

A COMPLETE FLUX-DENSITY-LIMITED VLBI SURVEY OF 293 FLAT-SPECTRUM
RADIO SOURCES

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ABSTRACT

We define a complete flux-density-limited sample of 293 flat-spectrum sources—the Caltech–Jodrell Bank flat-spectrum (CJF) sample. The CJF sample is designed to integrate the bulk of our existing VLBI survey observations into a large, homogeneous database for statistical studies of a broad range of astrophysical and cosmological issues. Here we present 6 cm VLBA observations of the 18 sources that had not yet been imaged with VLBI, and both 6 and 20 cm VLA observations of 186 sources in the sample.

Subject headings: galaxies: active — quasars: general — radio continuum: galaxies — surveys

1. INTRODUCTION

We have recently completed three major VLBI surveys at 5 GHz, and we are in the midst of scientific interpretation and follow-up. The VLBI images are published in the Pearson–Readhead survey (PR) (Pearson & Readhead 1981, 1988), the first Caltech–Jodrell Bank survey (CJ1) (Xu et al. 1995), and the second Caltech–Jodrell Bank survey (CJ2; Taylor et al. 1994; Henstock et al. 1995). In addition, the CJ1 survey was also observed at 1.7 GHz with a global array (Polatidis et al. 1995; Thakkar et al. 1995).

The PR, CJ1, and CJ2 surveys each have a progressively lower limiting flux density at 5 GHz (from 1.3 to 0.7 to 0.35 Jy). However, while the PR and CJ1 samples are complete, only two-thirds of the sources could be successfully imaged using the Mark II VLBI. Since most of these have flat radio spectra ($\alpha > -0.5$, where $S_\nu \propto \nu^\alpha$), a selection for flat-spectrum sources was introduced in the CJ2 survey, which was very successful: all CJ2 sources could be imaged with the Mark II VLBI. It is obviously desirable to analyze the large body of data collected for the three samples in its entirety. Therefore, we reexamined the single dish surveys that form the parent samples for the VLBI surveys and defined a complete flux-density-limited sample of *flat-spectrum* radio sources (the Caltech–Jodrell Bank flat-spectrum survey). Eighteen sources in the Caltech–Jodrell Bank flat-spectrum (CJF) survey sample were not included in the PR, CJ1, or CJ2 surveys. In this paper, we present the images, model fits, and spectra for these 18 sources.

A principal goal of the CJF survey is to extend the morphological classification begun with the PR survey. Approximately 5% of the sources in the surveys exhibit a bisymmetric structure about the nucleus. Follow-up observations of these interesting compact symmetric objects (CSOs) are well underway with the VLBA and other telescopes (Readhead et al. 1996; Taylor, Readhead, & Pearson 1996). The PR and CJ1 surveys have also suggested that the position angle difference between the parsec-scale and kiloparsec-scale jets has a bimodal distribution, with peaks at 0° and 90° (Pearson & Readhead 1988; Xu et al. 1994). With the improved statistics available from a larger sample,

we hope to understand this interesting result.

Our survey also has several cosmological goals: (1) to explore the evolution of compact radio sources with cosmic epoch; (2) to place significant limits on the mass in 10^6 – $10^8 M_\odot$ compact objects by searching for gravitational lenses with 1–50 mas separation (Henstock 1995; Wilkinson et al. 1996); and (3) to study the distribution of internal (superluminal) motions in the parsec-scale jets, and its connection to the radio source counts, in order to make an assessment of the presence of cosmological evolution in the velocity distribution. The distribution of superluminal motions may eventually allow us to place limits on q_0 (Vermeulen 1995).

To achieve these cosmological goals, we need the source redshifts. An optical campaign (Henstock 1995; Vermeulen & Taylor 1995; Vermeulen et al. 1996) to obtain redshifts for all the sources is nearly complete. A summary of the optical results is in preparation.

2. THE CJF SAMPLE DEFINITION

Here we define a complete flux-density-limited sample of flat-spectrum sources designed to integrate the bulk of the VLBI data in the three surveys. We refer to this combined sample as the CJF survey. The parent samples for sources between declinations 35° and 75° are the 1400 and 4850 MHz Green Bank surveys (Condon & Broderick 1985, 1986; Condon, Broderick, & Seielstad 1989; Gregory & Condon 1991; White & Becker 1992). Sources north of declination 75° were selected from the MPI S5 catalog (Kühr et al. 1981). The selection criteria for the complete sample are as follows:

1. Flux density at 4850 MHz, $S_{4850} \geq 350$ mJy;
2. Spectral index (α_{1400}^{4850}) ≥ -0.5 ;
3. Declination (B1950) $\delta \geq 35^\circ$;
4. Galactic latitude $|b| \geq 10^\circ$.

Three planetary nebulae (1758 + 666, 1943 + 504, and 2323 + 422) meeting the above criteria were not included in the survey. Also four sources having extended structure in the 4850 MHz Green Bank survey (0936 + 361, 1017 + 487,

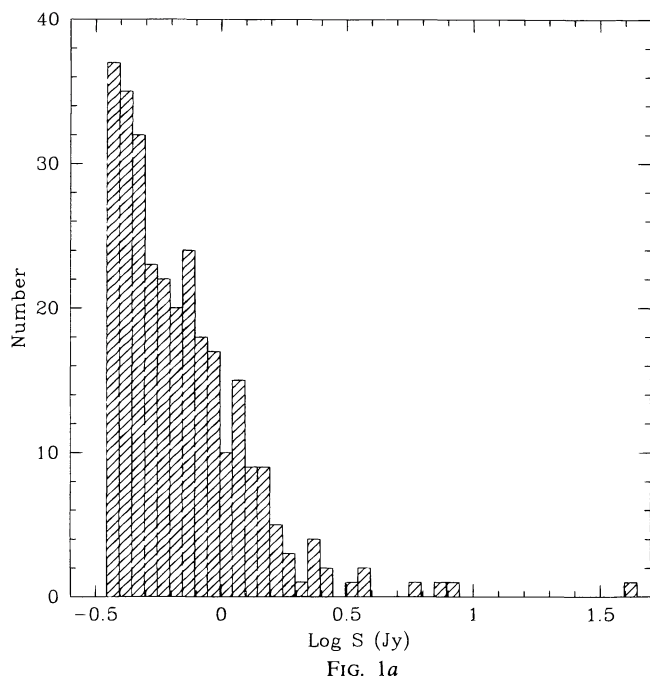


FIG. 1a

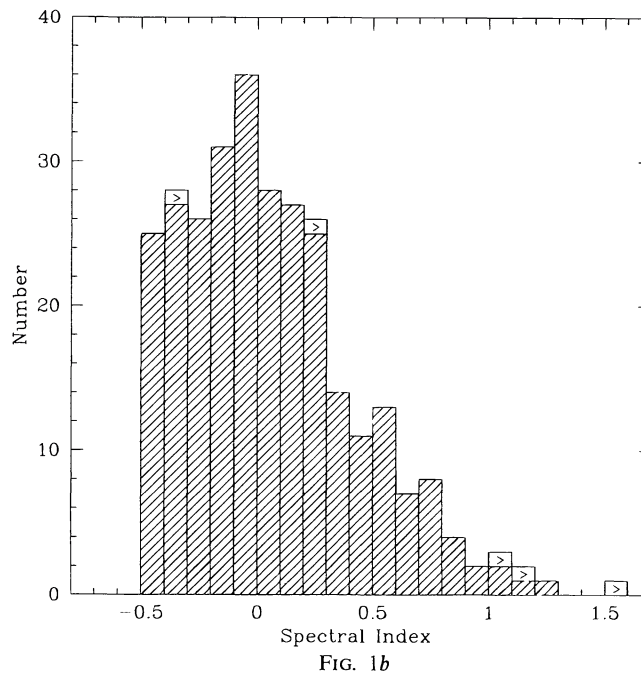


FIG. 1b

FIG. 1.—(a) Distribution of flux densities at 4850 MHz (from col. [4] of Table 1) for the entire CJF sample. (b) Distribution of spectral indices (computed between 1400 and 4850 MHz; col. [6] of Table 1) for the CJF sample.

1557 + 707, and 2354 + 471) were omitted, since they are most likely confused objects. For the 23 sources above $\delta = 75^\circ$ from the Kühr et al. (1981) survey, the spectral indices were computed between 5000 and 2700 MHz. For 12 sources in the declination range 35° – 75° lacking an entry in the 1400 MHz catalog of White & Becker (1992), we measured a flux density or, in five cases, a flux-density limit directly from the Green Bank Sky Survey maps, as published on CD-ROM (NRAO 1990; see also Condon & Broderick 1986). The five upper limits on flux density at 1400 MHz were converted to lower limits on the spectral indices. Two sources, 0219 + 428 and 0646 + 692, were in highly confused regions, as seen by the NRAO 300 ft (92 m) telescope at 1400 MHz. Based on their spectral indices as measured from our own VLA observations at 1415 and 4710 MHz, 0219 + 428 was retained, while 0646 + 692 (3C 169, $\alpha = -0.64$) was dropped from the sample. The final complete sample of 293 extragalactic sources is listed in Table 1.

In Figure 1a, we present a histogram of the flux density at 4850 MHz for all 293 objects in the CJF sample, as measured in the parent GB87 and S5 samples (Gregory & Condon 1991; Kühr et al. 1981). The strongest source in the sample is 0316 + 413 = 3C 84, with a flux density of 42.37 Jy. In Figure 1b, we show a histogram of the spectral index between 6 and 20 cm for the sample. Since the observations used to compute the spectral index were taken several years apart, the intrinsic variability of many of the sources in the sample will have affected the shape of the distribution. The imposed spectral index cutoff at -0.5 is clearly apparent.

In Figure 2, we show the radio spectra compiled from single-dish measurements of the 18 sources not included in the PR, CJ1, or CJ2 surveys. Details on the flux-density scale and complete references to the single-dish measurements are given in Henstock et al. (1995). The radio spectra for the PR, CJ1, and CJ2 sources in the CJF sample can be found in Herbig & Readhead (1992), Xu et al. (1995), and Henstock et al. (1995), respectively.

3. OBSERVATIONS

3.1. VLBI Observations

The observations needed to complete the CJF survey were carried out using the VLBA of the NRAO¹ on 1995 August 25–29 and 1995 September 3–5. The observing frequency was 4992 MHz, with a bandwidth of 8 MHz. Only left-circular polarization was recorded.

The observing strategy was to obtain 8×6.5 minute scans spread out over 9 hr. This provided superior u - v coverage to that obtained during the CJ1 and CJ2 surveys, although with somewhat shorter maximum spacings, resulting in a naturally weighted synthesized beam $\sim 50\%$ larger in each dimension. Observations of the strong calibrator 0552 + 398 were interspersed throughout both runs to help assess data quality and to refine the amplitude calibration derived from measurements of the antenna gain and system temperature. Global fringe fitting was performed using the AIPS task FRING, with a solution interval of 6.5 minutes. The data were subsequently averaged in frequency to a single 8 MHz channel and in time to 30 s integrations. All sources were imaged automatically (Pearson et al. 1994) and then refined manually using DIFMAP (Shepherd, Pearson, & Taylor 1994, 1995). The final images are shown in Figure 3. Image parameters, including the restoring beam, peak, and rms, are provided in Table 2. One source, 0344 + 405, proved impossible to image with our VLBA data. The reason for this is immediately obvious upon inspection of the VLA image—on kiloparsec scales it is dominated by extended lobe emission and has a core with a flux density at 4992 MHz of just 9 mJy (see Fig. 4).

Quantitative parameters of the source brightness distribution were estimated by fitting elliptical Gaussian

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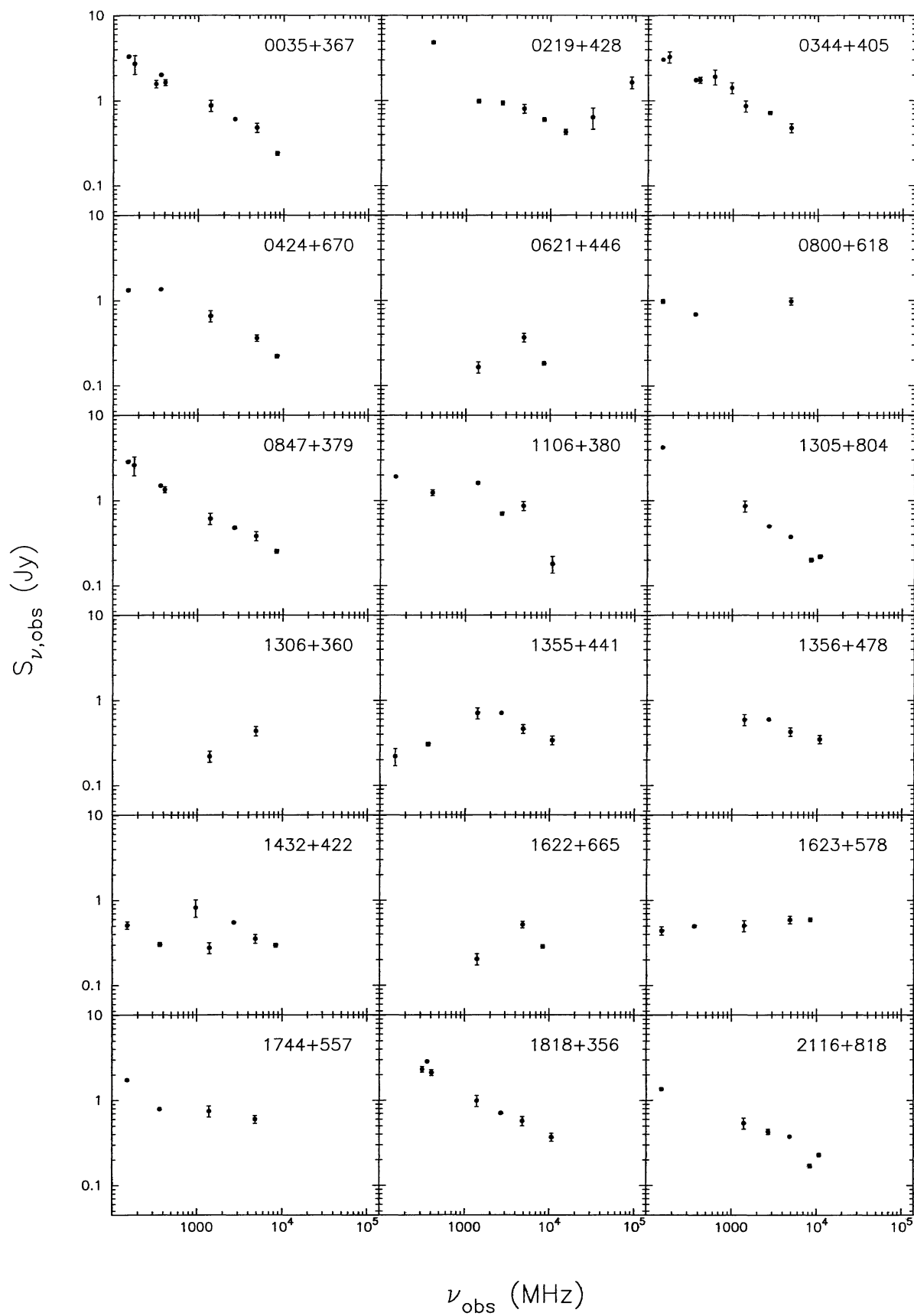


FIG. 2.—Integrated radio spectra for the 18 remaining sources in the CJF sample. All flux densities are on the scale of Laing & Peacock (1980). Error bars are $\pm 1 \sigma$. References and further details of this compilation can be found in Henstock et al. (1995).

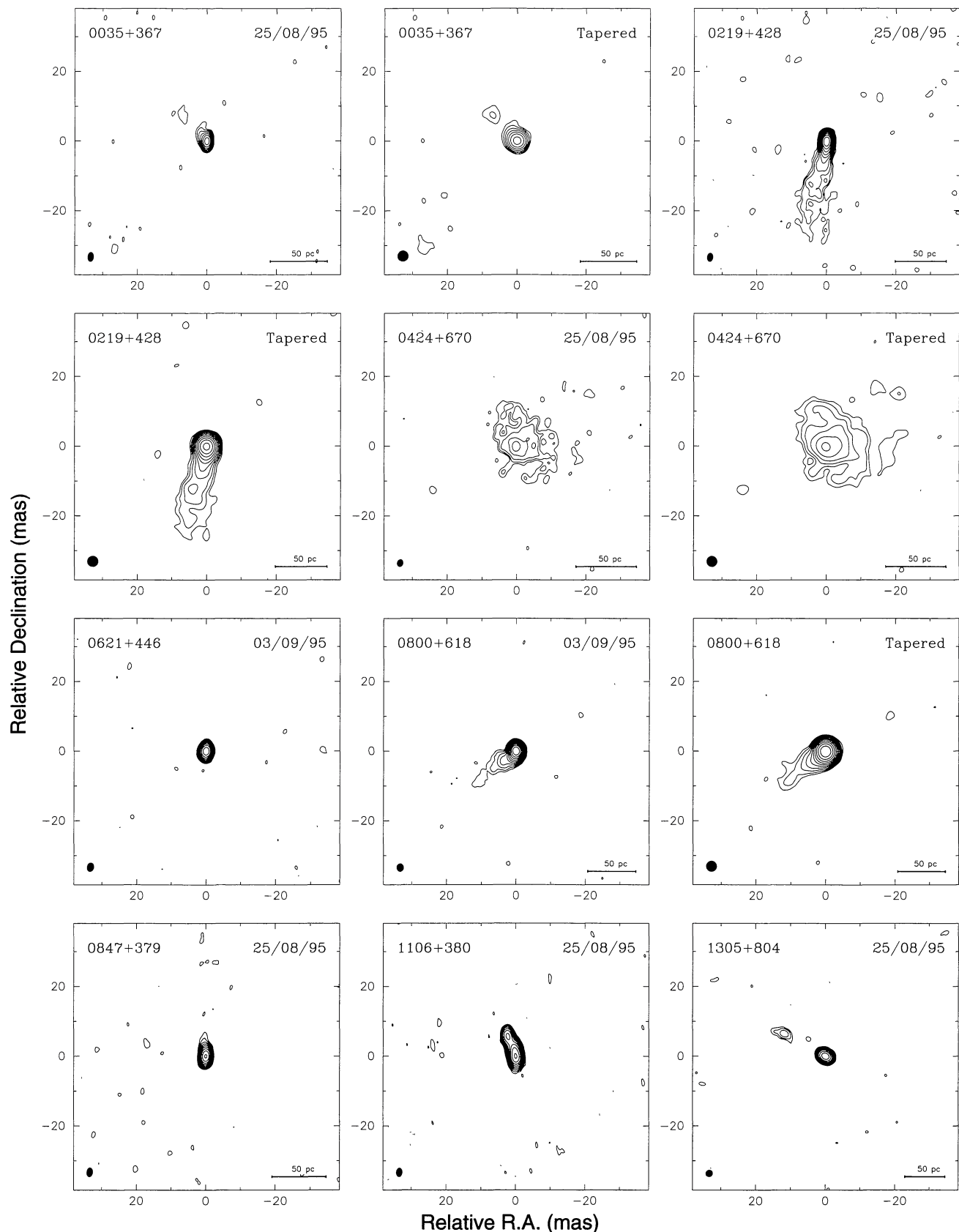


FIG. 3.—6 cm VLBA images for 17 of the 18 sources in the CJF sample not previously imaged with VLBI. Images with the epoch of observation in the upper right corner are naturally weighted images, while those marked as “tapered” have been weighted by a Gaussian taper and restored with a 3 mas beam, as described in the text. FWHM contour of the Gaussian beam is drawn in the lower left corner and is listed in Table 2, along with the rms and peak flux density. Contours are drawn logarithmically at -3σ , 3σ , 6σ , 12σ , etc., with negative contours shown as dashed lines. A linear scale bar is drawn in the lower right corner for each source having a known redshift (Vermeulen et al. 1997), assuming a Hubble constant $H_0 = 100 h \text{ km s}^{-1} \text{ Mpc}^{-1}$, and deceleration parameter $q_0 = 0.5$.

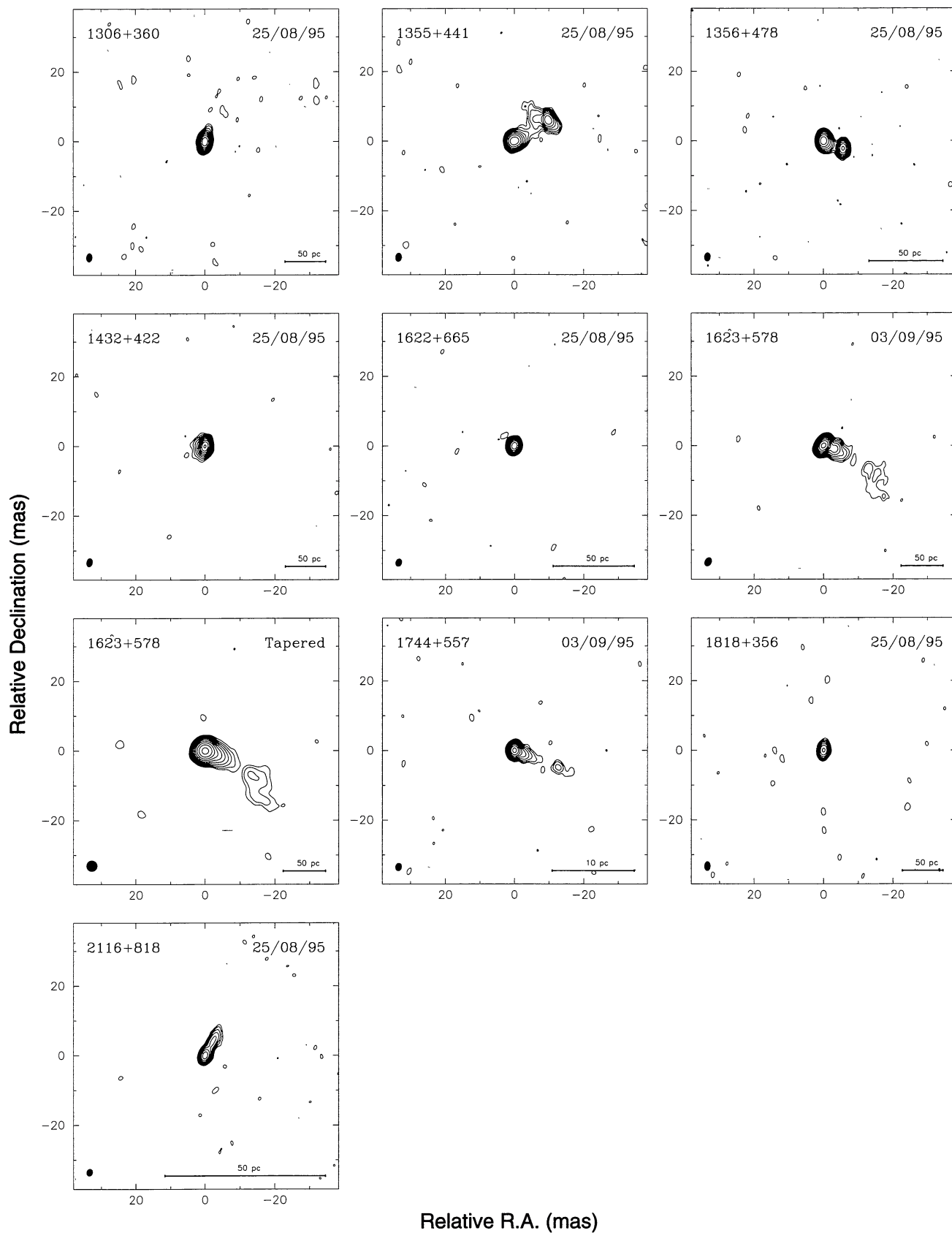


FIG. 3.—Continued

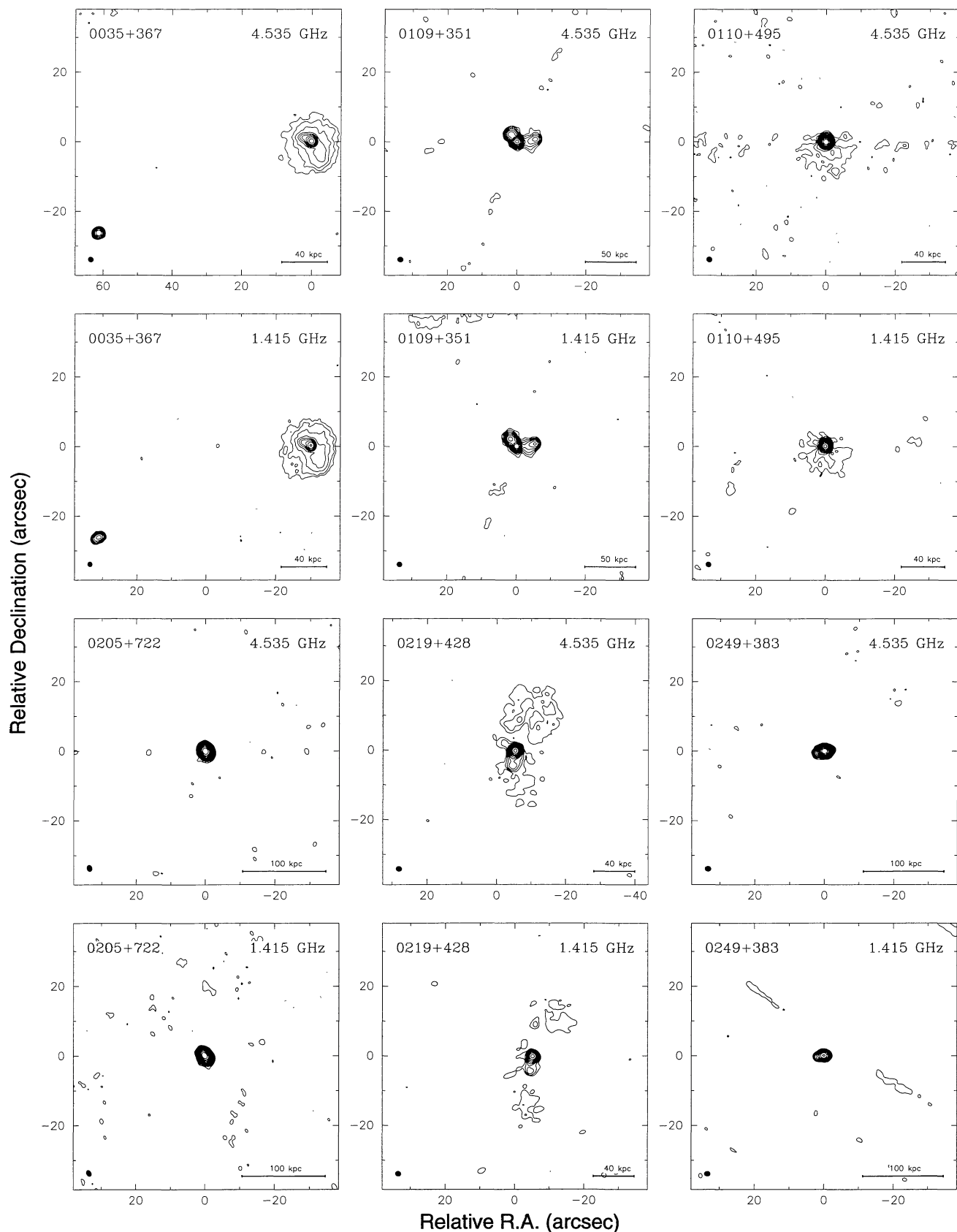


FIG. 4.—VLA images of sources resolved at 6 and/or 20 cm. FWHM contour of the Gaussian beam is drawn in the lower left corner and is listed in Table 2, along with the rms and peak flux density. Contours are drawn logarithmically at -3σ , 3σ , 6σ , 12σ , etc., with negative contours shown as dashed lines. A linear scale bar is drawn for each source as described in Fig. 3.

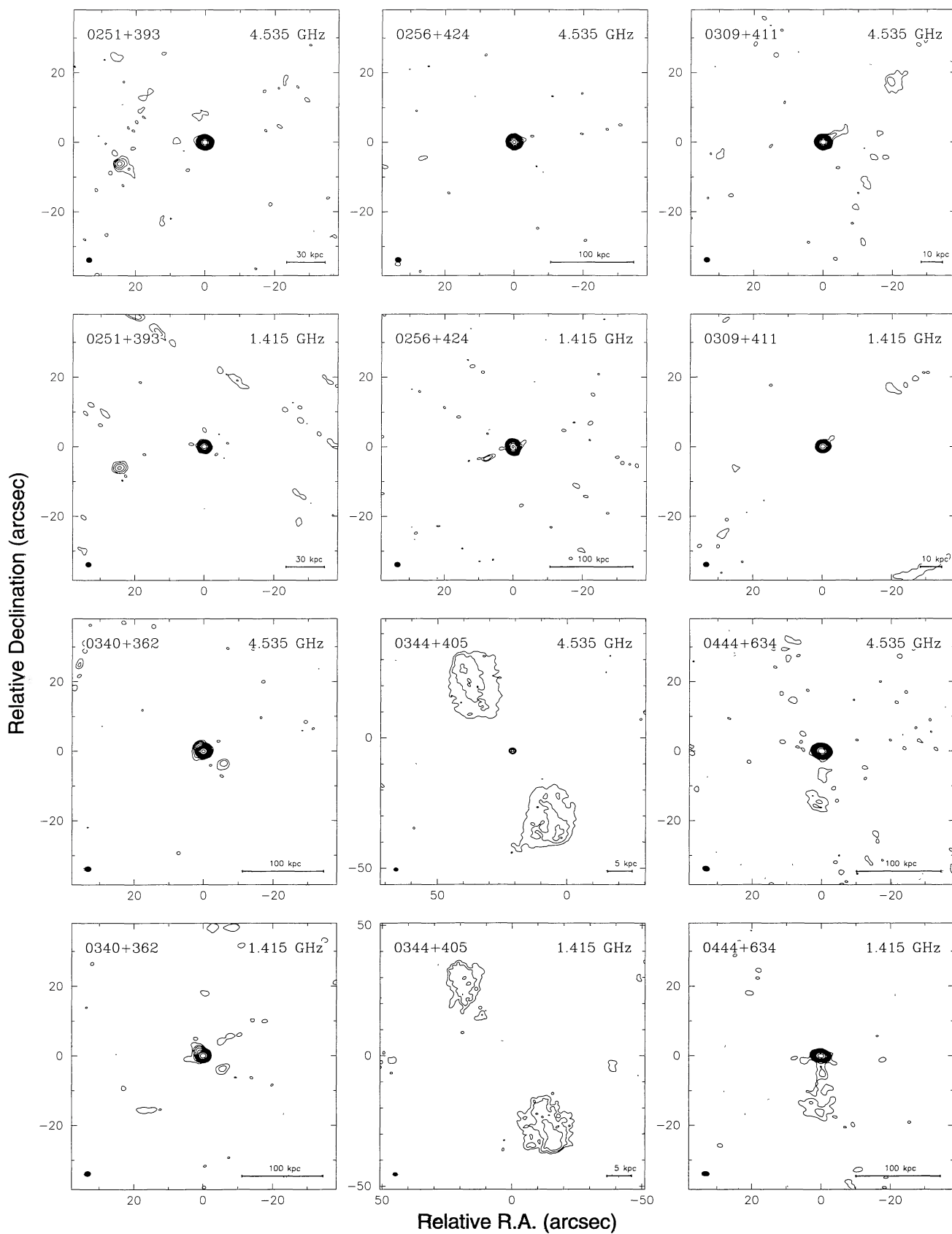


FIG. 4.—Continued

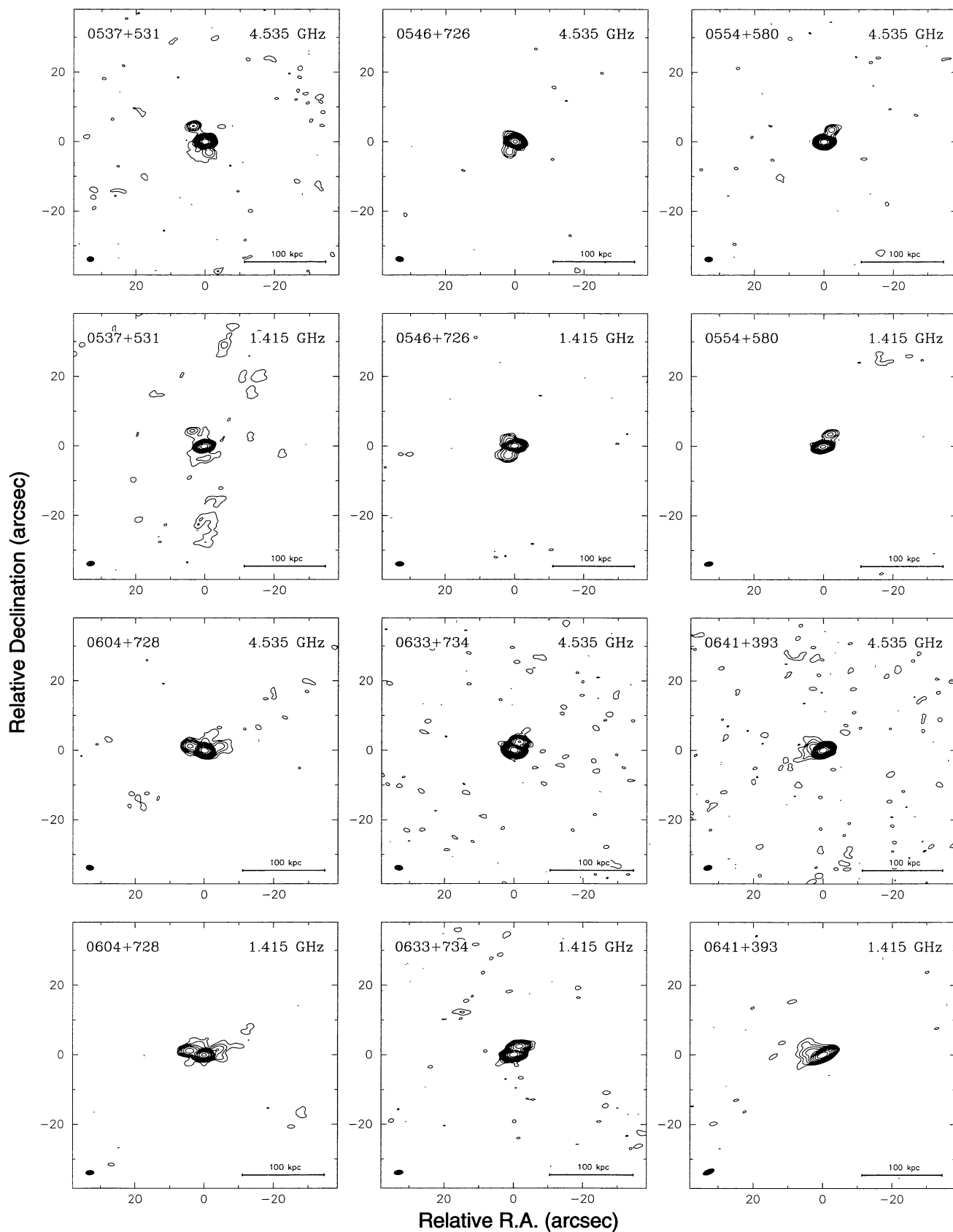


FIG. 4.—Continued

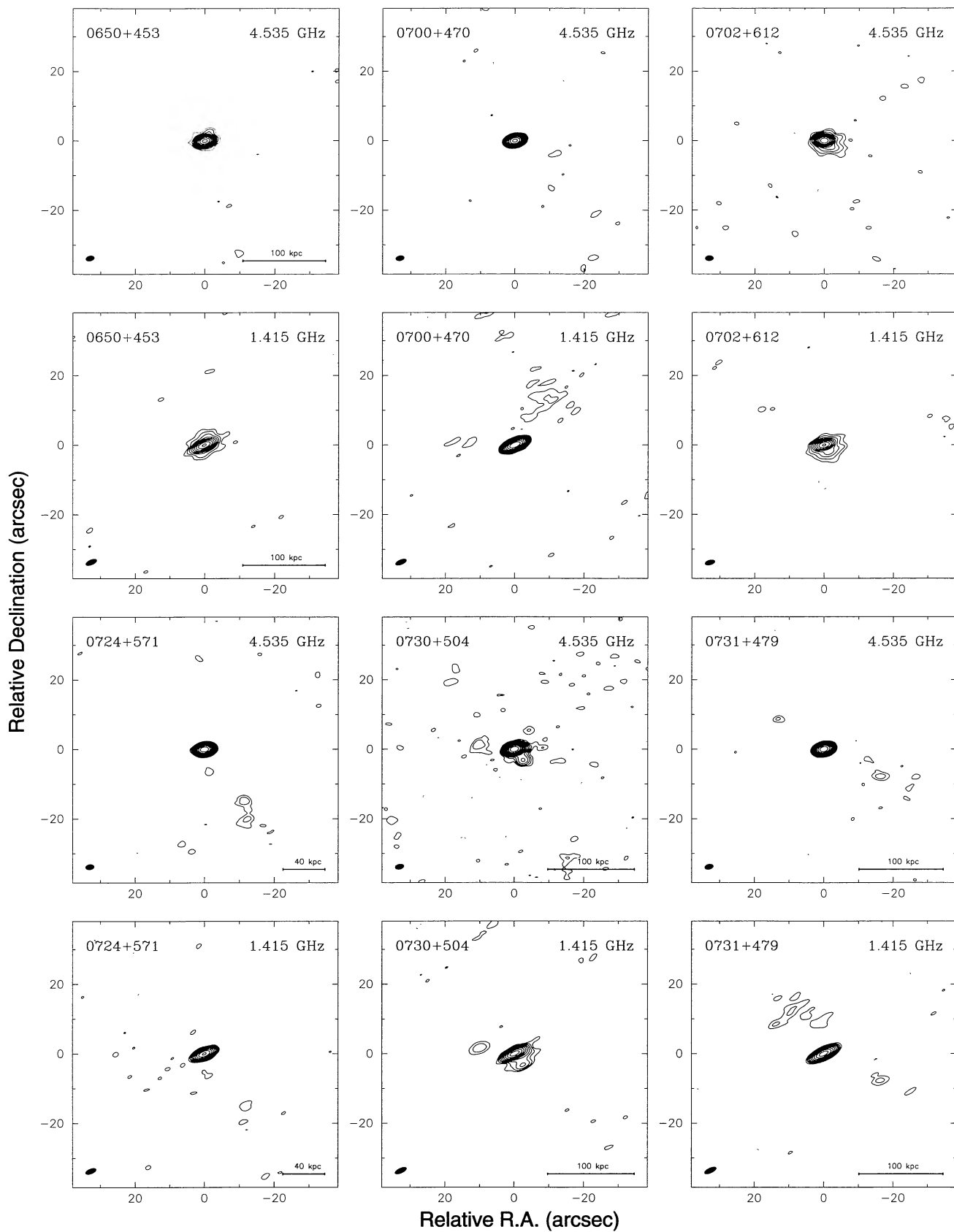


FIG. 4.—Continued

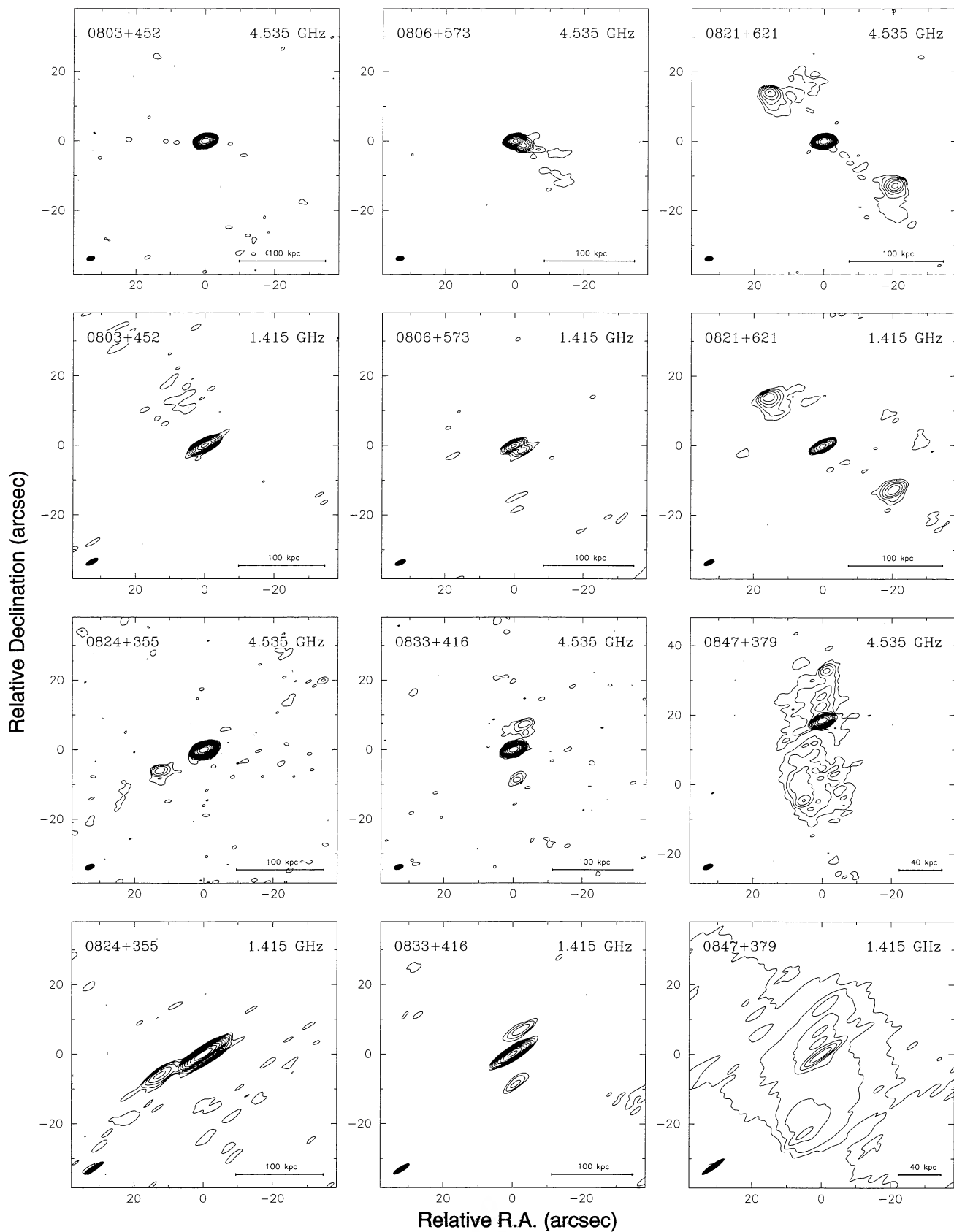
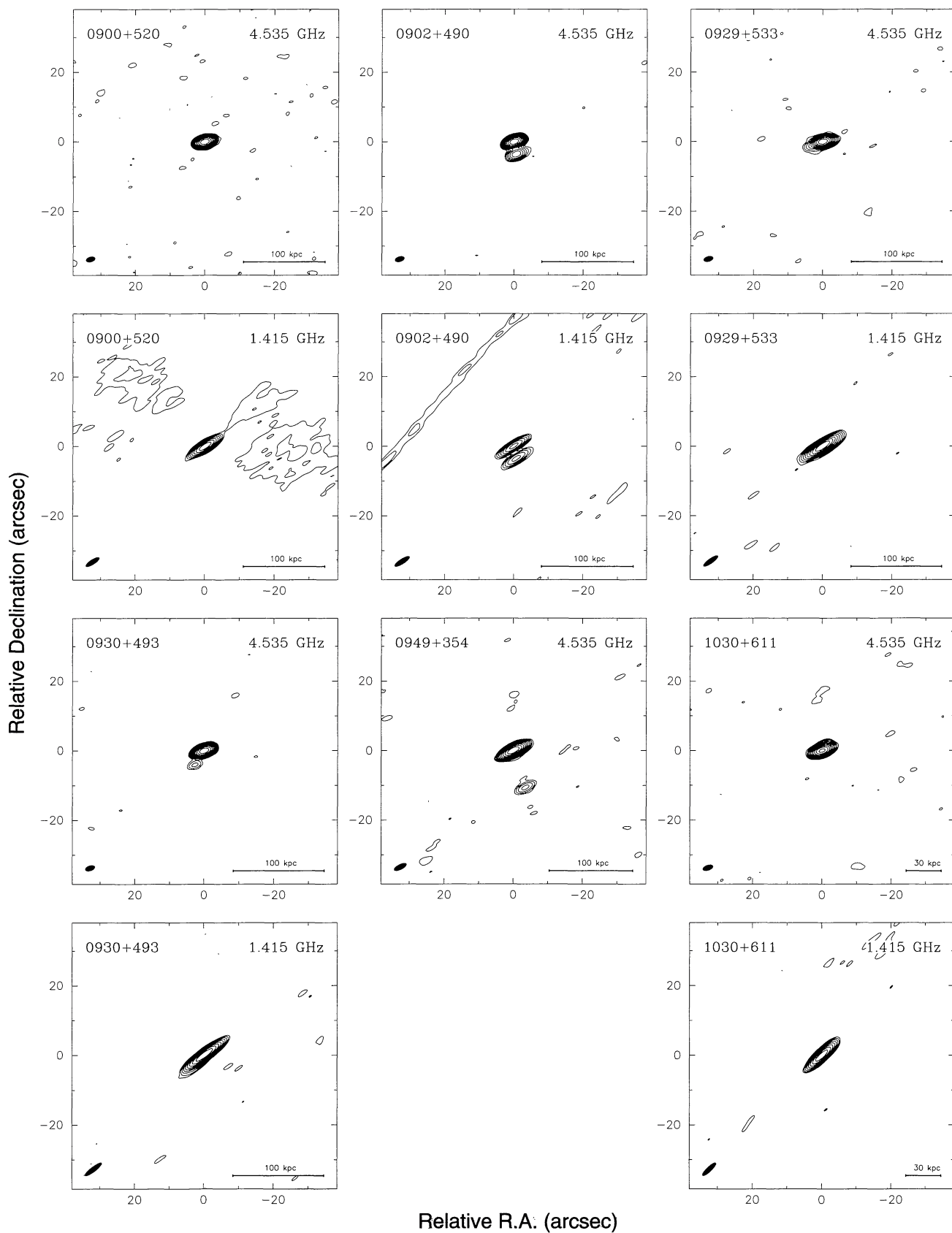


FIG. 4.—Continued



Relative R.A. (arcsec)

FIG. 4.—Continued

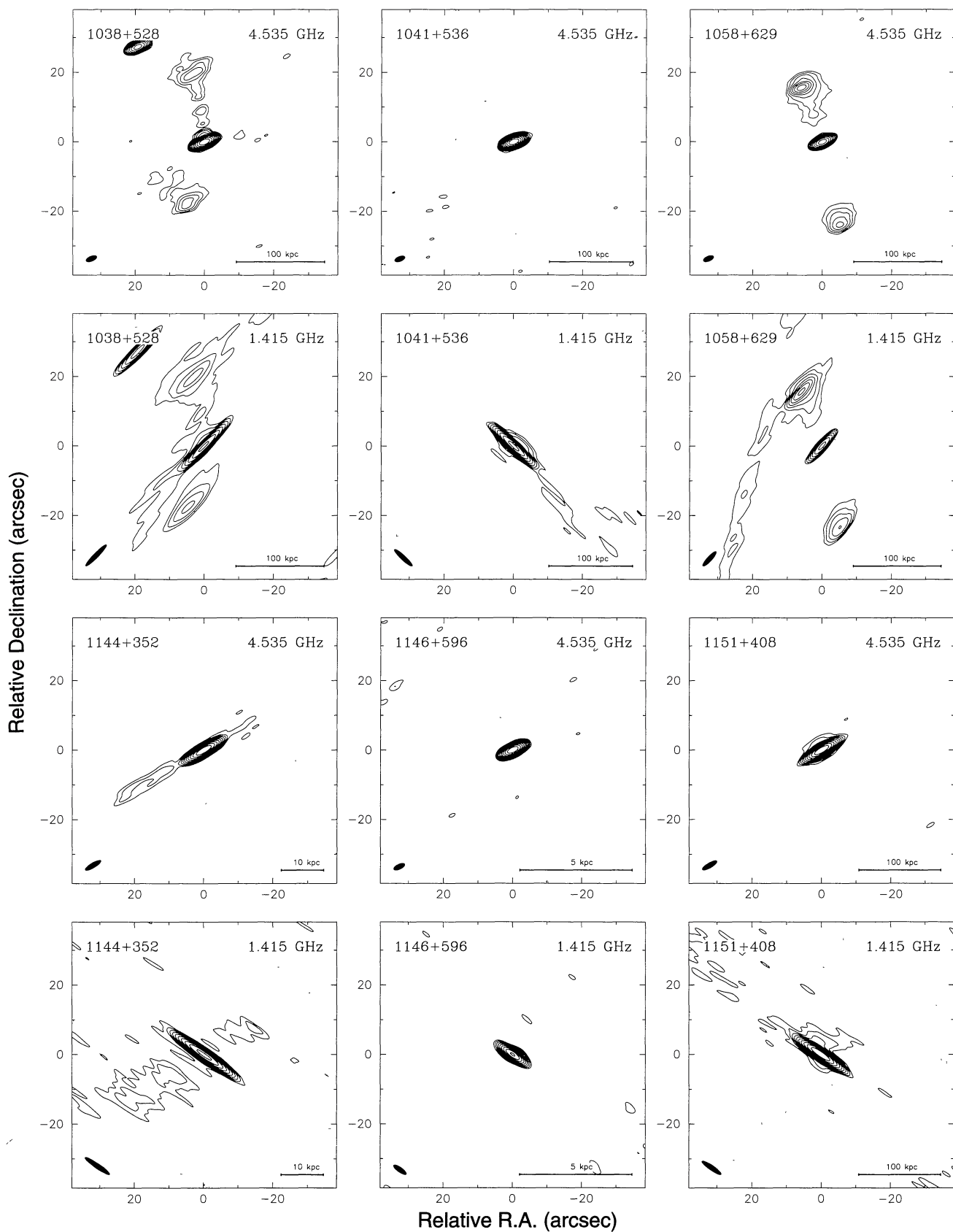


FIG. 4.—Continued

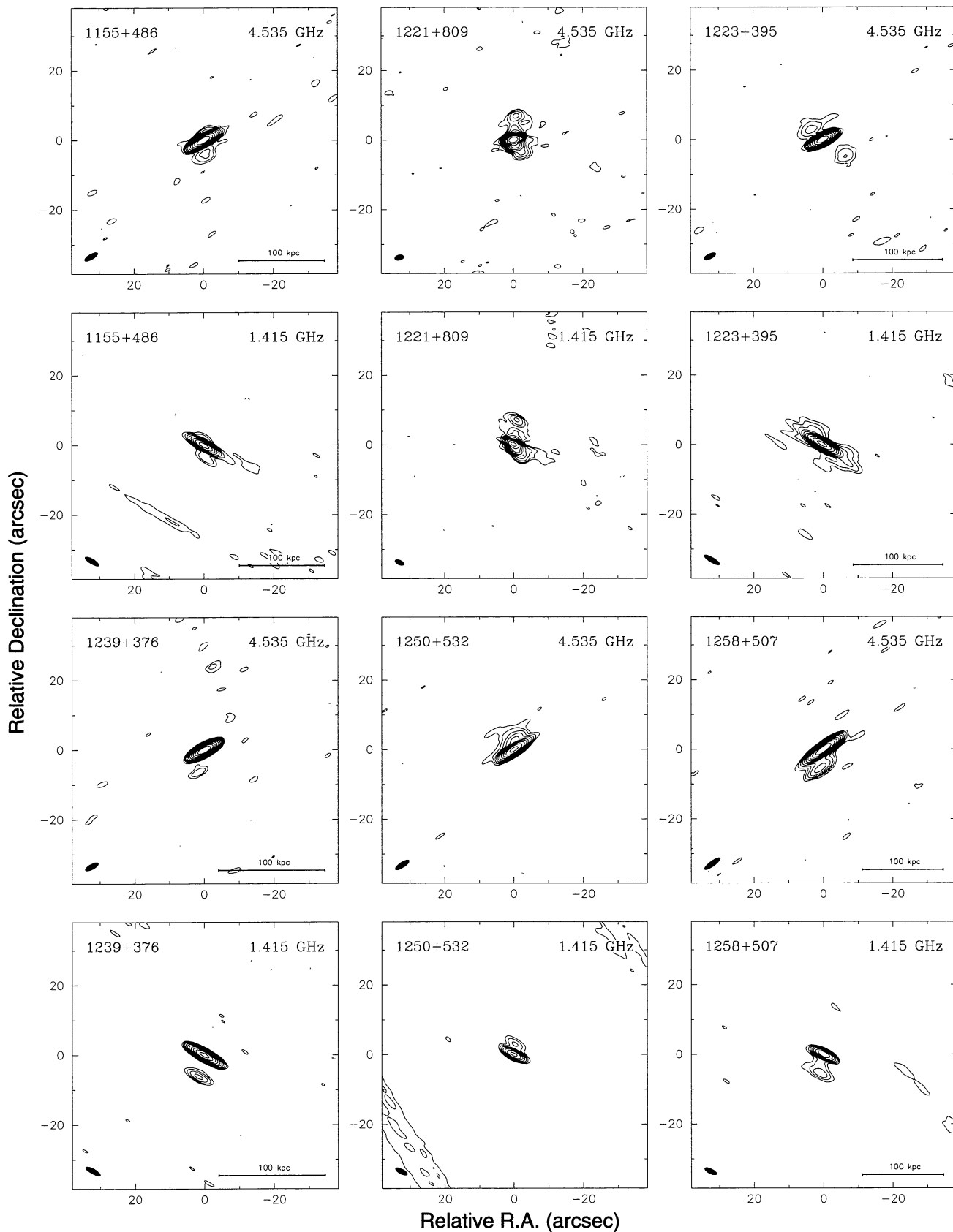


FIG. 4.—Continued

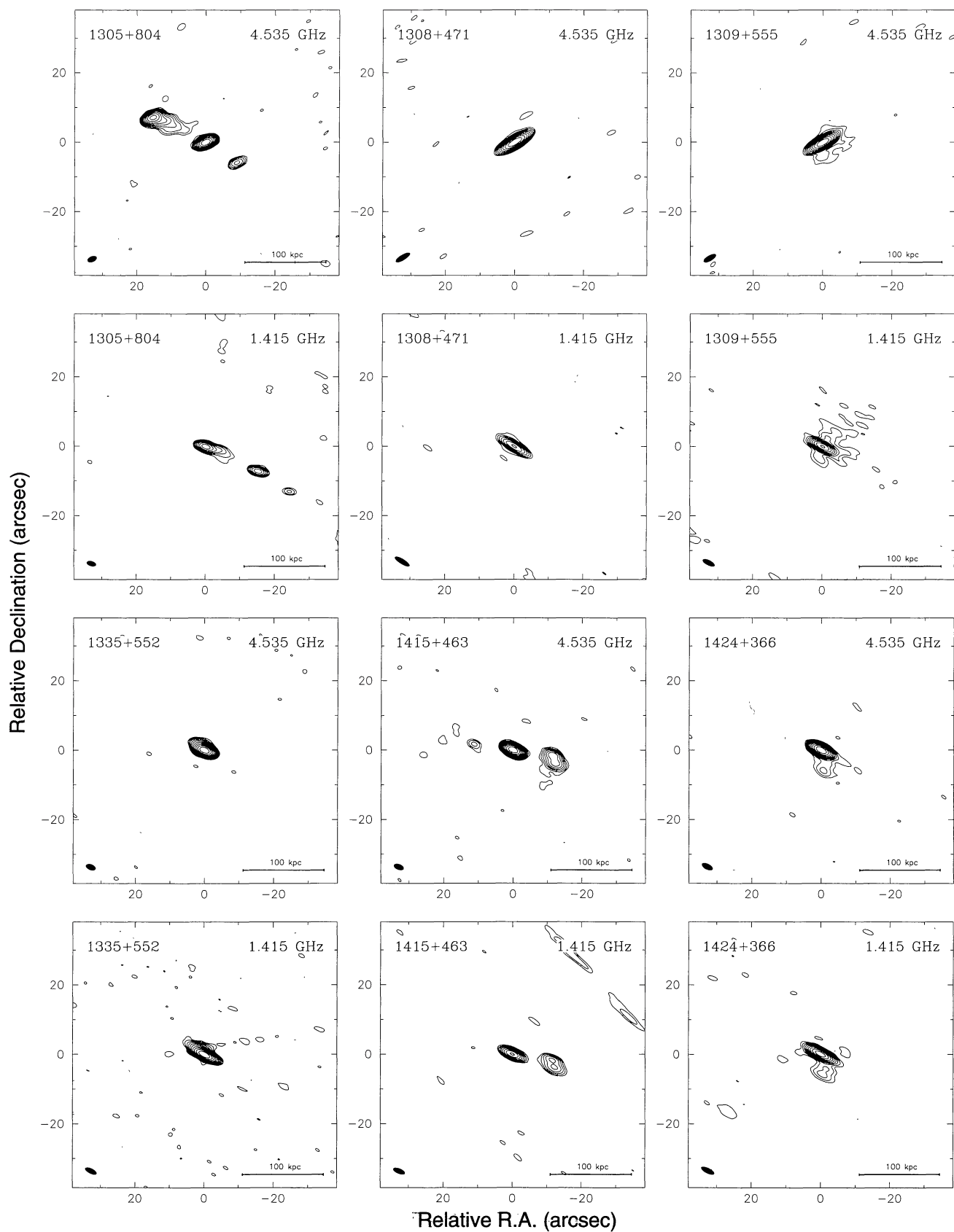


FIG. 4.—Continued

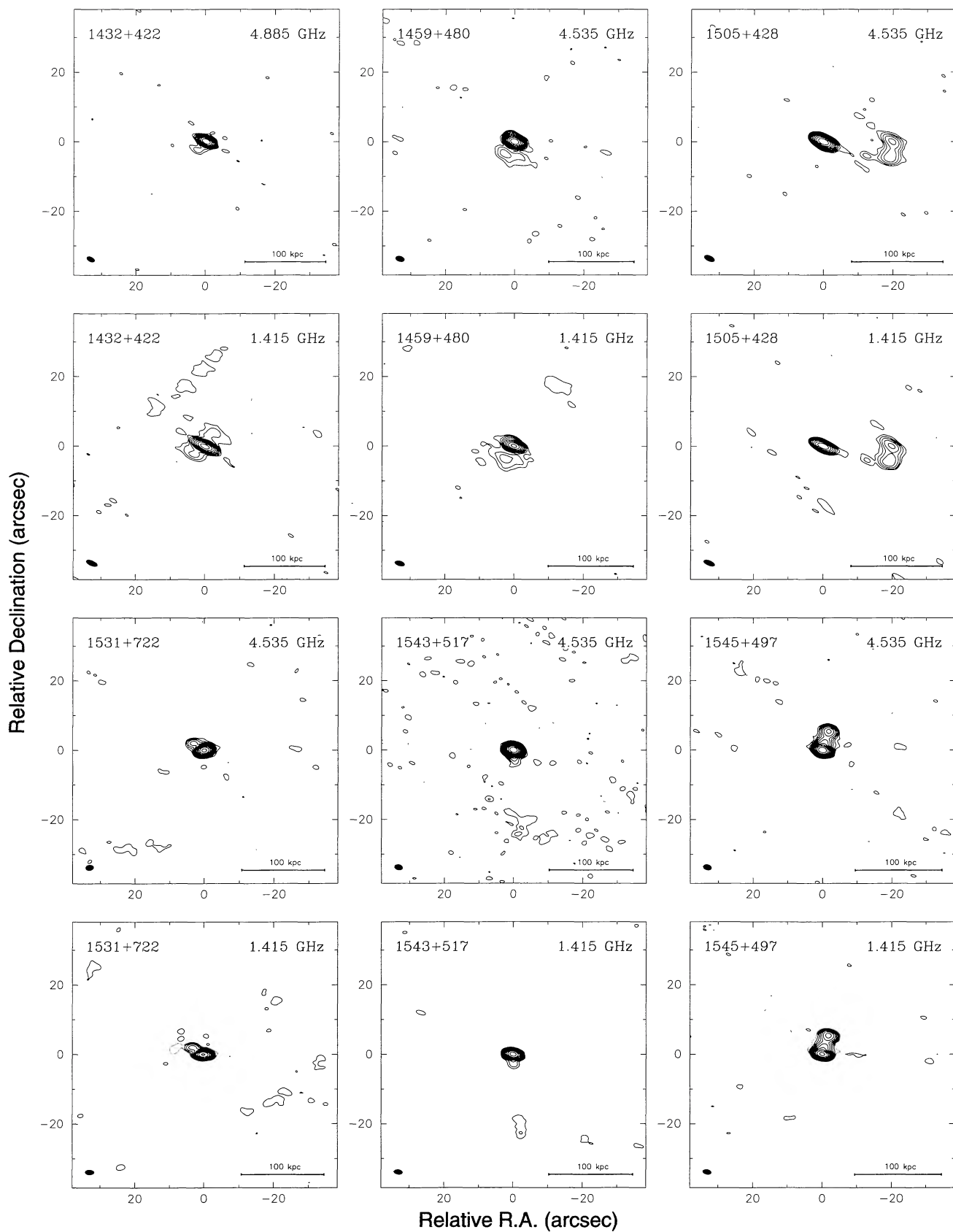


FIG. 4.—Continued

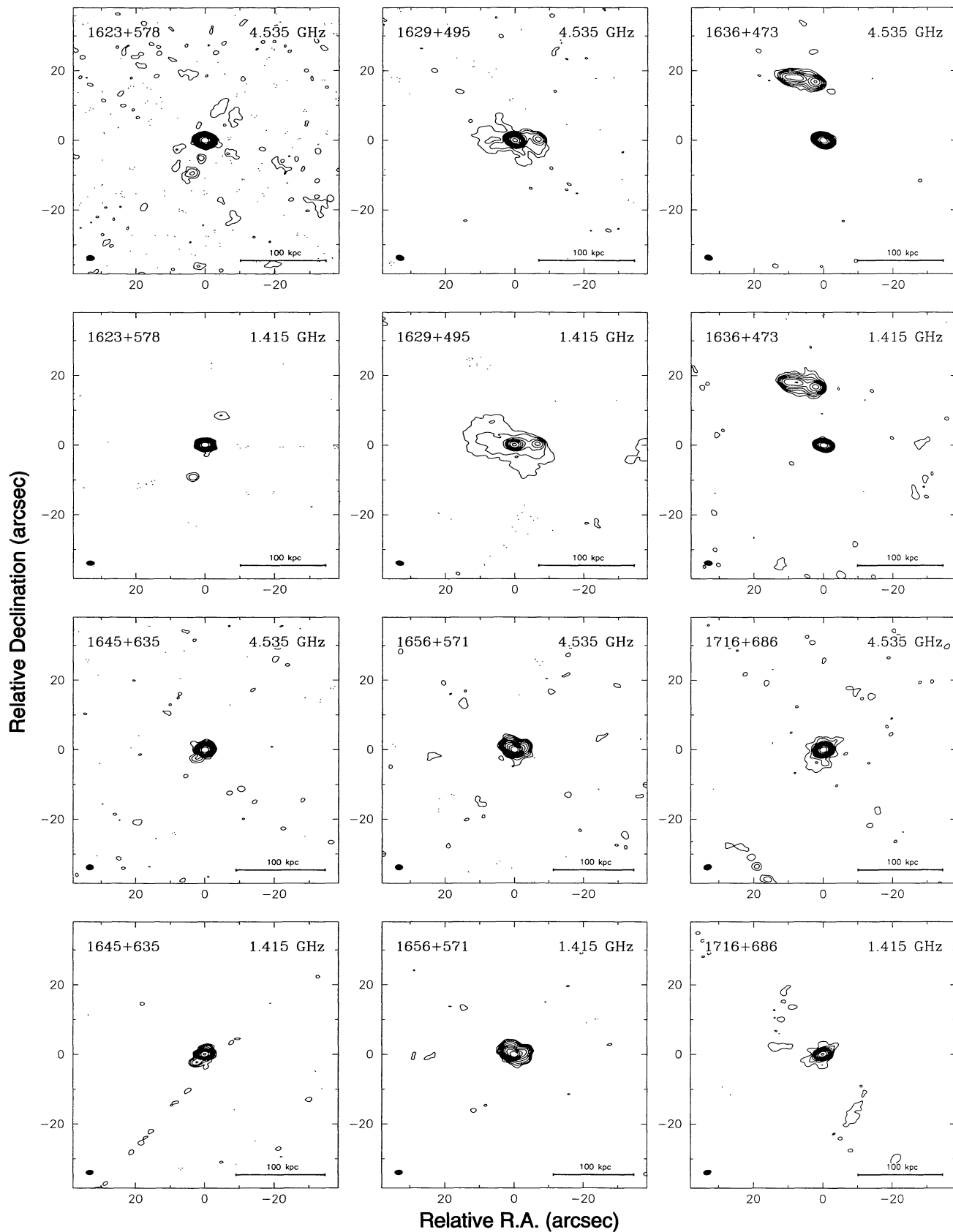


FIG. 4.—Continued

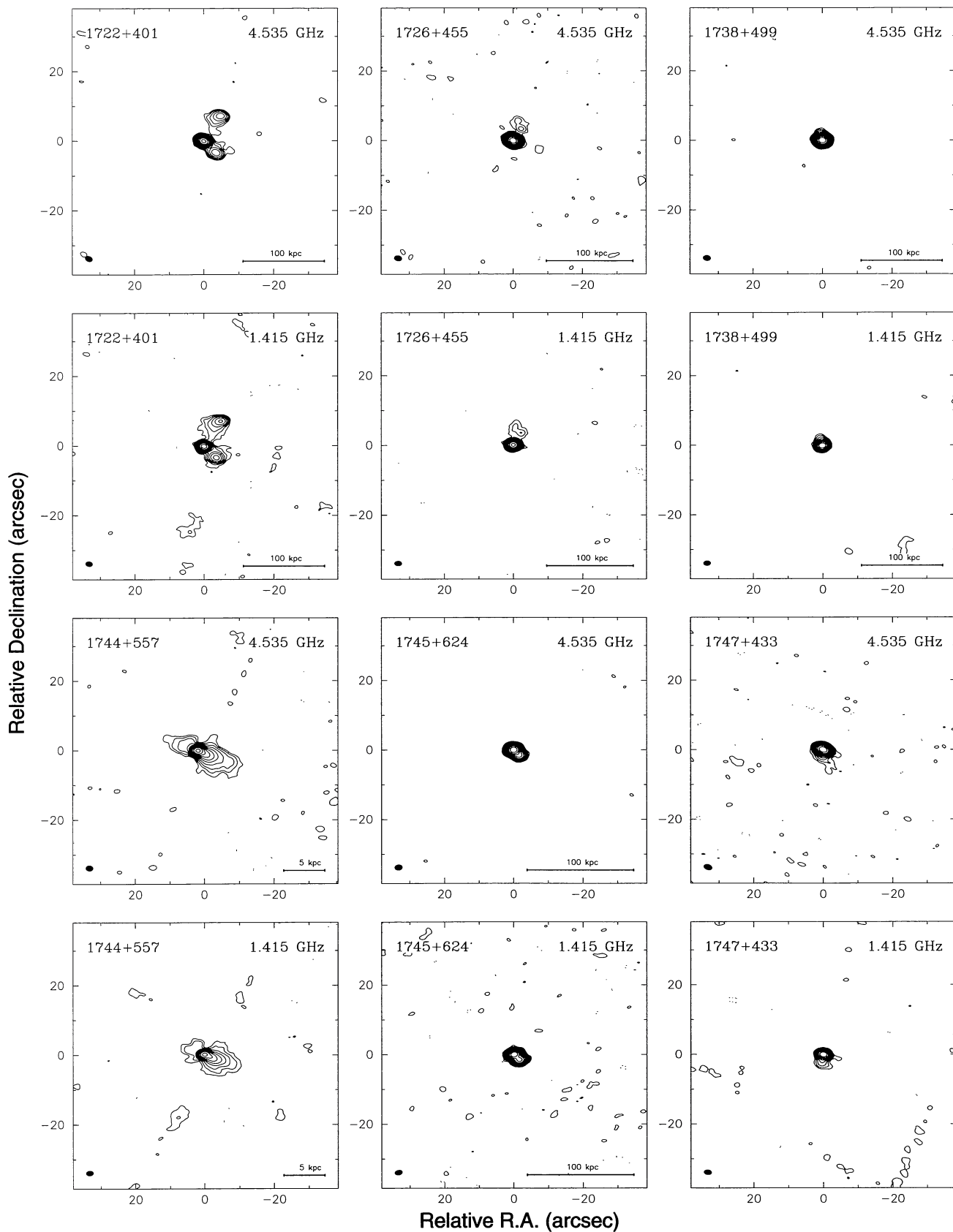


FIG. 4.—Continued

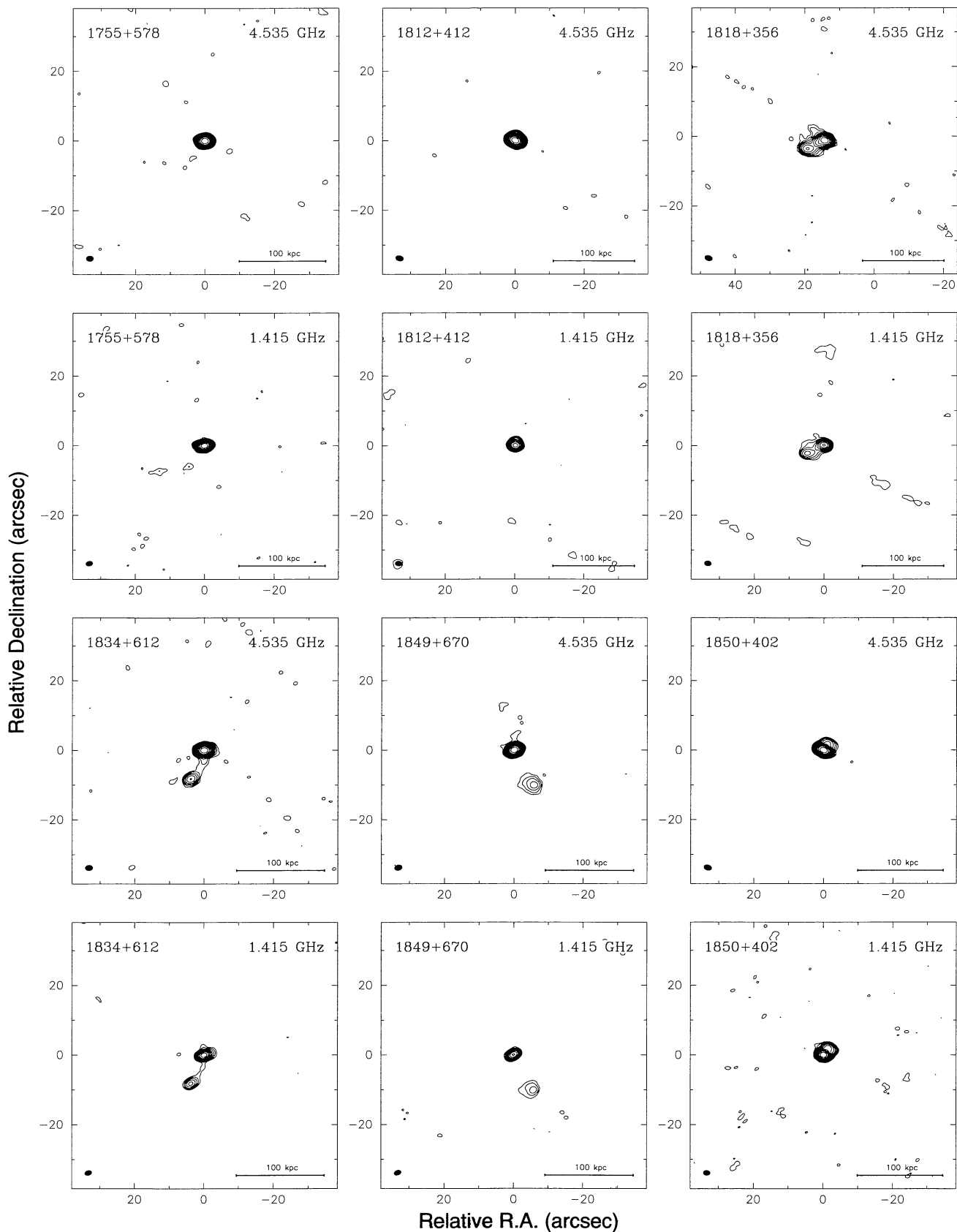


FIG. 4.—Continued

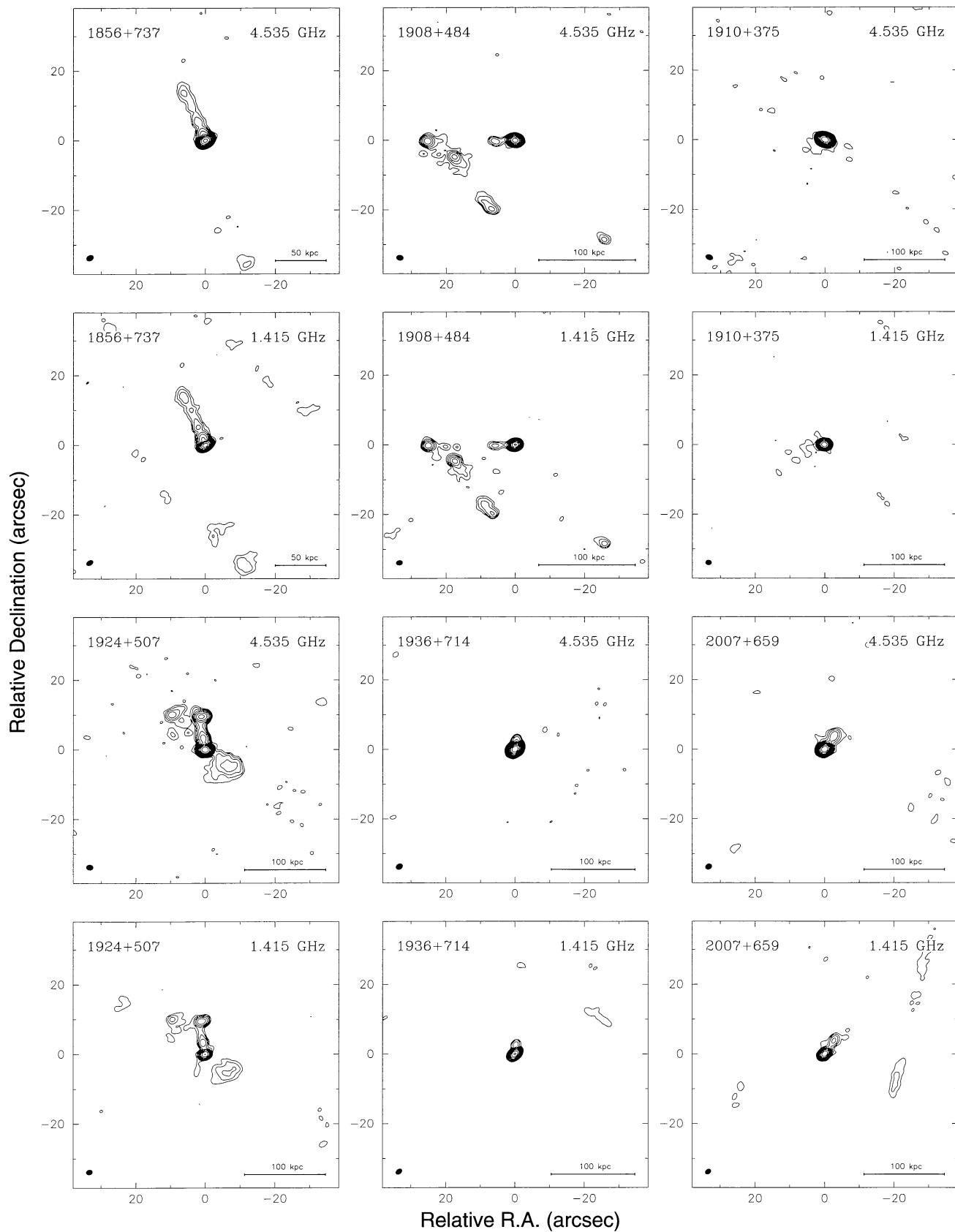


FIG. 4.—Continued

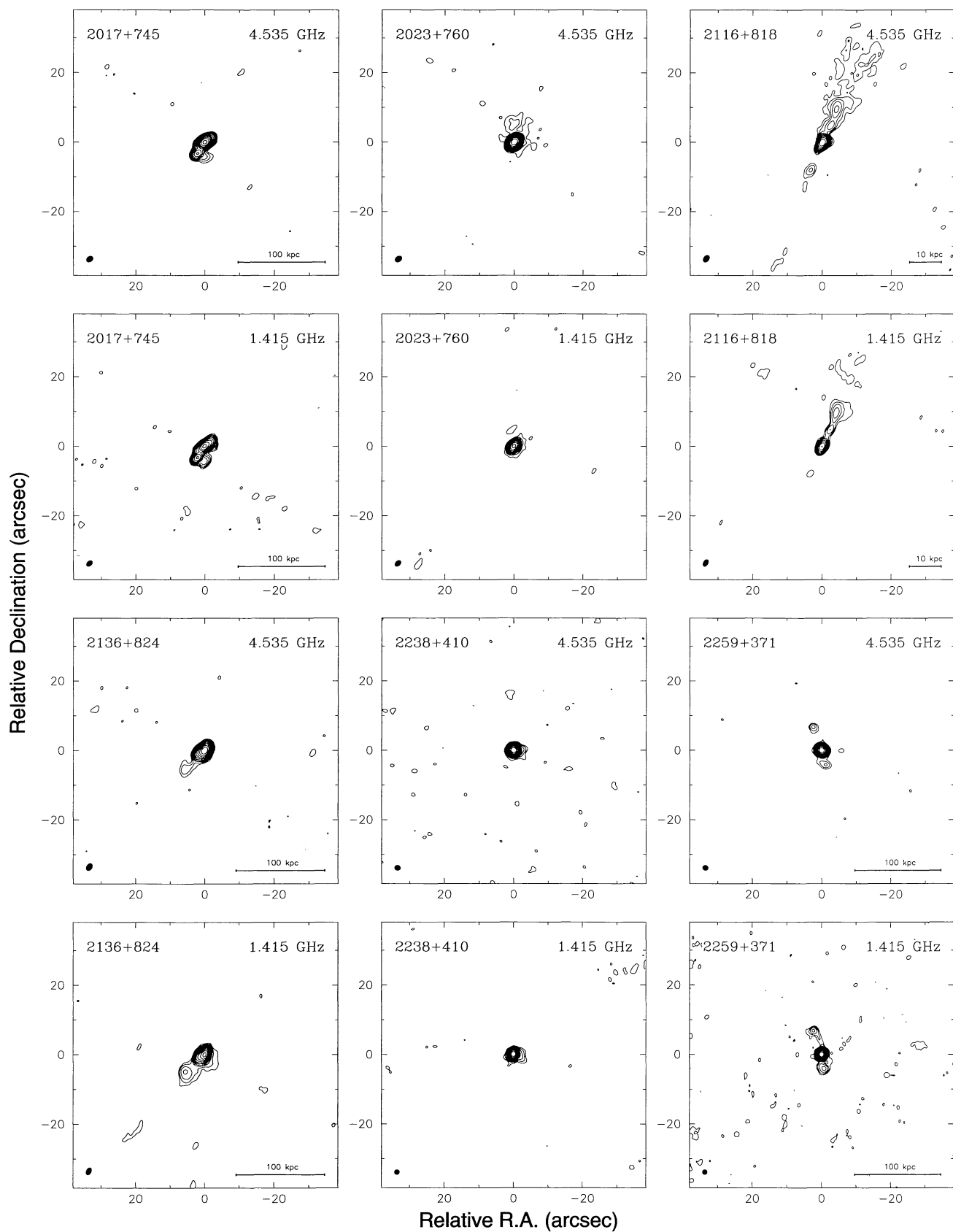


FIG. 4.—Continued

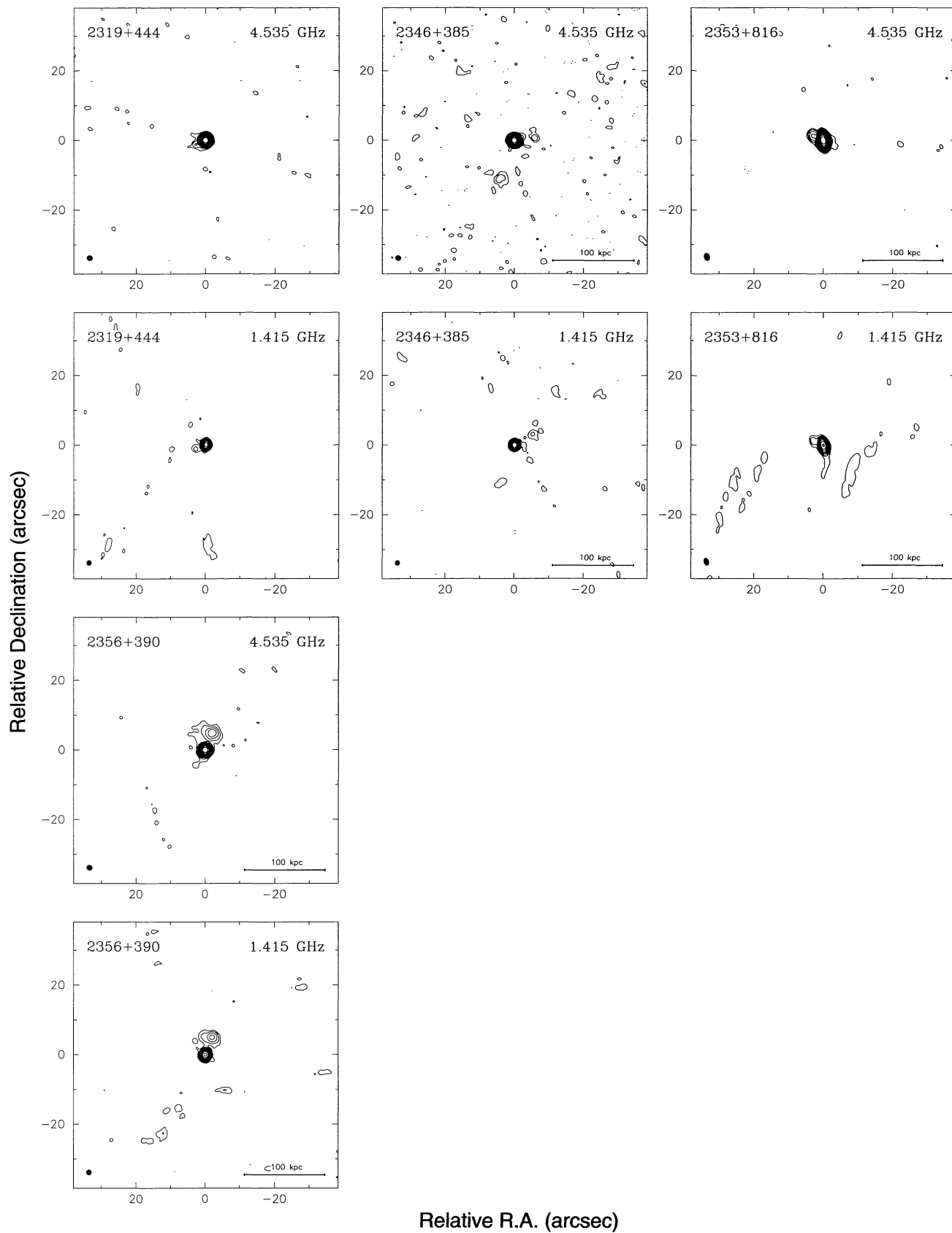


FIG. 4.—Continued

TABLE 1
THE COMPLETE CJF SAMPLE

SOURCE (1)	R.A. (2)	DECL. (3)	GB _{6 cm} (4)	WB _{20 cm} (5)	α (6)	Y _{6 cm} (7)	Y _{20 cm} (8)	VLB _{6 cm} (9)	VLB _{20 cm} (10)	REFERENCES	
										VLA (11)	VLBI (12)
0003+380.....	00 05 57.1755	38 20 15.168	0.549	0.601	-0.07	0.778	0.520	0.721	...	1	2
0010+405.....	00 13 31.1311	40 51 37.148	1.040	1.796	-0.44	...	...	0.481	0.249	...	3, 4
0014+813.....	00 17 08.4750	81 35 08.136	0.551 ^a	0.610 ^a	-0.16	1.010	0.707	1.093	...	1	5
0016+731.....	00 19 45.7871	73 27 30.019	1.712	0.857	0.56	...	0.969	1.673	...	4	6
0018+729.....	00 21 27.3778	73 12 41.928	0.397	0.675	-0.43	0.384	0.712	0.267	...	1	5
0022+390.....	00 25 26.1571	39 19 35.447	0.663	0.763	-0.11	...	0.739	0.600	0.688	4	4, 7
0035+367.....	00 37 46.1437	36 59 10.928	0.482	0.879	-0.48	0.220	0.284	0.113	...	1	1
0035+413.....	00 38 24.8450	41 37 06.005	1.114	0.440	0.75	0.769	0.723	1.014	...	1	2
0102+480.....	01 05 49.9295	48 19 03.183	1.088	0.895	0.16	...	0.752	1.118	1.252	4	3, 4
0108+388.....	01 11 37.3192	39 06 28.085	1.321	0.412	0.94	...	...	1.714	0.568	...	3, 6
0109+351.....	01 12 12.9450	35 22 19.295	0.362	0.360	0.00	0.355	0.212	0.379	...	1	2
0110+495.....	01 13 27.0069	49 48 24.057	0.710	0.486	0.31	0.748	0.556	0.891	...	1	2
0133+476.....	01 36 58.5953	47 51 29.102	1.816	1.395	0.21	...	1.173	1.795	1.501	4	3, 6
0145+386.....	01 48 24.3768	38 54 05.223	0.370	0.293	0.19	0.406	0.338	0.458	...	1	2
0151+474.....	01 54 56.2902	47 43 26.539	0.505	0.353	0.29	0.645	0.298	0.798	...	1	2
0153+744.....	01 57 34.9666	74 42 43.246	1.549	2.086	-0.24	...	1.794	1.264	...	4	6
0205+722.....	02 09 51.7921	72 29 26.669	0.560	0.842	-0.33	0.380	0.576	0.272	...	1	5
0212+735.....	02 17 30.8172	73 49 32.618	2.278	2.618	-0.11	...	2.444	2.066	...	4	6
0218+357.....	02 21 05.4702	35 56 13.723	1.498	1.456	0.02	...	...	...	0.994	...	3, 4
0219+428.....	02 22 39.5992	43 02 07.707	0.806	...	-0.03	0.917	0.945	0.923	...	1	1
0227+403.....	02 30 45.7068	40 32 53.087	0.436	0.438	-0.00	0.504	0.448	0.550	...	1	2
0248+430.....	02 51 34.5372	43 15 15.833	1.414	0.834	0.42	...	1.052	1.280	1.036	4	3, 4
0249+383.....	02 53 08.8870	38 35 24.987	0.450	0.781	-0.44	0.455	0.478	0.361	...	1	2
0251+393.....	02 54 42.6316	39 31 34.714	0.408	0.297	0.26	0.396	0.242	0.494	...	1	2
0256+424.....	02 59 37.6753 ^b	42 35 49.908 ^b	0.366	0.616	-0.42	0.366	0.466	0.370	...	1	2
0307+380.....	03 10 49.8805	38 14 53.845	0.760	<0.110	>1.56	0.192	0.119	0.521	...	...	...
0309+411.....	03 13 01.9615	41 20 01.190	0.516	0.467	0.08	0.408	0.309	0.462	...	1	2
0316+413.....	03 19 48.1605	41 30 42.103	42.370	21.198	0.56	...	...	...	...	...	6
0340+362.....	03 43 28.9527	36 22 12.440	0.376	0.282	0.23	0.365	0.321	0.559	...	1	2
0344+405.....	03 47 59.9844	40 43 58.943	0.478	0.864	-0.48	0.009	0.007	...	...	1	...
0346+800.....	03 54 46.1258	80 09 28.816	0.396 ^a	0.460 ^a	-0.24	0.449	0.543	0.386	...	1	5
0402+379.....	04 05 49.2635	38 03 32.237	0.937	1.527	-0.39	...	1.092	0.706	...	4	3, 4
0424+670.....	04 29 06.0217	67 10 16.561	0.362	0.660	-0.48	0.340	0.661	0.233	...	1	1
0444+634.....	04 49 23.3097	63 32 09.453	0.606	0.370	0.40	0.321	0.294	0.654	...	1	5
0454+844.....	05 08 42.3648	84 32 04.543	1.398 ^a	1.100 ^a	0.38	...	0.392	1.030	...	4	6
0537+531.....	05 41 16.1733	53 12 24.838	0.665	0.656	0.01	0.801	0.560	0.747	...	1	5
0546+726.....	05 52 52.9972	72 40 45.129	0.401	0.493	-0.17	0.288	0.418	0.262	...	1	5
0554+580.....	05 59 13.3941	58 04 03.443	0.906	0.373	0.71	0.352	0.333	0.293	...	1	5
0600+442.....	06 04 35.6297	44 13 58.546	0.705	1.208	-0.43	0.543	0.938	0.461	...	1	2
0602+673.....	06 07 52.6720	67 20 55.417	0.657	0.300	0.63	...	0.519	0.678	0.568	4	3, 4
0604+728.....	06 10 48.8691	72 48 53.188	0.654	1.015	-0.35	0.561	0.831	...	...	1	5
0609+607.....	06 14 23.8666	60 46 21.754	1.059	1.060	-0.00	0.921	1.240	0.849	...	1	5
0620+389.....	06 24 19.0219	38 56 48.724	0.811	1.215	-0.33	...	0.834	0.574	0.754	4	3, 4
0621+446.....	06 25 18.2652	44 40 01.628	0.369	0.165	0.65	0.248	0.187	0.210	...	1	1
0615+820.....	06 26 03.0073	82 02 25.565	0.999 ^a	1.020 ^a	-0.03	...	...	0.782	...	...	4
0627+532.....	06 31 34.6860	53 11 27.754	0.485	0.807	-0.41	0.493	0.771	0.485	...	1	2
0633+596.....	06 38 02.8730	59 33 22.207	0.482	0.230	0.60	0.562	0.260	0.524	...	1	5
0633+734.....	06 39 21.9623	73 24 58.050	0.748	1.097	-0.31	0.773	0.764	0.732	...	1	5
0636+680.....	06 42 04.2568	67 58 35.626	0.499	0.129	1.09	0.445	0.152	0.482	...	1	5
0641+393.....	06 44 53.7100	39 14 47.541	0.453	0.366	0.17	0.591	0.365	0.577	...	1	2
0642+449.....	06 46 32.0263	44 51 16.589	1.191	0.595	0.56	...	0.476	1.652	0.467	4	3, 4
0646+600.....	06 50 31.2556	60 01 44.547	0.920	0.440	0.59	...	...	1.055	0.700	...	4, 7
0650+371.....	06 53 58.2827	37 05 40.611	0.977	0.587	0.41	...	0.837	1.310	1.098	4	4, 7
0650+453.....	06 54 23.7137	45 14 23.541	0.420	0.590	-0.27	0.327	0.280	0.467	...	1	2
0651+410.....	06 55 10.0243	41 00 10.148	0.425	0.301	0.28	0.291	0.231	0.341	...	1	2
0700+470.....	07 04 09.5587	47 00 56.041	0.443	0.824	-0.50	0.475	0.810	0.514	...	1	2
0702+612.....	07 07 00.6165	61 10 11.588	0.370	0.327	0.10	0.452	0.309	0.556	...	1	5
0707+476.....	07 10 46.1052	47 32 11.142	0.906	0.978	-0.06	...	...	0.854	1.019	...	4, 7
0710+439.....	07 13 38.1642	43 49 17.199	1.629	1.828	-0.09	...	2.005	1.505	...	4	6
0711+356.....	07 14 24.8180	35 34 39.792	0.901	1.426	-0.37	...	...	1.245	1.683	...	3, 6
0714+457.....	07 17 51.8531	45 38 03.252	0.480	0.408	0.13	0.391	0.346	0.524	...	1	2
0716+714.....	07 21 53.4488	71 20 36.363	0.788	0.806	-0.02	...	...	0.652	0.236	...	3, 4
0718+793.....	07 26 11.7459	79 11 31.021	0.631 ^a	0.620 ^a	0.03	0.812	0.469	0.846	...	1	5
0724+571.....	07 28 49.6321	57 01 24.367	0.393	0.408	-0.03	0.475	0.424	0.556	...	1	5
0727+409.....	07 30 51.3473	40 49 50.826	0.468	0.413	0.10	0.392	0.361	0.417	...	1	2

TABLE 1—Continued

SOURCE (1)	R.A. (2)	DECL. (3)	GB _{6 cm} (4)	WB _{20 cm} (5)	α (6)	Y _{6 cm} (7)	Y _{20 cm} (8)	VLB _{6 cm} (9)	VLB _{20 cm} (10)	REFERENCES	
										VLA (11)	VLBI (12)
0730 + 504.....	07 33 52.5212	50 22 09.051	0.890	0.386	0.67	0.853	0.632	0.828	...	1	5
0731 + 479.....	07 35 02.3121	47 50 08.420	0.533	0.432	0.17	0.448	0.388	0.511	...	1	2
0733 + 597.....	07 37 30.0871	59 41 03.195	0.357	0.553	-0.35	0.276	0.517	0.132	...	1	5
0738 + 491.....	07 42 02.7508	49 00 15.602	0.352	<0.092	>1.08	0.682	0.354	0.691	...	1	2
0740 + 768.....	07 47 14.6226	76 39 17.264	0.592 ^a	0.350 ^a	0.86	0.607	0.137	0.645	...	1	5
0743 + 744.....	07 49 22.4573	74 20 41.595	0.479	0.354	0.24	0.453	0.497	0.473	...	1	2
0746 + 483.....	07 50 20.4376	48 14 53.560	0.860	0.661	0.21	...	0.704	0.841	0.759	4	3, 4
0749 + 540.....	07 53 01.3850	53 52 59.637	0.877	0.791	0.08	1.460	0.737	1.488	...	1	5
0749 + 426.....	07 53 03.3378	42 31 30.763	0.461	0.702	-0.34	0.441	0.685	0.424	...	1	5
0800 + 618.....	08 05 18.1851	61 44 23.658	0.981	0.713	0.26	0.870	0.751	1.187	...	1	1
0803 + 452.....	08 06 33.4720	45 04 32.274	0.414	0.389	0.05	0.409	0.442	0.384	...	1	2
0804 + 499.....	08 08 39.6667	49 50 36.528	1.222	0.892	0.25	...	...	1.494	0.935	...	3, 6
0805 + 410.....	08 08 56.6518	40 52 44.879	0.743	0.361	0.58	...	0.528	1.050	0.450	4	3, 4
0806 + 573.....	08 11 00.6094	57 14 12.494	0.405	0.428	-0.04	0.341	0.309	0.400	...	1	5
0812 + 367.....	08 15 25.9452	36 35 15.147	0.980	1.024	-0.04	...	...	0.950	0.646	...	3, 4
0814 + 425.....	08 18 16.0000	42 22 45.412	1.891	1.472	0.20	...	...	1.699	1.031	...	3, 6
0820 + 560.....	08 24 47.2366	55 52 42.668	1.199	1.272	-0.05	...	...	1.585	1.288	...	4, 7
0821 + 394.....	08 24 55.4837	39 16 41.898	1.012	1.381	-0.25	...	1.257	1.063	...	4	4, 7
0821 + 621.....	08 25 38.6121	61 57 28.577	0.615	0.652	-0.05	0.529	0.303	0.583	...	1	5
0824 + 355.....	08 27 38.5891	35 25 05.081	0.746	0.866	-0.12	0.769	0.851	0.659	...	1	2
0831 + 557.....	08 34 54.9026	55 34 21.085	5.780	7.741	-0.24	...	8.065	...	...	4	3, 6
0833 + 416.....	08 36 36.8932	41 25 54.706	0.385	0.425	-0.08	0.317	0.422	0.321	...	1	2
0833 + 585.....	08 37 22.4106	58 25 01.833	0.669	0.597	0.09	...	...	0.642	0.785	...	3, 4
0836 + 710.....	08 41 24.3657	70 53 42.172	2.423	4.243	-0.45	...	...	2.408	...	...	6
0843 + 575.....	08 47 28.0616	57 23 38.336	0.384	0.284	0.24	0.325	0.367	0.197	...	1	5
0847 + 379.....	08 50 24.7310	37 47 09.473	0.382	0.614	-0.38	0.242	0.136	0.245	...	1	1
0850 + 581.....	08 54 41.9965	57 57 29.923	1.187	1.424	-0.15	...	...	1.023	0.941	...	3, 6
0859 + 470.....	09 03 03.9904	46 51 04.135	1.285	2.266	-0.46	...	...	1.151	...	...	3, 6
0859 + 681.....	09 03 53.1559	67 57 22.683	0.751	0.592	0.19	0.694	0.558	0.673	...	1	5
0900 + 520.....	09 03 58.5758	51 51 00.658	0.395	0.322	0.16	0.300	0.320	0.302	...	1	5
0902 + 490.....	09 05 27.4648	48 50 49.959	0.547	0.636	-0.12	0.596	0.431	0.620	...	1	2
0917 + 449.....	09 20 58.4587	44 41 53.984	1.033	0.781	0.23	...	0.914	1.407	0.940	4	3, 4
0917 + 624.....	09 21 36.2314	62 15 52.179	1.322	1.227	0.06	...	...	1.302	1.312	...	4, 7
0923 + 392.....	09 27 03.0142	39 02 20.850	7.480	2.716	0.82	...	...	7.041	3.233	...	3, 6
0925 + 504.....	09 29 15.4417	50 13 35.978	0.558	0.266	0.60	0.917	0.462	1.067	...	1	5
0927 + 352.....	09 30 55.2791	35 03 37.608	0.383	0.422	-0.08	0.394	...	0.320	...	1	2
0929 + 533.....	09 32 41.1517	53 06 33.785	0.384	0.537	-0.27	0.386	0.429	0.270	...	1	5
0930 + 493.....	09 34 15.7631	49 08 21.716	0.574	0.733	-0.20	0.514	0.738	0.559	...	1	2
0942 + 468.....	09 45 42.0936	46 36 50.593	0.354	0.278	0.19	0.338	0.438	0.353	...	1	2
0945 + 408.....	09 48 55.3387	40 39 44.583	1.592	1.491	0.05	...	...	1.109	1.609	...	
0945 + 664.....	09 49 12.1652	66 14 59.587	1.407	2.223	-0.37	...	1.491	...	...	4	3
0949 + 354.....	09 52 32.0262	35 12 52.393	0.403	0.344	0.13	0.383	...	0.374	...	1	2
0950 + 748.....	09 54 47.4440	74 35 57.141	0.738	1.186	-0.38	0.681	1.150	0.662	...	1	5
0954 + 556.....	09 57 38.1825	55 22 57.734	2.270	3.000	-0.22	...	...	...	...	...	8
0955 + 476.....	09 58 19.6701	47 25 07.831	0.834	0.687	0.16	...	0.650	1.073	0.559	4	3, 4
0954 + 658.....	09 58 47.2452	65 33 54.815	1.417	0.648	0.63	...	0.637	...	...	4	6
1003 + 830.....	10 10 15.7743	82 50 14.378	0.716 ^a	0.780 ^a	-0.14	...	0.476	0.479	0.571	4	4, 7
1010 + 350.....	10 13 49.6142	34 45 50.782	0.597	0.418	0.29	0.407	...	0.354	...	1	2
1014 + 615.....	10 17 25.8850	61 16 27.493	0.631	0.359	0.45	0.640	0.418	0.589	...	1	5
1015 + 359.....	10 18 10.9877	35 42 39.438	0.587	0.910	-0.35	...	0.622	0.701	0.664	4	4, 7
1020 + 400.....	10 23 11.5658	39 48 15.384	0.785	1.161	-0.31	...	0.681	0.872	0.461	4	3, 4
1030 + 415.....	10 33 03.7081	41 16 06.230	0.485	0.773	-0.38	...	0.418	0.390	0.497	4	3, 4
1030 + 398.....	10 33 22.0618	39 35 51.081	0.645	0.379	0.43	0.632	...	0.692	...	1	2
1030 + 611.....	10 33 51.4273	60 51 07.330	0.579	0.766	-0.23	0.333	0.422	0.378	...	1	5
1031 + 567.....	10 35 07.0399	56 28 46.792	1.200	1.769	-0.31	...	1.816	...	...	4	8
1038 + 528.....	10 41 46.7800	52 33 28.217	0.709	0.713	-0.00	0.607	0.352	0.749	...	1	2
1041 + 536.....	10 44 10.6716	53 22 20.522	0.481	0.543	-0.10	0.409	0.420	0.400	...	1	2
1039 + 811.....	10 44 23.0633	80 54 39.441	1.144 ^a	0.900 ^a	0.40	...	...	1.214	...	...	4
1044 + 719.....	10 48 27.6202	71 43 35.929	2.410	0.624	1.09	...	0.786	0.972	0.975	4	4, 7
1053 + 704.....	10 56 53.6188	70 11 45.905	0.675	0.608	0.08	...	0.441	0.575	0.674	4	4, 7
1053 + 815.....	10 58 11.5395	81 14 32.666	0.770 ^a	0.960 ^a	-0.36	...	0.393	0.564	0.638	4	4, 7
1058 + 726.....	11 01 48.8073	72 25 37.110	0.953	1.451	-0.34	...	0.748	0.430	0.838	4	4, 7
1058 + 629.....	11 01 53.4491	62 41 50.590	0.700	0.598	0.13	0.285	0.193	0.306	...	1	5
1101 + 384.....	11 04 27.3146	38 12 31.788	0.722	0.835	-0.12	...	0.626	0.582	0.481	4	3, 4
1105 + 437.....	11 08 23.4779	43 30 53.637	0.375	0.266	0.28	0.318	...	0.312	...	1	2

TABLE 1—Continued

SOURCE (1)	R.A. (2)	DECL. (3)	GB _{6 cm} (4)	WB _{20 cm} (5)	α (6)	Y _{6 cm} (7)	Y _{20 cm} (8)	VLB _{6 cm} (9)	VLB _{20 cm} (10)	REFERENCES	
										VLA (11)	VLBI (12)
1106+380.....	11 09 28.8718	37 44 30.924	0.867	<1.398	> -0.38	0.782	...	0.681	...	1	1
1107+607.....	11 10 13.0871	60 28 42.551	0.404	0.345	0.13	0.421	0.409	0.389	...	1	5
1124+455.....	11 26 57.6551	45 16 06.289	0.355	0.493	-0.26	0.330	0.416	0.359	...	1	2
1124+571.....	11 27 40.1353	56 50 14.779	0.597	0.775	-0.21	0.329	0.467	0.424	...	1	5
1125+596.....	11 28 13.3415	59 25 14.778	0.393	0.364	0.06	0.308	0.282	0.330	...	1	5
1128+385.....	11 30 53.2822	38 15 18.553	0.746	0.934	-0.18	...	...	1.005	0.725	...	3, 4
1143+590.....	11 46 26.9120	58 48 34.242	0.674	0.276	0.72	0.402	0.341	0.581	...	1	5
1144+542.....	11 46 44.2038	53 56 43.089	0.484	0.406	0.14	...	0.373	0.387	0.366	4	3, 4
1144+402.....	11 46 58.2981	39 58 34.304	0.739	0.912	-0.17	...	...	0.639	0.418	...	4, 7
1144+352.....	11 47 22.1302	35 01 07.526	0.663	0.695	-0.04	0.537	0.570	0.558	...	1	2
1146+596.....	11 48 50.3591	59 24 56.362	0.627	0.415	0.33	0.514	0.448	0.501	...	1	5
1150+812.....	11 53 12.4989	80 58 29.152	1.181 ^a	1.250 ^a	-0.09	...	...	1.233	...	...	4
1151+408.....	11 53 54.6594	40 36 52.617	0.380	0.698	-0.49	0.719	1.120	0.546	...	1	2
1155+486.....	11 58 26.7690	48 25 16.235	0.445	0.484	-0.07	0.333	0.261	0.351	...	1	2
1205+544.....	12 08 27.4995	54 13 19.529	0.397	0.463	-0.12	0.428	0.434	0.425	...	1	2
1206+415.....	12 09 22.7884	41 19 41.369	0.515	0.323	0.38	0.397	0.282	0.333	...	1	2
1213+350.....	12 15 55.6020	34 48 15.213	1.152	1.729	-0.33	...	...	1.002	1.532	...	3, 4
1216+487.....	12 19 06.4149	48 29 56.165	0.680	0.859	-0.19	...	0.617	0.618	0.651	4	3, 4
1218+444.....	12 21 27.0458	44 11 29.663	0.478	0.601	-0.18	0.536	0.534	0.541	...	1	5
1221+809.....	12 23 40.4974	80 40 04.324	0.518 ^a	0.400 ^a	0.43	0.447	0.431	0.407	...	1	2
1223+395.....	12 25 50.5703	39 14 22.681	0.438	0.540	-0.17	0.486	0.593	0.506	...	1	2
1226+373.....	12 28 47.4246	37 06 12.082	0.953	0.192	1.29	0.505	0.383	0.742	...	1	2
1239+376.....	12 42 09.8138	37 20 05.681	0.446	0.544	-0.16	0.437	0.611	0.420	...	1	2
1240+381.....	12 42 51.3705	37 51 00.013	0.768	0.363	0.60	0.499	0.553	0.526	...	1	2
1246+586.....	12 48 18.7847	58 20 28.714	0.414	0.238	0.45	0.278	0.207	0.216	...	1	5
1250+532.....	12 53 11.9213	53 01 11.727	0.396	0.538	-0.25	0.346	0.403	0.270	...	1	2
1254+571.....	12 56 14.2344	56 52 25.237	0.419	0.288	0.30	0.271	0.230	0.188	...	1	5
1258+507.....	13 00 41.2483	50 29 36.750	0.391	0.524	-0.24	0.363	0.338	0.345	...	1	2
1300+580.....	13 02 52.4649	57 48 37.617	0.758	0.305	0.73	0.521	0.307	0.903	...	1	5
1305+804.....	13 06 05.7164	80 08 20.543	0.375 ^a	0.500 ^a	-0.45	0.161	0.368	0.146	...	1	1
1306+360.....	13 08 23.6987	35 46 37.246	0.437	0.220	0.55	0.472	0.219	0.418	...	1	1
1307+562.....	13 09 09.7533	55 57 38.193	0.416	0.294	0.28	0.310	0.286	0.323	...	1	5
1308+471.....	13 10 53.5906	46 53 52.219	0.393	<0.100	>1.10	0.185	0.112	0.256	...	1	2
1309+555.....	13 11 03.2097	55 13 54.330	0.677	0.212	0.93	0.513	0.347	0.292	...	1	5
1312+533.....	13 14 43.8284	53 06 27.727	0.433	0.232	0.50	0.456	0.260	0.470	...	1	2
1322+835.....	13 21 45.5921	83 16 13.437	0.506 ^a	0.440 ^a	0.24	0.338	0.507	0.213	...	1	5
1323+800.....	13 23 30.9956	79 58 27.712	0.458 ^a	0.400 ^a	0.22	0.556	0.585	0.543	...	1	5
1321+410.....	13 24 12.0940	40 48 11.773	0.413	0.357	0.12	0.416	0.373	0.413	...	1	2
1325+436.....	13 27 20.9790	43 26 27.997	0.533	0.703	-0.22	0.512	0.634	0.595	...	1	2
1333+459.....	13 35 21.9604	45 42 38.252	0.598	0.312	0.52	...	0.254	0.643	0.330	4	3, 4
1333+589.....	13 35 25.9276	58 44 00.286	0.820	0.893	-0.07	...	0.305	0.648	0.427	4	4, 7
1335+552.....	13 37 49.6408	55 01 02.121	0.811	0.717	0.10	0.556	0.669	0.626	...	1	5
1337+637.....	13 39 23.7812	63 28 58.425	0.431	0.500	-0.12	0.366	0.501	0.389	...	1	5
1342+663.....	13 44 08.6791	66 06 11.649	0.510	0.886	-0.44	...	0.582	0.698	0.798	4	4, 7
1347+539.....	13 49 34.6565	53 41 17.039	0.635	1.145	-0.47	...	0.935	0.784	0.736	4	3, 4
1355+441.....	13 57 40.6762	43 53 59.671	0.464	0.710	-0.34	...	0.660	0.537	...	1	1
1357+769.....	13 57 55.3699	76 43 21.048	0.844 ^a	0.580 ^a	0.61	...	0.471	0.660	0.648	4	4, 7
1356+478.....	13 58 40.6646	47 37 58.306	0.428	0.594	-0.26	0.461	0.614	0.446	...	1	1
1413+373.....	14 15 28.4666	37 06 21.179	0.383	0.366	0.04	0.361	0.394	0.390	...	1	2
1415+463.....	14 17 08.1608	46 07 05.448	0.904	1.012	-0.09	0.602	0.713	0.664	...	1	2
1418+546.....	14 19 46.5975	54 23 14.787	1.707	1.555	0.08	...	...	2.198	1.390	...	3, 4
1417+385.....	14 19 46.6141	38 21 48.484	0.871	0.708	0.17	0.719	0.540	0.619	...	1	2
1421+482.....	14 23 06.1562	48 02 10.847	0.536	0.361	0.32	0.346	0.370	0.398	...	1	1
1424+366.....	14 26 37.0876	36 25 09.586	0.429	0.194	0.64	0.467	0.414	0.759	...	1	2
1427+543.....	14 29 21.8796	54 06 11.127	0.718	0.903	-0.18	0.641	1.020	0.489	...	1	2
1432+422.....	14 34 05.6951	42 03 16.003	0.353	0.276	0.20	0.255	0.288	0.298	...	1	1
1435+638.....	14 36 45.8025	63 36 37.868	0.795	1.394	-0.45	...	...	0.992	0.869	...	3, 4
1438+385.....	14 40 22.3365	38 20 13.627	0.944	1.025	-0.07	...	0.580	0.582	0.542	4	3, 4
1442+637.....	14 43 58.6020	63 32 26.363	0.456	0.684	-0.33	0.488	0.662	0.502	...	1	5
1448+762.....	14 48 28.7782	76 01 11.594	0.683 ^a	0.560 ^a	0.32	0.312	0.189	0.406	...	1	2
1456+375.....	14 58 44.7949	37 20 21.627	0.591	0.335	0.46	0.305	0.188	0.782	...	1	2
1459+480.....	15 00 48.6543	47 51 15.526	0.489	0.401	0.16	0.412	0.358	0.526	...	1	2
1504+377.....	15 06 09.5302	37 30 51.131	1.003	1.187	-0.14	...	...	0.685	0.861	...	3, 4
1505+428.....	15 06 53.0419	42 39 23.040	0.404	0.435	-0.06	0.461	0.277	0.452	...	1	2
1526+670.....	15 26 42.8732	66 50 54.617	0.417	0.426	-0.02	0.401	0.111	0.414	...	1	5

TABLE 1—Continued

SOURCE (1)	R.A. (2)	DECL. (3)	GB _{6 cm} (4)	WB _{20 cm} (5)	α (6)	$Y_{6 cm}$ (7)	$Y_{20 cm}$ (8)	VLB _{6 cm} (9)	VLB _{20 cm} (10)	REFERENCES	
										VLA (11)	VLBI (12)
1531+722.....	15 31 33.5768	72 06 41.220	0.452	0.661	-0.31	0.375	0.414	0.352	...	1	5
1534+501.....	15 35 52.0395	49 57 39.084	0.359	0.229	0.36	0.328	0.229	0.315	...	1	2
1543+517.....	15 45 02.8244	51 35 00.878	0.544	0.485	0.09	0.576	0.555	0.622	...	1	2
1543+480.....	15 45 08.5303	47 51 54.667	0.441	0.665	-0.33	0.486	0.691	0.494	...	1	2
1545+497.....	15 47 21.1384	49 37 05.810	0.549	0.936	-0.43	0.439	0.670	0.041	...	1	2
1547+507.....	15 49 17.4688	50 38 05.789	0.724	0.672	0.06	...	0.624	0.846	0.799	4	4, 7
1550+582.....	15 51 58.2077	58 06 44.466	0.367	0.226	0.39	0.268	0.177	0.287	...	1	2
1619+491.....	16 20 31.2263	49 01 53.254	0.469	0.468	0.00	0.438	0.456	0.407	...	1	2
1622+665.....	16 23 04.5221	66 24 01.084	0.520	0.204	0.75	0.243	0.165	0.242	...	1	1
1623+578.....	16 24 24.8078	57 41 16.286	0.590	0.502	0.13	0.714	0.486	0.777	...	1	1
1624+416.....	16 25 57.6699	41 34 40.636	1.362	1.683	-0.17	...	1.632	1.117	1.544	4	3, 6
1629+495.....	16 31 16.5412	49 27 39.503	0.394	0.323	0.16	0.267	0.182	0.447	...	1	2
1633+382.....	16 35 15.4932	38 08 04.502	3.189	1.900	0.42	...	...	1.710	2.742	...	3, 6
1636+473.....	16 37 45.1307	47 17 33.836	1.330	0.949	0.27	0.599	0.626	0.750	...	1	2
1637+574.....	16 38 13.4565	57 20 23.981	1.807	1.230	0.31	...	...	1.830	1.045	...	3, 6
1638+540.....	16 39 39.8435	53 57 47.117	0.369	0.310	0.14	0.270	0.340	0.286	...	1	2
1638+398.....	16 40 29.6332	39 46 46.028	1.285	0.657	0.54	...	1.118	1.787	1.294	4	3, 4
1642+690.....	16 42 07.8486	68 56 39.758	1.516	1.513	0.00	...	...	1.870	0.913	...	3, 6
1641+399.....	16 42 58.8102	39 48 36.995	8.363	7.886	0.05	...	...	7.40°	...	...	6
1645+635.....	16 45 58.5534	63 30 10.932	0.444	0.298	0.32	0.180	0.192	0.178	...	1	5
1645+410.....	16 46 56.8591	40 59 17.174	0.388	0.315	0.17	0.493	0.248	0.570	...	1	2
1652+398.....	16 53 52.2171	39 45 36.611	1.371	1.443	-0.04	...	1.428	0.888	1.205	4	3, 6
1656+571.....	16 57 20.7095	57 05 53.505	0.844	0.806	0.04	0.452	0.576	0.417	...	1	5
1656+482.....	16 57 46.8788	48 08 33.052	0.847	0.983	-0.12	...	0.788	0.648	0.707	4	4, 7
1656+477.....	16 58 02.7794	47 37 49.245	1.420	0.783	0.48	...	...	1.554	1.168	...	4, 7
1700+685.....	17 00 09.2938	68 30 06.959	0.435	0.300	0.30	0.262	0.268	0.227	...	1	5
1716+686.....	17 16 13.9381	68 36 38.740	0.988	0.412	0.70	0.499	0.396	0.750	...	1	5
1719+357.....	17 21 09.4910	35 42 16.067	0.874	0.841	0.03	...	0.403	0.454	0.410	4	3, 4
1722+401.....	17 24 05.4288	40 04 36.461	0.532	0.551	-0.03	0.341	0.373	0.391	...	1	2
1726+455.....	17 27 27.6508	45 30 39.734	1.066	0.425	0.74	0.897	0.911	1.314	...	1	2
1732+389.....	17 34 20.5788	38 57 51.445	0.561	0.782	-0.27	...	0.992	1.228	1.000	4	3, 4
1734+508.....	17 35 49.0052	50 49 11.572	0.798	0.743	0.06	...	0.485	0.828	0.631	4	4, 7
1738+499.....	17 39 27.3903	49 55 03.376	0.478	0.567	-0.14	0.477	0.476	0.464	...	1	5
1738+476.....	17 39 57.1295	47 37 58.365	0.789	0.833	-0.04	...	0.848	1.080	0.912	4	3, 4
1739+522.....	17 40 36.9781	52 11 43.409	1.133	1.979	-0.45	...	...	0.965	1.207	...	3, 6
1744+557.....	17 44 56.6148	55 42 17.121	0.599	0.748	-0.18	0.321	0.237	0.356	...	1	1
1745+624.....	17 46 14.0332	62 26 54.728	0.580	0.764	-0.22	0.520	0.488	0.472	...	1	5
1746+470.....	17 47 26.6472	46 58 50.929	0.634	0.426	0.32	0.457	0.385	0.756	...	1	5
1749+701.....	17 48 32.8405	70 05 50.769	0.728	1.305	-0.47	...	0.726	1.268	0.549	4	3, 6
1747+433.....	17 49 00.3604	43 21 51.289	0.367	0.340	0.06	0.295	0.230	0.339	...	1	
1751+441.....	17 53 22.6496	44 09 45.674	0.998	0.781	0.20	...	0.554	0.953	0.462	4	3, 4
1755+578.....	17 56 03.6285	57 48 47.990	0.455	0.729	-0.38	0.472	0.734	0.480	...	1	5
1758+388.....	18 00 24.7650	38 48 30.695	0.722	0.510	0.28	...	0.282	0.919	0.399	4	3, 4
1803+784.....	18 00 45.6845	78 28 04.021	2.633 ^a	2.240 ^a	0.26	...	...	2.853	...	...	6
1800+440.....	18 01 32.3149	44 04 21.903	1.148	0.883	0.21	...	0.451	0.557	0.361	4	3, 4
1807+698.....	18 06 50.6807	69 49 28.110	2.189	2.261	-0.03	...	...	1.604	1.210	...	3, 6
1809+568.....	18 10 03.3203	56 49 22.959	0.576	0.570	0.01	0.592	0.664	0.475	...	1	5
1812+412.....	18 14 22.7082	41 13 05.605	0.534	0.644	-0.15	0.516	0.622	0.331	...	1	2
1818+356.....	18 20 42.0948	35 40 39.390	0.573	0.992	-0.44	0.330	0.652	0.070	...	1	1
1826+796.....	18 23 14.1090	79 38 49.008	0.577 ^a	0.450 ^a	0.40	0.594	0.283	0.597	...	1	5
1823+568.....	18 24 07.0685	56 51 01.493	1.135	1.478	-0.21	...	...	1.278	0.702	...	3, 6
1828+399.....	18 29 56.5203	39 57 34.690	0.353	0.127	0.82	0.268	0.236	0.284	...	1	2
1834+612.....	18 35 19.6756	61 19 40.023	0.590	0.448	0.22	0.465	0.494	0.551	...	1	5
1839+389.....	18 40 57.1550	39 00 45.712	0.476	<0.344	>0.26	0.155	0.153	0.202	...	1	2
1842+681.....	18 42 33.6417	68 09 25.230	0.936	0.605	0.35	...	0.886	0.851	0.940	4	3, 4
1843+356.....	18 45 35.1097	35 41 16.719	0.794	1.031	-0.21	...	0.947	0.842	0.872	4	3, 4
1849+670.....	18 49 16.0714	67 05 41.679	0.992	0.901	0.08	0.662	0.391	0.667	...	1	5
1851+488.....	18 52 28.5475	48 55 47.477	0.351	0.291	0.15	0.261	0.197	0.273	...	1	5
1850+402.....	18 52 30.3740	40 19 06.601	0.535	0.546	-0.02	0.623	0.579	0.657	...	1	2
1856+737.....	18 54 57.2983	73 51 19.910	0.546	0.560	-0.02	0.368	0.307	0.434	...	1	5
1908+484.....	19 09 46.5634	48 34 31.826	0.423	0.575	-0.25	0.156	0.247	0.145	...	1	5
1910+375.....	19 12 25.1231	37 40 36.659	0.402	0.504	-0.18	0.366	0.334	0.374	...	1	2
1924+507.....	19 26 06.3219	50 52 57.021	0.354	0.656	-0.50	0.333	0.276	0.422	...	1	2
1926+611.....	19 27 30.4428	61 17 32.877	0.618	0.666	-0.06	...	0.825	0.609	0.653	4	3, 4
1928+738.....	19 27 48.4952	73 58 01.571	3.561	3.908	-0.07	...	...	2.835	...	...	6

TABLE 1—Continued

SOURCE (1)	R.A. (2)	DECL. (3)	GB _{6 cm} (4)	WB _{20 cm} (5)	α (6)	$Y_{6 cm}$ (7)	$Y_{20 cm}$ (8)	VLB _{6 cm} (9)	VLB _{20 cm} (10)	REFERENCES	
										VLA (11)	VLBI (12)
1936 + 714.....	19 36 03.5604	71 31 31.776	0.391	0.620	-0.37	0.480	0.529	0.422	...	1	5
1943 + 546.....	19 44 31.5138	54 48 07.069	0.938	1.647	-0.45	...	1.710	0.967	2.009	4	3, 4
1946 + 708.....	19 45 53.5197	70 55 48.723	0.645	0.921	-0.29	0.617	0.935	0.629	...	1	5
1950 + 573.....	19 51 06.9837	57 27 17.195	0.476	0.569	-0.14	0.302	0.445	0.323	...	1	5
1954 + 513.....	19 55 42.7386	51 31 48.548	1.610	1.638	-0.01	...	1.377	1.071	...	4	3, 6
2007 + 777.....	20 05 30.9986	77 52 43.251	1.279 ^a	0.820 ^a	0.71	...	...	2.100	...	...	4
2005 + 642.....	20 06 17.6949	64 24 45.423	0.739	0.174	1.16	0.598	0.484	0.802	...	1	5
2007 + 659.....	20 07 28.7713	66 07 22.540	0.756	1.030	-0.25	0.511	0.494	0.526	...	1	5
2010 + 723.....	20 09 52.3021	72 29 19.350	0.910	1.141	-0.18	...	1.388	1.028	...	4	4
2017 + 745.....	20 17 13.0793	74 40 48.002	0.500	0.472	0.05	0.346	0.235	0.312	...	1	5
2021 + 614.....	20 22 06.6820	61 36 58.806	2.743	2.134	0.20	...	2.170	2.171	...	4	3, 6
2023 + 760.....	20 22 35.5829	76 11 26.181	0.426 ^a	0.460 ^a	-0.13	0.425	0.368	0.411	...	1	5
2054 + 611.....	20 55 38.8370	61 22 00.641	0.414	0.423	-0.02	0.330	0.436	0.360	...	1	5
2116 + 818.....	21 14 01.1794	82 04 48.348	0.376 ^a	0.430 ^a	-0.22	0.155	0.159	0.143	...	1	1
2136 + 824.....	21 33 34.0973	82 39 06.005	0.509 ^a	0.680 ^a	-0.47	0.487	0.664	0.285	...	1	5
2138 + 389.....	21 40 16.9476	39 11 44.851	0.502	0.664	-0.23	0.472	0.676	0.243	...	1	5
2200 + 420.....	22 02 43.2918	42 16 39.982	3.593	4.688	-0.21	...	...	1.988	2.597	...	3, 6
2214 + 350.....	22 16 20.0108	35 18 14.179	0.477	0.513	-0.06	...	0.364	0.600	0.387	4	3, 4
2229 + 695.....	22 30 36.4676	69 46 28.066	1.365	0.493	0.82	...	0.757	0.983	0.886	4	3, 4
2235 + 731.....	22 36 38.6003	73 22 52.665	0.424	0.300	0.28	0.316	0.299	0.319	...	1	5
2238 + 410.....	22 41 07.2054	41 20 11.618	0.677	0.584	0.12	0.319	0.392	0.293	...	1	5
2253 + 417.....	22 55 36.7082	42 02 52.535	1.120	1.412	-0.19	...	1.334	1.099	1.746	4	3, 4
2255 + 416.....	22 57 22.0722	41 54 16.517	1.111	1.865	-0.42	...	2.069	1.132	1.781	4	3, 4
2259 + 371.....	23 01 27.7366	37 26 49.245	0.406	0.596	-0.31	0.438	0.514	0.341	...	1	5
2309 + 454.....	23 11 47.4108	45 43 56.025	0.597	0.306	0.54	0.449	0.310	0.503	...	1	5
2310 + 385.....	23 12 58.7950	38 47 42.668	0.484	0.693	-0.29	0.507	0.608	0.511	...	1	2
2319 + 444.....	23 22 20.3585	44 45 42.373	0.366	0.305	0.15	0.367	0.248	0.552	...	1	2
2346 + 385.....	23 49 20.8262	38 49 17.573	0.640	0.322	0.55	0.640	0.270	0.655	...	1	2
2351 + 456.....	23 54 21.6797	45 53 04.240	1.145	1.836	-0.38	...	1.685	0.791	...	4	3, 6
2352 + 495.....	23 55 09.4587	49 50 08.342	1.552	2.341	-0.33	...	2.516	1.088	2.320	4	3, 6
2353 + 816.....	23 56 22.7946	81 52 52.267	0.476 ^a	0.440 ^a	0.12	0.412	0.400	0.484	...	1	5
2356 + 390.....	23 58 59.8554	39 22 28.310	0.371	0.428	-0.12	0.226	0.258	0.314	...	1	2
2356 + 385.....	23 59 33.1809	38 50 42.322	0.449	0.642	-0.29	0.365	0.557	0.382	...	1	2

NOTES.—Col. (1): B1950 source name according to IAU convention. Cols. (2) and (3): Right ascension and declination in J2000 coordinates from Patnaik et al. 1992 when available, otherwise as determined from our own VLA observations. Right ascension is in units of hours, minutes, and seconds. Declination is in units of degrees, arcseconds, and arcminutes. Cols. (4) and (5): Total flux density (Jy) from single-dish observations at $\lambda = 6$ cm (Gregory & Condon 1991) and at 20 cm (White & Becker 1992). For the 21 sources above declination 75° , the flux densities reported are at 6 and 11 cm from Kühr et al. 1981. Col. (6): Spectral index computed from cols. (4) and (5). Cols. (7) and (8): Core flux density from VLA observations at 6 and 20 cm. Cols. (9) and (10): Sum of VLBI model components at 6 and 20 cm. Not all sources have been observed at 20 cm, and some sources were too complicated to model at either frequency.

^a Flux densities are from Kühr et al. 1981.

^b The position given by Patnaik et al. 1992 for 0256 + 424 is *incorrect*. Here we give the position derived from our VLA observations.

^c The model for 1641 + 399 (3C345) is taken from Zensus, Cohen, & Unwin 1995.

VLA, VLBI REFERENCES.—Cols. (11) and (12): (1) This paper; (2) Henstock et al. 1995; (3) Polatidis et al. 1995; (4) Xu et al. 1995; (5) Taylor et al. 1994; (6) Pearson & Readhead 1988; (7) Thakkar et al. 1995; (8) Pearson, Fassnacht, & Readhead 1996.

models to the self-calibrated visibility data using a nonlinear least-squares algorithm in DIFMAP. The quality of the agreement between the model and the data is expressed in the form of a reduced χ^2 . The models are listed in Table 3 for the 17 sources shown in Figure 3.

3.2. VLA Observations

To complement our VLBI data and existing VLA data, we obtained VLA snapshot observations at 6 and 20 cm. Objects in the PR and CJ1 samples were not reobserved since similar quality VLA images of them exist in the literature. The 6 cm observations were obtained on 1994 August 6, with the VLA in its B configuration providing a resolution of $\sim 2''$. Each source was observed for 2.5 minutes with two 50 MHz IFs placed at 4535 and 4885 MHz. The 7% spread in frequency provided a modest improvement in u - v coverage over the default setting with the two IFs adjacent. The 20 cm observations, with IFs placed at 1365 and 1465 MHz, were obtained on 1995 July

10, with the VLA in its A configuration to provide a similar resolution to the 6 cm observations. Because of time constraints, each source was observed at 20 cm for only 1.5 minutes, and some sources had to be observed at low elevations. For both observing runs, the unresolved and unpolarized CJ2 source 1946 + 708 was used for polarization calibration.

Following amplitude and phase calibration in the standard fashion, all sources were imaged automatically using DIFMAP. Approximately 10% of the 20 cm images needed some additional work by hand to reduce sidelobes from confusing sources that were not properly imaged during the automatic mapping. The list of 186 sources observed is provided in Table 4. In Figure 4, the VLA images are shown at both 6 and 20 cm for all 94 resolved sources. The peak flux density and map characteristics of 92 unresolved sources are listed in Table 4. Stokes Q and U images were also formed from the self-calibrated visibility data and used to compute the fractional polarization and polarization angle

TABLE 2
VLBI IMAGE PARAMETERS

NAME (1)	OBSERVATIONS (2)	DURATION (3)	BEAM			S_{nat} (7)	rms (8)	LOWEST CONTOUR (9)	S_{tap} (10)	rms (11)	LOWEST CONTOUR (12)
			a (4)	b (5)	θ (6)						
0035+367.....	1996 Aug	47	2.62	1.56	-4	96	0.31	0.95	100	0.36	1.10
0219+428.....	1996 Aug	42	2.44	1.66	-7	692	0.29	0.15	722	0.34	0.15
0424+670.....	1996 Aug	49	2.04	1.66	-11	23	0.29	3.80	39	0.34	2.60
0621+446.....	1996 Sep	45	2.49	1.82	-10	206	0.31	0.45	...	...	...
0800+618.....	1996 Sep	53	2.22	1.93	8	1020	0.29	0.10	1060	0.33	0.10
0847+379.....	1996 Aug	47	2.58	1.64	-6	219	0.27	0.35	...	...	...
1106+380.....	1996 Aug	44	2.49	1.66	-3	310	0.39	0.40	...	...	...
1305+804.....	1996 Aug	45	1.95	1.87	-60	102	0.30	0.90	...	...	...
1306+360.....	1996 Aug	48	2.45	1.61	-5	401	0.29	0.20	...	...	...
1355+441.....	1996 Aug	49	2.40	1.61	-5	194	0.30	0.45	...	...	...
1356+478.....	1996 Aug	41	2.40	1.66	-4	219	0.33	0.45	...	...	...
1432+422.....	1996 Aug	48	2.42	1.64	-11	260	0.29	0.35	...	...	...
1622+665.....	1996 Aug	44	2.17	1.60	-19	224	0.32	0.45	...	...	...
1623+578.....	1996 Sep	48	2.53	1.80	-28	640	0.27	0.15	663	0.30	0.15
1744+557.....	1996 Sep	45	2.17	1.63	-8	268	0.29	0.30	...	...	...
1818+356.....	1996 Aug	42	2.58	1.58	-1	68	0.31	1.35	...	...	...
2116+818.....	1996 Aug	48	2.00	1.66	-17	83	0.26	0.95	...	...	...

NOTES.—Col. (1): Source name (B1950). Col. (2): Date of the observations. Col. (3): Total integration time on source in minutes. Cols. (4), (5), and (6): The beam characteristics of the naturally weighted images. The restoring beam is an elliptical Gaussian with FWHM major axis a (in milliarcseconds) and minor axis b (in milliarcseconds), with major axis in position angle θ (in degrees). Col. (7): The peak flux density of the naturally weighted images (in mJy beam⁻¹). Col. (8): The rms noise in the naturally weighted images (in mJy beam⁻¹), measured in the four corners of the displayed image. Col. (9): The lowest contour level of the image in percentage of the peak flux density. Cols. (10), (11), and (12): The peak flux density (in units of mJy beam⁻¹), rms noise (mJy beam⁻¹), and lowest contour level (in %) of the tapered image, if an image has been provided. All tapered images have been restored with a 3 mas circular beam.

of the core component at 4535 MHz. For six sources with fractional polarizations less than 0.1%, only an upper limit is provided in Table 4 and no polarization angle is given.

4. DISCUSSION

The 18 objects in CJF that had not been observed before with VLBI are predominantly core-jet sources, similar to those imaged previously. One source, 1355+441, has the morphology and GHz-peaked spectrum typical of a compact symmetric object (Readhead et al. 1996). The sources shown in Figure 3 tend to have spectral indices near the cutoff, and there are a few uncommon morphologies. One source, 0344+405 ($\alpha = -0.48$), could not be imaged at all with our VLBA observations because of the low-flux density (≤ 9 mJy) of the nuclear component. This source is unlike any other CJF object in having entered the sample only by virtue of the flux in its extended lobes. Most extended radio lobes have spectra steeper than the spectral index cutoff of our sample, and indeed in Figure 2 the flux density at 1400 MHz appears somewhat too low compared to the values at adjacent frequencies. Thus, 0344+405 seems to have entered the sample by way of a measurement error in the parent surveys. In 0424+670 ($\alpha = -0.48$), there is a complex, highly resolved core. Such complex, non-linear, and extended structure is rare in CJF cores; the only somewhat comparable sources are 0316+413 (3C 84, $\alpha = 0.56$), 0831+557 ($\alpha = -0.24$), and 0954+556 ($\alpha = -0.22$). Such resolved cores are more common in the steeper spectrum sources of the earlier surveys.

One other source among the 18 presented here requires additional comment. In the VLA images at 6 and 20 cm (Fig. 4), 0035+367 has a fairly strong (39 mJy at 6 cm), compact, borderline flat-spectrum ($\alpha = -0.5$) component 65" to the southeast. On the basis of this information alone, one might guess that this component is the core and the

other structure is a lobe with a hot spot. Our analysis of the VLBA image (Fig. 3), however, indicates that the component in the center of the extended lobe is too compact to be a typical hot spot, and, furthermore, it has the morphology of a core-jet source (unfortunately, the compact SE component was too far from the correlated position of our VLBA observations to be imaged). Optical observations of 0035+367 by Vermeulen & Taylor (1995) revealed emission lines with the small equivalent widths and fairly strong continuum typical of a BL Lac object. Several BL Lac objects are now known to possess a "halo" of emission that is thought to be the radio lobes seen end-on (e.g., 3C 299, 3C 346, and 3C 380, van Breugel et al. 1992; 3C216, Barthel et al. 1988; Taylor, Ge, & O'Dea 1995). The compact source 65" to the southeast is, in all likelihood, unassociated with 0035+367.

5. SUMMARY

We have defined a complete, flux-density-limited sample of 293 flat-spectrum objects—the CJF sample—which includes the flat-spectrum sources in the PR, CJ1, and CJ2 surveys. We have presented VLBI observations of 18 sources in this sample that had not been observed in the earlier surveys. We have also presented VLA observations at 1415 and 4710 MHz for nearly two-thirds (186/293) of the objects in the CJF sample. In combination with optical observations in progress we hope to place interesting limits on the cosmological mass in 10^6 – $10^8 M_{\odot}$ compact objects, to study the distributions of internal (superluminal) motions on the parsec scale and to explore the cosmological evolution of compact radio sources.

We thank Martin Shepherd for his continued support of DIFMAP and for his assistance in preparing the automatic mapping scripts. The work done at Caltech was supported by the NSF, under grants AST 91-17100 and AST 94-20018.

TABLE 3
GAUSSIAN MODELS FOR THE VLBI OBSERVATIONS

Source	S (Jy)	r (mas)	θ (deg)	a (mas)	b/a	Φ (deg)	χ^2
0035+367.....	0.094	0.00	0.0	0.45	0.00	36.1	0.977
	0.014	1.58	51.2	2.80	0.00	32.8	
	0.005	10.10	42.6	3.48	0.53	17.1	
0219+428.....	0.670	0.00	0.0	0.52	0.15	16.6	0.843
	0.161	1.91	-179.1	2.09	0.30	-14.4	
	0.035	5.83	171.2	4.05	0.58	-16.3	
	0.057	13.34	165.8	10.49	0.46	-14.5	
0424+670.....	0.039	0.00	0.0	2.25	0.79	31.3	1.078
	0.194	2.43	-59.2	11.25	0.81	42.4	
0621+446.....	0.210	0.00	0.0	0.37	0.58	-28.2	0.944
0800+618.....	0.992	0.00	0.0	0.36	0.43	-0.0	0.748
	0.148	1.51	159.3	1.06	0.64	-35.6	
	0.026	4.37	129.5	2.78	0.85	-61.9	
	0.021	7.73	126.8	14.66	0.18	-52.5	
0847+379.....	0.167	0.00	0.0	0.26	0.40	13.8	0.931
	0.078	0.77	9.8	1.83	0.14	8.1	
1106+380.....	0.237	0.00	0.0	1.01	0.68	57.0	0.970
	0.021	1.49	-175.7	1.68	0.73	61.1	
	0.305	1.77	10.1	2.50	0.36	16.3	
	0.037	5.37	19.7	0.92	0.00	-9.4	
1305+804.....	0.082	6.93	21.4	0.96	0.14	18.4	0.950
	0.136	0.00	0.0	1.63	0.12	58.8	
	0.011	13.48	61.4	2.12	0.14	61.2	
1306+360.....	0.406	0.00	0.0	0.50	0.22	-12.8	0.881
	0.012	1.68	-20.9	3.25	0.00	-15.6	
1355+441.....	0.256	0.00	0.0	1.91	0.36	-85.2	1.049
	0.085	1.14	101.9	1.32	0.15	42.6	
	0.008	3.50	-64.8	3.25	0.00	-33.1	
	0.029	8.55	-42.7	4.14	0.55	18.5	
	0.150	11.14	-58.0	1.91	0.38	47.6	
1356+478.....	0.008	12.49	-69.9	1.93	0.00	2.5	0.953
	0.216	0.00	0.0	0.82	0.80	-34.5	
	0.076	1.06	-117.2	1.97	0.62	39.1	
1432+422.....	0.154	6.09	-111.6	0.40	0.32	65.4	0.942
	0.250	0.00	0.0	0.37	0.40	-3.0	
1622+665.....	0.048	0.77	121.5	3.12	0.78	12.7	0.933
	0.221	0.00	0.0	0.35	0.42	54.1	
1623+578.....	0.021	0.92	63.6	0.71	0.00	-1.2	0.870
	0.652	0.00	0.0	0.55	0.00	88.4	
	0.075	2.65	-107.5	4.53	0.01	60.5	
	0.023	3.42	-104.5	1.37	0.00	-14.5	
1744+557.....	0.027	16.91	-121.8	11.20	0.41	32.3	0.940
	0.252	0.00	0.0	0.60	0.17	58.7	
	0.046	0.92	-108.3	0.69	0.00	49.0	
	0.050	2.22	-111.6	3.79	0.19	65.8	
1818+356.....	0.009	13.77	-111.5	2.30	0.20	71.7	0.979
	0.070	0.00	0.0	0.48	0.00	-62.2	
2116+818.....	0.097	0.00	0.0	1.36	0.09	-21.7	0.951
	0.046	4.46	-28.6	4.86	0.12	-28.7	

NOTES.—Reports parameters of each Gaussian component of the model brightness distribution: S , flux density; r , θ , polar coordinates of the center of the component relative to an arbitrary origin, with polar angle measured from north through east; a , b , major and minor axes of the FWHM contour; Φ , position angle of the major axis measured from north through east.

TABLE 4
VLA IMAGE PARAMETERS

NAME (1)	6 cm BEAM			S_6 (5)	rms (6)	P_6 (7)	χ_6 (8)	20 cm BEAM			S_{20} (12)	rms (13)	RESOLVED (14)
	(2)	(3)	(4)					(9)	(10)	(11)			
0003+380.....	1.54	1.43	64	778	0.18	0.6	-61	1.41	1.30	4	520	1.59	
0014+813.....	2.14	1.51	18	1010	0.18	0.6	23	2.11	1.31	21	707	0.22	
0018+729.....	1.89	1.50	27	384	0.22	0.1	-80	1.85	1.30	27	712	1.97	
0035+367.....	1.55	1.42	72	220	0.17	2.7	127	1.43	1.34	10	284	0.32	R
0035+413.....	1.55	1.42	68	769	0.15	2.4	-18	1.41	1.33	17	723	0.24	
0109+351.....	1.61	1.43	81	355	0.16	1.5	-91	1.45	1.39	45	212	0.30	R
0110+495.....	1.56	1.45	55	748	0.16	5.8	133	1.49	1.34	34	556	0.28	R
0145+386.....	1.56	1.42	73	406	0.11	1.3	-167	1.45	1.36	61	338	0.19	
0151+474.....	1.57	1.43	62	645	0.13	2.2	-58	1.50	1.33	41	298	0.23	
0205+722.....	1.86	1.51	18	380	0.12	1.1	107	1.87	1.32	32	576	0.22	R
0219+428.....	1.60	1.42	74	917	0.41	0.3	-80	1.53	1.38	66	945	1.85	R
0227+403.....	1.63	1.42	79	504	0.13	2.4	25	1.54	1.39	77	448	0.29	
0249+383.....	1.64	1.43	83	455	0.13	3.2	68	1.60	1.38	86	478	1.13	R
0251+393.....	1.63	1.42	82	396	0.15	0.9	-68	1.58	1.38	83	242	0.36	R
0256+424.....	1.67	1.43	80	366	0.16	4.4	-93	1.61	1.39	80	466	0.52	R
0307+380.....	1.65	1.41	85	192	0.15	1.4	-104	1.64	1.40	89	119	0.69	
0309+411.....	1.65	1.42	83	408	0.15	1.8	55	1.63	1.38	85	309	0.50	R
0340+362.....	1.73	1.43	-88	365	0.16	1.6	95	1.79	1.41	-83	321	0.50	R
0344+405.....	1.61	1.33	85	9	0.27	10.5	-108	1.61	1.35	81	7	0.32	R
0346+800.....	2.17	1.50	41	449	0.14	3.1	-17	2.24	1.34	56	543	0.75	
0424+670.....	1.97	1.46	66	340	0.15	0.2	-97	2.10	1.32	75	661	0.22	
0444+634.....	2.01	1.46	75	321	0.13	3.1	137	2.14	1.33	83	294	0.26	R
0537+531.....	2.09	1.43	-89	801	0.16	1.2	101	2.40	1.35	-81	560	0.88	R
0546+726.....	2.26	1.48	78	288	0.13	1.6	34	2.43	1.33	-89	418	0.25	R
0554+580.....	2.20	1.44	-88	352	0.13	2.5	65	2.48	1.31	-80	333	0.35	R
0600+442.....	2.19	1.42	-80	543	0.14	0.1	-94	2.72	1.38	-72	938	0.41	
0604+728.....	2.29	1.48	79	561	0.19	0.4	88	2.48	1.31	-87	831	0.41	R
0609+607.....	2.23	1.45	89	921	0.17	1.8	168	2.58	1.34	-79	1240	0.31	
0621+446.....	2.29	1.39	-79	248	0.14	6.8	-22	3.01	1.37	-69	187	0.26	
0627+532.....	2.34	1.43	-81	493	0.13	0.4	64	2.57	1.15	-72	771	0.48	
0633+596.....	2.28	1.44	-87	562	0.13	0.1	-124	2.72	1.34	-75	260	0.20	
0633+734.....	2.31	1.47	81	773	0.17	5.6	163	2.54	1.32	-83	764	0.29	R
0636+680.....	2.27	1.46	85	445	0.13	0.7	-166	2.60	1.33	-80	152	0.30	
0641+393.....	2.35	1.42	-75	591	0.14	1.4	-163	3.33	1.39	-66	365	0.23	R
0650+453.....	2.41	1.43	-76	327	0.15	0.8	100	3.35	1.39	-67	280	0.32	R
0651+410.....	2.44	1.42	-74	291	0.13	0.1	-98	3.52	1.39	-65	231	1.70	
0700+470.....	2.38	1.42	-78	475	0.20	0.1	-47	3.27	1.36	-67	810	0.29	R
0702+612.....	2.29	1.45	-88	452	0.17	0.3	4	2.83	1.35	-74	309	0.35	R
0714+457.....	2.54	1.42	-74	391	0.14	3.6	101	3.73	1.36	-64	346	0.37	
0718+793.....	2.31	1.49	71	812	0.16	<0.1	...	2.47	1.31	-86	469	0.29	
0724+571.....	2.42	1.44	-81	475	0.15	3.6	117	3.18	1.35	-68	424	0.47	R
0727+409.....	2.56	1.42	-72	392	0.14	2.3	38	4.10	1.37	-62	361	0.39	
0730+504.....	2.47	1.43	-77	853	0.20	2.2	-62	3.51	1.36	-65	632	0.50	R
0731+479.....	2.46	1.42	-77	448	0.12	0.6	-38	3.61	1.36	-64	388	0.29	R
0733+597.....	2.44	1.45	-82	276	0.12	0.1	-74	3.13	1.33	-68	517	0.35	
0738+491.....	2.48	1.42	-77	682	0.20	1.2	-21	3.62	1.36	-64	354	0.48	
0740+768.....	2.34	1.48	79	607	0.13	<0.1	...	2.59	1.30	-79	137	0.54	
0743+744.....	2.34	1.47	82	453	0.13	3.7	-161	2.63	1.30	-77	497	0.26	
0749+426.....	2.63	1.42	-72	441	0.12	1.8	-81	4.47	1.37	-61	685	0.30	
0749+540.....	2.44	1.43	-79	1460	0.26	1.1	-60	3.45	1.34	-65	737	1.38	
0800+618.....	2.33	1.41	-86	870	0.24	2.2	115	2.97	1.31	-69	751	1.83	
0803+452.....	2.42	1.42	-76	409	0.14	3.1	102	3.92	1.35	-62	442	0.44	R
0806+573.....	2.37	1.44	-83	341	0.15	2.9	-38	3.25	1.34	-67	309	1.35	R
0821+621.....	2.46	1.45	-82	529	0.19	1.1	-93	3.23	1.32	-65	303	0.58	R
0824+355.....	2.81	1.42	-69	769	0.19	2.3	56	6.42	1.37	-57	851	0.34	R
0833+416.....	2.70	1.43	-71	317	0.12	8	-128	5.36	1.36	-57	422	0.40	R
0843+575.....	2.50	1.44	-80	325	0.12	0.1	-89	3.64	1.32	-62	367	0.35	
0847+379.....	3.04	1.42	-68	242	0.16	0.3	-130	7.77	1.35	-54	136	0.77	R
0859+681.....	2.50	1.46	-84	694	0.16	2.1	26	3.15	1.29	-63	558	0.38	
0900+520.....	2.66	1.43	-75	300	0.12	1	-24	4.53	1.32	-57	320	0.48	R
0902+490.....	2.66	1.43	-74	596	0.16	1.3	154	4.92	1.36	-57	431	1.69	R
0925+504.....	2.96	1.43	-70	917	0.18	6.6	-157	5.79	1.32	-53	462	0.29	
0927+352.....	3.41	1.43	-65	394	0.16	3.2	-100	...	...	...	...	...
0929+533.....	2.69	1.44	-75	386	0.13	4.5	140	5.01	1.32	-54	429	0.27	R
0930+493.....	2.82	1.43	-72	514	0.14	6.9	-11	6.00	1.32	-53	738	0.50	R
0942+468.....	3.06	1.43	-69	338	0.15	0.2	90	8.06	1.33	-50	438	0.57	
0949+354.....	3.83	1.42	-63	383	0.15	1.2	172	...	...	...	...	...	R
0950+748.....	2.54	1.48	-86	681	0.15	0.1	-68	3.08	1.29	-58	1150	0.69	
1010+350.....	3.44	1.42	-65	407	0.14	2.8	23	...	...	...	...	...
1014+615.....	2.82	1.45	-73	640	0.15	1.6	115	4.66	1.31	-50	418	1.04	
1030+398.....	3.71	1.43	-64	632	0.16	0.1	-104	...	...	...	...	...

TABLE 4—Continued

NAME (1)	6 cm BEAM			S_6 (5)	rms (6)	P_6 (7)	χ_6 (8)	20 cm BEAM			S_{20} (12)	rms (13)	RESOLVED (14)
	(2)	(3)	(4)					(9)	(10)	(11)			
1030+611.....	2.98	1.45	-70	333	0.16	2.8	-131	5.16	1.31	-46	422	0.66	R
1038+528.....	3.26	1.44	-67	607	0.19	1.9	-169	8.50	1.34	-44	352	0.76	R
1041+536.....	3.10	1.44	-69	409	0.13	2.9	-176	6.99	1.32	47	420	0.39	R
1058+629.....	3.18	1.46	-67	285	0.22	0.5	-20	5.61	1.35	-42	193	0.79	R
1105+437.....	4.19	1.43	-61	318	0.13	4.3	-11	...	...	...	...	...
1106+38.....	4.56	1.42	-60	782	0.22	0.5	-147	...	...	...	...	...
1107+607.....	3.02	1.45	-70	421	0.13	0.1	-39	5.05	1.31	48	409	0.40	
1124+455.....	4.30	1.43	-60	330	0.14	0.6	42	6.97	1.33	53	416	0.70	
1124+571.....	3.43	1.45	-64	329	0.17	1.4	-62	5.21	1.32	51	467	0.81	
1125+596.....	3.23	1.45	-66	308	0.13	2	141	4.82	1.32	51	282	0.34	
1143+590.....	3.46	1.45	-64	402	0.13	2.2	-23	4.47	1.32	54	341	0.24	
1144+352.....	5.14	1.40	-59	537	0.16	0.1	21	8.62	1.36	55	570	0.32	R
1146+596.....	3.43	1.45	-64	514	0.16	<0.1	...	4.38	1.33	54	448	0.50	R
1151+408.....	4.81	1.41	-59	719	0.18	5.9	170	6.62	1.36	55	1120	0.44	R
1155+486.....	4.28	1.44	-60	333	0.13	2.1	-52	4.60	1.35	59	261	0.47	R
1205+544.....	3.62	1.41	-62	428	0.12	0.1	138	4.61	1.32	56	434	2.35	
1206+415.....	5.12	1.40	-58	397	0.14	3.1	85	5.48	1.36	58	282	0.36	
1218+444.....	5.08	1.40	-57	536	0.16	2.5	124	4.53	1.35	60	534	0.33	
1221+809.....	2.67	1.50	-77	447	0.15	1.6	-89	2.77	1.32	65	431	0.46	R
1223+395.....	3.73	1.43	-64	486	0.18	0.5	10	5.11	1.36	59	593	0.32	R
1226+373.....	3.86	1.42	-63	505	0.15	1.9	81	5.49	1.38	59	383	0.45	
1239+376.....	4.16	1.43	-62	437	0.14	2.5	-5	4.79	1.37	60	611	0.30	R
1240+381.....	4.03	1.42	-62	499	0.16	1.6	33	4.74	1.36	60	553	0.34	
1246+586.....	3.81	1.45	-60	278	0.11	5.7	-23	3.58	1.33	63	207	0.19	
1250+532.....	4.65	1.46	-56	346	0.15	2.6	169	3.77	1.36	62	403	1.71	R
1254+571.....	4.21	1.46	-57	271	0.13	0.1	-121	3.50	1.35	64	230	0.25	
1258+507.....	5.42	1.45	-54	363	0.15	2.9	148	3.75	1.36	63	338	0.93	R
1300+580.....	4.17	1.45	-57	521	0.15	1.3	153	3.35	1.33	65	307	0.55	
1305+804.....	2.80	1.49	-67	161	0.11	0.3	139	2.74	1.33	75	368	1.14	R
1306+360.....	5.07	1.42	-59	472	0.20	2.3	126	4.01	1.39	63	219	0.46	
1307+562.....	4.00	1.45	-59	310	0.17	0.6	36	3.58	1.33	63	286	0.32	
1308+471.....	4.64	1.43	-59	185	0.13	3.6	-142	4.79	1.35	58	112	0.53	R
1309+555.....	3.98	1.45	-60	513	0.16	1.3	-164	3.66	1.35	63	347	0.39	R
1312+533.....	4.20	1.44	-59	456	0.16	0.1	-75	3.77	1.33	63	260	0.35	
1321+410.....	5.98	1.43	-56	416	0.18	0.1	126	5.30	1.36	58	373	0.31	
1322+835.....	2.74	1.51	-67	338	0.12	0.1	-17	2.59	1.32	80	507	0.22	
1323+800.....	2.85	1.50	-65	556	0.15	2.1	-82	2.62	1.30	78	585	0.25	
1325+436.....	5.80	1.43	-56	512	0.14	0.2	123	4.66	1.36	60	634	0.29	
1335+552.....	2.89	1.53	70	556	0.17	4.5	11	3.52	1.34	64	669	0.26	R
1337+637.....	2.74	1.52	73	366	0.13	0.6	89	3.11	1.32	68	501	0.27	
1355+441.....	...	...	...	...	...	...	...	3.70	1.36	64	660	0.33	
1356+478.....	2.89	1.48	68	461	0.30	0.1	172	3.50	1.35	66	614	0.29	
1413+373.....	3.39	1.50	62	361	0.12	1.2	123	4.28	1.37	62	394	0.38	
1415+463.....	2.83	1.52	68	602	0.21	3	49	3.45	1.36	67	713	1.68	R
1417+385.....	3.17	1.49	64	719	0.23	1.2	92	3.91	1.37	63	540	0.49	
1421+482.....	2.74	1.52	69	346	0.12	2	72	3.19	1.34	68	370	0.27	
1424+366.....	3.26	1.49	63	467	0.15	0.3	-30	3.99	1.38	63	414	0.34	R
1427+543.....	2.73	1.52	72	641	0.16	1.4	93	3.07	1.35	70	1020	0.34	
1432+422.....	2.45	1.30	65	255	0.16	0.7	53	3.43	1.38	66	288	0.24	R
1442+637.....	2.47	1.53	81	488	0.14	0.1	57	2.66	1.31	77	662	0.68	
1448+762.....	2.44	1.53	-88	312	0.23	1.2	2	2.55	1.32	84	189	1.46	
1456+375.....	3.56	1.49	62	305	0.17	1.6	-57	3.95	1.37	63	188	0.59	
1459+480.....	2.48	1.50	72	412	0.15	4.2	-173	2.78	1.36	73	358	0.38	R
1505+428.....	3.11	1.50	65	461	0.16	0.4	137	3.35	1.36	67	277	0.37	R
1526+670.....	2.30	1.53	-89	401	0.18	0.2	20	2.44	1.32	86	111	0.68	
1531+722.....	2.28	1.54	-81	375	0.22	1.8	156	2.47	1.34	87	414	0.48	R
1534+501.....	2.41	1.52	74	328	0.12	1.1	1	2.52	1.33	77	229	0.27	
1543+480.....	2.41	1.51	73	486	0.14	0.1	19	2.51	1.36	76	691	0.24	
1543+517.....	2.29	1.51	77	576	0.13	3.3	175	2.41	1.34	80	555	0.46	R
1545+497.....	2.35	1.52	75	439	0.17	2.4	-109	2.45	1.36	79	670	0.34	R
1550+582.....	2.32	1.52	81	268	0.11	0.1	-170	2.41	1.34	83	177	0.68	
1619+491.....	2.24	1.51	76	438	0.13	3.3	-154	2.26	1.34	82	456	0.34	
1622+665.....	2.21	1.53	-86	243	0.12	0.1	-11	2.27	1.32	-86	165	0.25	
1623+578.....	2.19	1.52	85	714	0.18	0.9	66	2.24	1.31	88	486	0.29	R
1629+495.....	2.35	1.51	76	267	0.15	1.9	-14	2.30	1.36	81	182	0.41	R
1636+473.....	2.32	1.50	74	599	0.18	3.7	122	2.27	1.37	81	626	0.46	R
1638+540.....	2.20	1.52	81	270	0.13	3	16	2.18	1.31	88	340	0.54	
1645+410.....	2.37	1.48	70	493	0.15	0.9	69	2.21	1.35	78	248	0.69	
1645+635.....	2.13	1.54	-86	180	0.13	2.6	-69	2.15	1.32	-82	192	0.22	R
1656+571.....	2.09	1.53	88	452	0.17	3.4	-22	2.09	1.34	-85	576	0.34	R
1700+685.....	2.23	1.54	-83	262	0.11	1.5	-75	2.19	1.27	-82	268	0.33	
1716+686.....	2.13	1.54	-77	499	0.20	1.6	171	2.13	1.32	-76	396	0.46	R
1722+401.....	2.12	1.48	71	341	0.15	0.1	134	1.99	1.36	82	373	0.34	R
1726+455.....	2.06	1.50	77	897	0.17	2.3	-17	1.96	1.35	88	911	0.39	R

TABLE 4—Continued

NAME (1)	6 cm BEAM			S_6 (5)	rms (6)	P_6 (7)	χ_6 (8)	20 cm BEAM			S_{20} (12)	rms (13)	RESOLVED (14)
	(2)	(3)	(4)					(9)	(10)	(11)			
1738+499.....	2.04	1.51	82	477	0.14	2.5	111	1.93	1.35	-86	476	0.63	R
1744+557.....	2.06	1.51	87	321	0.18	0.8	-22	2.04	1.34	-85	237	0.48	R
1745+624.....	2.07	1.53	-84	520	0.14	3.6	-83	2.03	1.33	-77	488	0.20	R
1746+470.....	2.07	1.50	78	457	0.14	0.8	-91	1.91	1.37	-88	385	0.48	
1747+433.....	2.32	1.50	71	295	0.12	5.4	-1	2.07	1.37	83	230	0.31	R
1755+578.....	2.04	1.53	-89	472	0.15	0.1	132	1.95	1.34	-79	734	0.25	R
1809+568.....	1.98	1.53	-88	592	0.14	9	-42	1.89	1.34	-75	664	0.42	
1812+412.....	2.15	1.49	72	516	0.14	2.1	7	1.87	1.37	86	622	1.17	R
1818+356.....	2.10	1.47	68	330	0.23	7.7	132	1.86	1.41	81	652	1.56	R
1826+796.....	2.27	1.52	-64	594	0.15	<0.1	...	2.21	1.32	-63	283	0.73	
1828+399.....	2.01	1.47	73	268	0.11	0.3	74	1.75	1.38	88	236	0.26	
1834+612.....	2.10	1.53	-87	465	0.16	4.7	-155	1.95	1.34	-73	494	0.72	R
1839+389.....	1.97	1.47	72	155	0.12	0.6	-29	1.74	1.39	88	153	1.98	
1849+670.....	2.05	1.53	-74	662	0.18	2	74	1.94	1.31	-66	391	0.92	R
1850+402.....	2.18	1.48	71	623	0.16	1.1	-171	1.82	1.39	86	579	0.22	R
1851+488.....	2.05	1.50	80	261	0.16	1.6	-112	1.79	1.35	-81	197	0.42	
1856+737.....	2.09	1.54	-62	368	0.16	2.6	-112	2.04	1.32	-58	307	0.27	R
1908+484.....	1.95	1.49	81	156	0.12	0.3	18	1.77	1.37	-77	247	0.30	R
1910+375.....	2.09	1.47	70	366	0.14	1.7	127	1.71	1.39	87	334	0.51	R
1924+507.....	1.93	1.51	86	333	0.12	0.9	124	1.75	1.40	-74	276	0.71	R
1936+714.....	1.97	1.54	-54	480	0.15	1.2	-87	1.93	1.32	-48	529	0.60	R
1946+708.....	1.84	1.71	45	617	0.06	<0.1	...	1.70	1.46	-77	935	0.11	
1950+573.....	1.85	1.52	-80	302	0.12	1.7	-67	1.69	1.31	-59	445	0.30	
2005+642.....	1.87	1.53	-65	598	0.14	2.1	16	1.75	1.31	-51	484	0.35	
2007+659.....	1.91	1.54	-64	511	0.17	2.1	-94	1.79	1.33	-51	494	0.67	R
2017+745.....	2.05	1.53	-52	346	0.15	1.7	-39	1.98	1.32	-44	235	0.25	R
2023+760.....	2.08	1.53	-50	425	0.14	1.7	38	2.00	1.30	-42	368	0.34	R
2054+611.....	1.81	1.54	-68	330	0.12	3.3	141	1.67	1.33	-46	436	0.41	
2116+818.....	2.19	1.51	-34	155	0.11	0.1	-7	2.15	1.31	-28	159	0.41	R
2136+824.....	2.22	1.53	-30	487	0.15	1.8	140	2.17	1.32	-23	664	0.28	R
2138+389.....	1.71	1.46	74	472	0.12	<0.1	...	1.42	1.34	-39	676	0.33	
2235+731.....	1.85	1.51	-13	316	0.11	3	-104	1.83	1.31	-7	299	0.22	
2238+410.....	1.59	1.46	73	319	0.12	1.3	-51	1.42	1.32	-12	392	0.24	R
2259+371.....	1.58	1.44	66	438	0.13	0.7	20	1.42	1.30	-5	514	0.21	R
2309+454.....	1.55	1.47	74	449	0.13	0.7	109	1.43	1.28	-4	310	0.31	
2310+385.....	1.56	1.44	67	507	0.13	0.4	128	1.41	1.29	-4	608	0.34	
2319+444.....	1.55	1.47	69	367	0.12	3.2	-91	1.44	1.27	0	248	0.41	R
2346+385.....	1.54	1.43	66	640	0.16	2.5	121	1.41	1.27	1	270	0.34	R
2353+816.....	2.15	1.51	13	412	0.14	3.7	69	2.12	1.31	15	400	0.92	R
2356+385.....	1.54	1.43	65	365	0.11	3.5	97	1.40	1.30	3	557	0.30	
2356+390.....	1.54	1.43	64	226	0.14	1.7	-89	1.44	1.33	0	258	0.52	R

NOTES.—Col. (1): Source name (B1950). Cols. (2), (3), and (4): The beam characteristics of the naturally weighted 6 cm images. The restoring beam is an elliptical Gaussian with FWHM major axis (col. [2]; in arcseconds) and minor axis (col. [3]; in arcseconds), with major axis in position angle (col. [4]; in degrees). Col. (5): The peak flux density of the naturally weighted 6 cm images (in mJy beam⁻¹). Col. (6): The rms noise in the naturally weighted 6 cm images (in mJy beam⁻¹), measured in the four corners of the displayed image. Col. (7): The fractional polarization of the core component measured at 4535 MHz (in %). Col. (8): The polarization angle (E vector) of the core component measured at 4535 MHz (in degrees). Cols. (9), (10), and (11): The beam characteristics of the naturally weighted 20 cm images. The restoring beam is an elliptical Gaussian with FWHM major axis (col. [9]; in arcseconds) and minor axis (col. [10]; in arcseconds), with major axis in position angle (col. [11]; in degrees). Col. (12): The peak flux density of the naturally weighted 20 cm images in units of mJy beam⁻¹. Col. (13): The rms noise in the naturally weighted 20 cm images in mJy beam⁻¹. Col. (14): An “R” in this column indicates that the source is resolved and an image is shown in Fig. 4.

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