VLBI Observations of 416 Extragalactic Radio Sources

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Tracking Systems and Applications Sections

The Deep Space Network is establishing a high-accuracy VLBI celestial reference frame. This article presents VLBI results of observations of 416 radio sources with declinations north of −45 deg which have been conducted at frequencies of 2.3 GHz and 8.4 GHz. At 2.3 GHz, 323 of 391 radio sources observed were detected with a fringe spacing of 3 milliarcsec and a detection limit of ~0.1 Jy. At 8.4 GHz, 278 of 416 radio sources were detected with a fringe spacing of 1 milliarcsec and a detection limit of ~0.1 Jy. This survey was conducted primarily to determine the strength of compact components at 8.4 GHz for radio sources previously detected with VLBI at 2.3 GHz. Compact extragalactic radio sources with strong correlated flux densities at both frequencies are used to form a high-accuracy reference frame.

I. Introduction

Very Long Baseline Interferometry (VLBI) observations of 416 radio sources have been conducted at frequencies of 2.3 GHz and 8.4 GHz. The observations were performed on two intercontinental baselines composed of antennas of the NASA Deep Space Network (California-Spain and California-Australia). This survey was designed primarily to identify compact radio sources at 8.4 GHz. The observed sample was chosen mainly from sources which had already shown compact structure at 2.3 GHz on similiar VLBI baselines. Such compact sources are required for the VLBI reference frame used for planetary spacecraft navigation, geodesy, astrometry, and remote clock synchronization. With observation at dual frequencies (e.g., 2.3 GHz and 8.4 GHz), charged particle effects can be virtually eliminated in these studies. The investigation of the nature of these compact objects can also be aided by this survey, which complements similar previous surveys at 2.3 GHz (Refs. 1, 2).

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II. Observed Sample

A high density of suitable VLBI sources is necessary in the ecliptic region for differential VLBI measurements of spacecraft motion and planetary dynamics. Within ±10 deg of the ecliptic, all 101 sources from a 2.3 GHz ecliptic VLBI survey (Ref. 2) and a 2.3 GHz full-sky VLBI survey (Ref. 1) with 2.3 GHz correlated flux densities greater than 0.3 Jy were included in our observations.

For other VLBI studies in geodesy, astrometry and clock synchronization, a much broader sky distribution of compact radio sources is required. For the region outside of the ±10 deg band of the ecliptic with declinations of less than –45 deg, 113 out of 135 sources in the 2.3 GHz full-sky survey (Ref. 1) with 2.3 GHz correlated flux densities greater than 0.3 Jy were included in our observations.

Also selected for observation were 202 additional sources, most of which had been previously observed in either the ecliptic or full-sky VLBI surveys but which had correlated flux densities at 2.3 GHz less than 0.3 Jy.

III. Observations and Data Reduction

The station and baseline characteristics are listed in Table 1. Nineteen observing sessions involving VLBI baselines consisting of station pairs listed in Table 1 were conducted from October 1981 to August 1984. Each source was observed for at least 3 minutes. Data were taken at 2.3 GHz and 8.4 GHz on alternating seconds for all experiments except one, which observed at 8.4 GHz only. Typical 8.4 GHz (u, v) points were $(2.3 \times 10^8\ \lambda, 2.0 \times 10^8\ \lambda)$ on the Goldstone-Madrid baseline where generally high declination sources were observed, and $(2.1 \times 10^8\ \lambda, 2.1 \times 10^8\ \lambda)$ on the Goldstone-Tidbinbilla baseline where generally low declination sources were observed, where the spatial frequency in the east-west direction is denoted by u and in the north-south direction is denoted by v. The interferometers were sensitive to compact components smaller than the minimum fringe spacing of ~3 milliarcsec at 2.3 GHz and ~1 milliarcsec at 8.4 GHz.

The Mark II VLBI recording system (Ref. 3) was used to record the data. Digital sampling and phase stability were controlled by a hydrogen maser or rubidium frequency standard at each station. System temperatures either were measured at both antennas and both frequencies for each observation or were estimated using appropriate temperature versus elevation angle curves along with measured zenith system temperatures and approximate knowledge of the total flux densities of the sources. Standard flux density calibration sources for 2.3 GHz (Ref. 4) and 8.4 GHz (Ref. 5) were observed during most observing sessions to determine antenna sensitivity (efficiency) for use in flux density calibration. When such observations were not performed, nominal antenna sensitivities were used in the calibration. Right circular polarization was used for the observations.

The data tapes were correlated on the California Institute of Technology/Jet Propulsion Laboratory Mark II VLBI processor. Correlated flux densities were calculated in the manner described in a previous report (Ref. 6). The 5-σ 2.3 GHz detection limit for most observations (~60 sec coherent integrations) was ~0.1 Jy, although for longer integrations it reached ~0.05 Jy. The 5-σ detection limit at 8.4 GHz was usually about ~0.15 Jy, although for longer observations it reached ~0.05 Jy. Random noise error was about ~0.02 Jy at 2.3 GHz and ~0.03 Jy at 8.4 GHz, but systematic errors in calibration of about 10 percent were the major sources of error for most observations. Because most sources have previously been detected at 2.3 GHz, positions accurate to 0.3 arcsec were available for 294 of the sources (Refs. 7–10), thus minimizing the search in delay and delay rate space. For previously unobserved sources, the search window was about ±30 arcsec at 2.3 GHz.

IV. Results and Discussion

The correlated flux densities at 2.3 GHz and 8.4 GHz for 416 extragalactic radio sources are presented in Fig. 1. Notes concerning the entries in that figure appear below:

Column	Notes
1	Source name
2/3	J2000 position (2000.0 Barycenter Equatorial Coordinate System). Asterisked positions have typical uncertainties of 0.3 arcsec and are from Refs. 7–10. Other positions are from the literature, and in most cases, errors are less than 30 arcsec.
4	Number of 2.3 GHz observations. If blank, there was only one observation.
5	Correlated flux density at 2.3 GHz (13.1 cm). If there was more than one observation, the value given is an average over all observations. If the value is preceded by a "<" sign, the object was not detected and the value given is the 5-σ upper limit to the correlated flux density. For sources with multiple observations and no detections, the lowest of the upper limits is given.
6	Lowest value for the 2.3 GHz correlated flux density for sources with multiple observations.
7	Highest value for the 2.3 GHz correlated flux density for sources with multiple observations.
8	Number of 8.4 GHz observations. If blank, there was only one observation.
9	Correlated flux density at 8.4 GHz (3.6 cm). If there was more than one observation, the value given is an average over all observations. If the value is preceded by a "<" sign, the object was not detected and the value given is the 5-σ upper limit to the correlated flux density. For sources with multiple observations and no detections, the lowest of the upper limits is given.

Column	Notes
10	Lowest value for the 8.4 GHz correlated flux density for sources with multiple observations.
11	Highest value for the 8.4 GHz correlated flux density for sources with multiple observations.

At 2.3 GHz, 323 of 391 (83%) radio sources observed were detected with a fringe spacing of 3 milliarcsec and a detection limit of ~0.1 Jy. At 8.4 GHz, 278 of 416 (67%) radio sources were detected with a fringe spacing of 1 milliarcsec and a detection limit of ~0.1 Jy. Readily apparent is the higher percentage of objects detected at 2.3 GHz. The lower fraction of sources detected at 8.4 GHz is primarily due to the fact that the sources were originally selected for observation from low frequency surveys. Figure 2 is a sky plot of all 278 detected objects at 8.4 GHz. Figure 3 displays a histogram of the flux densities at both 2.3 GHz and 8.4 GHz. The distributions of the flux densities for the two observing frequencies are very similar.

Evident in the large deviations between the low and high values of correlated flux density in Fig. 1 of the multiply observed sources is the high degree of variability. Source variability is due to (1) resolvable source structure observed at different inteferometer hour angles and (2) intrinsic changes in source strength. The difference between the high and low correlated flux densities for multiply observed sources compared to the measurement errors discussed in Section III gives a measure of source variability over the available observations.

Only seven of the sources previously detected at 2.3 GHz (Refs. 1, 2) were not detected at either frequency in this survey. Four of these sources (3C 2, 3C 66B, P 1317+019 and P 2145–17) were previously detected at 2.3 GHz with very weak flux densities (~0.06 Jy) consistent with the detection threshold (~0.1 Jy). The other three sources (P 0122–00, P 0922+005, and P 1143–245) were previously detected at higher flux densities.

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Table 1. Observed stations and baselines

Location	Designation	Diameter, m	Baseline, km	Length, 10^6 λ	
				2.3 GHz	8.4 GHz
Tidbinbilla, Australia	DSS 43	64			
			10.6×10^3	77	295
Goldstone, California	DSS 14 DSS 13	64 26			
			8.4×10^3	61	233
Madrid, Spain	DSS 63 DSS 61	64 34			

(1) SOURCE NAME	(2) RIGHT ASCENSION (J2000) HR MN SEC	(3) DECLINATION (J2000) DEG MN SEC	(4) NUMBER OF OBS (2.3 GHz)	(5) 2.3 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(6) LOW (JY)	(7) HIGH (JY)	(8) NUMBER OF OBS (8.4 GHz)	(9) 8.4 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(10) LOW (JY)	(11) HIGH (JY)
NRAO 5	0 6 13.84	− 6 23 34.7 *	3	0.50	0.40	0.55	3	0.31	0.18	0.41
3C 2	0 6 22.66	− 0 4 33.1		< 0.07				< 0.14		
GC 0007+17	0 10 33.99	17 24 19.0 *		0.32				0.25		
P 0008−264	0 11 1.22	−26 12 33.2 *	7	0.49	0.43	0.60	7	0.58	0.31	0.75
P 0011−046	0 13 54.12	− 4 23 52.0 *		0.23				0.25		
P 0013−00	0 16 11.10	− 0 15 12.5 *		0.33				0.38		
0016+73	0 19 45.73	73 27 30.2	2	0.34	0.32	0.35	2	0.42	0.41	0.42
P 0019+058	0 22 32.71	6 8 0.0 *	15	0.39	0.28	0.52	15	0.52	0.23	0.70
P 0022−423	0 24 42.99	−42 2 4.0 *		0.52				< 0.12		
P 0027+056	0 29 45.97	5 54 39.8 *		0.40				0.15		
P 0030+19	0 32 38.24	19 53 44.7		< 0.09				< 0.14		
0032+276	0 34 43.47	27 54 25.7 *		0.24				< 0.14		
GC 0035+12	0 38 18.04	12 27 30.7 *		0.13				0.22		
P 0035−02	0 38 20.52	− 2 7 40.3 *					2	0.26	0.21	0.31
P 0038−020	0 40 57.18	− 1 46 14.8		0.38				0.23		
P 0041+001	0 43 35.72	0 24 19.1		< 0.06				< 0.06		
P 0047+023	0 49 43.30	2 37 2.9 *		0.21				0.22		
0047−051	0 50 21.52	− 4 52 20.3 *	3	0.15	0.15	0.16	3	0.26	0.26	0.27
P 0048−09	0 50 40.34	− 9 28 49.9 *	2	0.84	0.77	0.90	2	0.74	0.60	0.87
0054−006	0 57 17.01	− 0 24 33.3 *		0.15				0.15		
P 0056−00	0 59 5.59	0 6 1.6 *	2	0.47	0.46	0.47	3	< 0.05		
P 0104−408	1 6 45.11	−40 34 20.1		1.78				4.26		
0105−008	1 8 27.01	− 0 37 20.6		< 0.07				< 0.14		
P 0106+01	1 8 38.84	1 34 59.2 *	27	2.60	1.99	3.31	28	1.07	0.21	1.44
P 0108−079	1 10 50.04	− 7 41 41.3 *		0.52				0.20		
P 0111+021	1 13 43.18	2 22 16.5 *	15	0.26	0.08	0.44	15	0.31	0.11	0.51
P 0112−017	1 15 17.12	− 1 27 4.8 *		0.55				0.79		
GC 0114+07	1 17 26.18	7 42 17.9 *		0.08				0.12		
P 0115+02	1 18 18.53	2 58 4.9 *		0.06				0.15		
GC 0116+08	1 19 1.23	8 29 50.3 *		0.11				< 0.07		
P 0119+11	1 21 41.65	11 49 49.6 *		0.29				0.46		
GC 0119+04	1 21 56.95	4 22 23.3 *	6	0.31	0.05	1.00	6	0.53	0.31	0.66
P 0122−00	1 25 28.97	− 0 5 58.3 *	2	< 0.08			2	< 0.14		
0124+189	1 26 54.99	19 12 31.0		< 0.08				< 0.13		
0131−001	1 34 12.64	0 3 45.9		0.20				< 0.12		
DA 55	1 36 58.59	47 51 29.1	11	0.67	0.25	1.03	11	0.65	0.16	0.92
P 0136+176	1 39 41.99	17 53 7.2 *		0.22				0.09		
P 0137+012	1 39 57.33	1 31 46.4 *		0.09				< 0.07		
GC 0144+20	1 46 58.79	21 10 24.1 *		0.46				< 0.13		
OC 079	1 49 22.48	5 55 52.1 *		0.46				0.46		
GC 0147+18	1 49 49.76	18 57 19.5 *		0.12				< 0.12		
P 0149+21	1 52 18.05	22 7 7.6 *		0.39				0.68		
P 0150−334	1 53 10.11	−33 10 25.9 *		0.77				0.73		
P 0158+031	2 0 40.81	3 22 49.7 *		0.27				0.11		
P 0159+034	2 1 51.51	3 43 9.2 *		0.09				0.08		

Fig. 1. VLBI survey results

(1) SOURCE NAME	(2) RIGHT ASCENSION (J2000) HR MN SEC	(3) DECLINATION (J2000) DEG MN SEC	(4) NUMBER OF OBS (2.3 GHz)	(5) 2.3 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(6) LOW (JY)	(7) HIGH (JY)	(8) NUMBER OF OBS (8.4 GHz)	(9) 8.4 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(10) LOW (JY)	(11) HIGH (JY)
P 0201+113	2 3 46.73	11 34 44.4 *	4	0.90	0.80	1.10	4	0.20	0.11	0.26
P 0202+14	2 4 50.47	15 14 10.2 *	8	1.13	0.77	1.40	8	1.18	0.90	1.53
DW 0202+31	2 5 4.93	32 12 30.0 *		0.77				0.34		
0212+735	2 17 30.83	73 49 32.7 *	19	0.79	0.25	1.64	19	1.55	0.19	2.14
3C 66A	2 22 39.63	43 2 7.6 *		0.18				0.21		
3C 66B	2 23 11.42	42 59 31.2 *		< 0.08				< 0.08		
GC 0221+06	2 24 28.52	6 59 22.1 *		0.28				1.24		
DW 0224+67	2 28 50.03	67 21 2.9	2	0.92	0.90	0.93	2	< 0.13		
P 0229+13	2 31 45.90	13 22 54.6 *		0.48				1.35		
0229+262	2 32 27.62	26 28 38.3 *		0.20				< 0.13		
CTD 20	2 37 52.41	28 48 8.9 *	15	1.32	0.74	1.76	15	2.05	0.94	2.96
GC 0235+16	2 38 38.95	16 36 58.9 *	14	1.61	0.90	2.30	14	1.91	1.19	2.55
GC 0237+04	2 39 51.29	4 16 21.0 *		0.27				0.52		
OD 166	2 42 29.19	11 1 0.6 *	10	0.89	0.75	1.11	10	0.61	0.39	1.00
0242+238	2 45 16.83	24 5 34.9 *		0.12				0.19		
P 0246+064	2 48 58.11	6 41 43.8		< 0.09				< 0.16		
GC 0250+17	2 53 34.90	18 5 42.3 *		0.29				0.08		
P 0253+13	2 56 35.00	13 34 35.5 *		0.05				0.12		
0254+092	2 56 45.00	9 29 3.6		< 0.10				< 0.17		
OD 094.7	2 59 27.06	7 47 39.9 *	3	0.48	0.45	0.51	8	0.43	0.16	0.62
P 0259+07	3 1 49.93	7 25 7.0		< 0.09				< 0.15		
OE 400	3 3 35.24	47 16 16.2 *	9	1.18	0.43	1.61	9	2.28	1.28	2.89
0300+162	3 3 15.01	16 26 14.8		< 0.10				< 0.11		
0305+039	3 8 26.32	4 6 37.8		0.18				< 0.10		
OE 110	3 9 3.64	10 29 16.0 *	2	0.22	0.17	0.28	2	0.65	0.62	0.68
CTA 21	3 18 57.79	16 28 32.4 *		0.12				< 0.07		
3C 84	3 19 48.16	41 30 42.1 *	4	2.18	1.08	3.75	4	0.97	0.83	1.28
P 0317+188	3 19 51.27	19 1 31.4 *		0.30				0.14		
0322+245	3 25 4.35	24 44 32.0		< 0.24				< 0.14		
GC 0322+22	3 25 35.91	22 24 12.2 *		0.33				< 0.07		
P 0332-403	3 34 13.66	-40 8 25.4 *	7	0.94	0.78	1.13	7	0.88	0.50	1.44
NRAO 140	3 36 30.11	32 18 29.6 *	12	0.97	0.37	1.70	12	0.50	0.31	0.94
P 0335-122	3 37 55.68	-12 4 12.5	2	< 0.08			2	< 0.13		
P 0336-017	3 39 1.70	- 1 33 17.2		< 0.09				< 0.20		
CTA 26	3 39 30.94	- 1 46 35.9		1.44				0.50		
0338+074	3 40 53.78	7 35 23.9		0.21				< 0.10		
P 0338-214	3 40 35.59	-21 19 31.2 *		0.46				0.90		
GC 0344+19	3 47 30.56	20 4 38.4 *		0.27				< 0.07		
GC 0346+20	3 49 45.25	21 4 45.5		< 0.14				< 0.14		
0357+057	4 0 11.49	5 51 3.4		< 0.09				< 0.12		
CTD 26	4 3 5.58	26 0 1.5 *	2	0.26	0.21	0.32	2	< 0.14		
P 0400-319	4 2 21.27	-31 47 26.0 *		0.66				0.47		
P 0402-362	4 3 53.75	-36 5 2.0	9	0.52	0.48	0.58	9	1.39	0.59	1.91
P 0404+177	4 7 28.97	17 50 33.0		< 0.06				< 0.07		
GC 0406+12	4 9 22.00	12 17 39.8 *	14	0.54	0.34	1.60	14	0.34	0.22	0.45

Fig. 1 (contd)

(1) SOURCE NAME	(2) RIGHT ASCENSION (J2000) HR MN SEC	(3) DECLINATION (J2000) DEG MN SEC	(4) NUMBER OF OBS (2.3 GHz)	(5) 2.3 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(6) LOW (JY)	(7) HIGH (JY)	(8) NUMBER OF OBS (8.4 GHz)	(9) 8.4 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(10) LOW (JY)	(11) HIGH (JY)
P 0409+22	4 12 43.59	23 4 53.9		0.21				0.33		
3C 109	4 13 40.37	11 12 14.1 *		0.11				0.17		
P 0414-189	4 16 36.51	-18 51 8.1 *		0.44				0.41		
P 0420-01	4 23 15.80	- 1 20 33.1	9	1.79	1.63	2.00	9	1.76	1.03	2.63
GC 0423+23	4 26 54.95	23 27 48.4 *		0.17				< 0.07		
P 0423+051	4 26 36.66	5 18 18.9 *	2	0.52	0.51	0.53	2	0.25	0.25	0.26
0426+273	4 29 52.96	27 24 37.4 *		0.21				< 0.15		
P 0426-380	4 28 40.43	-37 56 19.7 *		0.70				0.90		
P 0428+20	4 31 3.69	20 37 34.1		0.13				< 0.07		
3C 120	4 33 11.13	5 21 14.3 *	9	0.37	0.08	0.56	7	0.26	0.13	0.45
P 0434-188	4 37 1.46	-18 44 48.5 *	7	0.74	0.57	0.80	7	0.44	0.15	0.75
P 0438-43	4 40 17.18	-43 33 8.6	6	0.68	0.50	0.79	6	0.77	0.40	0.92
P 0446+11	4 49 7.67	11 21 28.3 *	2	0.31	0.31	0.31	2	0.50	0.41	0.60
P 0446+20	4 49 25.76	20 44 54.9		< 0.06				< 0.07		
P 0451-28	4 53 14.60	-28 7 36.7 *		0.59				< 0.15		
P 0452+23	4 55 22.90	23 10 19.1		< 0.06				< 0.08		
P 0454+06	4 57 7.76	6 45 6.5 *		0.14				0.42		
0454+844	5 8 42.38	84 32 4.6 *	17	0.50	0.35	0.66	17	0.38	0.21	0.63
P 0456+060	4 58 48.82	6 8 3.2 *	2	0.16	0.14	0.17		0.14		
P 0458-02	5 1 12.82	- 1 59 14.6 *		1.32				0.61		
P 0458+138	5 1 45.26	13 56 7.7 *		0.13				< 0.07		
GC 0459+06	5 2 15.48	6 9 6.9 *	2	0.42	0.41	0.43	2	0.31	0.28	0.34
3C 133	5 2 58.47	25 16 25.4 *		0.24				0.16		
0500+060	5 2 40.88	6 9 33.7		< 0.09				< 0.14		
OG 003	5 3 21.20	2 3 4.5 *		0.77				0.55		
P 0502+049	5 5 23.17	4 59 42.2 *	2	0.30	0.27	0.34	2	0.50	0.49	0.51
P 0504+23	5 7 6.41	23 51 13.7		< 0.06				< 0.08		
0505+173	5 7 59.87	17 23 41.6		< 0.10				< 0.16		
0506+056	5 9 25.95	5 41 35.4 *		0.25				< 0.13		
P 0507+17	5 10 2.36	18 0 41.5 *	3	0.33	0.24	0.45	3	0.57	0.21	0.81
P 0509+152	5 12 41.01	15 17 23.4 *	3	0.66	0.37	0.81	2	0.20	0.14	0.26
P 0511-220	5 13 49.12	-21 59 16.2 *		0.31				0.67		
0514+109	5 16 46.81	10 57 57.8		< 0.10				< 0.16		
0515+067	5 17 51.14	6 48 11.1		< 0.10				< 0.15		
0516+144	5 19 31.07	14 28 24.2		< 0.10				< 0.16		
3C 138	5 21 9.88	16 38 22.1 *		0.34				< 0.07		
P 0521-36	5 22 57.97	-36 27 30.7 *		0.85				0.86		
0528-250	5 30 7.92	-25 3 29.5 *		0.34				0.13		
P 0528+134	5 30 56.42	13 31 55.2 *	6	1.15	0.66	1.53	6	1.06	0.69	1.66
P 0537-441	5 38 50.36	-44 5 9.0	4	0.39	0.17	0.57	4	2.55	0.88	3.94
0544+273	5 47 34.12	27 21 57.0 *	3	0.21	0.17	0.25	3	0.31	0.29	0.32
DA 193	5 55 30.81	39 48 49.2	9	2.03	1.68	2.33	9	2.09	1.79	2.41
0554+242	5 57 4.56	24 13 53.7 *	3	0.23	0.17	0.34	3	0.20	0.12	0.32
0556+238	5 59 32.02	23 53 54.0 *	3	0.24	0.22	0.25	3	0.33	0.29	0.36
0600+177	6 3 9.16	17 42 20.9 *	2	0.34	0.32	0.35	2	0.24	0.20	0.28

Fig. 1 (contd)

(1) SOURCE NAME	(2) RIGHT ASCENSION (J2000) HR MN SEC	(3) DECLINATION (J2000) DEG MN SEC	(4) NUMBER OF OBS (2.3 GHz)	(5) 2.3 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(6) LOW (JY)	(7) HIGH (JY)	(8) NUMBER OF OBS (8.4 GHz)	(9) 8.4 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(10) LOW (JY)	(11) HIGH (JY)
P 0601+24	6 4 55.27	24 29 23.2		0.10				< 0.07		
P 0607-15	6 9 40.95	-15 42 40.7	2	0.11	0.10	0.12	4	0.91	0.63	1.13
0610+260	6 13 50.12	26 4 36.9 *	2	0.11	0.10	0.12	2	0.11	0.10	0.11
0615+82	6 26 3.03	82 2 25.6		0.45				< 0.09		
P 0618+23	6 21 0.34	23 18 43.9		< 0.10				< 0.08		
OH 335	6 24 19.02	38 56 48.6 *	2	0.47	0.47	0.48	2	0.24	0.24	0.25
0629+160	6 32 43.12	15 59 57.7 *	2	0.29	0.28	0.31	2	0.15	0.14	0.16
3C 166	6 45 24.09	21 21 51.1 *						0.27		
P 0642-349	6 44 25.25	-34 59 41.8 *		0.30				0.38		
P 0646-306	6 48 14.07	-30 44 19.5 *		0.49				0.26		
GC 0650+37	6 53 58.28	37 5 40.6 *	2	0.56	0.54	0.58	2	0.37	0.27	0.48
0657+172	7 0 1.50	17 9 22.0 *	2	0.82	0.81	0.83	2	0.93	0.90	0.95
OI 318	7 14 24.85	35 34 39.1 *	2	0.72	0.66	0.78	2	0.21	0.19	0.24
P 0722+145	7 25 17.07	14 25 9.4 *	3	0.45	0.43	0.48	3	0.36	0.35	0.39
DW 0723-00	7 25 50.65	- 0 54 56.9 *	6	0.56	0.31	0.76	6	0.63	0.34	0.99
P 0727-11	7 30 19.01	-11 41 11.2 *	4	0.74	0.56	0.85	4	1.61	1.16	1.90
GC 0729+25	7 32 56.28	25 48 38.7 *	2	0.22	0.21	0.22	2	0.26	0.24	0.28
GC 0733+30	7 36 13.65	29 54 22.1 *	3	0.34	0.32	0.37	3	0.32	0.31	0.36
P 0735+17	7 38 7.38	17 42 18.6 *	6	0.70	0.54	0.90	6	1.18	0.81	1.49
P 0736-06	7 38 57.26	- 6 26 59.7 *		0.25				0.24		
P 0736+01	7 39 18.07	1 37 3.8 *		0.71				0.74		
OI 363	7 41 10.73	31 12 0.2 *	5	1.33	1.11	1.51	5	0.61	0.28	1.03
B2 0738+27	7 41 25.76	27 6 45.3 *	4	0.18	0.10	0.25	4	< 0.09		
B2 0742+31	7 45 41.66	31 42 56.7 *	3	0.20	0.07	0.43	3	0.31	0.24	0.34
DW 0742+10	7 45 33.09	10 11 12.7 *	16	1.60	0.64	2.50	16	0.64	0.30	0.88
GC 0743+25	7 46 25.90	25 49 2.1 *	3	0.48	0.47	0.48	3	0.36	0.33	0.37
B2 0745+24	7 48 36.17	24 0 23.1 *	4	0.67	0.58	0.86	4	1.09	0.74	1.29
P 0748+126	7 50 52.01	12 31 5.0 *	7	0.33	0.15	0.50	7	0.46	0.26	0.59
GC 0748+33	7 51 53.66	33 13 19.6 *	3	0.33	0.32	0.35	3	< 0.09		
P 0754+100	7 57 6.66	9 56 34.6 *	3	0.87	0.87	0.88	3	0.66	0.57	0.82
GC 0759+18	8 2 48.06	18 9 49.3 *	4	0.32	0.26	0.39	4	0.21	0.18	0.23
GC 0802+21	8 5 38.60	21 6 50.6 *	3	0.49	0.34	0.64	3	< 0.09		
GC 0805+26	8 8 36.78	26 46 36.6 *		0.11				< 0.13		
P 0805-07	8 8 15.61	- 7 51 11.5 *		0.41				0.27		
0811+131	8 14 43.68	12 58 4.4		< 0.08				< 0.15		
OJ 425	8 18 16.00	42 22 45.4	8	0.94	0.72	1.11	8	1.55	1.08	1.89
P 0820+22	8 23 24.84	22 23 1.9 *		0.30				0.28		
P 0823+033	8 25 50.37	3 9 24.2 *	6	0.44	0.08	0.53	6	1.14	0.22	1.59
0827+235	8 30 21.74	23 23 25.5		< 0.08				< 0.16		
B2 0827+24	8 30 52.09	24 10 59.7 *	2	0.35	0.31	0.40	2	0.40	0.40	0.40
GC 0834+25	8 37 40.23	24 54 23.0 *		0.25				0.25		
4C 71.07	8 41 24.44	70 53 41.7 *		0.44				< 0.14		
GC 0839+18	8 42 5.19	18 35 39.4 *	2	0.28	0.23	0.32	2	< 0.13		
OJ 287	8 54 48.93	20 6 29.5 *	8	1.37	0.14	1.79	9	3.57	0.99	4.73
0854+342	8 57 40.26	34 4 39.6		< 0.07				< 0.13		

Fig. 1 (contd)

(1) SOURCE NAME	(2) RIGHT ASCENSION (J2000) HR MN SEC	(3) DECLINATION (J2000) DEG MN SEC	(4) NUMBER OF OBS (2.3 GHz)	(5) 2.3 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(6) LOW (JY)	(7) HIGH (JY)	(8) NUMBER OF OBS (8.4 GHz)	(9) 8.4 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(10) LOW (JY)	(11) HIGH (JY)
P 0912+029	9 14 37.94	2 45 58.5 *		0.18				0.30		
P 0922+005	9 25 10.06	0 20 27.1 *		< 0.08				< 0.10		
4C 39.25	9 27 3.01	39 2 19.7 *	9	1.22	0.63	1.83	9	0.97	0.64	1.43
P 0925-203	9 27 51.80	-20 34 50.9 *		0.10				0.26		
P 0931-114	9 33 34.46	-11 39 25.9 *		0.38				0.18		
MC 0938+119	9 41 13.55	11 45 32.0 *		0.10				0.10		
AO 0952+17	9 54 56.82	17 43 31.1 *	3	0.13	0.08	0.17	3	0.34	0.29	0.39
OK 290	9 56 49.86	25 15 16.1	2	0.37	0.36	0.37	2	0.24	0.21	0.26
GC 1004+14	10 7 41.48	13 56 29.8 *	3	0.26	0.23	0.32	3	0.29	0.28	0.31
1011+250	10 13 53.45	24 49 16.4 *		0.16				0.37		
P 1012+232	10 14 47.07	23 1 16.4 *		0.56				0.68		
GC 1013+20	10 16 44.28	20 37 48.0 *	4	0.29	0.15	0.34	4	0.36	0.27	0.48
P 1020+191	10 22 55.13	18 53 34.5 *						< 0.07		
GC 1022+19	10 24 44.80	19 12 20.4 *	3	0.31	0.30	0.31	3	0.28	0.25	0.31
P 1034-374	10 36 53.50	-37 44 15.0 *		0.45				0.26		
P 1034-293	10 37 16.05	-29 34 2.6 *	3	0.77	0.61	0.86	3	1.17	0.96	1.47
P 1036-154	10 39 6.71	-15 41 6.7 *		0.29				0.24		
OL 064.5	10 41 17.19	6 10 17.1 *	7	0.48	0.37	0.65	7	0.54	0.31	0.74
1039+300	10 42 36.49	29 49 45.0 *		0.19				< 0.14		
3C 245	10 42 44.57	12 3 31.6 *						0.42		
P 1042+071	10 44 55.91	6 55 38.2 *	4	0.25	0.18	0.32	4	0.24	0.20	0.28
1044+71	10 48 27.62	71 43 35.8 *		0.75				0.36		
P 1045-18	10 48 6.63	-19 9 35.7 *		0.53				0.84		
P 1046+05C	10 49 32.94	5 5 42.6						< 0.07		
1053+70	10 56 53.62	70 11 45.8 *		0.19				0.43		
P 1055+01	10 58 29.61	1 33 55.7 *	9	0.63	0.49	0.91	9	1.41	1.12	1.59
GC 1104+16	11 7 15.04	16 28 2.4 *		0.20				0.14		
P 1104-445	11 7 8.70	-44 49 7.4	3	1.40	1.19	1.79	3	0.93	0.75	1.07
GC 1111+14	11 13 58.68	14 42 27.3 *		0.37				0.11		
P 1118-05	11 21 25.39	- 5 53 41.0		< 0.09				< 0.13		
P 1123+26	11 25 53.68	26 10 19.5 *	7	0.58	0.47	0.68	7	0.49	0.42	0.65
P 1124-186	11 27 4.42	-18 57 17.8 *		1.05				0.61		
P 1127-045	11 29 35.41	- 4 47 4.6						< 0.06		
P 1127-14	11 30 7.06	-14 49 27.3	3	0.48	0.36	0.68	3	0.45	0.17	0.73
GC 1128+38	11 30 53.28	38 15 18.9 *	7	0.83	0.73	0.90	7	1.03	0.65	1.42
P 1130+10C	11 33 0.42	10 23 30.3 *		0.09				< 0.07		
P 1142+052	11 45 21.24	4 55 27.7 *		0.13				< 0.12		
P 1143-245	11 46 8.10	-24 47 32.7 *		< 0.09				< 0.15		
P 1144-379	11 47 1.47	-38 12 11.2 *	3	0.94	0.87	1.02	3	3.63	2.75	4.31
1144+352	11 47 22.13	35 1 7.3 *		0.38				< 0.14		
OM-076	11 47 51.40	- 7 24 38.6 *		0.69				0.24		
P 1148-00	11 50 43.97	- 0 24 22.8 *	9	0.31	0.19	0.70	9	0.22	0.09	0.29
P 1149-084	11 52 17.20	- 8 41 3.3 *		0.24				0.15		
P 1150+09	11 53 13.05	9 14 11.6		0.08				< 0.07		
P 1157-215	11 59 51.92	-21 48 53.7 *		0.38				0.22		

Fig. 1 (contd)

(1) SOURCE NAME	(2) RIGHT ASCENSION (J2000) HR MN SEC	(3) DECLINATION (J2000) DEG MN SEC	(4) NUMBER OF OBS (2.3 GHz)	(5) 2.3 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(6) LOW (JY)	(7) HIGH (JY)	(8) NUMBER OF OBS (8.4 GHz)	(9) 8.4 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(10) LOW (JY)	(11) HIGH (JY)
1215-002	12 17 58.71	- 0 29 45.8 *		0.08				0.13		
P 1217+02	12 20 11.85	2 3 42.8 *		0.08				0.07		
P 1222+037	12 24 52.43	3 30 50.3	8	0.59	0.46	0.89	8	0.53	0.25	0.64
P 1223-074	12 26 16.33	- 7 41 6.2						< 0.06		
P 1225-083	12 28 19.84	- 8 38 17.2						< 0.07		
3C 273	12 29 6.64	2 3 9.8 *	18	1.94	1.01	4.69	20	4.28	2.94	6.00
3C 274	12 30 49.43	12 23 28.1 *		0.62				0.52		
P 1228-113	12 30 55.56	-11 39 10.0 *		0.28				< 0.11		
P 1237-10	12 39 43.06	-10 23 28.7 *		0.08				0.54		
ON-073	12 46 4.23	- 7 30 46.5 *		0.56				0.29		
P 1244-255	12 46 46.81	-25 47 49.5 *	4	0.48	0.43	0.56	4	1.01	0.85	1.16
3C 279	12 56 11.17	- 5 47 21.5	8	3.97	1.82	4.88	8	2.12	1.30	3.59
P 1302-102	13 5 32.62	-10 33 13.1 *		0.42				0.35		
B2 1308+32	13 10 28.74	32 20 41.9 *	11	0.64	0.30	1.24	11	1.71	0.42	2.21
P 1310-041	13 12 50.92	- 4 24 50.2 *						0.28		
OP-322	13 16 8.00	-33 38 58.8 *	2	0.59	0.47	0.71	2	0.70	0.62	0.78
P 1317+019	13 20 26.79	1 40 35.7		< 0.08				< 0.13		
P 1333-049	13 35 56.41	- 5 11 40.3 *						0.08		
P 1333-082	13 36 7.63	- 8 30 48.2		< 0.09				< 0.13		
DW 1335-12	13 37 39.75	-12 57 24.0 *	5	0.77	0.51	1.09	5	1.73	0.96	2.02
P 1340-17	13 43 37.42	-17 47 55.4 *		0.13				< 0.12		
GC 1342+662	13 43 45.96	66 2 25.6 *	13	0.25	0.19	0.32	13	0.30	0.18	0.43
GC 1342+663	13 44 8.67	66 6 11.4 *	25	0.61	0.53	0.69	26	0.50	0.31	0.71
P 1349-439	13 52 56.55	-44 12 40.5 *	2	0.44	0.38	0.50	2	0.96	0.80	1.12
P 1351-018	13 54 6.98	- 2 6 4.4 *						0.22		
P 1354-174	13 57 6.03	-17 44 1.3 *		0.22				0.24		
OP-192	13 57 11.20	-15 27 28.3 *		0.93				1.31		
P 1354+19	13 57 4.43	19 19 7.4	10	0.55	0.44	0.66	10	0.80	0.53	1.03
P 1402-012	14 4 46.00	- 1 30 23.6 *						< 0.11		
OQ 208	14 7 0.41	28 27 14.6						0.25		
P 1406-076	14 8 56.43	- 7 52 25.9 *		0.24			2	0.29	0.27	0.31
P 1406-230	14 9 10.30	-23 16 48.8		< 0.08				< 0.14		
P 1412-096	14 15 20.66	- 9 56 27.2		< 0.07				< 0.14		
GC 1418+54	14 19 46.59	54 23 14.7 *	14	1.02	0.80	1.31	14	0.95	0.35	1.66
P 1418-064	14 21 7.80	- 6 43 56.2 *						< 0.07		
P 1427+109	14 30 9.73	10 43 29.1 *						0.41		
OQ-151	14 32 57.69	-18 1 35.0 *	3	0.62	0.58	0.64	3	0.27	0.22	0.29
P 1430-155	14 33 21.48	-15 48 44.9 *						< 0.07		
P 1434+235	14 36 40.98	23 21 3.2 *		0.68				0.24		
P 1443-162	14 45 53.37	-16 29 1.5 *		0.36				0.28		
P 1445-16	14 48 15.05	-16 20 24.5 *		0.35				0.27		
P 1452-167	14 55 3.13	-17 0 9.0		< 0.08				< 0.13		
P 1455+24	14 57 43.45	24 35 7.4		< 0.14				< 0.25		
OR 103	15 4 24.98	10 29 39.2	11	0.62	0.54	0.70	11	0.78	0.68	0.86
P 1504-167	15 7 4.75	-16 52 29.9 *	9	1.74	1.33	2.19	10	1.14	0.35	1.99

Fig. 1 (contd)

(1) SOURCE NAME	(2) RIGHT ASCENSION (J2000) HR MN SEC	(3) DECLINATION (J2000) DEG MN SEC	(4) NUMBER OF OBS (2.3 GHz)	(5) 2.3 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(6) LOW (JY)	(7) HIGH (JY)	(8) NUMBER OF OBS (8.4 GHz)	(9) 8.4 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(10) LOW (JY)	(11) HIGH (JY)
P 1510-08	15 12 50.53	- 9 5 59.8	8	1.18	1.00	1.31	10	1.36	0.41	1.93
P 1511-100	15 13 44.88	-10 12 0.3 *		0.70				0.81		
P 1511-210	15 13 56.97	-21 14 57.5 *	2	0.44	0.43	0.46	2	< 0.11		
1511+238	15 13 40.19	23 38 35.1 *		0.12				< 0.13		
P 1514-24	15 17 41.83	-24 22 19.4 *		0.54				0.49		
P 1519-273	15 22 37.73	-27 30 11.0 *	5	1.09	0.92	1.18	5	1.65	1.29	1.93
1529+357	15 31 26.31	35 34 0.8	2	< 0.09			2	< 0.15		
P 1532+01	15 34 52.53	1 31 3.1 *						0.76		
P 1535+004	15 38 15.98	0 19 5.0 *						< 0.21		
DW 1548+05	15 50 35.29	5 27 10.2 *		1.12				1.07		
P 1550-269	15 54 2.51	-27 4 40.3 *		0.46				0.17		
DW 1555+00	15 57 51.43	- 0 1 50.4	6	0.37	0.24	0.47	6	0.39	0.33	0.48
P 1555-140	15 58 21.92	-14 9 58.9 *	3	0.26	0.25	0.27		0.08		
P 1556-245	15 59 41.42	-24 42 38.7 *						0.10		
P 1601-222	16 4 1.60	-22 23 47.4		< 0.12				< 0.22		
P 1604-333	16 7 34.74	-33 31 8.8 *						0.38		
DA 406	16 13 41.06	34 12 47.9	8	1.17	0.88	1.44	8	0.79	0.38	1.29
P 1614+26	16 16 38.32	26 47 1.5		< 0.11				< 0.13		
P 1622-253	16 25 46.91	-25 27 38.3 *	2	0.16	0.15	0.17	3	0.45	0.24	0.57
P 1622-29	16 26 6.02	-29 51 26.9 *						0.85		
P 1625-141	16 28 45.88	-14 15 30.2 *						0.07		
GC 1633+38	16 35 15.50	38 8 4.4 *	11	1.05	0.64	1.45	10	3.01	2.39	4.49
GC 1637+57	16 38 13.44	57 20 23.9 *	2	0.97	0.78	1.16		0.18		
NRAO 512	16 40 29.63	39 46 46.0	13	0.75	0.68	0.80	13	1.29	0.55	2.41
OS-268	16 43 33.39	-23 16 7.9 *	2	0.40	0.34	0.46	2	< 0.12		
1640+254	16 42 40.40	25 23 7.7 *		0.40				0.23		
3C 345	16 42 58.84	39 48 36.5 *	33	1.42	0.29	4.05	34	2.59	0.90	5.92
GC 1642+69	16 42 7.86	68 56 39.7 *		0.46				0.62		
1642+257	16 44 59.08	25 36 30.1		< 0.08				< 0.12		
P 1643-22	16 46 4.37	-22 27 51.9						< 0.07		
P 1647-296	16 50 39.52	-29 43 46.6 *						0.35		
OS 092	16 58 9.02	7 41 27.2 *		0.72				0.51		
DW 1656+05	16 58 33.42	5 15 17.9 *		0.60				0.25		
P 1657-261	17 0 53.14	-26 10 51.6 *	7	0.48	0.35	0.58	9	1.28	0.94	1.66
P 1657-298	17 1 9.23	-29 54 21.3		< 0.10				< 0.17		
OT-111	17 9 34.36	-17 28 53.5 *	10	0.37	0.26	0.50	11	0.53	0.37	0.70
1709+303	17 11 19.96	30 19 17.4		< 0.09				< 0.20		
1719+35	17 21 9.36	35 42 11.2		< 0.09				< 0.20		
GC 1726+45	17 27 27.64	45 30 39.8 *		0.29				0.25		
NRAO 530	17 33 2.70	-13 4 49.5	16	2.16	1.47	3.02	16	2.42	1.43	2.90
OT 465	17 39 57.13	47 37 58.4	12	0.40	0.27	0.52	12	0.56	0.31	1.07
GC 1739+52	17 40 36.98	52 11 43.4 *	2	1.89	1.61	2.17	2	0.54	0.41	0.67
P 1741-038	17 43 58.85	- 3 50 4.6	11	1.03	0.80	1.23	11	1.10	0.60	1.68
1749+701	17 48 32.88	70 5 50.6 *	31	0.40	0.18	0.72	30	0.31	0.07	0.90
OT 081	17 51 32.81	9 39 0.5 *	2	0.64	0.58	0.70	2	1.66	1.58	1.74

Fig. 1 (contd)

(1) SOURCE NAME	(2) RIGHT ASCENSION (J2000) HR MN SEC	(3) DECLINATION (J2000) DEG MN SEC	(4) NUMBER OF OBS (2.3 GHz)	(5) 2.3 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(6) LOW (JY)	(7) HIGH (JY)	(8) NUMBER OF OBS (8.4 GHz)	(9) 8.4 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(10) LOW (JY)	(11) HIGH (JY)
1803+78	18 0 45.67	78 28 3.9		0.53				0.39		
3C 371	18 6 50.71	69 49 28.1	16	0.45	0.30	0.78	16	0.63	0.23	1.22
GC 1823+56	18 24 7.07	56 51 1.5 *		0.55				0.55		
GC 1842+68	18 42 33.62	68 9 25.4 *	2	0.65	0.64	0.67	2	0.30	0.25	0.34
OV-213	19 11 9.79	-20 6 57.0 *	7	0.62	0.51	0.77	7	1.04	0.60	1.40
1909+269	19 11 35.08	26 58 13.7 *		0.22				< 0.13		
OV-235	19 23 32.21	-21 4 33.5 *		0.89				0.86		
OV-236	19 24 51.26	-29 14 32.8 *	10	2.17	1.75	2.58	10	5.78	4.49	6.95
1928+73	19 27 48.48	73 58 1.3	2	1.20	1.12	1.28	2	1.08	0.81	1.35
P 1936-15	19 39 26.75	-15 25 45.2 *		0.27				0.35		
P 1942-313	19 45 59.36	-31 11 38.0 *		0.12				< 0.13		
P 1946-23	19 49 24.10	-23 27 9.4		< 0.15				< 0.29		
P 1946-200	19 49 53.15	-19 57 13.3		< 0.15				< 0.29		
OV-198	20 0 57.08	-17 48 57.7	5	0.32	0.28	0.34	5	0.85	0.46	1.10
2007+77	20 5 31.00	77 52 43.1 *	2	0.45	0.42	0.49		0.24		
P 2008-159	20 11 15.70	-15 46 40.4 *		0.28				0.38		
OW 538	20 23 55.84	54 27 35.9 *	4	0.49	0.46	0.52	4	0.37	0.31	0.46
P 2024-217	20 27 4.17	-21 36 25.2		< 0.07				< 0.13		
3C 418	20 38 37.10	51 19 13.6	4	0.52	0.35	0.66	4	0.74	0.64	0.91
P 2037-253	20 40 8.76	-25 7 46.6 *		0.40				0.17		
GC 2047+09	20 49 45.87	10 3 14.4 *		0.43				0.27		
P 2047+039	20 50 6.29	4 7 48.1 *		0.32				< 0.10		
2107-105	21 10 0.97	-10 20 57.6 *		0.40				0.16		
P 2111-25	21 14 40.27	-25 41 50.6		< 0.07				< 0.13		
2112+283	21 14 58.30	28 32 57.6		< 0.10				< 0.17		
B2 2113+29B	21 15 29.42	29 33 38.4	14	0.56	0.44	0.70	14	0.66	0.35	1.20
2116-113	21 19 40.17	-11 6 23.0		< 0.14				< 0.10		
OX 036	21 23 44.49	5 35 22.6 *		0.65				1.46		
2121+299	21 23 44.46	30 12 36.3		< 0.10				< 0.17		
P 2124-12	21 27 30.49	-11 51 20.2		< 0.14				< 0.10		
P 2126-185	21 29 21.41	-18 21 22.8 *		0.28				< 0.09		
P 2128-12	21 31 35.29	-12 7 5.1 *		0.50				0.77		
P 2131-021	21 34 10.41	- 1 53 18.9 *		0.86				0.71		
P 2134+004	21 36 38.58	0 41 54.1	15	1.12	0.38	2.07	15	0.91	0.35	1.53
P 2140-048	21 42 36.91	- 4 37 43.4 *		0.25				0.19		
OX-173	21 46 22.96	-15 25 43.7 *		0.27				0.29		
P 2145+06	21 48 5.95	6 57 30.9 *	20	1.03	0.75	1.56	20	2.33	1.58	2.90
P 2145-17	21 48 36.32	-17 23 51.3		< 0.09				< 0.12		
2146-133	21 49 28.41	-13 4 23.2		< 0.14				< 0.14		
P 2149-306	21 51 55.55	-30 27 54.4 *		0.92				0.37		
OX 082	21 51 37.83	5 52 13.5 *	12	0.52	0.44	0.63	12	0.31	0.24	0.39
2151-152	21 54 7.11	-15 1 34.3		< 0.08				< 0.12		
P 2151-153	21 54 10.04	-15 4 0.2		0.06				< 0.10		
P 2153-204	21 56 35.20	-20 12 18.7		< 0.08				< 0.14		
OX-192	21 58 5.36	-15 0 54.9 *	5	0.57	0.36	0.78	5	0.54	0.19	0.81

Fig. 1 (contd)

(1) SOURCE NAME	(2) RIGHT ASCENSION (J2000) HR MN SEC	(3) DECLINATION (J2000) DEG MN SEC	(4) NUMBER OF OBS (2.3 GHz)	(5) 2.3 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(6) LOW (JY)	(7) HIGH (JY)	(8) NUMBER OF OBS (8.4 GHz)	(9) 8.4 GHz CORRELATED FLUX DENSITY AVERAGE (JY)	(10) LOW (JY)	(11) HIGH (JY)
2156-203	21 58 50.12	-20 5 25.7		< 0.08				< 0.14		
2156-043	21 59 23.31	- 4 9 15.3		< 0.08				< 0.14		
P 2157-200	22 0 7.78	-19 45 58.8		< 0.08				< 0.14		
2158-167	22 0 54.41	-16 32 33.0		< 0.08				< 0.14		
2158-177	22 1 39.20	-17 32 59.4		< 0.09				< 0.13		
2159-205	22 2 17.13	-20 17 33.1		< 0.09				< 0.13		
VRO 42.22.01	22 2 43.32	42 16 40.0 *	20	1.51	0.32	2.58	20	2.38	0.23	4.24
GC 2201+17	22 3 26.90	17 25 48.1 *		0.54				0.32		
P 2203-18	22 6 10.39	-18 35 38.7		0.07				< 0.09		
P 2208-137	22 11 24.13	-13 28 10.4 *		0.26				< 0.07		
P 2209+236	22 12 5.94	23 55 41.0 *		0.37				0.67		
P 2216-03	22 18 52.07	- 3 35 37.4 *	6	1.33	1.11	1.69	6	2.08	1.23	2.91
P 2220-163	22 23 41.16	-16 7 5.1 *	2	0.15	0.15	0.15	2	0.23	0.10	0.37
P 2223-114	22 25 43.71	-11 13 40.2 *		0.25				0.25		
3C 446	22 25 47.23	- 4 57 1.0 *	10	0.61	0.31	0.84	10	3.11	1.81	4.22
P 2227-08	22 29 40.01	- 8 32 53.4 *		0.48				0.75		
2229+69	22 30 36.45	69 46 28.2 *	2	0.72	0.71	0.73	2	0.38	0.37	0.38
P 2229-17	22 32 22.56	-16 59 2.1 *		0.27				0.19		
P 2230-149	22 32 42.45	-14 42 27.8		< 0.07				< 0.07		
CTA 102	22 32 36.41	11 43 50.9	19	1.05	0.19	1.69	19	1.25	0.89	1.94
P 2233-148	22 36 34.11	-14 33 22.7 *	2	0.20	0.15	0.26	2	< 0.12		
GC 2234+28	22 36 22.47	28 28 57.4 *	16	0.77	0.67	0.87	16	0.86	0.38	1.32
OY-172.6	22 46 18.23	-12 6 51.3	12	0.78	0.28	1.26	12	1.23	0.88	1.40
P 2245-059	22 48 0.52	- 5 41 10.6		< 0.05				< 0.07		
P 2245-328	22 48 38.68	-32 35 52.2	6	0.94	0.75	1.09	6	0.38	0.28	0.50
GC 2246+20	22 49 0.47	21 7 4.4 *		0.33				0.15		
3C 454.3	22 53 57.75	16 8 53.4	24	5.65	0.35	6.96	24	0.77	0.12	2.47
P 2251+006	22 54 7.21	0 55 11.4		< 0.09				< 0.07		
GC 2251+24	22 54 9.34	24 45 23.6 *		0.24				< 0.14		
P 2252-089	22 55 4.28	- 8 44 4.8 *		0.38				0.29		
GC 2253+41	22 55 36.72	42 2 52.9 *	5	0.56	0.17	0.88	5	0.48	0.28	0.78
P 2254+024	22 57 17.57	2 43 17.2 *		0.36				0.41		
GC 2254+07	22 57 17.32	7 43 11.7		0.33				0.30		
P 2255-282	22 58 5.96	-27 58 21.4 *		0.69				0.47		
P 2303-052	23 6 15.32	- 4 59 48.6 *		0.14				0.18		
P 2312-319	23 14 48.48	-31 38 39.6 *		0.80				0.34		
P 2314-116	23 17 22.31	-11 22 23.0 *		0.07				< 0.07		
GC 2318+04	23 20 44.88	5 13 49.4 *		0.75				1.27		
P 2318-087	23 21 18.63	- 8 27 27.1 *		0.09				0.10		
P 2320-021	23 23 4.51	- 1 50 46.7 *		0.23				0.25		
P 2320-035	23 23 31.81	- 3 17 3.3 *	16	0.50	0.35	0.65	16	0.40	0.26	0.50
P 2325-150	23 27 47.96	-14 47 55.8 *		0.45				0.26		
P 2332-049	23 34 56.92	- 4 39 39.4		0.08				< 0.07		
P 2332-017	23 35 20.41	- 1 31 9.7 *		0.29				0.15		
P 2335-027	23 37 57.17	- 2 30 55.5 *		0.26				0.30		

Fig. 1 (contd)

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P 2340-036	23 42 56.60	- 3 22 25.9 *		0.09				< 0.05		
P 2345-16	23 48 2.61	-16 31 12.0	3	2.25	2.18	2.32	3	0.92	0.66	1.11
P 2349-01	23 51 56.19	- 1 9 14.1 *						< 0.07		
2349+280	23 51 57.66	28 20 30.2		< 0.09				< 0.15		
P 2351-006	23 54 9.17	- 0 19 47.7 *		0.34				< 0.11		
OZ-187	23 54 30.03	-15 13 9.1 *		0.60				0.33		
P 2352-04	23 54 51.72	- 4 5 3.5 *		0.09				< 0.05		
DA 611	23 55 9.46	49 50 8.1 *		0.22				< 0.13		
P 2354-11	23 57 29.76	-11 25 16.4 *	2	1.01	0.98	1.04	2	0.23	0.23	0.23
P 2355-106	23 58 10.91	-10 20 8.8 *	3	0.53	0.50	0.55	3	0.45	0.36	0.51
P 2357+00	23 59 58.57	0 42 18.1		< 0.16				< 0.09		

Fig. 1 (contd)

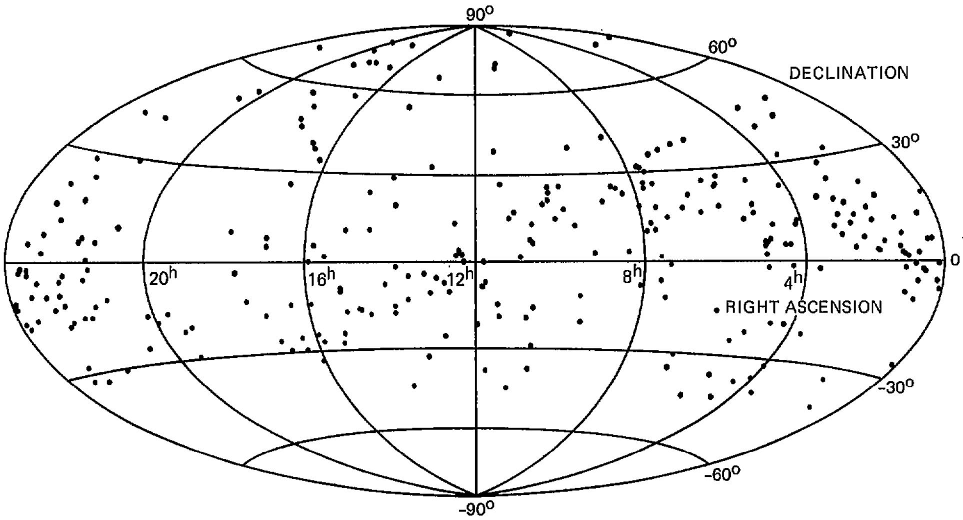

Fig. 2. Sky plot of 278 detected objects at 8.4 GHz