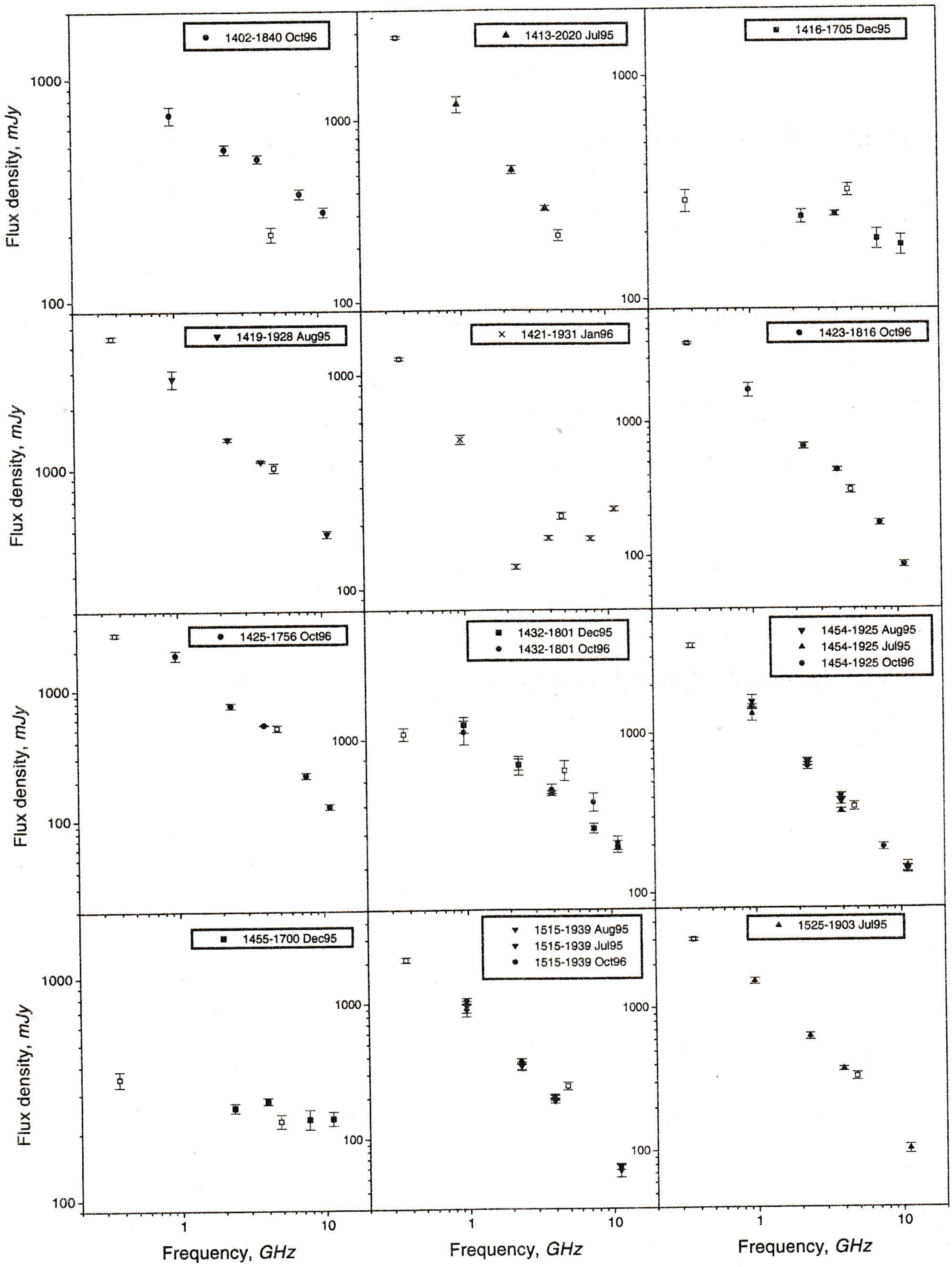

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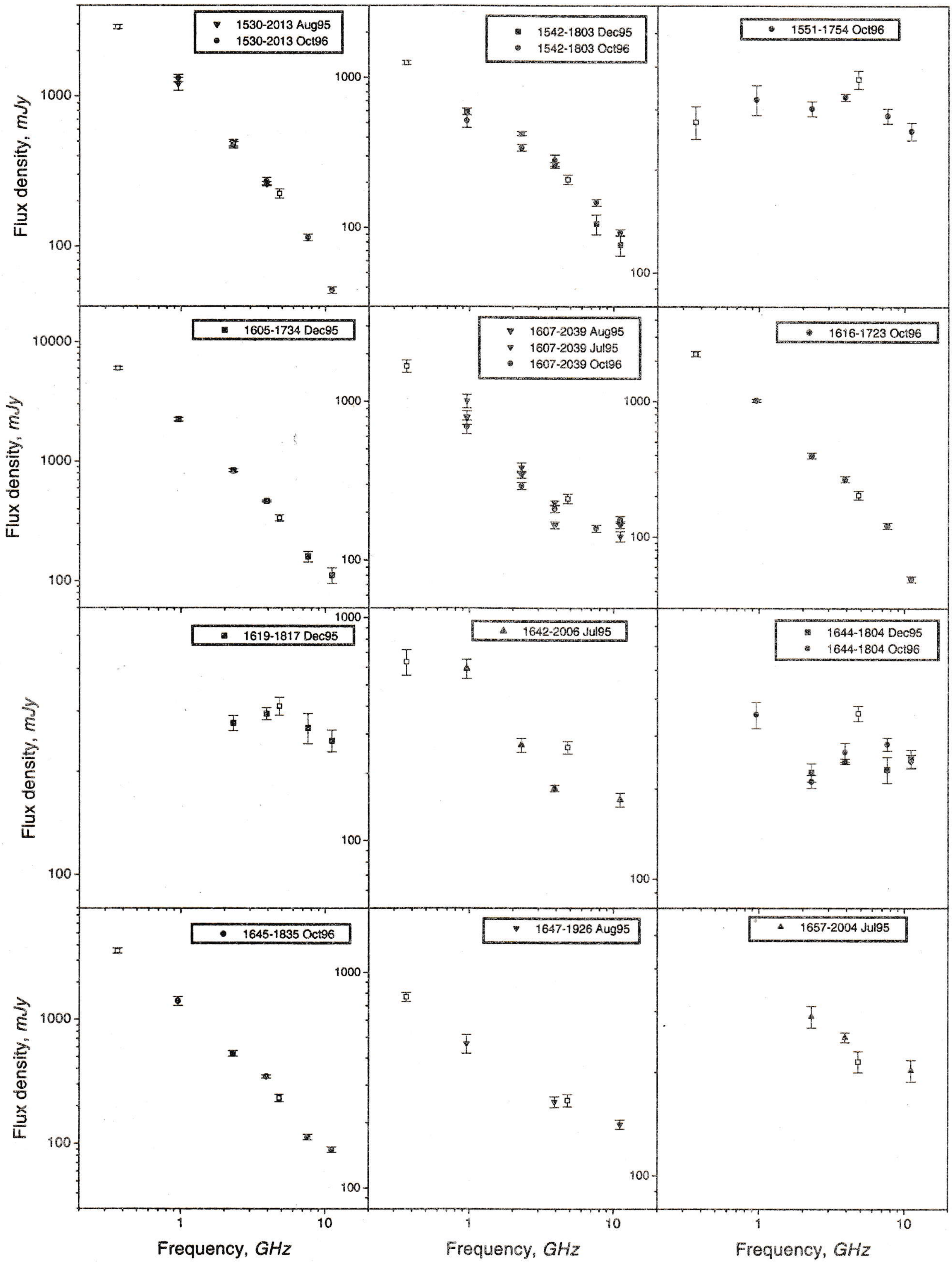

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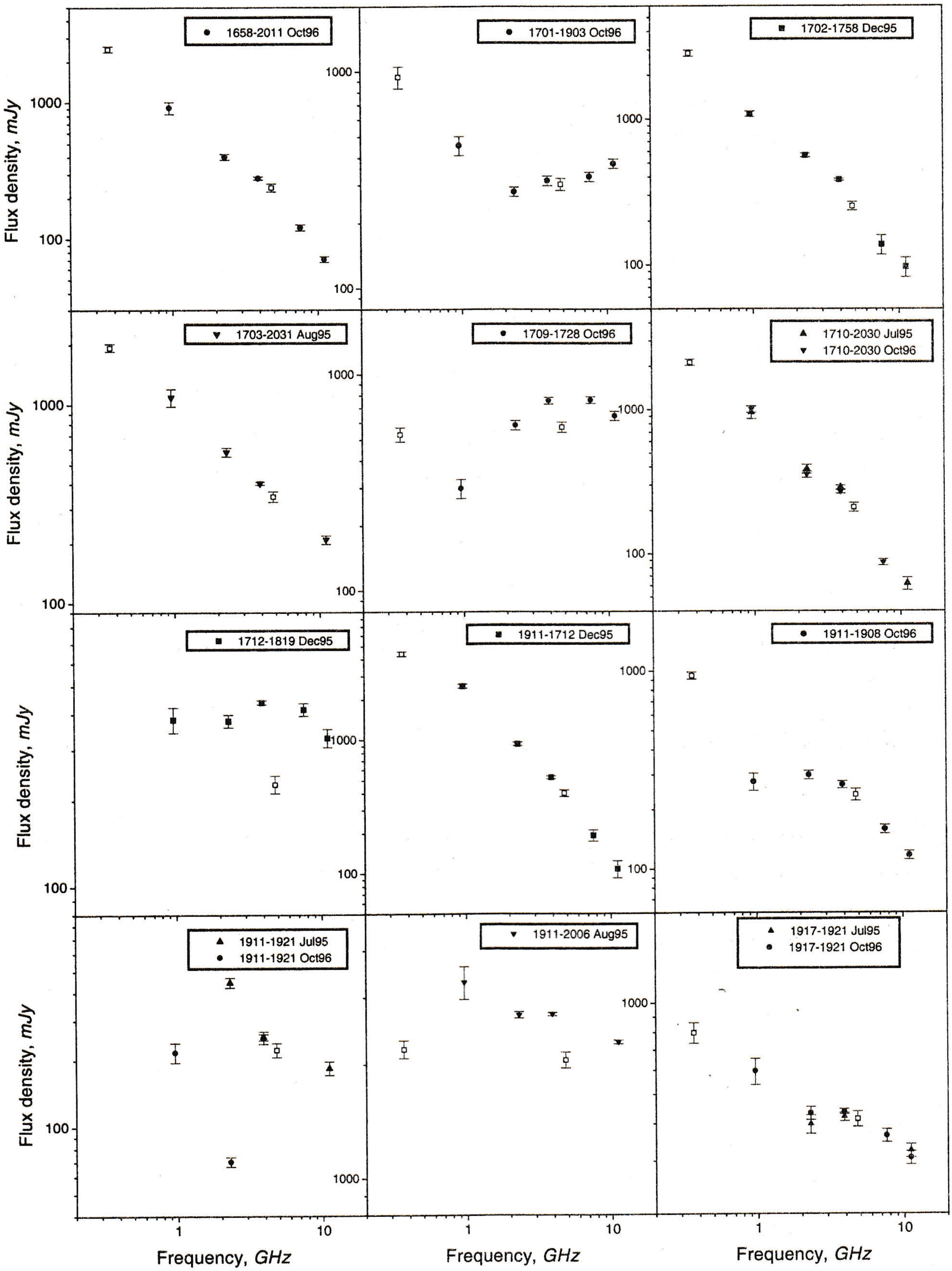
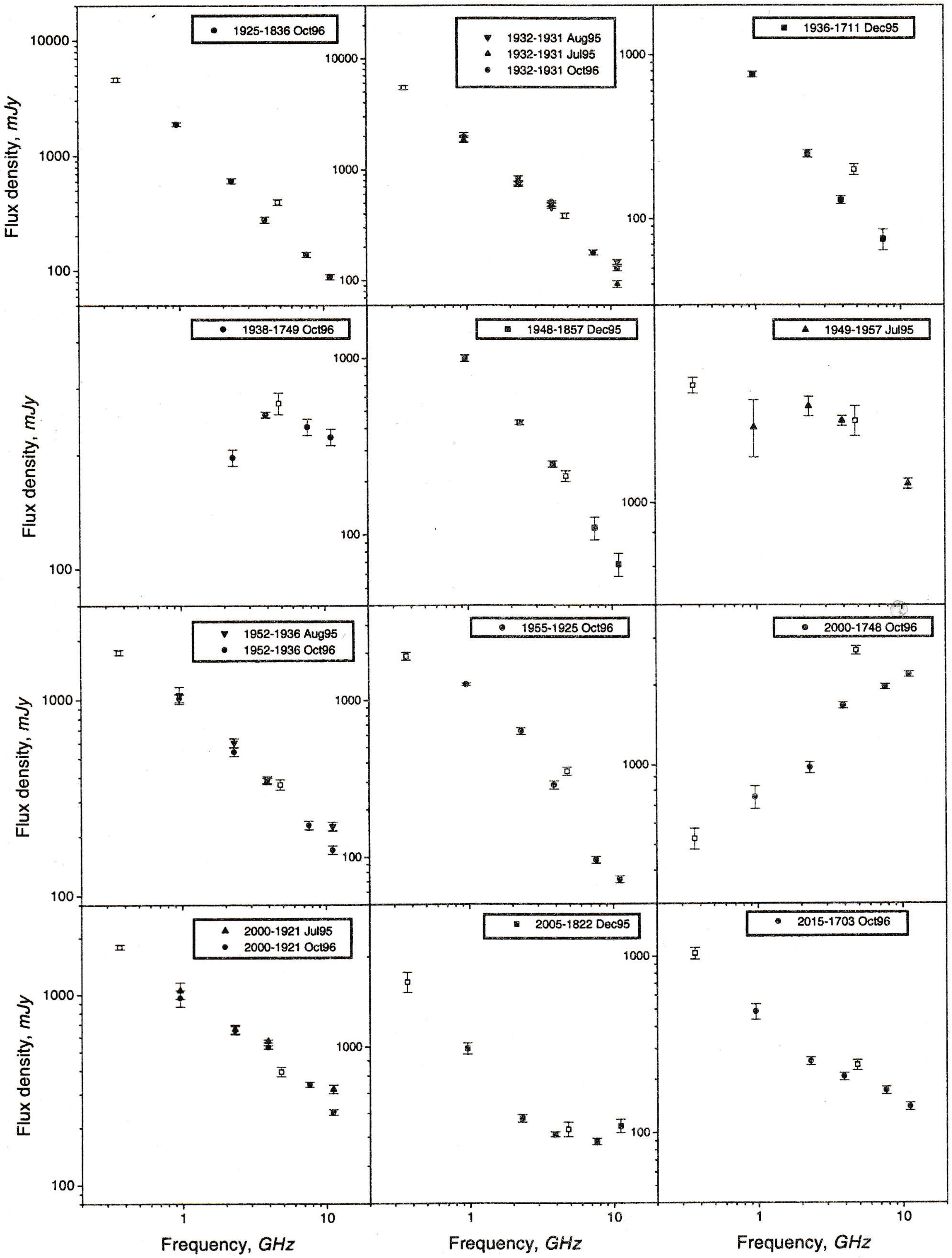


Figure 4: — *continued*



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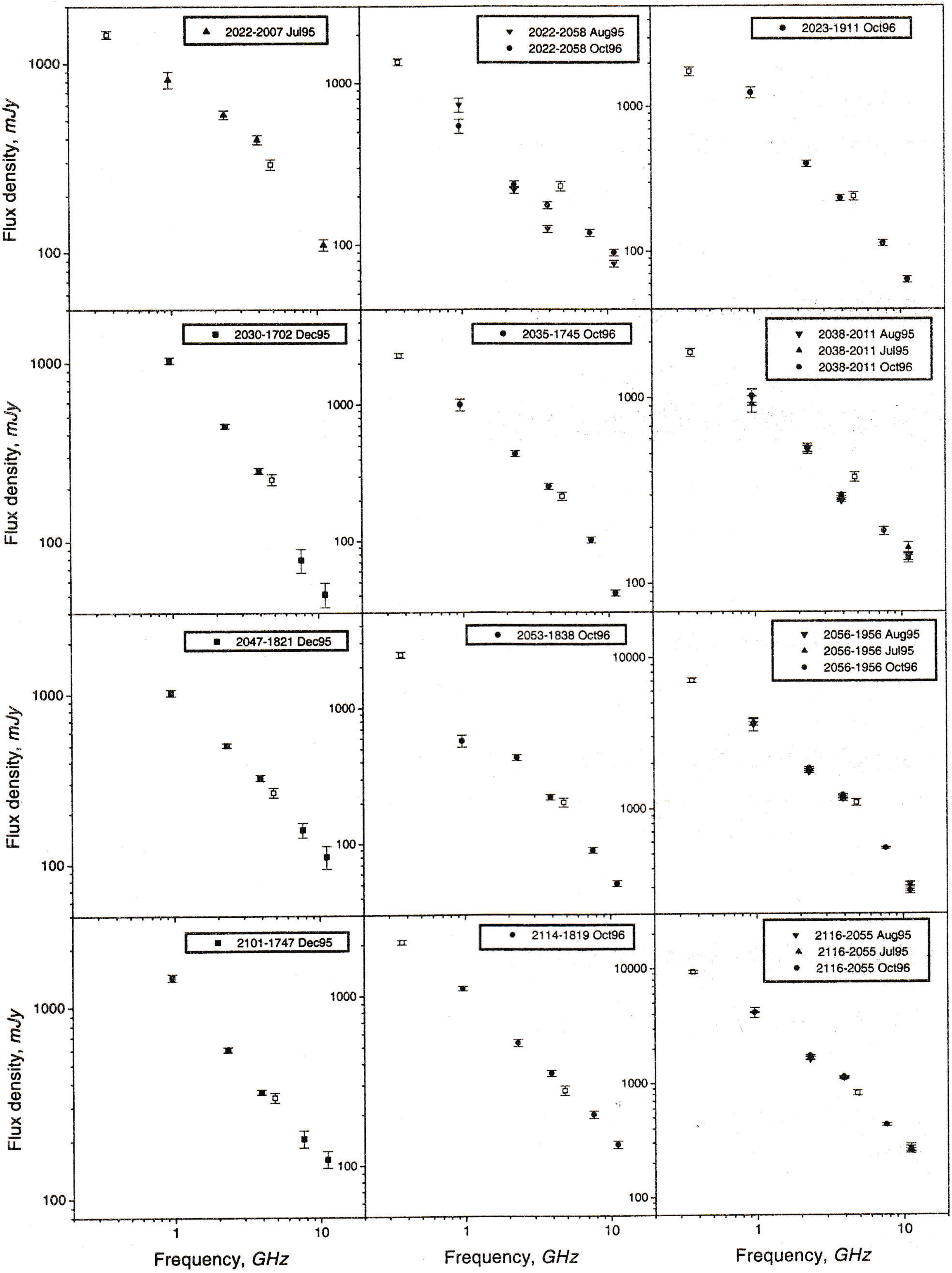

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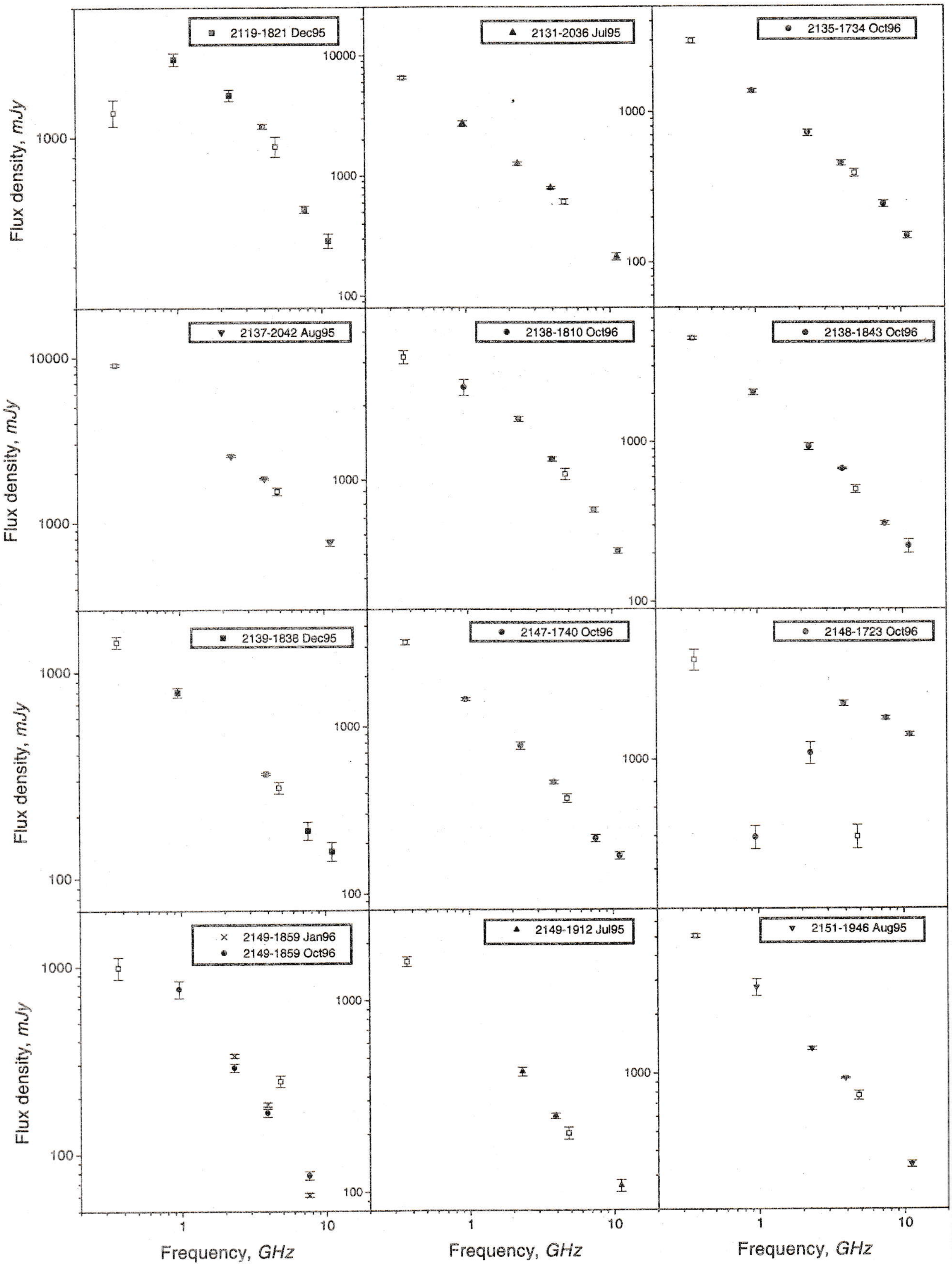


Figure 4: — *continued*

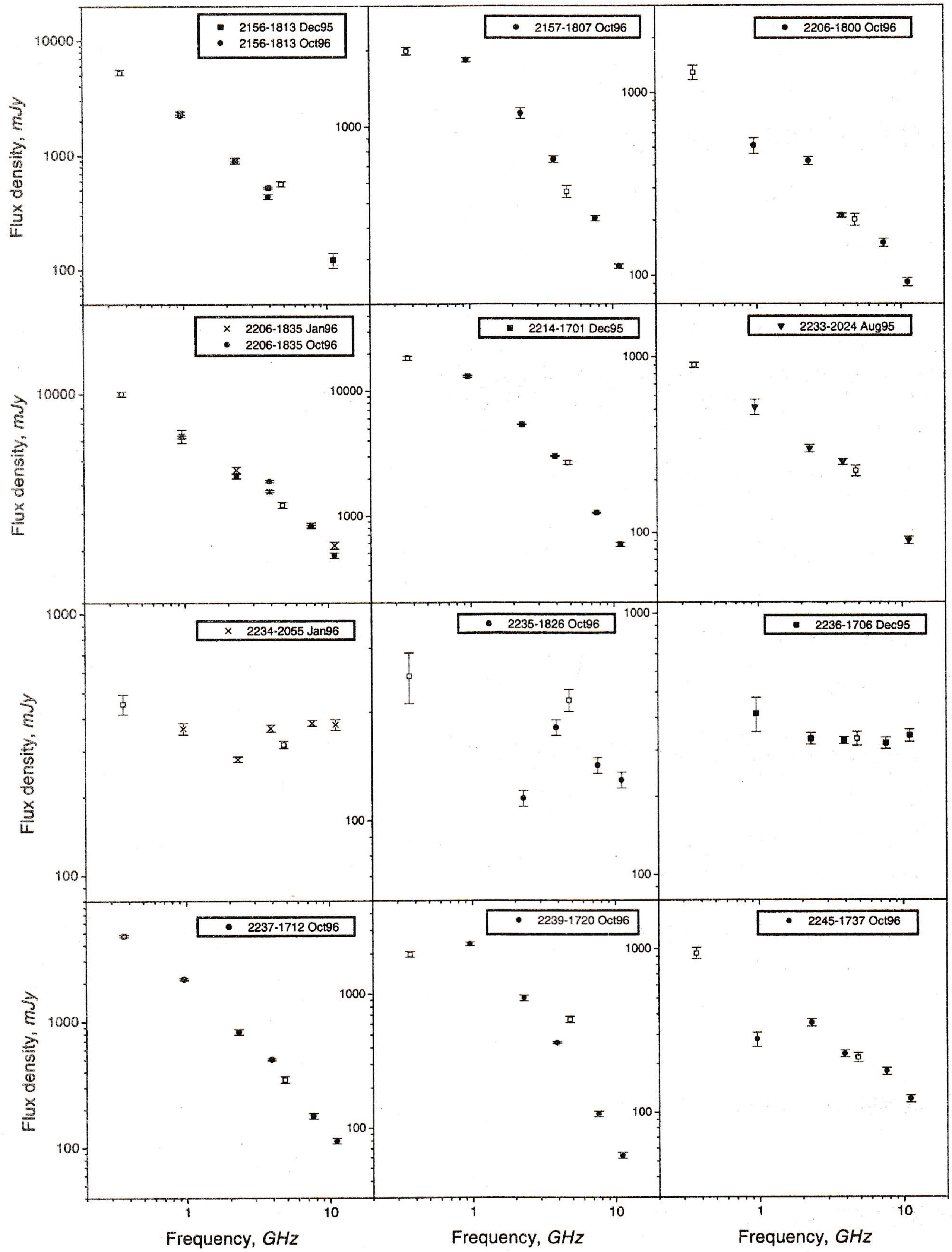
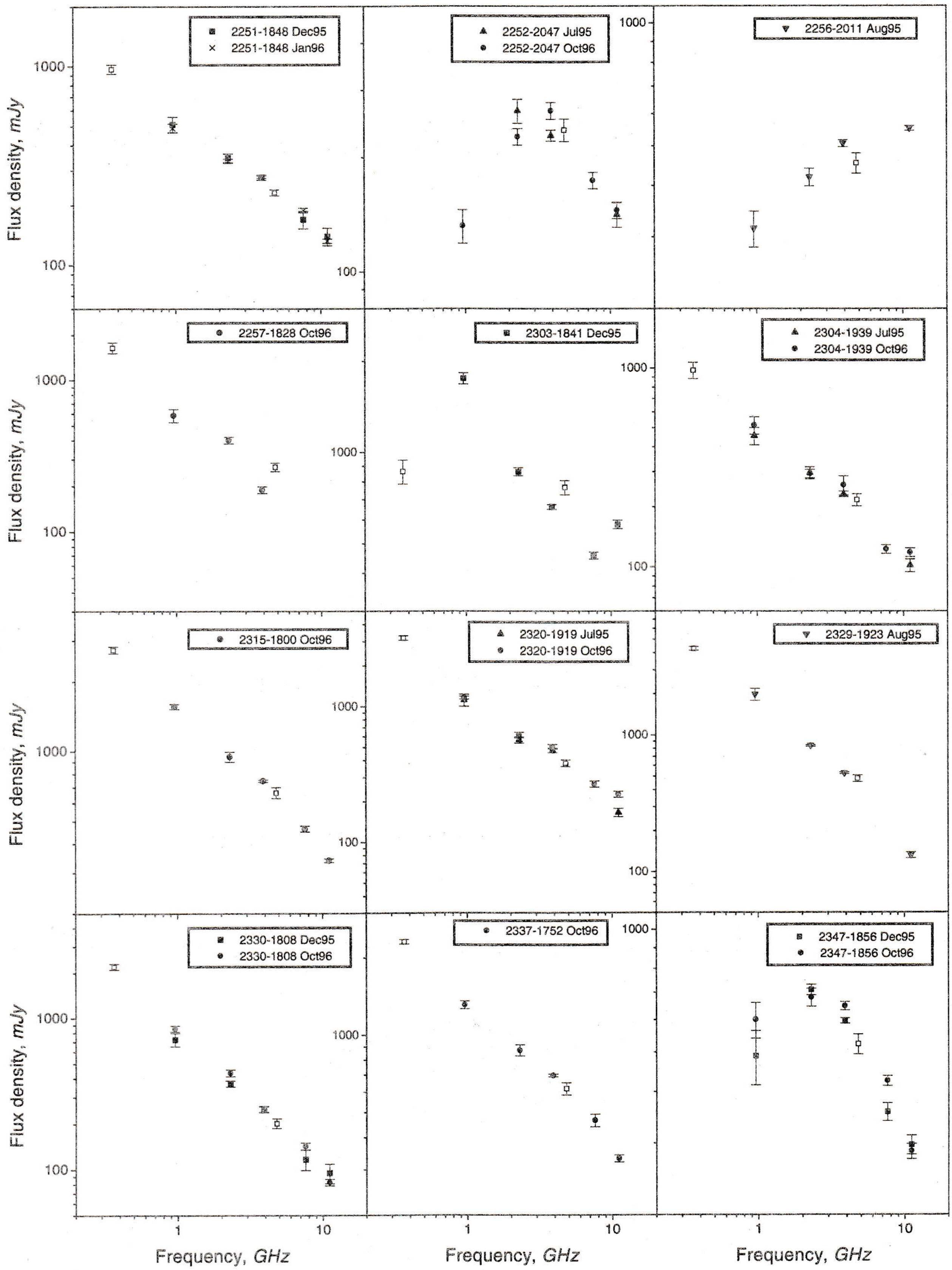


Figure 4: — *continued*



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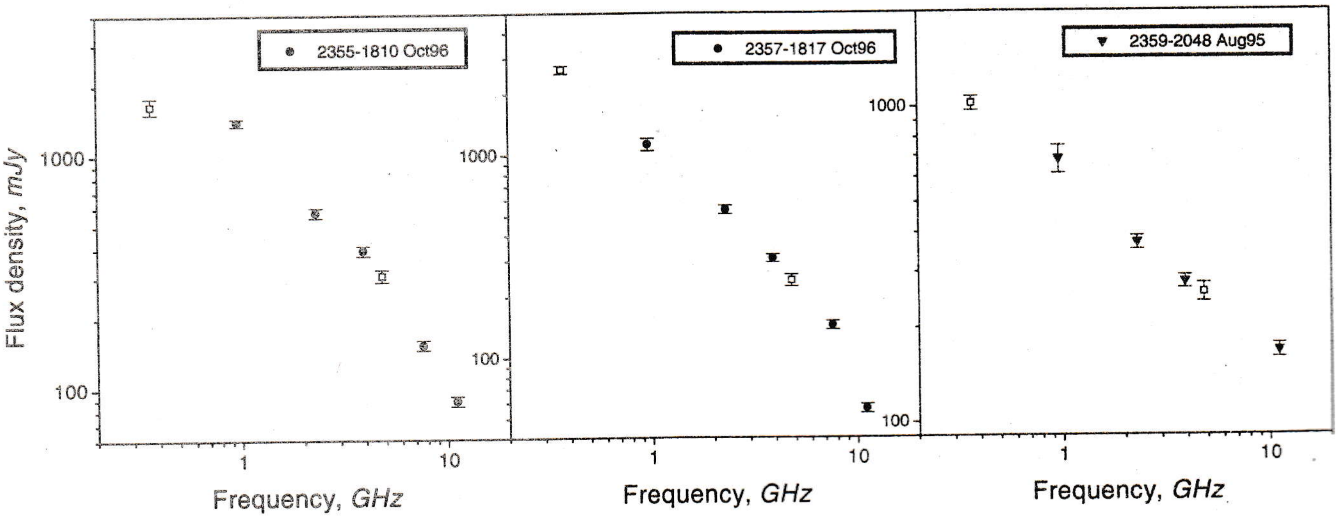

Comments to the Fig.4:

- ■ July 1995
- ▲ August 1995
- ▼ December 1995
- × January 1996
- ● October 1996
- □ Fluxes from TEXAS (0.365 GHz) and PMN (4.8 GHz) surveys

Figure 4: — *continued*