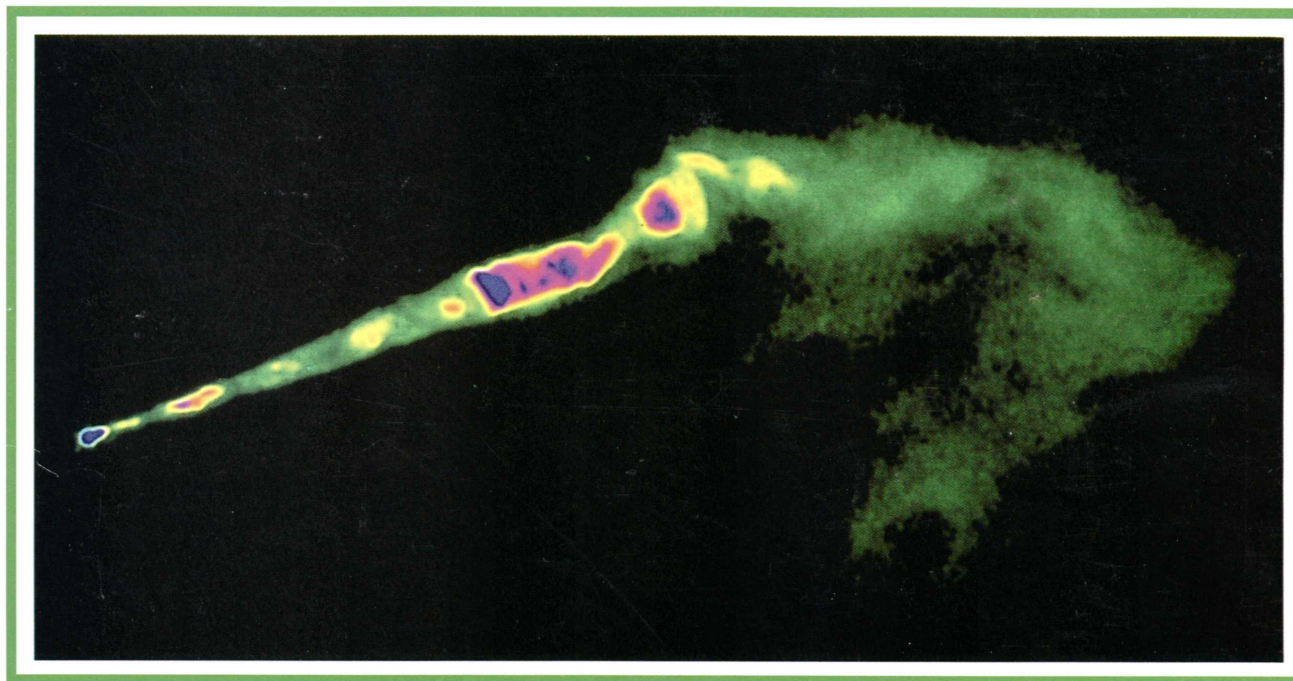


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NATIONAL RADIO



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ASTRONOMY OBSERVATORY



1994 STATISTICS

Cover image: Radio emission from the relativistic jet in radio galaxy M87 (Virgo A). Gas flowing out of the center of the radio galaxy (the small left-most blue spot) is traced in this VLA image by its radio emission. The extent of the jet seen here is more than 7500 light-years. From repeated VLA observations made over 12 years it has been possible to see the bright radio clumps, or knots, of emission flow away from the galactic nucleus at a velocity of greater than one-half the speed of light. Observers: J. Biretta and F. Owen.

NATIONAL RADIO ASTRONOMY OBSERVATORY

Observing Summary — 1994 Statistics



February 1995

SOME HIGHLIGHTS OF THE 1994 RESEARCH PROGRAM

The VLBA/VLA combination has observed evidence for a massive black hole at the center of the galaxy NGC 4258 (M106). Powerful H₂O masers have been found to exhibit extremely high-velocity features symmetrically offset from the systemic velocity by about 1000 km/s in radial velocity. These masers arise in a disk having inner and outer radii of about 4 and 8 milli-arcsec. Because the velocities decrease with distance from the center as expected by Keplerian motion, the velocities may be attributed solely to the gravitational force of the central body. The central mass of NGC 4258 is found to be 3.6×10^7 solar masses in a region less than 0.13 pc in radius. The volume-averaged mass density in this region exceeds by a factor of at least 40 that for any other black-hole candidate previously observed. The linear radius is estimated from a geometric method involving centripetal acceleration of gravity as inferred from observed velocity drifts. This method is independent of the usual hierarchy of distance estimators, and may help to improve the cosmic distance scale.

The 12 Meter Telescope has been used to detect the methylene radical (CH₂) in the Orion and W51 interstellar clouds. In both sources, three hyperfine components have been resolved at a frequency near 68 GHz and a blended feature has been detected near 71 GHz. CH₂ is difficult to observe owing to the high energy levels from which the emission arises and the frequency of the transitions with respect to atmospheric absorption bands. Improvements in receiver sensitivity and tuning flexibility allowed tentative results from several years ago to be confirmed. CH₂ occurs early in the buildup scheme of organic interstellar chemistry, being formed in one branch of the electronic recombination of CH₃⁺ that also produces the well-known interstellar CH species. CH₂ is a parent molecule to several other more complex molecules, including formaldehyde, formic acid, and methyl formate. It is an important contribution to the understanding of the precursor phases of the dominant interstellar organic chemistry.

The first Superluminal Source in the Milky Way has been discovered with the VLA. The strong X-ray source GRS1915+105 (discovered in 1992 by the Sigma-Granat satellite) underwent an outburst at radio wavelengths in early 1994, and displayed a pair of condensations in its radio jets with very large proper motions. At a distance of 12.5 kpc, the condensation in the approaching jet appears to move at 1.25 times the velocity of light. Correcting for relativistic effects, the actual velocity is 0.92c. This object, presumed to be a binary system with a compact body (neutron star or black hole) at its center, offers an unprecedented opportunity to study the physics of accretion disks and the ejection of relativistic jets, as well as to measure unambiguously the distance of a superluminal object.

Shortly after the discovery of GRS1915+105, superluminal jets from another Milky Way object, GRO J1655-40, were detected with the VLBA. Discovered by the Gamma Ray Observatory only in July 1994, this object is probably a double-star system in which matter from the less massive star is drawn away by gravity onto an accretion disk closely surrounding the more massive (and collapsed) companion (a neutron star or small black hole). X-rays or gamma rays are emitted from the very hot disk, as well as energetic radio-emitting jets of material which project away from the core object perpendicular to the plane of the disk. The apparent super-luminal property arises from the alignment of the object relative to us, but does testify to the violent physics occurring in the core. The very high resolution afforded by the VLBA reveals individual blobs within the jets (sometimes on a daily basis), whose motions may provide insights about the energy mechanisms at work in the colossal extragalactic jets produced by presumed supermassive black holes.

Recent maps of the galactic soft X-ray background by the ROSAT satellite have revealed a number of “shadows”—regions where the X-rays appear to be absorbed by intervening interstellar matter. Measurements of the HI 21 cm line using the 140 Foot Telescope have shown that most of the shadows can be identified with distinct HI clouds whose velocities can be measured precisely. Given the velocity, the distance to the clouds can be determined by searching for the cloud's absorption in optical lines against stars at different distances. The first results of a program of this sort in the Eridanus region indicate that most of the absorption occurs at a distance of about 100 pc, consistent with the model in which the bulk of the observed soft X-ray background originates in a hot bubble of gas surrounding the sun.

Together with many other telescopes around the world, the 140 Foot Telescope was used (at 1400 MHz) to observe Jupiter's microwave synchrotron radiation throughout the period of impact of comet P/Shoemaker-Levy 9 (Comet 1993e). The 21 cm results show a 20 percent increase in flux during the collision with a slow decrease afterwards. The linear polarization changed (by about 2 percent) as did the beaming curve (the variation of intensity during a Jovian rotation). In general the flux increased by 10-45 percent during the week of impacts, and the radio spectrum hardened. The increase is presumed caused by energization of the resident particle population rather than by particle injection at the impact site. An enhancement in radial diffusion would cause both the flux increase and the hardening of the spectrum. Continued monitoring of Jupiter at radio wavelengths will elucidate the mechanisms of energization and of radial transport of the particles.

A second molecule discovered at the 12 Meter is nitrous oxide (N_2O , known as “laughing gas”). N_2O is only the third interstellar molecule known to contain the N-O bond, along with NO and HNO. All three species are most prevalent in the rich SgrB2 molecular source near the galactic center, and it is likely that their chemistries are related. The observations imply relative abundances of $N_2O/NO = 0.1$ and $N_2O/HNO = 3$, both ratios in excellent agreement with predictions of ion-molecule chemistry models at early evolutionary phases. Both NO and N_2O appear to form by reaction of N with NO_2 .

OBSERVING HOURS

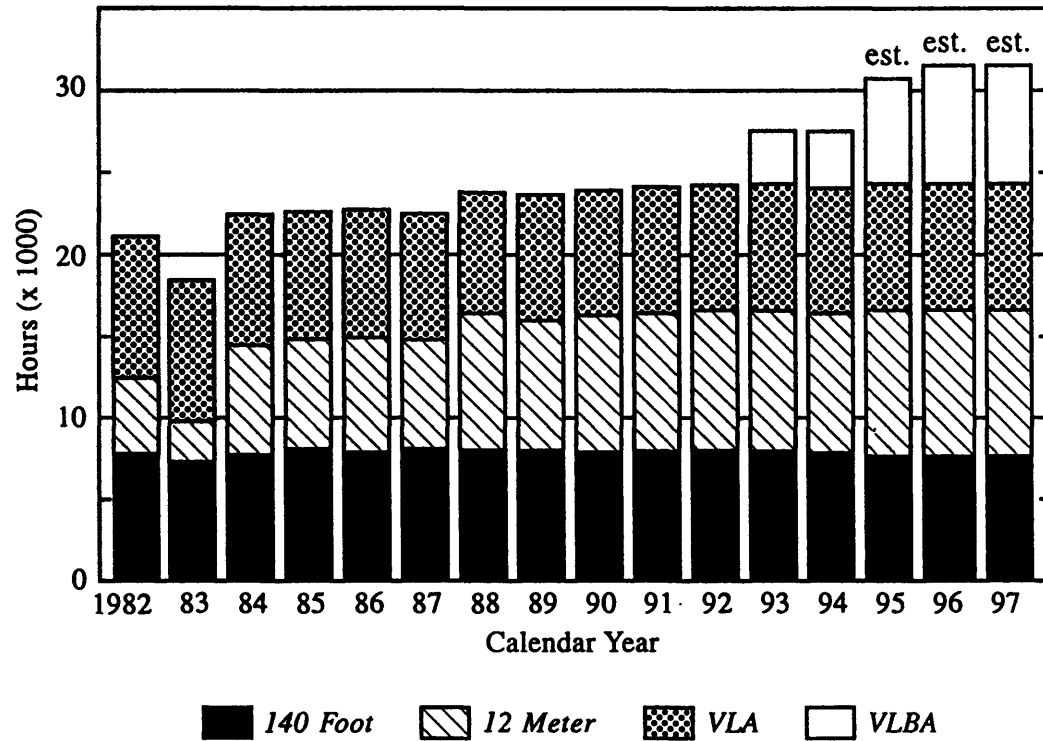


Fig. 1.

This figure shows the hours scheduled for observing on each telescope during the last decade. Includes astronomical observing, testings, and calibration

DISTRIBUTION OF SCHEDULED OBSERVING TIME

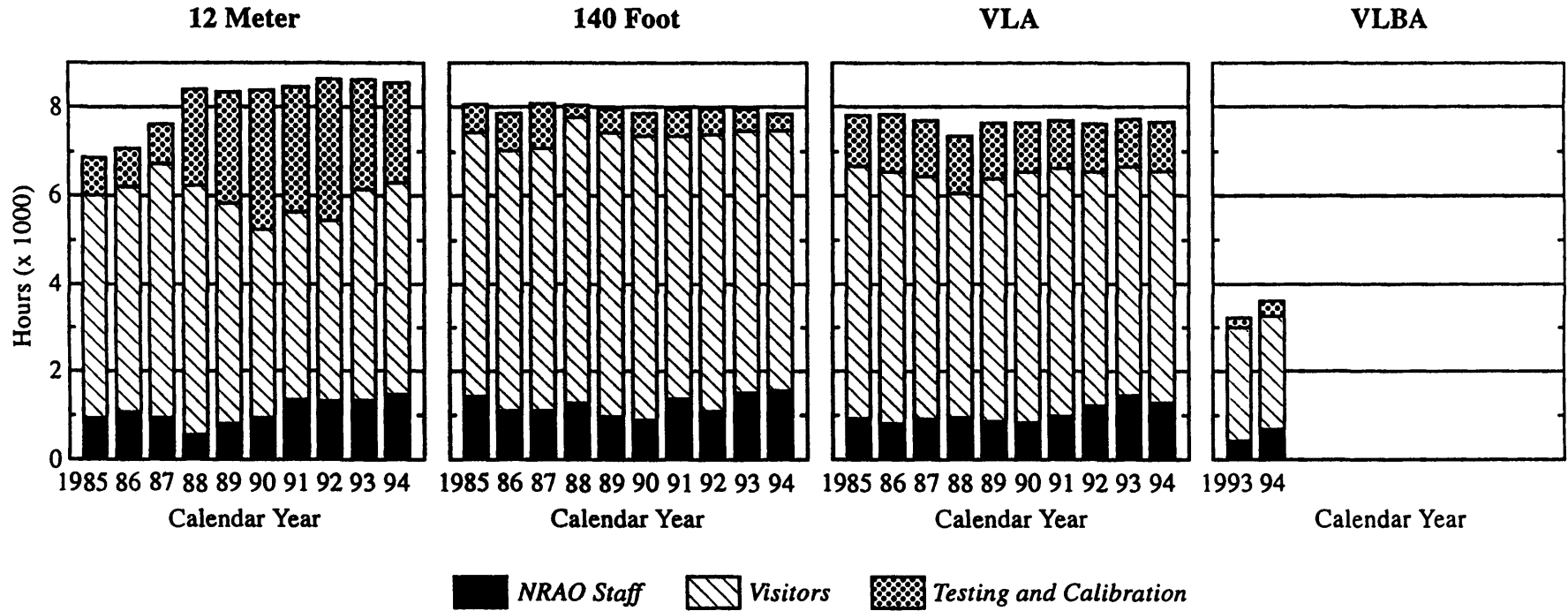


Fig. 2. These graphs show the number of hours scheduled for testing and calibration, and for observing by the NRAO staff and by visitors on each telescope system.

12 METER RADIO TELESCOPE SUMMARY

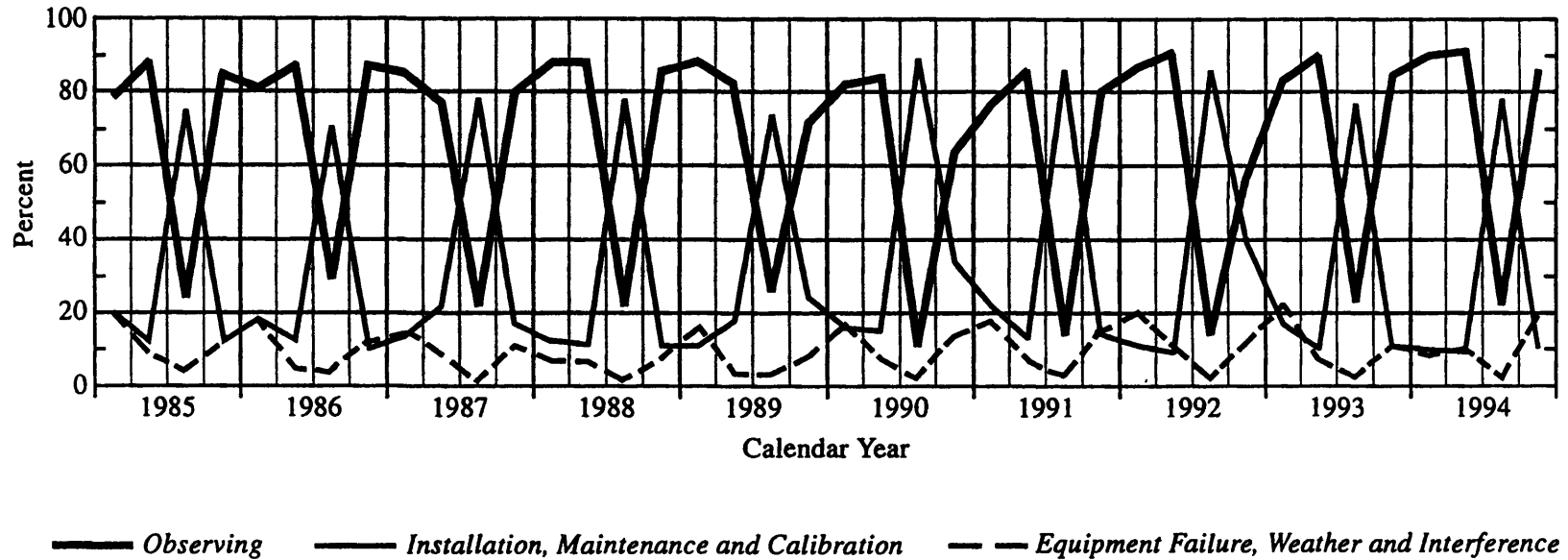


Fig. 3.

This summary for each quarter of the calendar year shows the percentage of time the telescope was scheduled for observing; for routine calibration, maintenance, and installation of new experiments; and the percentage of time lost due to equipment failure, bad weather, and radio interference. The telescope is removed from service for a period of four to six weeks each summer during the wet season. This period is used for maintenance and upgrading of the instrument.

140 FOOT RADIO TELESCOPE SUMMARY

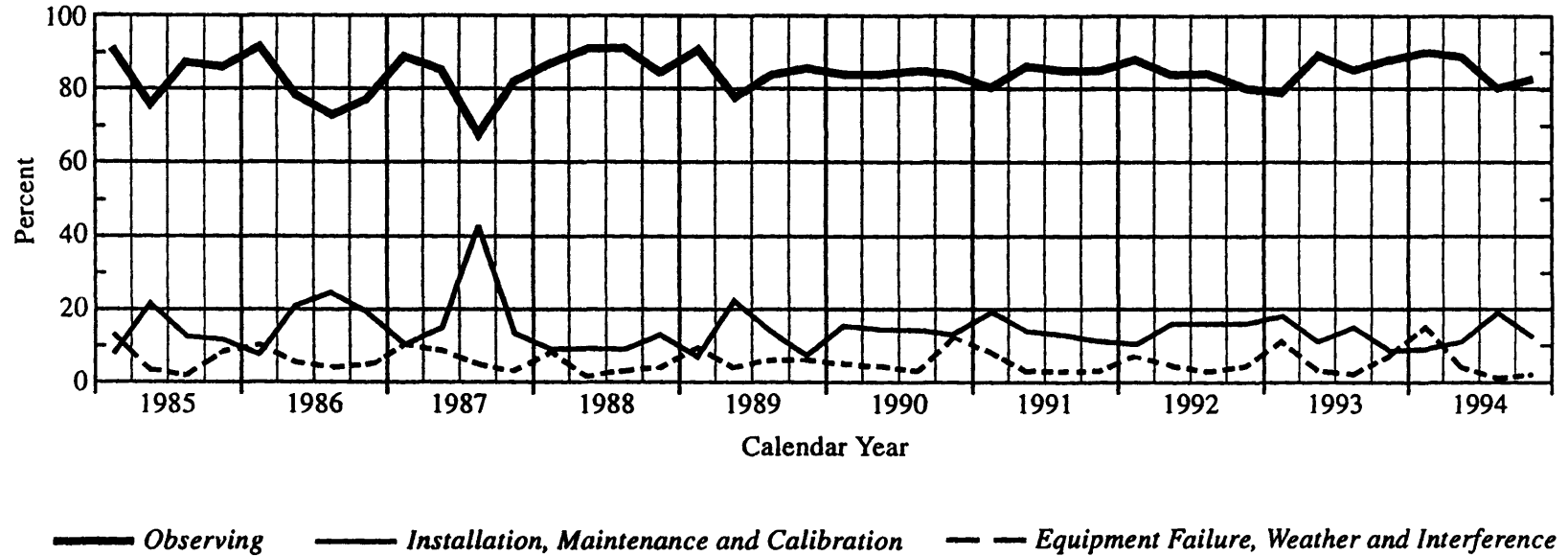


Fig. 4.

This summary for each quarter of the calendar year shows the percentage of time the telescope was scheduled for observing; for routine calibration, maintenance, and installation of new experiments; and the percentage of time lost due to equipment failure, bad weather, and radio interference. Major improvements to the telescope system include holographic surface tests and panel readjustments in 1987.

VERY LARGE ARRAY TELESCOPE SUMMARY

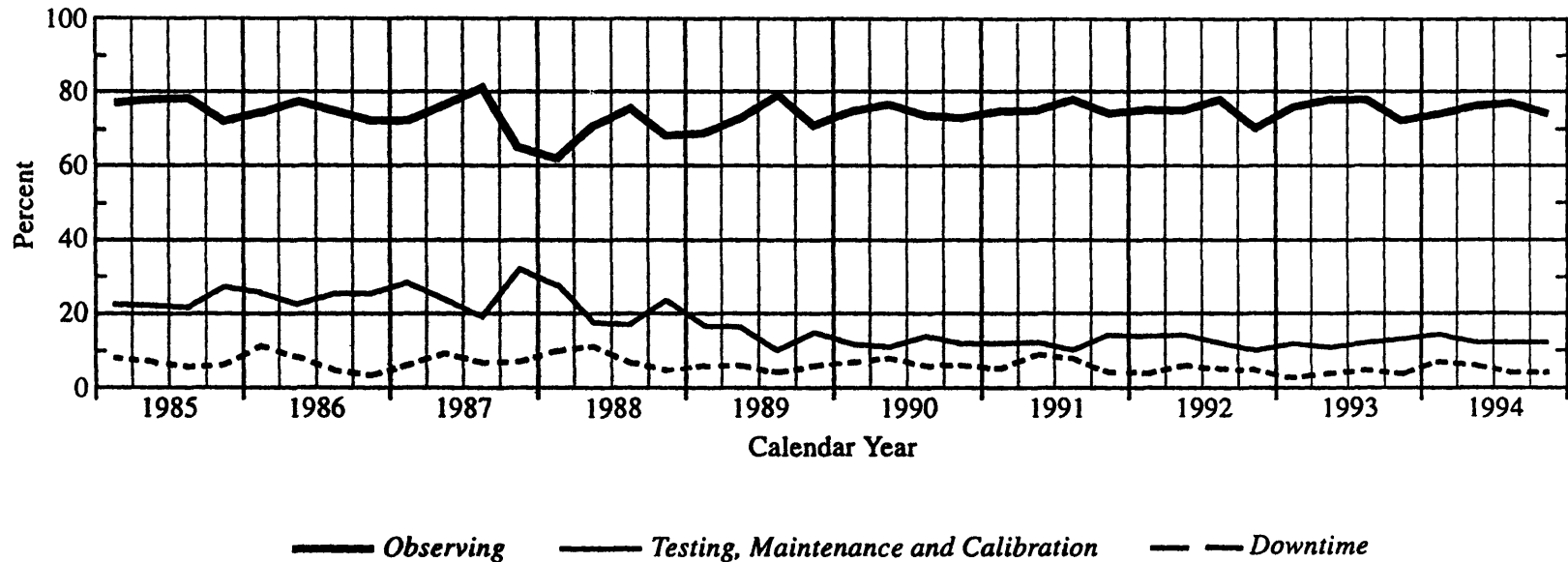


Fig. 5.

This summary for each quarter of the calendar year shows the percentage of time the telescope was scheduled for observing; for routine system testing, maintenance, and calibration; and the percentage of time lost due to hardware or software failure, power failure, or bad weather.

VERY LONG BASELINE ARRAY TELESCOPE SUMMARY

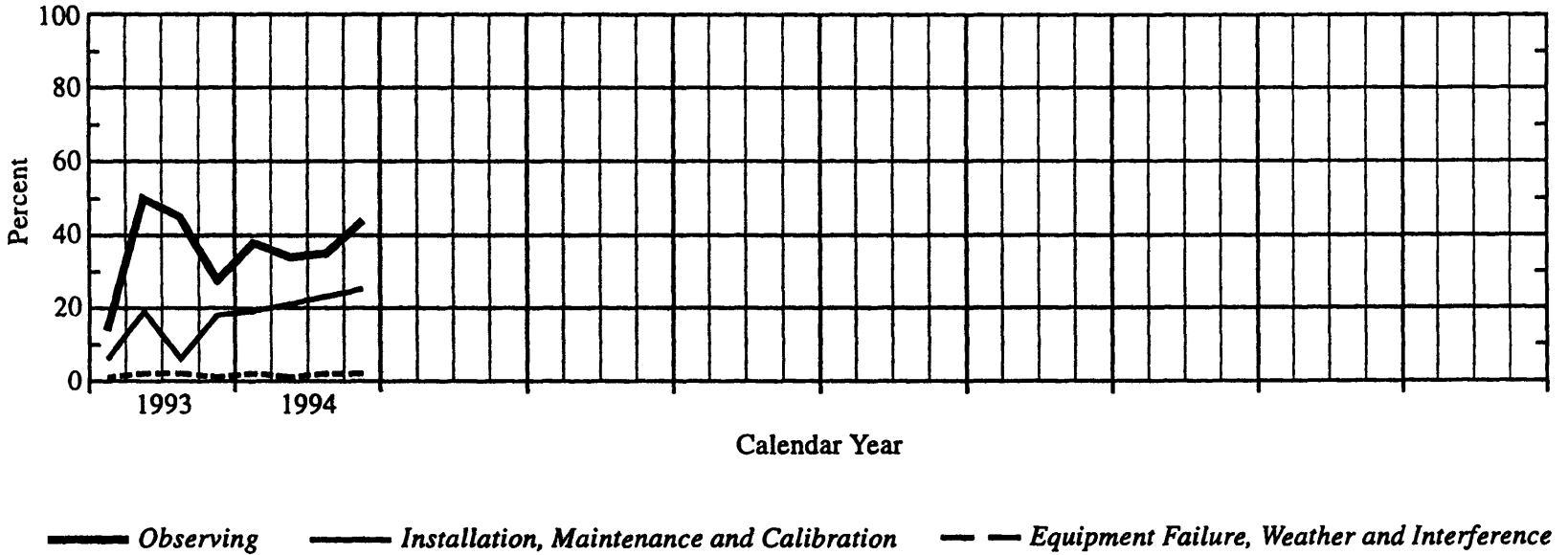


Fig. 6.

This summary for each quarter of the calendar year shows the percentage of time the telescope was scheduled for observing; for routine calibration, maintenance, and installation of new experiments; and the percentage of time lost due to equipment failure, bad weather, and radio interference.

FULL-TIME EMPLOYEES

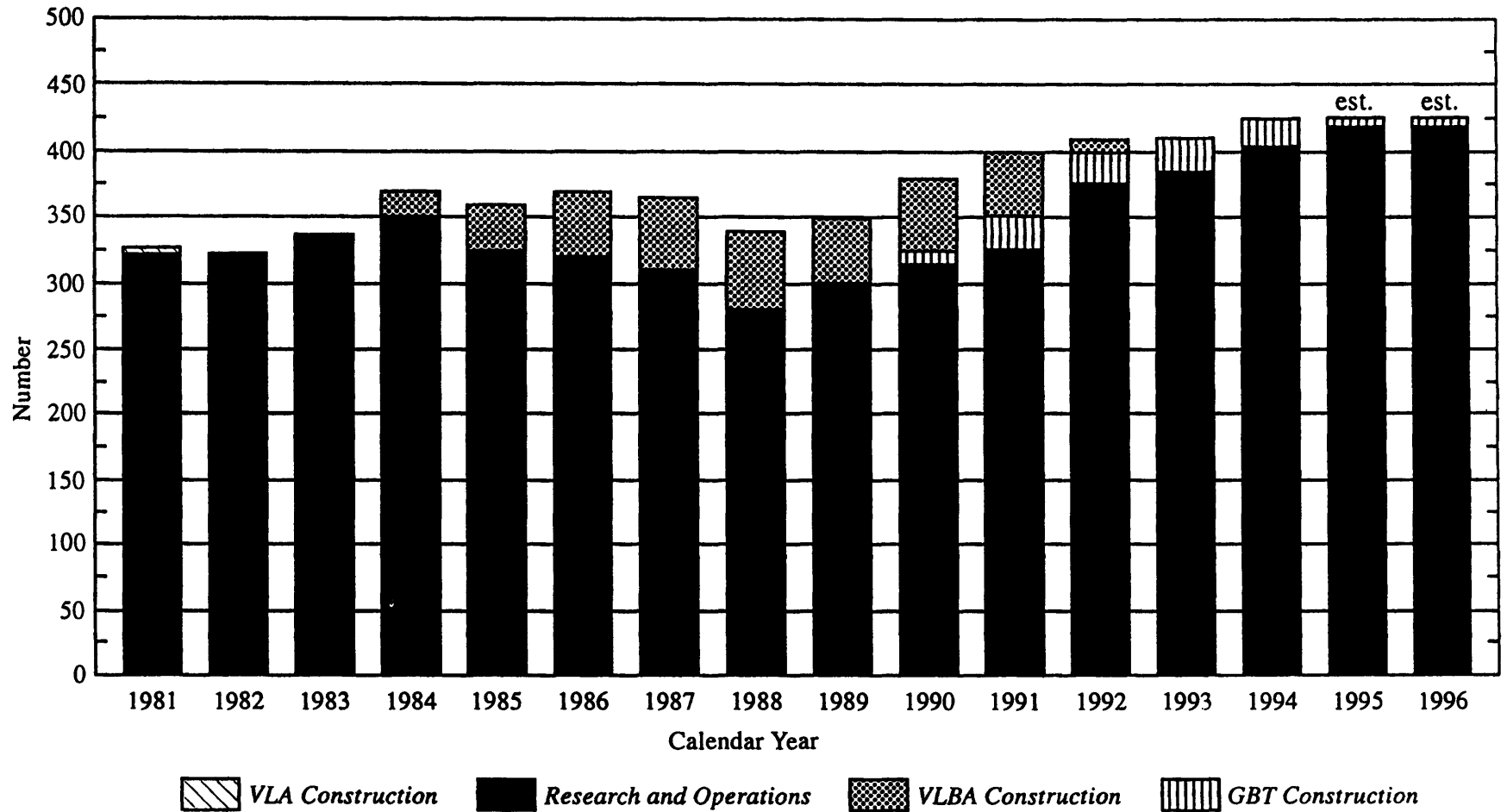


Fig. 7.

This figure shows the total number of NRAO full-time employees at the end of each year, projected into the future.

NUMBER OF PEOPLE OBSERVING WITH NRAO TELESCOPES

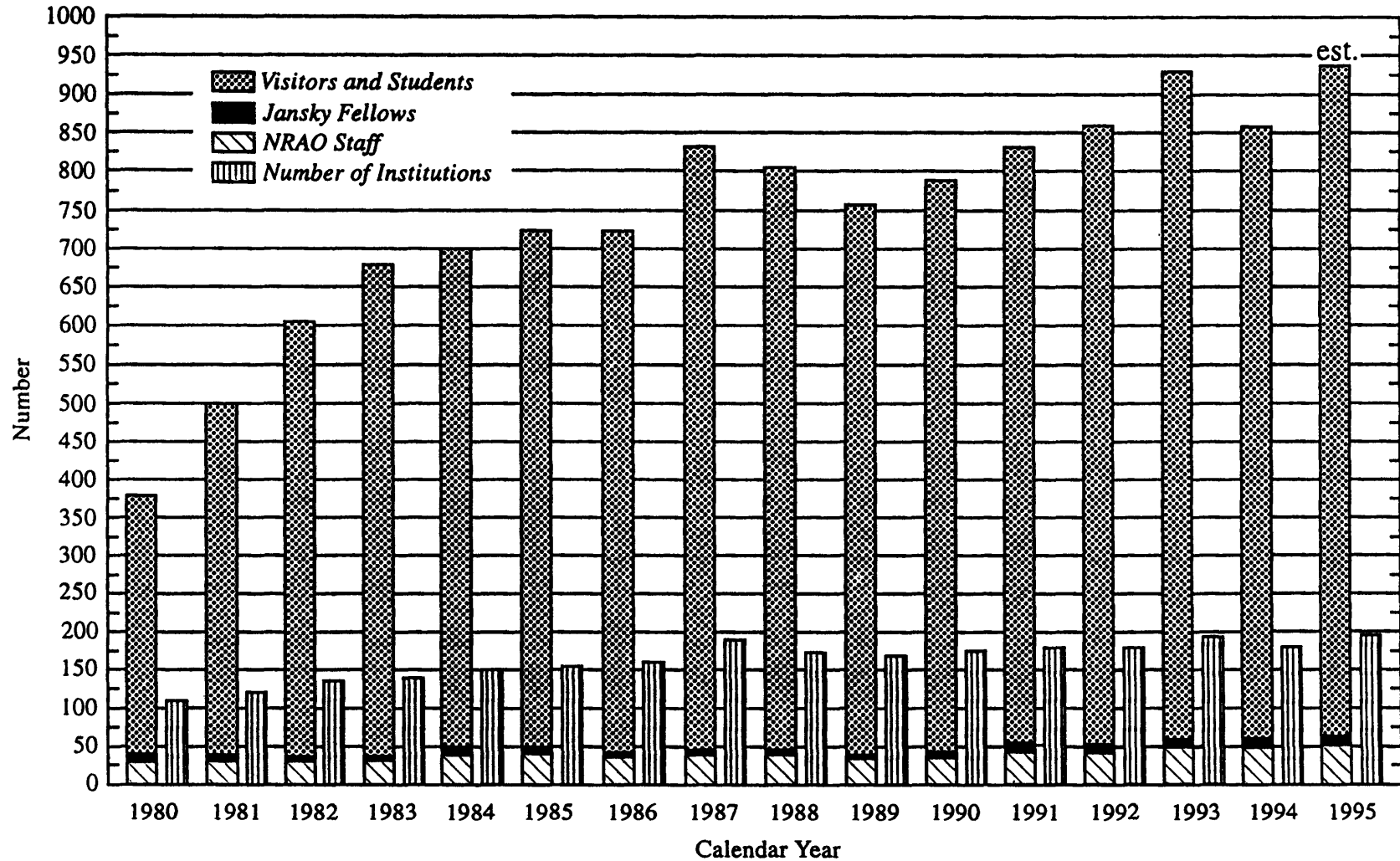


Fig. 8.

This bar chart shows for each calendar year the number of NRAO research staff and the number of NRAO postdoctorals (Jansky Postdoctorals) who used the telescopes. In addition, it shows the total number of visitor-users of NRAO telescopes and the number of institutions from which the NRAO visitors came. The significant jump in these last two categories starting in 1981 reflects the increased use of the VLA.

**DISTRIBUTION OF SCHEDULED OBSERVING PROGRAMS
IN VARIOUS RESEARCH AREAS, BY PERCENT**

	12 Meter	140 Foot	VLA	VLBA	Overall
I. SOLAR SYSTEM --					
Sun, Planet, Satellites, and Comets	5%	4%	5%	2%	4%
II. STELLAR --					
Pulsars, X-ray Sources, Planetary Nebulae, Circumstellar Shells, Supernova Remnants, Masers, Novae, Supernovae, and Stars	7%	43%	29%	32%	27%
III. GALACTIC --					
Galactic Structure, Center, Molecular Clouds, HII Regions, Star Formation, Molecules, and Interstellar Medium	50%	27%	23%	18%	27%
IV. EXTRAGALACTIC --					
Normal and Active Galaxies, Radio Galaxies, Clusters, Quasars, VLBA Studies, Extragalactic Molecules, and Cosmology	38%	26%	43%	48%	42%

DISTRIBUTION OF TELESCOPE TIME BY PERCENT

	12 Meter	140 Foot	VLA	VLBA	1994 Summary
Visitors	43%	46%	52%	27%	42%
Students	12%	21%	8%	3%	11%
NRAO Staff	14%	11%	12%	7%	11%
Postdoctorals (Jansky Fellows)	3%	7%	3%	1%	4%
Test and Calibration	26%	4%	13%	4%	11%
Maintenance and Installation	1%	9%	11%	18%	10%
Holidays and Unscheduled	1%	2%	1%	40%	11%

INSTITUTIONS FROM WHICH VISITORS CAME TO USE NRAO TELESCOPES DURING 1994

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
1. Air & Space Museum			x	
2. Alabama, University of			x	
3. Amsterdam, University of - Astronomy Institute			x	
4. Applied Research Corporation				x
5. Arcetri Astrophysical Observatory (Italy)			x	
6. Argentine Radio Astronomy Institute (IAR)			x	
7. Arizona, University of - Steward Obs., L & P Lab, SMT0		x	x	
8. Arizona State University		x	x	
9. Astro Cosmic Center (Moscow)		x	x	
10. Astrophysical Institute, Potsdam (Germany)			x	
11. Athens, University of (Greece)			x	
12. Barcelona, University of (Spain)			x	
13. Beijing Astronomical Observatory (China)				x
14. Bologna, University of (Italy)			x	x
15. Bonn University (Germany)			x	
16. Bordeaux Observatory (France)			x	
17. Boston University	x	x	x	x
18. Brandeis University			x	
19. Brazilian Space Agency - INPE (Brazil)			x	
20. Brera Osservatorio (Italy)		x		

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
21. Calgary, University of (Canada)			X	X
22. California, University of, Davis			X	
23. California, University of, Berkeley - Hat Creek Obs.	X	X	X	X
24. California, University of, Los Angeles	X	X	X	
25. California, University of, San Diego			X	X
26. California, University of, Santa Cruz - Lick Obs.			X	
27. California, University of, Santa Barbara	X		X	X
28. Caltech - OVRA, Palomar, Big Bear Solar Obs.	X	X	X	X
29. Cambridge University - Cavendish, Mullard, IOA (UK)			X	
30. Canadian Military College			X	
31. Catania University (Italy)			X	
32. CFA - Harvard, SAO	X	X	X	X
33. CNR, IRA, Noto (Italy)			X	X
34. CNRS, France (CEN, Saclay)			X	
35. Chalmers - Onsala Space Observatory (Sweden)			X	X
36. Chicago, University of - Yerkes Observatory		X	X	
37. Chile, University of (Chile)			X	
38. Chungnam National University (Korea)		X		
39. Colgate University		X		
40. Colorado, University of - JILA, LASP	X	X	X	X

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
41. Columbia University			X	
42.. Cornell University	X		X	X
43. CSIRO - ATNU, Parkes Obs. (Australia)			X	X
44. Curtin, University of (Australia)	X			
45. DAO (Dominion Astrophysical Obs.- Canada)			X	
46. DRAO (Dominion Radio Astrophysical Obs. - Canada)		X		
47. DTM/Carnegie Inst. (DC) - Las Campanas (Chile)		X	X	
48. Edinburgh, University of (Scotland)			X	
49. ESO (European Southern Obs. - Chile, Germany)			X	X
50. ESTEC/ESA/EXOSAT (Netherlands)		X		
51. Florence, University of (Italy)			X	X
52. Florida, University of			X	
53. Gottingen University (Germany)				X
54. Grenoble, Univ/Observatory (France)			X	
55. Groningen, University of - Kapteyn (Netherlands)			X	
56. Hamburger Sternwarte (Germany)			X	
57. Hartebeesthoek Radio Astronomy Obs. (S. Africa)				X
58. Haverford College			X	
59. Hawaii, University of - IOA		X	X	
60. Haystack Observatory - NEROC	X	X	X	X

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
61. Helsinki, University of - METSAHOVI (Finland)				x
62. Heidelberg Observatory (Germany)			x	
63. IBM - J.T. Watson Research Center			x	
64. IAFE - Buenos Aires (Argentina)			x	x
65. Illinois, University of - Vermillion River Obs.		x	x	
66. Imperial College (London)			x	
67. Institute of Astrophysics (Granada)		x	x	x
68. Institute of Astrophysics (Paris)		x	x	
69. Institute for A & A (Andalucia)			x	x
70. Institute for Space Research (Moscow)			x	x
71. INTA - NASA (Madrid)			x	x
72. Interferometrics, Inc. - NVI	x		x	x
73. Inst. of Space & Aeronautical Sciences (Japan)			x	
74. Iowa, University of				x
75. Iowa State University			x	
76. IPAC - Infrared Processing/Analysis Center		x	x	x
77. IRAM (France, Spain)		x	x	x
78. Jagellonian University (Poland)			x	
79. Johns Hopkins University			x	
80. JPL - Goldstone	x	x	x	x

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
81. Kansas, University of			X	
82. Kentucky, University of		X	X	
83. Kiev University (Ukraine)			X	
84. Kyoto University (Japan)			X	
85. Lafayette College			X	
86. Laval, University of (Canada)			X	
87. Lawrence Livermore National Laboratory		X	X	
88. Lebedev Physics Institute - ASC (Russia)	X			X
89. Leiden, University of - Huygens Lab (Netherlands)	X		X	X
90. Liverpool Johns Moores University (UK)			X	
91. Lockheed Research Laboratory			X	
92. Los Alamos Scientific Laboratory			X	
93. Lowell Observatory			X	
94. Madrid Observatory (Spain)			X	X
95. Manchester, University of - Jodrell, NRAL (UK)			X	X
96. Marseille Observatory (France)			X	
97. Maryland, University of - Clark Lake Obs.	X	X	X	X
98. Massachusetts, University of - FCRAO		X		X
99. McMaster University (Canada)		X		
100. Meudon Observatory (France)		X	X	X

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
101. Mexico, University of - Inst. of Astronomy (UNAM)			X	X
102. Michigan, University of		X		
103. Middlebury College			X	
104. Milano Observatory (Italy)			X	
105. Minnesota, University of		X	X	X
106. MIT - Lincoln Laboratories			X	X
107. Montreal, University of (Canada)			X	
108. Moscow State U. - Sternberg State AI (Russia)	X	X	X	X
109. MPIAP (Munich, Germany)			X	
110. MPIR (Bonn, Germany)			X	X
111. MPIfEP, Garching (Germany)			X	
112. Mt. Stromlo Observatory - ANU (Australia)			X	
113. Mt. Wilson - Hale Observatory			X	
114. NAIC - Arecibo Observatory	X	X	X	
115. NASA/Ames Research Center		X	X	
116. NASA/Goddard Space Flight Center	X	X	X	X
117. NASA/Marshall Space Flight Center	X			
118. NBS - National Bureau of Standards		X		
119. National Centre for Radio Astrophysics (India)			X	
120. NFRA - JIVE, Dwingeloo, Zwiggelte, Westerbork	X		X	X

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
121. NMIMT - New Mexico Inst. of Mining Technology		x	x	
122. New Mexico, University of			x	x
123. New Mexico State University			x	x
124. Nobeyama Observatory (Japan)			x	x
125. North Carolina, University of			x	
126. North Carolina State University		x	x	
127. Northern Arizona University		x		
128. Northwestern University		x	x	
129. NRC Herzberg - Algonquin Obs. (Canada)	x	x	x	
130. NRL - Naval Research Laboratory	x	x	x	x
131. Oberlin College	x		x	
132. Ohio State University			x	
133. Oklahoma, University of			x	
134. Oregon, University of		x		
135. Ottawa, University of (Canada)			x	x
136. Oxford University (UK)			x	
137. Paris Observatory (France)		x	x	
138. Penn State University	x	x	x	x
139. Pittsburgh, University of - Allegheny Obs.	x		x	x
140. Pomona College				x

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
141. Princeton Univ. - Inst. Advanced Studies	x		x	
142. Pulkovo Observatory (Russia)			x	
143. Queen Mary College (UK)			x	
144. Queens University (Canada)			x	
145. Queensland, University of (Australia)			x	
146. Raman Research Institute (India)			x	
147. Rensselaer Polytechnic Institute		x		
148. Rice University			x	
149. Rochester, University of			x	
150. Royal Greenwich Observatory (UK)			x	
151. Royal Observatory - UKIRT, JCMT (Scotland)			x	
152. Rutgers University			x	
153. Seoul National University (Korea)	x	x		
154. Southampton, University of (UK)			x	
155. Space Telescope Science Institute	x		x	x
156. Special Astrophysical Observatory (Russia)			x	
157. Stockholm Observatory (Sweden)			x	
158. SUNY (all campi)	x	x	x	
159. SFIT, ETH - Swiss Federal Institute of Technology			x	x
160. Sydney, University of (Australia)			x	

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
161. Tasmania, University of (Australia)				X
162. Tata Institute Fundamental Res. - RAC (India)		X	X	
163. Texas, University of - McDonald Observatory		X	X	
164. Tokyo Univ. - Tokyo Astronomical Obs. (Japan)	X			
165. Toronto, Univ. of - David Dunlap Obs. (Canada)		X	X	X
166. Tufts University			X	
167. USNO - United States Naval Observatory	X		X	X
168. Valencia, University of (Spain)				X
169. Vassar College			X	
170. Victoria, University of (Canada)			X	
171. Virginia, University of	X	X		
172. Virginia Polytechnic Institute & State U.			X	
173. Washington State University		X		
174. Washington, University of			X	
175. Wellesley College		X		
176. West Virginia, University of	X			
177. Western Australia, University of (Australia)				X
178. Wisconsin, University of - Washburn Obs.	X	X	X	
179. Yebes Observatory - Centro Astro de Yebes (Spain)		X	X	X
180. York University (Canada)			X	X

INSTITUTION	TELESCOPES			
	140 FOOT	12 METER	VLA	VLBA
Number of Institutions	34	57	149	62
Number of Visitors	57	108	480	150
Number of Students	23	28	95	25
Number of Research Associates	4	5	10	3
Number of Permanent Staff	13	14	33	19
Total Observers	97	155	618	197

All told, 797 visitors, including 147 students, from 180 institutions.

NRAO STUDENT PROGRAM

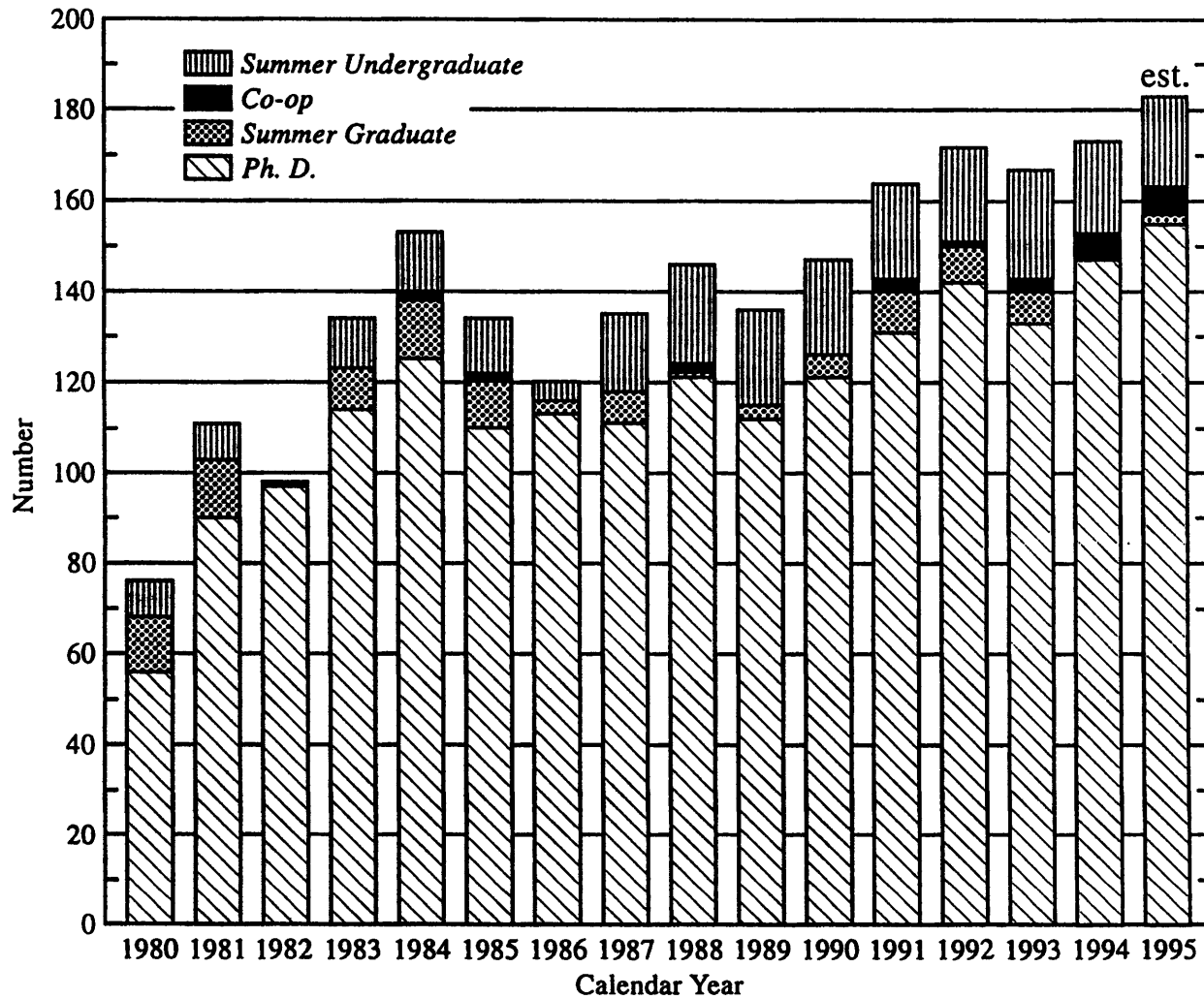


Fig. 9 This figure shows for each calendar year the number of PhD students (salaried and non-salaried), co-op students, and summer undergraduate and graduate students who observed or worked at the NRAO during that year. Beginning in 1987 the majority of the undergraduate summer students were funded by a separate NSF Grant for Research Experience for Undergraduates.

NRAO FRONT-END STATUS 140 FOOT TELESCOPE

FEBRUARY 1995

TECHNICAL DATA SHEET NO. 12

PAGE 1 OF 5

RECEIVER NAME	FREQUENCY (GHz)	AMPLIFIER TYPE	SYSTEM TEMPERATURE (KELVIN)	3 dB BANDWIDTH (MHz)	FEED TYPE	POLARIZATION	CALIBRATION VALUE	SWITCHING SYSTEM	REMARKS	PERSON(S) IN CHARGE
50-500 MHz Rx	50-88 MHz	HIGH DYNAMIC RANGE TRANSISTOR DUAL CHANNEL	300 + Teky	38	OPEN SLEEVE CROSSED DIPOLE	ORTHOGONAL LINEAR OR REMOVABLE QUAD HYBRID AT FEED FOR RCP AND LCP	ADJUSTABLE 2 TO 2500K	DICKE SWITCH: REFERENCE TEMPERATURE ADJUSTABLE FROM 100 TO 100,000K OR FREQUENCY SWITCH	FEED CHANGES FROM 50-88 MHz TO 110-240 MHz OR TO 450-500 MHz REQUIRE TWO HOURS.	NORROD (OLIVER)
	110-240 MHz			130	BROADBAND CROSSED DIPOLE			FREQUENCY SWITCH		
	450-500 MHz	FET AMP	50-80	50	CAVITY BACKED CROSSED DIPOLE	RCP AND LCP		FREQUENCY SWITCH	450-500 MHz AMP IN 50-250 MHz Rx	
300-1000 MHz Rx	300-350 MHz	COOLED GASFET AMP DUAL CHANNEL	60-100	70	280-350 350-410 CAVITY BACKED CROSSED DIPOLES	DUAL ORTHOGONAL LINEAR RF HYBRID FOR RCP AND LCP	5K	FREQUENCY SWITCHING	ONE OF THE FIVE FEEDS 280-350 MHz 350-410 MHz 500-750 MHz 750-850 MHz OR 750-1000 MHz CAN BE USED. TO CHANGE FEEDS REQUIRES TWO HOURS.	NORROD (SHANK)
	350-410 MHz			80						
	500-750 MHz	50-70	80	500-750 SCALAR WITH CROSSED DIPOLES						
	750-950 MHz	45-50	80	750-850 CAVITY OR 760-1000 SCALAR						
	750-1000 MHz	50-70	80	760-1000 SCALAR WITH CROSSED DIPOLES						
6/25 CM Rx	1.00-1.45 (25 CM)	COOLED GASFET DUAL CHANNEL	35-40	450	SINGLE BEAM SCALAR	ORTHOGONAL LINEAR	4K TO 6K	FREQUENCY SWITCHING NOISE ADDING	FEED CHANGE REQUIRED TO SWITCH BANDS TAKES TWO HOURS.	NORROD (SHANK)
	4.47-5.05 (8 CM)	COOLED GASFET DUAL CHANNEL	50-60	580	SINGLE BEAM DUAL BEAM OFFSET 3 HPBW	ORTH CIRCULAR OR ORTH LINEAR IDENTICAL OR ORTH CIRCULAR OR IDENTICAL LINEAR	1.4K OR 12.8K	OTHER POLARIZATION BEAM SWITCHING		

NRAO FRONT-END STATUS 140 FOOT TELESCOPE

FEBRUARY 1995

TECHNICAL DATA SHEET NO. 12

PAGE 2 OF 5

RECEIVER NAME	FREQUENCY (GHz)	AMPLIFIER TYPE	SYSTEM TEMPERATURE (KELVIN)	3 dB BANDWIDTH (MHz)	FEED TYPE	POLARIZATION	CALIBRATION VALUE	SWITCHING SYSTEM	REMARKS	PERSON(S) IN CHARGE
1.3-1.8 GHz Rx	1.30-1.80	DUAL CHANNEL COOLED HFET	19-25	UP TO 120 FEED LIMITED	THREE 2HE SINGLE BEAM 1.30-1.36 1.36-1.43 1.80-1.72 ZEEMAN 1.36-1.43 ZEEMAN 1.6-1.72	ORTHOGONAL LINEAR OR CIRCULAR	2K AND 200K	FREQUENCY OR POLARIZATION SWITCHING OR NOISE ADDING	EITHER CIRCULAR OR LINEAR POLARIZATIONS ARE SELECTABLE. CIRCULAR POLARIZATION REQUIRES ADJUSTMENTS FROM THE CONTROL ROOM. BAND CHANGE REQUIRES 2 TO 3 HOURS. OBSERVATIONS OUTSIDE STATED FEED BANDS POSSIBLE AT REDUCED EFFICIENCIES.	NORROD (SIMMONS)
2-5 GHz Rx	2.9-3.4	DUAL CHANNEL COOLED FET	38±4	UP TO 250 FEED LIMITED	TWO 2HE SINGLE BEAM 2.90-3.1 3.20-3.4	ORTHOGONAL LINEAR	2K AND 150K	FREQUENCY SWITCHING NOISE ADDING	BAND CHANGE REQUIRES FEED CHANGE. THIS TAKES 2-3 HOURS. FREQUENCY SWITCHING REQUIRES 50 MS BLANKING TIME.	BEHRENS (HALL)
	4.6-5.0	DUAL CHANNEL COOLED HFET	28±5	UP TO 200 FEED LIMITED	ONE 2HE SINGLE BEAM 4.6-4.8	CIRCULAR	3K AND 150K		RECEIVER BAND LIMITED BY 4.6-4.8 GHz FEED. FREQUENCY SWITCHING REQUIRES 50 MS BLANKING TIME.	
8 CM, 7-FEED Rx	4.6-5.1	COOLED HFET FOURTEEN CHANNEL	35-45	500	7 CORRUGATED HORNS 3 HPBW APART	DUAL CIRCULAR	4K	NONE	CONTINUUM USE ONLY. TOTAL POWER RF DETECTION.	BEHRENS (HALL)
CASSEGRAIN RECEIVERS	8-10	COOLED HFET	30-50	500	CASSEGRAIN	DUAL CIRCULAR	3-7K	FREQUENCY OR NUTATOR BEAM		STENNES (DUNBRACK)
	12-15.4	COOLED HFET	30-60	500	CASSEGRAIN	DUAL CIRCULAR	3-7K	FREQUENCY OR NUTATOR BEAM		
	18.0-26.5	COOLED HFET	40-70	500	CASSEGRAIN	DUAL CIRCULAR	3-7K	FREQUENCY OR NUTATOR BEAM	TWO BANDS: 18.0-22.5, 22.0-26.5 4 HOURS TO SWITCH BANDS	
	26-35	COOLED HFET	60-80	500	CASSEGRAIN	SINGLE FIXED LINEAR	3-7K	FREQUENCY OR NUTATOR BEAM	SHARES DEWAR WITH 12-15.4 Rx 4 HOURS TO INSTALL 25-35 FEED	
									BEAM SHIFT = 0-18 ARC MIN. NUTATOR RATE 5 Hz MAXIMUM NOISE ADDING AVAILABLE	

NRAO FRONT-END STATUS 12 METER TELESCOPE

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FREQUENCY (GHz)	AMPLIFIER TYPE	RECEIVER TEMPERATURE (KELVIN)	CONTINUUM SENSITIVITY (JANSKY $\sqrt{\text{SEC}}$)	3 dB BANDWIDTH (MHz)	FEED TYPE	POLARIZATION	CALIBRATION VALUE	SWITCHING SYSTEM	REMARKS	PERSON(S) IN CHARGE
65-118	SIS MIXER	60-100 SSB	1.0	600	COOLED HORN-LENS + OFFSET PARABOLA	DUAL LINEAR	6 K	NUTATING SUBREFLECTOR	SINGLE-SIDEBAND MIXERS	PAYNE
130-170	SIS MIXER	100-180 SSB	NOT MEASURED	600	COOLED HORN-LENS + OFFSET PARABOLA	DUAL LINEAR	-	NUTATING SUBREFLECTOR	SINGLE-SIDEBAND MIXERS	PAYNE
200-300	SIS MIXER	150-400 SSB	NOT MEASURED	600	COOLED HORN-LENS	DUAL LINEAR	-	NUTATING SUBREFLECTOR	SINGLE-SIDEBAND FILTER IMAGE TERMINATED IN COLD LOAD	PAYNE

NRAO FRONT-END STATUS VERY LARGE ARRAY

FEBRUARY 1995

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FREQUENCY (MHz)	AMPLIFIER TYPE	SYSTEM TEMPERATURE (KELVIN)	3 dB BANDWIDTH (MHz)	FEED TYPE	POLARIZATION	CALIBRATION VALUE	SWITCHING SYSTEM	REMARKS	PERSON(S) IN CHARGE
74	UNCOOLED FET	~ 1200	0.8	PRIME	DUAL ORTHOGONAL CIRCULAR	120	NOISE INJECTION, 9.8 Hz, 50 PERCENT CYCLE.	ANTENNAS 3, 6, 7, 10, 14, 20, 21 & 28 (REMOVED UNTIL 95Q1)	LUE
308-343	UNCOOLED FET	150	3 MHz (LIMITED BY INTERFERENCE)	PRIME FOCUS	DUAL ORTHOGONAL CIRCULAR	10	NOISE INJECTION, 9.8 Hz, 50 PERCENT CYCLE.		LUE
1340-1730	COOLED HFET	35	55	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	4	NOISE INJECTION, 9.8 Hz, 50 PERCENT CYCLE.		LUE
4500-5000	COOLED HFET	60	55	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	4	NOISE INJECTION, 9.8 Hz, 50 PERCENT CYCLE.		LUE
8000-8800	COOLED HFET	35	55	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	4	NOISE INJECTION, 9.8 Hz, 50 PERCENT CYCLE.		LUE
14400-15400	COOLED FET	110	55	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	7	NOISE INJECTION, 9.8 Hz, 50 PERCENT CYCLE.		LUE
22000-24000	COOLED HFET	130	55	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	10	NOISE INJECTION, 9.8 Hz, 50 PERCENT CYCLE.		LUE
40000-50000	COOLED HFET	110	55	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	7	NOISE INJECTION, 9.8 Hz, 50 PERCENT CYCLE.	10 ANTENNAS: 3, 4, 8, 12, 13, 14, 16, 22, 25 & 27 EFFICIENCY LOW, DEPENDS ON FREQUENCY	LUE

NRAO FRONT-END STATUS VERY LONG BASELINE ARRAY

FEBRUARY 1995

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FREQUENCY (MHz)	AMPLIFIER TYPE	SYSTEM TEMPERATURE (KELVIN)	3 dB BANDWIDTH (MHz)	FEED TYPE	POLARIZATION	CALIBRATION VALUE	SWITCHING SYSTEM	REMARKS	PERSON(S) IN CHARGE
312-342	WARM FET	200	30	PRIME FOCUS	DUAL ORTHOGONAL CIRCULAR	10	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.		UUE
588-622	WARM FET	200	30 OR 4	PRIME FOCUS	DUAL ORTHOGONAL CIRCULAR	5	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.		UUE
1350-1750	COOLED HFET	30	128	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	2	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.		UUE
2150-2350	COOLED HFET	35	128	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	2	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.		UUE
4600-5100	COOLED HFET	40	128	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	2	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.		UUE
8000-8800	COOLED HFET	37	128	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	3	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.		UUE
10200-11200	COOLED FET	95	128	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	3	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.	PIE TOWN ONLY	UUE
12000-15400	COOLED HFET	60	128	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	4	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.		UUE
21700-24100	COOLED HFET	100	128	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	5	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.		UUE
41000-45000	COOLED HFET	120	128	CASSEGRAIN	DUAL ORTHOGONAL CIRCULAR	8	NOISE INJECTION, 80 Hz, 50 PERCENT CYCLE.		UUE

NRAO - STAFF AND VISITOR PUBLICATIONS 1994

- ABADA-SIMON, M.; LECACHEUX, A.; BASTIAN, T.S.; BOOKBINDER, J.S.; and DULK, G.A. "First Millimetric Detections of AE Aquarii." Space Sci. Rev. 68: 291-292, 1994.
- ABRAHAM, Z.; CARRARA, E.A.; ZENSUS, J.A.; and UNWIN, S.C. "The Ejection Rate of Superluminal Components in 3C273." In: Compact Extragalactic Radio Sources (NRAO, ed. J. A. Zensus & K. I. Kellermann): 87-90, 1994.
- ADORF, H.-M.; EGRET, D.; HECK, A.; JACKSON, R.; KOEKEMOER, A.; MURTAGH, F.; and WELLS, D. "The AstroWeb Database of Internet Resources." Messenger No. 78 (Dec): 44-46, 1994.
- AFFLERBACH, A.; CHURCHWELL, E.; HOFNER, P.; and KURTZ, S. "A Multiline, Multiresolution VLA Study of the Ultracompact H II Region G29.96-0.02." ApJ 437: 697-704, 1994.
- AKUJOR, C.E.; PORCAS, R.W.; PATNAIK, A.R.; and ARDEBERG, A. "Optically Quiet Quasars - Radio and Optical Investigations." IAU Symp. 159: 419, 1994.
- ALEF, W.; PREUSS, E.; KELLERMANN, K.I.; WU, S.T.; and QIU, Y.H. "Evidence for Superluminal Motion and Two-Sided Emission in the Nucleus of the Radio Galaxy 3C390.3." In: Compact Extragalactic Radio Sources (NRAO, ed. J. A. Zensus & K. I. Kellermann): 55-60, 1994.
- ANANTHARAMAIAH, K.R.; ERICKSON, W.C.; PAYNE, H.E.; and KANTHARIA, N.G. "High Rydberg State Carbon Recombination Lines Toward Cassiopeia A: 332 MHz VLA Observations and Comparison with H I and Molecular Lines." ApJ 430: 682-689, 1994.
- ANDERSEN, V. and OWEN, F.N. "A Comparison of the Richness of Clusters and Groups of Galaxies." AJ 108: 361-367, 1994.
- ANDERSON, M.C.; JONES, T.W.; RUDNICK, L.; TREGILLIS, I.L.; and KANG, H. "The Dynamical and Radiative Evolution of Clumpy Supernova Ejecta." ApJ 421: L31-L34, 1994.
- ANDRE, P. and MONTMERLE, T. "From T Tauri Stars to Protostars: Circumstellar Material and Young Stellar Objects in the ρ Ophiuchi Cloud" ApJ 420: 837-862, 1994.

- ANGLADA, G.; RODRIGUEZ, L.F.; GIRART, J.M.; ESTALELLA, R.; and TORRELLES, J.M. "A Radio Candidate for the Exciting Source of the L1287 Bipolar Outflow." ApJ 420: L91-L93, 1994.
- ANTONUCCI, R. and BARVAINIS, R. "A Broadband, Widefield Search for CO in Cooling Flows." AJ 107: 448-450, 1994.
- ARGON, A.L.; GREENHILL, L.J.; MORAN, J.M.; REID, M.J.; MENTEN, K.M.; HENKEL, C.; and INOUE, M. "The Angular Structure and Intraday Variability of a Water Vapor Maser in IC 10." ApJ 422: 586-596, 1994.
- ARZOUMANIAN, Z.; NICE, D.J.; TAYLOR, J.H.; and THORSETT, S.E. "Timing Behavior of 96 Radio Pulsars." ApJ 422: 671-680, 1994.
- ASCHWANDEN, M.J. and BASTIAN, T.S. "VLA Stereoscopy of Solar Active Regions." In: New Look at the Sun (Nobeyama Radio Observatory, ed. S. Enome & T. Hirayama): 357-358, 1994.
- ASCHWANDEN, M.J. and BASTIAN, T.S. "VLA Stereoscopy of Solar Active Regions. I. Method and Tests." ApJ 426: 425-433, 1994.
- ASCHWANDEN, M.J. and BASTIAN, T.S. "VLA Stereoscopy of Solar Active Regions. II. Altitude, Relative Motion, and Center-to-Limb Darkening of 20 cm Emission." ApJ 426: 434-448, 1994.
- BAGCHI, J. and KAPAHI, V.K. "A VLA 20 and 90 Centimeter Radio Survey of Distant Abell Clusters with Central cD Galaxies." JA&A 15: 275-308, 1994.
- BALSER, D.S.; BANIA, T.M.; BROCKWAY, C.J.; ROOD, R.T.; and WILSON, T.L. "The Cosmic Abundance of ^3He . III. Improved Line Parameters for Selected Sources." ApJ 430: 667-681, 1994.
- BARNBAUM, C. and HINKLE, K. "Infrared Velocities of Carbon Stars." Ap&SS 217: 151-152, 1994.
- BARNES, P.J. and CRUTCHER, R.M. "High S/N HCO⁺ Maps of the Orion B Dense Core." IAU Colloq. 140: 247-248, 1994.
- BARTEL, N.; BIETENHOLZ, M.F.; RUPEN, M.P.; CONWAY, J.E.; BEASLEY, A.J.; SRAMEK, R.A.; ROMNEY, J.D.; TITUS, M.A.; GRAHAM, D.A.; ALTUNIN, V.I.; JONES, D.L.; RIUS, A.; VENTURI, T.; UMANA, G.; FRANCIS, R.L.; MCCALL, M.L.; RICHER, M.G.; STEVENSON, C.C.; WELLER, K.W.; VAN DYK, S.D.; PANAGIA, N.; CANNON, W.H.; POPELAR, J.; and DAVIS, R.J. "The Shape, Expansion Rate and Distance of Supernova 1993J from VLBI Measurements." Nature 368: 610-613, 1994.

- BARVAINIS, R. and ANTONUCCI, R. "Search for CO Absorption from a Molecular Torus in Cygnus A." AJ 107: 1291-1294, 1994.
- BASTIAN, T.S. "Angular Scattering of Solar Radio Emission by Coronal Turbulence." ApJ 426: 774-781, 1994.
- BASTIAN, T.S. "Propagation of Radio Waves in the Sun's Corona: Angular Broadening in the Limit of Small-Angle Scattering." In: New Look at the Sun (Nobeyama Radio Observatory, ed. S. Enome & T. Hirayama): 321-322, 1994.
- BASTIAN, T.S. "Stellar Flares." Space Sci. Rev. 68: 261-274, 1994.
- BASTIAN, T.S.; NITTA, N.; KIPLINGER, A.L.; and DULK, G.A. "Energy Transport During a Solar Flare: VLA Observations of the M1.9 Flare of 20 Aug. 1992." In: New Look at the Sun (Nobeyama Radio Observatory, ed. S. Enome & T. Hirayama): 199-202, 1994.
- BAUDRY, A.; BROUILLET, N.; and HENKEL, C. "H₂O Activity in M82 and in Other Members of the M81 Group." A&A 287: 20-31, 1994.
- BEASLEY, A.J.; BASTIAN, T.S.; BALL, L.; and WU, K. "A Microwave Survey of Magnetic Cataclysmic Variables." AJ 108: 2207-2211, 1994.
- BEASLEY, A.J.; CONWAY, J.E.; DIAMOND, P.J.; COTTON, W.D.; and VERMEULEN, R.C. "VLBA Phase-Referencing." IAU Symp. 158: 105-108, 1994.
- BECK, R.; CARILLI, C.L.; HOLDAWAY, M.A.; and KLEIN, U. "Multifrequency Observations of the Radio Continuum Emission from NGC 253. I. Magnetic Fields and Rotation Measures in the Bar and Halo." A&A 292: 409-424, 1994.
- BECKMAN, J.; CEPA, J.; and KNAPEN, J. "Distribution of Massive Stars in the Discs of Grand Design Spirals." In: Panchromatic View of Galaxies (Ed. Frontieres, ed. G. Hensler, *et al.*): 369-380, 1994.
- BECKER, R.H.; WHITE, R.L.; and HELFAND, D.J. "The VLA's FIRST Survey." In: Astronomical Data Analysis Software and Systems III (ASP, ed. D. R. Crabtree, *et al.*): 165-174, 1994.
- BECKER, R.H.; WHITE, R.L.; HELFAND, D.J.; and ZOONEMATKERMANI, S. "A 5 GHz VLA Survey of the Galactic Plane." ApJS 91: 347-387, 1994.

BIEGING, J.H. and LATTER, W.B. "A Millimeter-Wavelength Survey of S Stars for Mass Loss and Chemistry." ApJ 422: 765-782, 1994.

BIETENHOLZ, M.F.; BARTEL, N.; RUPEN, M.P.; CONWAY, J.E.; BEASLEY, A.J.; SRAMEK, R.A.; ROMNEY, J.D.; TITUS, M.A.; GRAHAM, D.A.; ALTUNIN, V.I.; JONES, D.L.; RIUS, A.; VENTURI, T.; UMANA, G.; WEILER, K.W.; VAN DYK, S.D.; PANAGIA, N.; CANNON, W.H.; POPELAR, J.; and DAVIS, R.J. "The Compact Core in M81." In: Compact Extragalactic Radio Sources (NRAO, ed. J. A. Zensus & K. I. Kellermann): 109-114, 1994.

BIGGS, J.D.; BAILES, M.; LYNE, A.G.; GOSS, W.M.; and FRUCHTER, A.S. "Two Radio Pulsars in the Globular Cluster NGC 6624." MNRAS 267: 125-128, 1994.

BIRKINSHAW, M. and WORRALL, D.M. "HI and the X-ray Spectrum of NGC 6251." In: The Soft X-ray Cosmos (AIP, ed. E.M. Schlegel and R. Petre): 397-399, 1994.

BLOMMAERT, J.A.D.L.; VAN LANGEVELDE, H.J.; and MICHIELS, W.F.P. "A Deep VLA Search for OH (1612 MHz) Maser Sources in the Galactic Plane." A&A 287: 479-492, 1994.

BLOOM, S.D.; MARSCHER, A.P.; GEAR, W.K.; TERASRANTA, H.; VALTAOJA, E.; ALLER, H.D.; and ALLER, M.F. "Radio, Millimeter-Submillimeter, and Infrared Spectra of Flat-Spectrum Extragalactic Radio Sources." AJ 108: 398-404, 1994.

BOGERS, W.J.; HES, R.; BARTHEL, P.D.; and ZENSUS, J.A. "High Resolution Radio Observations of Intermediate Redshift Quasars and Radio Galaxies." A&AS 105: 91-113, 1994.

BONDI, M.; PADRIELLI, L.; FANTI, R.; GREGORINI, L.; MANTOVANI, F.; ROMNEY, J.D.; BARTEL, N.; WEILER, K.W.; NICOLSON, G.D. "Correlated Flux Density Outbursts and Structural Variations in a Sample of Low Frequency Variable Radio Sources." IAU Symp. 159: 420, 1994.

BOWERS, P.F. and JOHNSTON, K.J. "VLA Positions and Distributions of H₂O Masers Associated with 15 Mira and Semiregular Variables." ApJS 92: 189-218, 1994.

BRAUN, R.; WALTERBOS, R.A.M.; KENNICUTT, R.C. JR.; and TACCONI, L.J. "Counterrotating Gaseous Disks in NGC 4826." ApJ 420: 558-569, 1994.

BRIDLE, A.H.; HOUGH, D.H.; LONSDALE, C.J.; BURNS, J.O.; and LAING, R.A. "Deep VLA Imaging of Twelve Extended 3CR Quasars." AJ 108: 766-820, 1994.

BRIDLE, A.H.; LAING, R.A.; SCHEUER, P.A.G.; and TURNER, S. "Jet Side Versus Spectral Index in Quasars." In: Physics of Active Galaxies (ASP, ed. G. V. Bicknell *et al.*): 187-193, 1994.

BRIGGS, D.S. "Superresolution of SN 1987A: A Comparative Deconvolution Study." In: Restoration of HST Images and Spectra II (STScI, ed. R. J. Hanisch & R. L. White): 250-256, 1994.

BRIGGS, D.S. and CORNWELL, T.J. "CLEAN/MEM Deconvolution Errors: Semicompact Sources." IAU Symp. 158: 212-214, 1994.

BRINKS, E. "Intergalactic HI." In: The Cold Universe (Ed. Frontieres, ed. Th. Montmerle *et al.*): 303-314, 1994.

BRINKS, E. "Tracing Violent Star Formation: HI Observations of Nearby Galaxies." In: Violent Star Formation From 30 Doradus to QSOs (Cambridge, ed. G. Tenorio-Tagle): 145-155, 1994.

BRINKS, E.; SKILLMAN, E.D.; TERLEVICH, R.J.; and TERLEVICH, E. "High Resolution HI Observations of NGC 1068." IAU Symp. 159: 422, 1994.

BRINKS, E. and TAYLOR, C.L. "HI Observations of HII Galaxies: Probing the Dark Matter." In: Dwarf Galaxies (ESO, ed. G. Meylan & P. Prugniel): 263-272, 1994.

BROWN, L.F.; ROBERTS, D.H.; and WARDLE, J.F.C. "Evolution of the Parsec-Scale Linear Polarization Structure of the Superluminal Quasar 3C 345." ApJ 437: 108-121, 1994.

BROWN, R.L. "The Extended CO(3-2) Emission in the Protogalaxy IRAS F10214+4724." IAU Colloq. 140: 332-335, 1994.

BROWN, R.L. "The Millimeter Array." IAU Colloq. 140: 398-404, 1994.

BROWN, R.L. "Submillimeter Interferometry in Space." IAU Colloq. 140, 419-425, 1994.

BURNS, J.O.; RHEE, G.; OWEN, F.N.; and PINKNEY, J. "Clumped X-ray Emission Around Radio Galaxies in Abell Clusters." ApJ 423: 94-115, 1994.

- BURNS, J.; RHEE, G.; ROETTIGER, K.; PINKNEY, J.; LOKEN, C.; OWEN, F.; and VOGES, W. "On the Effects of X-ray Subclumps and Cluster/Subcluster Mergers on Extended Cluster Radio Sources." In: Physics of Active Galaxies (ASP, ed. G.V. Bicknell *et al.*): 325-334, 1994.
- BURNS, J.; ROETTIGER, K.; PINKNEY, J.; LOKEN, C.; DOE, S.; OWEN, F.; VOGES, W.; and WHITE, R. "Clumped X-ray Emission Around Radio Galaxies in Clusters: New Tools for Investigating Cluster Evolution." In: The Soft X-ray Cosmos (AIP, ed. E.M. Schlegel & R. Petre): 183-192, 1994.
- CAMPBELL, R.M.; COREY, B.E.; FLACO, E.E.; SHAPIRO, I.I.; GORENSTEIN, M.V.; ELOSEGUI, P.; MARCAIDE, J.M.; and ALVI, K. "Toward Estimation of H_0 from VLBI Observations of the Gravitational Lens System 0957+561." ApJ 426: 486-492, 1994.
- CARILLI, C.L.; BARTEL, N.; and DIAMOND, P. "Second Epoch VLBI Observations of the Nuclear Jet in Cygnus A: Subluminal Jet Proper Motion Measured." AJ 108: 64-75, 1994.
- CARILLI, C.; DIAMOND, P.; and BARTEL, N. "The Parsec-Scale Jet in Cygnus A." In: Compact Extragalactic Radio Sources (NRAO, ed. J. A. Zensus & K. I. Kellermann): 233-238, 1994.
- CARILLI, C.L.; OWEN, F.N.; and HARRIS, D.E. "Radio Continuum Polarimetric Imaging of High Redshift Radio Galaxies." AJ 107: 480-493, 1994. Erratum: AJ 107: 2299, 1994.
- CARILLI, C.L.; PERLEY, R.A.; and HARRIS, D.E. "Observations of Interaction Between Cluster Gas and the Radio Lobes of Cygnus A." MNRAS 270: 173-177, 1994.
- CAYATTE, V.; KOTANYI, C.; BALKOWSKI, C.; and VAN GORKOM, J.H. "A Very Large Array Survey of Neutral Hydrogen in Virgo Cluster Spirals. III. Surface Density Profiles of the Gas." AJ 107: 1003-1017, 1994.
- CERCHIARA, P.L.; BROWNE, I.W.A.; MANTOVANI, F.; and MUXLOW, T.W.B. "Multifrequency Observations of the Radio Galaxy 3C 159." MNRAS 267: 247-252, 1994.
- CESARONI, R.; CHURCHWELL, E.; HOFNER, P.; WALMSLEY, C.M.; and KURTZ, S. "Hot Ammonia Towards Compact HII Regions." A&A 288: 903-920, 1994.
- CHANDLER, C.J.; CARLSTROM, J.E.; and TEREBEY, S. "The Protostellar Environment: Millimeter and Submillimeter Continuum Emission." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 241-250, 1994.

- CHEN, H.; MYERS, P.C.; LADD, E.F.; and WOOD, D.O.S. "Bolometric Temperature and Young Stars in the Taurus and Ophiuchus Complexes." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 256-265, 1994.
- CHENG, J. and CHIEW, S.-P. "Structural Aspects of Steerable Parabolic Antenna Design." J. Inst. Engineers Singapore 34 (5): 47-56, 1994.
- CHENGALUR, J.; SALPETER, E.; and TERZIAN, Y. "Dynamics of Binary Galaxies. II. Close Pairs." AJ 107: 1984-2005, 1994.
- CHERNIN, L.M.; MASSON, C.R.; and FULLER, G. "High-Velocity Sulfur Monoxide Emission from Protostellar Outflows." ApJ 436: 741-748, 1994.
- CHROMEY, F.R. and ELMEGREEN, B.G. "Digital Selection of Structural Features in Neutral Hydrogen Emission Maps." In: Infrared Cirrus and Diffuse Interstellar Clouds (ASP, ed. R.M. Cutri & W.B. Latter): 202, 1994.
- CLAUSSEN, M.J.; GAUME, R.A.; JOHNSTON, K.J.; and WILSON, T.L. "The W3 IRS 5 Cluster: Radio Continuum and Water Maser Observations." ApJ 424: L41-L44, 1994.
- COE, M.J.; JONES, L.R.; and LEHTO, H. "A Deep Radio Search for the Counterpart to the Enigmatic X-ray Pulsar 1E2259+586." MNRAS 270: 178-182, 1994.
- COLBERT, E.J.M.; WILSON, A.S.; and BLAND-HAWTHORN, J. "The Radio Emission from the Ultraluminous Far-Infrared Galaxy NGC 6240." ApJ 436: 89-101, 1994.
- COLLISON, P.M.; SAIKIA, D.J.; PEDLAR, A.; AXON, D.J.; and UNGER, S.W. "Radio Continuum Observations of Starburst Galaxies." MNRAS 268: 203-212, 1994.
- CONDON, J.J.; BRODERICK, J.J.; SEIELSTAD, G.A.; DOUGLAS, K.; and GREGORY, P.C. "A 4.85 GHz Sky Survey. III. Epoch 1986 and Combined (1986+1987) Maps Covering $0^\circ < \delta < +75^\circ$." AJ 107: 1829-1833, 1994.
- CONDON, J.J.; COTTON, W.D.; GREISEN, E.W.; YIN, Q.F.; PERLEY, R.A.; and BRODERICK, J.J. "The NRAO VLA Sky Survey." In: Astronomical Data Analysis Software and Systems III (ASP, ed. D.R. Crabtree *et al.*): 155-164, 1994.
- CONWAY, J.E. "A Helical Jet in the Orthogonally Misaligned Source Markarian 501." In: Compact Extragalactic Radio Sources (NRAO, ed. J. A. Zensus & K. I. Kellermann): 73-78, 1994.

- CONWAY, J.E.; MYERS, S.T.; PEARSON, T.J.; READHEAD, A.C.S.; UNWIN, S.C.; and XU, W. "Evidence for Two Classes of Parsec-Scale Radio Double Source in Active Galactic Nuclei." ApJ 425: 568-581, 1994.
- CORNETT, R.H.; HILL, J.K.; BOHLIN, R.C.; O'CONNELL, R.W.; ROBERTS, M.S.; SMITH, A.M.; and STRECHER, T.P. "UIT: Ultraviolet Observations of the Small Magellanic Cloud." ApJ 430: L117-L120, 1994.
- CORNETT, R.H.; O'CONNELL, R.W.; GREASON, M.R.; OFFENBERG, J.D.; ANGIONE, R.J.; BOHLIN, R.C.; CHENG, K.P.; ROBERTS, M.S.; SMITH, A.M.; SMITH, E.P.; TALBERT, F.D.; and STECHER, T.P. "UIT: Ultraviolet Surface Photometry of the Spiral Galaxy M74 (NGC 628)" ApJ 426: 553-562, 1994.
- CORNWELL, T.J. "Imaging Techniques: Limitations to the Quality of Images." IAU Symp. 158: 37-45, 1994.
- CORNWELL, T.J. "Mosaicing: Current Status." IAU Colloq. 140: 96-103, 1994.
- CORNWELL, T.J. "Where Have We Been, Where Are We Now, Where Are We Going?" In: Restoration of HST Images and Spectra II (STScI, ed. R.J. Hanisch & R.L. White): 369-372, 1994.
- COTE, S.; FREEMAN, K.; and CARIGNAN, C. "Dwarf Galaxies in Nearby Southern Groups" In: Dwarf Galaxies (ESO, ed. G. Meylan & P. Prugniel): 101-108, 1994.
- COWAN, J.J.; ROBERTS, D.A.; and BRANCH, D. "Radio Observations of M83 and Its Supernova Remnants." ApJ 434: 128-135, 1994.
- COWAN, J.J.; ROMANISHIN, W.; and BRANCH, D. "Detection of a Nuclear Radio Source in NGC 7331: A Relatively 'Radio Quiet' Liner." ApJ 436: L139-L142, 1994.
- CURIEL, S.; MORAN, J.M.; RODRIGUEZ, L.F.; and CANTO, J. "The Serpens Radio Jet: Evidence of Precession of Nutation." Ap&SS 216: 137-138, 1994.
- CUTRI, R.M.; HUCHRA, J.P.; LOW, F.J.; BROWN, R.L.; and VANDEN BOUT, P.A. "IRAS F15307+3252: A Hyperluminous Infrared Galaxy at $z=0.93$." ApJ 424: L65-L68, 1994.
- DAHLEM, M.; DETTMAR, R.-J.; and HUMMEL, E. "Spatially Correlated Diffuse $H\alpha$ and Radio Continuum Emission from the Halo of NGC 891." A&A 290: 384-392, 1994.

- DALLACASA, D.; CAI ZHENG DONG.; SCHILIZZI, R.T.; NAN RENDONG; FANTI, C.; FANTI, R.; and SPENCER, R.E. "Global VLBI Images of 14 Compact Steep-Spectrum Radio Sources at 327 MHz." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 23-28, 1994.
- DE PATER, I.; PALMER, P.; MITCHELL, D.L.; OSTRO, S.J.; YEOMANS, D.K.; and SNYDER, L.E. "Radar Aperture Synthesis Observations of Asteroids." Icarus 111: 489-502, 1994.
- DE PREE, C.G.; GOSS, W.M.; PALMER, P.; and RUBIN, R.H. "A Bipolar Outflow of Ionized Gas in K3-50A: H76 α Radio Recombination Line and Continuum Observations of K3-50." ApJ 428: 670-679, 1994.
- DELLA CECA, R.; ZAMORANI, G.; MACCACARO, T.; WOLTER, A.; GRIFFITHS, R.; STOCKE, J.T.; and SETTI, G. "The Properties of X-ray-Selected Active Galactic Nuclei. III. The Radio-Quiet versus Radio-Loud Samples." ApJ 430: 533-544, 1994.
- DELLA VALLE, M.; MIRABEL, I.F.; and RODRIGUEZ, L.F. "The Optical and Radio Counterpart of the X-ray Nova Ophiuchi 1993." A&A 290: 803-806, 1994.
- DESAI, K.M.; GWINN, C.R.; and DIAMOND, P.J. "Evidence for Magnetic-Field-Induced Anisotropy of the Interstellar Medium." Nature 372: 754-756, 1994.
- DIAMOND, P.J. and BEASLEY, A.J. "Recent Results from the VLBA." IAU Symp. 158: 125-127, 1994.
- DIAMOND, P.J.; KEMBALL, A.J.; JUNOR, W.; ZENSUS, A.; BENSON, J.; and DHAWAN, V. "Observation of a Ring Structure in SiO Maser Emission from Late-Type Stars." ApJ 430: L61-L64, 1994.
- DICKEL, H.R. and AUER, L.H. "Modeling Radiative Transfer in Molecular Clouds. I. HCO⁺ in the Star-Forming Region W49A North." ApJ 437: 222-238, 1994.
- DICKEL, H.R.; AUER, L.H.; and WILNER, D.J. "Radiative Transfer Modeling of Molecular Clouds: HCO⁺ in the Star-Forming Region W 49 A North." IAU Colloq. 140: 253-254, 1994.
- DIGEL, S.; DE GEUS, E.; and THADDEUS, P. "Molecular Clouds in the Extreme Outer Galaxy." ApJ 422: 92-101, 1994.
- DRAKE, S.A.; LINSKY, J.L.; and BOOKBINDER, J.A. "A Search for Radio Emission from the 'Nonmagnetic' Chemically Peculiar Stars." AJ 108: 2203-2206, 1994.

DRAKE, S.A.; SIMON, T.; LINSKY, J.L.; and WHITE, N.E. "An Efficient Way of Identifying New Active Stars: A VLA Survey of X-ray-Selected Active Stellar Candidates." In: Cool Stars, Stellar Systems, and the Sun 8 (ASP, ed. J.-P. Caillault): 690-692, 1994.

DUBNER, G.M.; GIACANI, E.B.; GOSS, W.M.; and WINKLER, P.F. "VLA Observations of the Supernova Remnant 3C400.2 at 327 MHz and 1465 MHz." AJ 108: 207-213, 1994.

DWARAKANATH, K.S.; VAN GORKOM, J.H.; and OWEN, F.N. "A VLA Search for Neutral Hydrogen in Cooling Flow Clusters." ApJ 432: 469-477, 1994.

ELVIS, M.; LOCKMAN, F.J.; and FASSNACHT, C. "An Accurate Galactic NH Map of the North Ecliptic Pole." ApJS 95: 413-417, 1994.

EWELL, M.W. JR; ZIRIN, H.; JENSEN, J.B.; and BASTIAN, T.S. "850 μm Observations of the 11 July 1991 Total Solar Eclipse." IAU Symp. 154: 161-166, 1994.

FEIGELSON, E.D.; WELTY, A.D.; IMHOFF, C.L.; HALL, J.C.; ETZEL, P.B.; PHILLIPS, R.B.; and LONSDALE, C.J. "Multiwavelength Study of the Magnetically Active T Tauri Star HD 283447." ApJ 432: 373-385, 1994.

FELLI, M. "H₂O Masers and Star Formation." In: Structure and Content of Molecular Clouds (Springer, ed. T.L. Wilson & K.J. Johnston): 175-186, 1994.

FERETTI, L. and GIOVANNINI, G. "Structures of Small-Size Radio Galaxies in Clusters." A&A 281: 375-387, 1994.

FEY, A.L.; GAUME, R.A.; NEDOLUHA, G.E.; and CLAUSSEN, M.J. "VLA Spectral Line Observations of the H II Complex G34.3+0.2." ApJ 435: 738-747, 1994.

FEY, A.L.; RUSSELL, J.L.; DE VEGT, C.; ZACHARIAS, N.; JOHNSTON, K.J.; MA, C.; HALL, D.M.; and HOLDENRIED, E.R. "Radio Optical Reference Frame. VI. Additional Source Positions in the Northern Hemisphere." AJ 107: 385-391, 1994.

FIEDLER, R.; DENNISON, B.; JOHNSTON, K.J.; WALTMAN, E.B.; and SIMON, R.S. "A Summary of Extreme Scattering Events and a Descriptive Model." ApJ 430: 581-595, 1994.

FINLEY, D. "Very Large Array Sky Survey." IAU Circ. 6008: 14 June 1994.

- FOMALONT, E.B. "The VLA and VLBA at Millimeter Wavelengths." IAU Colloq. 140: 41-43, 1994.
- FOX, D.C.; LINSKY, J.L.; VEALE, A.; DEMPSEY, R.C.; BROWN, A.; NEFF, J.E.; PAGANO, I.; RODONO, M.; BROMAGE, G.E.; KÜRSTER, M.; and SCHMITT, J.H.M.M. "Rotational Modulation and Flares on RS Canum Venaticorum and BY Draconis Stars. XVIII. Coordinated VLA, ROSAT, and IUE Observations of RS CVn Binaries." A&A 284: 91-104, 1994.
- FRAIL, D.A. and BEASLEY, A.J. "Stellar OH Masers Toward Globular Clusters." A&A 290: 796-802, 1994.
- FRAIL, D.A.; DIAMOND, P.J.; CORDES, J.M.; and VAN LANGEVELDE, H.J. "Anisotropic Scattering of OH/IR Stars Toward the Galactic Center." ApJ 427: L43-L46, 1994.
- FRAIL, D.A.; GOSS, W.M.; and SLYSH, V.I. "Shock-Excited Maser Emission From the Supernova Remnant W28." ApJ 424: L111-L113, 1994.
- FRAIL, D.A.; GOSS, W.M.; and WHITEOAK, J.B.Z. "The Radio Lifetime of Supernova Remnants and the Distribution of Pulsar Velocities at Birth." ApJ 437: 781-793, 1994.
- FRAIL, D.A.; KASSIM, N.E.; and WEILER, K.W. "Radio Imaging of Two Supernova Remnants Containing Pulsars." AJ 107: 1120-1127, 1994.
- FRAIL, D.A. and KULKARNI, S.R. "The Identification of a Supernova Remnant with a Soft Gamma Ray Repeater." In: Gamma-Ray Bursts 2 (AIP, ed. G.J. Fishman, *et al.*): 486-488, 1994.
- FRAIL, D.A.; KULKARNI, S.R.; HURLEY, K.C.; FISHMAN, G.J.; KOUVELIOTOU, C.; MEEGAN, C.A.; SOMMER, M.; BOER, M.; NIEL, M.; and CLINE, T. "A Search for the Radio Counterpart to the 1994 March 1 Gamma-Ray Burst." ApJ 437: L43-L46, 1994.
- FRAIL, D.A.; WEISBERG, J.M.; CORDES, J.M.; and MATHERS, C. "Probing the Interstellar Medium with Pulsars on AU Scales." ApJ 436: 144-151, 1994.
- FRANCIS, P.J. "Optical Differences Between Radio-Loud and Radio-Quiet QSOs." IAU Symp. 159: 503, 1994.
- FRANX, M.; VAN GORKOM, J.H.; and DE ZEEUW, T. "Evidence for Axisymmetric Halos: The Case of IC 2006." ApJ 436: 642-653, 1994.

- FRAYER, D.T.; BROWN, R.L.; and VANDEN BOUT, P.A. "CO Emission from the $z = 3.137$ Damped Ly α System Toward PC 1643+4631A." ApJ 433: L5-L8, 1994.
- FULLER, G.A. "Dense Cores: Locations and Densities." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 3-13, 1994.
- GABUZDA, D.C. and SITKO, M.L. "Nearly Simultaneous Very Long Baseline Interferometry and Optical Polarimetry of Blazars." AJ 107: 884-891, 1994.
- GABUZDA, D.C.; WARDLE, J.F.C.; ROBERTS, D.H.; ALLER, M.F.; and ALLER, H.D. "Unusual Evolution in the VLBI Structure of 0735+178." ApJ 435: 128-139, 1994.
- GALLIMORE, J.F.; BAUM, S.A.; O'DEA, C.P.; BRINKS, E.; and PEDLAR, A. "Neutral Hydrogen Absorption in NGC 1068 and NGC 3079." ApJ 422: L13-L16, 1994.
- GALLIMORE, J.F.; BAUM, S.; O'DEA, C.; BRINKS, E.; and PEDLAR, A. "Neutral Hydrogen Absorption in NGC 1068 and NGC 3079." In: Mass-Transfer Induced Activity in Galaxies (Cambridge, ed. I. Shlosman): 113-114, 1994.
- GARAY, G.; LIZANO, S.; and GOMEZ, Y. "The Velocity Structure of the Cometary H II Regions G13.87+0.28, G32.80+0.19 B, and G61.48+0.09 B1." ApJ 429: 268-284, 1994.
- GARRETT, M.A.; CALDER, R.J.; PORCAS, R.W.; KING, L.J.; WALSH, D.; and WILKINSON, P.N. "Global VLBI Observations of the Gravitational Lens System 0957+561A,B." MNRAS 270: 457-464, 1994.
- GAUME, R.A.; FEY, A.L.; and CLAUSSEN, M.J. "VLA Recombination Line Observations of the Cometary H II Region G34.3+0.2: Dynamics and Physical Properties." ApJ 432: 648-655, 1994.
- GAUME, R.A.; WILSON, T.L.; and JOHNSTON, K.J. "High-Resolution Measurements of NH₃ Absorption Toward Cassiopeia A." ApJ 425: 127-131, 1994.
- GAVAZZI, G. and CONTURSI, A. "Radio Continuum Survey of the Coma/A1367 Supercluster. V. The Luminosity Function of A1367." AJ 108: 24-32, 1994.
- GE, J. and OWEN, F.N. "Faraday Rotation in Cooling Flow Clusters of Galaxies. II. Survey." AJ 108: 1523-1533, 1994.

- GIOVANNINI, G.; FERETTI, L.; VENTURI, T.; COTTON, W.D.; LARA, L.; MARCAIDE, J.M.; and WEHRLE, A.E. "VLBI Observations of a Complete Sample of Radio Galaxies." In: Physics of Active Galaxies (ASP, ed. G.V. Bicknell, *et al.*): 261-264, 1994.
- GIOVANNINI, G.; FERETTI, L.; VENTURI, T.; COTTON, W.D.; LARA, L.; MARCAIDE, J.; and WEHRLE, A.E. "VLBI Observations of FR I Radio Galaxies." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 61-66, 1994.
- GIOVANNINI, G.; FERETTI, L.; VENTURI, T.; LARA, L.; MARCAIDE, J.; RIOJA, M.; SPANGLER, S.R.; and WEHRLE, A.E. "VLBI Observations of a Complete Sample of Radio Galaxies. IV. The Radio Galaxies NGC 2484, 3C 109, and 3C 382." ApJ 435: 116-127, 1994.
- GIR, B.-Y.; BLITZ, L.; and MAGNANI, L. "The Association of High-Latitude Molecular Clouds with H I Gas." ApJ 434: 162-183, 1994.
- GIRART, J.M.; HO, P.T.P.; ANGLADA, G.; ESTALELLA, R.; TORRELLES, J.M.; and RODRIGUEZ, L.F. "The Molecular Core Associated with the L723 Outflow." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 72-76, 1994.
- GIRART, J.M.; RODRIGUEZ, L.F.; ANGLADA, G.; ESTALELLA, R.; TORRELLES, J.M.; MARTI, J.; PENA, M.; AYALA, S.; CUIEL, S.; and NORIEGA-CRESPO, A. "Ammonia Downstream from HH 80 North." ApJ 435: L145-L148, 1994.
- GLENDENNING, B.E. "The AIPS++ Array and Image Classes." In: Astronomical Data Analysis Software and Systems III (ASP, ed. D.R. Crabtree, *et al.*): 413-416, 1994.
- GOLLA, G. and HUMMEL, E. "The Intrinsic Magnetic Field Orientation in NGC 4631." A&A 284: 777-792, 1994.
- GOMEZ, J.F.; CUIEL, S.; TORRELLES, J.M.; RODRIGUEZ, L.F.; ANGLADA, G.; and GIRART, J.M. "The Molecular Core and the Powering Source of the Bipolar Molecular Outflow in NGC 2264G." ApJ 436: 749-753, 1994.
- GOMEZ, Y.; RODRIGUEZ, L.F.; CONTRERAS, M.E.; and MORAN, J.M. "Anomalous Water Masers in OH/IR Stars." Rev. Mex. Ast. Astrof. 28: 97-102, 1994.
- GOPALSWAMY, N. "A Study of Active Region Magnetic Fields Using Radio, X-ray and Optical Observations." In: Solar Active Region Evolution (ASP, ed. K.S. Balasubramaniam & G.W. Simon): 395-402, 1994.

GOPALSWAMY, N.; PAYNE, T.E.W.; SCHMAHL, E.J.; KUNDU, M.R.; LEMEN, J.R.; STRONG, K.T.; CANFIELD, R.C.; and DE LA BEAUJARDIERE, J. "Transient Microwave Brightenings in Solar Active Regions: Comparison Between VLA and Yohkoh Observations." ApJ 437: 522-528, 1994.

GOPALSWAMY, N.; SCHMAHL, E.J.; KUNDU, M.R.; LEMEN, J.R.; STRONG, G.T.; CANFIELD, R.C.; and DE LA BEAUJARDIERE, J. "Study of Active Region Magnetic Field Structures Using VLA Radio, Yohkoh X-ray and Mees Optical Observations." In: New Look at the Sun (Nobeyama Radio Observatory, ed. S. Enome & T. Hirayama): 347-351, 1994.

GORDON, M.A. "The Nature of the Radio Recombination Line Emission from MWC 349A." ApJ 421: 314-317, 1994.

GRAY, A.D. "The MOST Galactic Centre Survey — I. Survey Images and Results on Sgr A-E." MNRAS 270: 822-834, 1994.

GREEN, D.A. and JONCAS, G. "Observations of Sources from the DRAO Galactic Plane Survey: The SNR G104.7 + 2.8 and Five Sources near $\ell = 105^\circ$, $b = 0^\circ$." A&AS 104: 481-486, 1994.

GREGORINI, L.; DE RUITER, H.R.; PARMA, P.; SADLER, E.M.; VETTOLANI, G.; and EKERS, R.D. "Dumbbell Galaxies and Multiple Nuclei in Rich Clusters: Radio Data." A&AS 106: 1-19, 1994.

GREGORINI, L.; EKERS, R.D.; DE RUITER, H.R.; PARMA, P.; SADLER, E.M.; and VETTOLANI, G. "Dumbbell Galaxies and Multiple Nuclei in Rich Clusters: Radio Data." In: Mass-Transfer Induced Activity in Galaxies (Cambridge, ed. I. Shlosman): 400-401, 1994.

GREGORY, P.C.; VAVASOUR, J.D.; SCOTT, W.K.; and CONDON, J.J. "The Parkes-MIT-NRAO (PMN) Map Catalog of Radio Sources Covering $-88^\circ < \delta < -37^\circ$ at 4.85 GHz." ApJS 90: 173-177, 1994.

GUDEL, M.; SCHMITT, J.H.M.M.; and BENZ, A.O. "Discovery of Microwave Emission From Four Nearby Solar-Type G Stars." Science 265: 933-935, 1994.

GURVITS, L.I.; SCHILIZZI, R.T.; BARTHEL, P.D.; KARDASHEV, N.S.; KELLERMANN, K.I.; LOBANOV, A.P.; PAULINY-TOTH, I.I.K.; and POPOV, M.V. "Milliarcsecond Structures of Extremely Distant Quasars: 0336-017, 0636+680, 1442+101, and 2048+312." A&A 291: 737-742, 1994.

GWINN, C.R. "Hypersonic Acceleration and Turbulence of H₂O Masers in W49N." ApJ 429: 241-252, 1994.

GWINN, C.R. "Physical Structure of H₂O Masers in W49N." ApJ 429: 253-267, 1994.

GWINN, C.R. "Scattered Halos Around H₂O Masers." ApJ 431: L123-L126, 1994.

HARRIS, D.E.; CARILLI, C.L.; and PERLEY, R.A. "X-ray Emission From the Radio Hotspots of Cygnus A." Nature 367: 713-716, 1994.

HARRIS, D.E.; PERLEY, R.A.; and CARILLI, C.L. "Spatial Modelling Techniques Applied to ROSAT HRI Observations of Cygnus A." In: Astronomical Data Analysis Software and Systems III (ASP, ed. D.R. Crabtree, *et al.*): 375-378, 1994.

HARRIS, D.E.; PERLEY, R.A.; and CARILLI, C.L. "X-ray Detection of the Nuclear Source in the Cygnus A Galaxy." IAU Symp. 159: 375-376, 1994.

HEESCHEN, D.S. "Reminiscence [P.G. Mezger's Career, Contributions, and Influences]" In: Nuclei of Normal Galaxies (Kluwer, ed. R. Genzel & A.I. Harris): 469-474, 1994.

HEINDL, W.A.; PRINCE, T.A.; and GRUNSFELD, J.M. "Observations of 1E 1740.7-2942 with ROSAT and the VLA." ApJ 430: 829-833, 1994.

HENNING, P.A. "Searching at 21-cm for Galaxies in the Zone of Avoidance." In: Unveiling Large-Scale Structures Behind the Milky Way (ASP, ed. C. Balkowski & R.C. Kraan-Korteweg): 203-211, 1994.

HIBBARD, J.E.; GUHATHAKURTA, P.; VAN GORKOM, J.H.; and SCHWEIZER, F. "Cold, Warm, and Hot Gas in the Late Stage Merger NGC 7252." AJ 107: 67-89, 1994.

HIGGS, L.A.; WENDKER, H.J.; and LANDECKER, T.L. "G79.29+0.46: A Young Stellar-Wind Shell in Cygnus X." A&A 291: 295-309, 1994.

HILL, J.K.; ISENSEE, J.E.; CORNETT, R.H.; BOHLIN, R.C.; O'CONNELL, R.W.; ROBERTS, M.S.; SMITH, A.M.; and STECHER, T.P. "Initial Mass Functions from Ultraviolet Stellar Photometry: A Comparison of Lucke and Hodge OB Associations Near 30 Doradus with the Nearby Field." ApJ 425: 122-126, 1994.

HILTNER, P.R.; MEISENHEIMER, K.; ROSER, H.J.; LAING, R.A.; and PERLEY, R.A. "Hot Spot 3C 20 West: An Optical Synchrotron Source." A&A 286: 25-36, 1994.

- HJELLMING, R.M. "X-ray Nova in Scorpius." IAU Circ. 6055: 16 August 1994.
- HJELLMING, R.M. "X-ray Nova in Scorpius." IAU Circ. 6060: 24 August 1994.
- HJELLMING, R.M. and RUPEN, M. "X-ray Nova in Scorpius." IAU Circ. 6073: 6 September 1994.
- HJELLMING, R.M. and RUPEN, M. "X-ray Nova in Scorpius." IAU Circ. 6077: 13 September 1994.
- HJELLMING, R.M. and RUPEN, M.P. "X-ray Nova in Scorpius." IAU Circ. 6086: 1 October 1994.
- HJELLMING, R.M. and RUPEN, M.P. "X-ray Nova in Scorpius." IAU Circ. 6107: 22 November 1994.
- HO, P.T.P. "Gas Feeding Toward the Galactic Center." IAU Colloq. 140: 161-165, 1994.
- HO, P.T.P.; PENG, Y.-L.; TORRELLES, J.M.; GOMEZ, J.F.; RODRIGUEZ, L.F.; and CANTO, J. "A Flattened Cloud Core in NGC 2024." IAU Colloq. 140: 262-263, 1994.
- HOEPPE, G.; BRINKS, E.; PRICE, R.M.; and DEEG, H.J. "Multi-Wavelength Observations of Low Surface Brightness (Dwarf) Galaxies" In: Dwarf Galaxies (ESO, ed. G. Meylan & P. Prugniel): 303-306, 1994.
- HOEPPE, G.; BRINKS, E.; KLEIN, U.; GIOVANARDI, C.; ALTSCHULER, D.R.; PRICE, R.M.; and DEEG, H.-J. "Radio Continuum and Far-Infrared Observations of Low Surface Brightness Galaxies." AJ 108: 446-455, 1994.
- HOFNER, P.; KURTZ, S.; CHURCHWELL, E.; WALMSLEY, C.M.; and CESARONI, R. "High-Resolution Observations of a New Ammonia Maser Line in G9.62+0.19." ApJ 429: L85-L88, 1994.
- HOLDAWAY, M.A. "Phase Calibration of the Proposed Millimeter Array." IAU Colloq. 140: 121-122, 1994.
- HOLDAWAY, M.A. "Phase Calibration of the Proposed Millimeter Array." IAU Symp. 158: 101-104, 1994.
- HORA, J.L. and LATTER, W.B. "The Near-Infrared Structure and Spectra of the Bipolar Nebulae M 2-9 and AFGL 2688: The Role of Ultraviolet Pumping and Shocks in Molecular Hydrogen Excitation." ApJ 437: 281-295, 1994.

- HUANG, Z.P.; THUAN, T.X.; CHEVALIER, R.A.; CONDON, J.J.; and YIN, Q.F. "Compact Radio Sources in the Starburst Galaxy M82 and the Σ -D Relation for Supernova Remnants." ApJ 424: 114-125, 1994.
- HUANG, Z.-P.; YIN, Q.-F.; SASLAW, W.C.; and HEESCHEN, D.S. "Complex Radio Structure in the Peculiar Pair of Interacting Starburst Galaxies NGC 3395 and NGC 3396." ApJ 423: 614-620, 1994.
- HUCHTMEIER, W.K.; BREGMAN, J.N.; HOGG, D.E.; and ROBERTS, M.S. "The Extent of CO in the Early-Type Galaxy NGC 4472." A&A 281: 327-330, 1994.
- HUFNAGEL, B. and SMITH, G.H. "Mg II Chromospheric-Emission Dating of HR 1614 Moving-Group Stars." PASP 106: 1068-1074, 1994.
- HUGHES, D.H.; GEAR, W.K.; and ROBSON, E.I. "The Submillimetre Structure of the Starburst Nucleus in M82: A Diffraction-Limited 450- μ m Map." MNRAS 270: 641-649, 1994.
- HUGHES, V.A.; COHEN, R.J.; and GARRINGTON, S. "Cepheus A: A Laboratory Showing the Processes Associated with Star Formation." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 307-311, 1994.
- HUGHES, V.A. and MACLEOD, G.C. "An Analysis of IRAS-Identified H II Regions and Their Radio Properties." ApJ 427: 857-866, 1994.
- HUNTER, D.A.; VAN WOERDEN, H.; and GALLAGHER, J.S. III "Neutral Hydrogen and Optical Properties of Three Amorphous Galaxies." ApJS 91: 79-110, 1994.
- HUNTER, T.R.; TAYLOR, G.B.; FELLI, M.; and TOFANI, G. "Water Masers Embedded in Ultracompact H II Regions: The W75N Cloud Core." A&A 284: 215-226, 1994.
- HUTCHINGS, J.B.; MORRIS, S.C.; GOWER, A.C.; and LISTER, M.L. "Correlated Optical and Radio Structure in the QSO 1302-102." PASP 106: 642-645, 1994.
- HUTCHINGS, J.B.; NEFF, S.G.; WEADOCK, J.; RYNEVELD, S.; and GOWER, A.C. "Evolution of Radio Galaxies to $z=1$." AJ 107: 471-479, 1994.
- IRWIN, J.A. "Arcs and Bridges in Interacting Galaxies NGC 5775/NGC 5774." ApJ 429: 618-633, 1994.

- IRWIN, J.A. and CARON, B.L. "The NGC 5775/4 Interacting System." In: Mass-Transfer Induced Activity in Galaxies (Cambridge, ed. I. Shlosman): 362-366, 1994.
- IVISON, R.J. and SEAQUIST, E.R. "The Latest Spectral Peregrinations of RX Puppis." MNRAS 268: 561-568, 1994.
- IVISON, R.J.; SEAQUIST, E.R.; and HALL, P.J. "Discovery of OH and H₂O Masers in R Aquarii and H1-36 Arae." MNRAS 269: 218-224, 1994.
- JACKSON, J.M. and KRAEMER, K.E. "Radial Motions of Molecular Gas in the W49 Cloud Core." ApJ 429: L37-L39, 1994.
- JACKSON, R.; WELLS, D.; ADORF, H.M.; EGRET, D.; HECK, A.; KOEKEMOER, A.; and MURTAGH, F. "The AstroWeb Database." Bull. Inf. CDS 45: 21-25, 1994.
- JACKSON, R.; WELLS, D.; ADORF, H.M.; EGRET, D.; HECK, A.; KOEKEMOER, A.; and MURTAGH, F. "AstroWeb: A Database of Links to Astronomy Resources." A&AS 108: 235-236, 1994.
- JAFFE, W. and MCNAMARA, B. "H I and CO in the Nuclear Disk of NGC 4261." ApJ 434: 110-113, 1994.
- JANSEN, D.J.; VAN DISHOECK, E.F.; and BLACK, J.H. "Physical and Chemical Structure of the IC 63 Nebula. I. Millimeter and Far-Infrared Observations." A&A 282: 605-620, 1994.
- JENSEN, E.L.N.; MATHIEU, R.D.; and FULLER, G.A. "A Connection Between Submillimeter Continuum Flux and Separation in Young Binaries." ApJ 429: L29-L32, 1994.
- JONES, D.L. "5-GHz Imaging of the Gravitational Lens PKS 1830-211." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 135-140, 1994.
- JONES, D.L. and WEHRLE, A.E. "Morphological Changes in the NGC 6251 Jet." ApJ 427: 221-226, 1994.
- JUNOR, W. and BIRETTA, J.A. "The Inner Light-Month of the M87 Jet." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 97-102, 1994.
- KAUFMAN, M.; ELMEGREEN, D.M.; BRINKS, E.; ELMEGREEN, B.G.; and SUNDIN, M. "Interaction Between the Galaxies IC 2163 and NGC 2207." In: Mass-Transfer Induced Activity in Galaxies (Cambridge, ed. I. Shlosman): 358-361, 1994.

- KELLERMANN, K.I. "The Angular Size and Angular Velocity Redshift Relations for Compact Radio Galaxies and Quasars." In: Evolution of the Universe and Its Observational Quest (Universal Acad. Pr., ed. K. Sato): 237-242, 1994.
- KELLERMANN, K.I. "Compact Radio Sources, Quasars, and Active Galactic Nuclei." Aust. J. Phys. 47: 599-613, 1994.
- KELLERMANN, K.I. "Differential Doppler Boosting in Compact Synchrotron Sources." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 245-250, 1994.
- KELLERMANN, K.I. "Radio Galaxies, Quasars and Superluminal Radio Sources." In: From Superconductivity to Supernovae (NIST, ed. A.F. Clark): 15-23, 1994.
- KELLERMANN, K.I.; SRAMEK, R.A.; SCHMIDT, M.; GREEN, R.F.; and SHAFFER, D.B. "The Radio Structure of Radio Loud and Radio Quiet Quasars in the Palomar Bright Quasar Survey." AJ 108: 1163-1177, 1994.
- KIM, K.-T. "Radio Observations of the Coma Cluster of Galaxies and Its Immediate Vicinity. II. A Master List of Radio Sources." A&AS 105: 403-414, 1994.
- KIM, K.-T.; KRONBERG, P.P.; DEWDNEY, P.E.; and LANDECKER, T.L. "Radio Observations of the Coma Cluster of Galaxies and Its Immediate Vicinity. I. Radio Data and Optical Identifications." A&AS 105: 385-402, 1994.
- KISLYAKOV, A.G. and TERNER [i.e. TURNER], B.E. "Unusual Emission in C¹⁸O Toward S 201." Astron. Lett. 20: 713-716, 1994. Translation of: Pisma Astron. Zh. 20: 822-825, 1994.
- KITAMOTO, S.; MIYAMOTO, S.; WALTMAN, E.B.; FIEDLER, R.L.; JOHNSTON, K.J.; and GHIGO, F.D. "Radio, Infrared, and X-ray Activity of Cygnus X-3." A&A 281: L85-L88, 1994.
- KNAPP, G.R.; BOWERS, P.F.; YOUNG, K.; and PHILLIPS, T.G. "Detection of Radio Continuum Emission from Circumstellar Dust Around CRL 2688 and IRC+10216." ApJ 429: L33-L36, 1994.
- KOLLGAARD, R.I.; BRINKMANN, W.; CHESTER, M.M.; FEIGELSON, E.D.; HERTZ, P.; REICH, P.; and WIELEBINSKI, R. "A Sensitive 1.5 GHz Radio Survey Around the North Ecliptic Pole." ApJS 93: 145-159, 1994.
- KOLLGAARD, R.I.; LAURENT-MUEHLEISEN, S.A.; FEIGELSON, E.D.; SPINRAD, H.; and BRINKMANN, W. "Multifrequency Studies of Optically Quiet Quasars." In: The Soft X-ray Cosmos (AIP, ed. E.M. Schlegel and R. Petre): 423-425, 1994.

- KOO, B.-C.; LEE, Y.; FULLER, G.A.; LEE, M.G.; KWON, S.-M.; and JUNG, J.-H. "Multiwavelength Study of IRAS 19550+3248: A Protostar Possibly Formed by a Cloud-Cloud Collision." ApJ 429: 233-240, 1994.
- KRICHBAUM, T.P.; SCHALINSKI, C.J.; WITZEL, A.; STANDKE, K.J.; GRAHAM, D.A.; and ZENSUS, J.A. "First Detection of Sgr A* with VLBI at 7 mm and 3 mm Wavelength." In: Nuclei of Normal Galaxies (Kluwer, ed. R. Genzel & A.I. Harris): 411-414, 1994.
- KRICHBAUM, T.P.; WITZEL, A.; STANDKE, K.J.; GRAHAM, D.A.; SCHALINSKI, C.J.; and ZENSUS, J.A. "MM-VLBI: Bending of Jets in the Vicinity of AGN." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 39-44, 1994.
- KUAN, Y.-J. and SNYDER, L.E. "Three Millimeter Molecular Line Observations in Sagittarius B2. I. Full Synthesis Mapping Study of HNO, CCS, and HC¹³CCN." ApJS 94: 651-676, 1994.
- KUCERA, T.A.; DULK, G.A.; GARY, D.E.; and BASTIAN, T.S. "A Multisource Limb Flare Observed at Multiple Radio Wavelengths." ApJ 433: 875-885, 1994.
- KUKULA, M.J.; PEDLAR, A.; BAUM, S.; O'DEA, C.; and UNGER, S. "The CfA Seyfert Sample at 8.4 GHz." IAU Symp. 159: 514, 1994.
- KUKULA, M.J.; PEDLAR, A.; UNGER, S.W.; BAUM, S.; and O'DEA, C.P. "8.4 GHz VLA Observations of the CfA Seyfert Sample." Ap&SS 216: 371-372, 1994.
- KULKARNI, S.R.; FRAIL, D.A.; KASSIM, N.E.; MURAKAMI, T.; and VASISHT, G. "The Radio Nebula of the Soft γ -ray Repeater 1806-20." Nature 368: 129-131, 1994.
- KURTZ, S.; CHURCHWELL, E.; and WOOD, D.O.S. "Ultracompact H II Regions. II. New High-Resolution Radio Images." ApJS 91: 659-712, 1994.
- LA FRANCA, F.; GREGORINI, L.; CRISTIANI, S.; DE RUITER, H.; and OWEN, F. "Deep VLA Observations of an Optically Selected Sample of Intermediate Redshift QSOs and the Optical Luminosity Function of the Radio Loud QSOs." AJ 108: 1548-1556, 1994.

- LACY, M.; MILEY, G.; RAWLINGS, S.; SAUNDERS, R.; DICKINSON, M.; GARRINGTON, S.; MADDOX, S.; POOLEY, G.; STEIDEL, C.C.; BREMER, M.N.; COTTER, G.; VAN OJIK, R.; ROTTGERING, H.; and WARNER, P. "8C1435+635: A Radiogalaxy at $z=4.25$." MNRAS 271: 504-512, 1994.
- LARA, L.; ALBERDI, A.; MARCAIDE, J.M.; and MUXLOW, T.W.B. "The Quasar 3C395 Revisited: New VLBI Observations and Numerical Simulations." A&A 285: 393-403, 1994.
- LAURANT, P. and PAUL, J. "Is the Galactic Center Annihilator 1E 1740.7-2942 a Source of MeV Gamma-Ray Continuum Emission?" ApJS 92: 375-379, 1994.
- LAURENT-MUEHLEISEN, S.A.; FEIGELSON, E.D.; KOLLGAARD, R.A.; and FOMALONT, E.B. "X-rays from the Lobes of Fornax A." In: The Soft X-ray Cosmos. (AIP, ed. E.M. Schlegel and R. Petre): 418-419, 1994.
- LEES, J.F. "Gas Kinematics in the LINER Radio Elliptical Galaxy NGC 4278." In: Mass-Transfer Induced Activity in Galaxies (Cambridge, ed. I. Shlosman): 432-436, 1994.
- LEFÈVRE, E.; KLEIN, K.-L.; and LESTRADE, J.-F. "Variability of Quiescent and Flaring Radio Emission in RS CVn and Algol-Type Binary Systems." A&A 283: 483-492, 1994.
- LEONE, F.; TRIGILIO, C.; and UMANA, G. "Radio Emission From Magnetic Chemically Peculiar Stars: Results of the 1992 VLA Survey." A&A 283: 908-910, 1994.
- LEPPANEN, K.J.; ZENSUS, J.A.; and DIAMOND, P.D. "High Frequency Polarization Imaging with the VLBA." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 207-210, 1994.
- LESTRADE, J.-F.; JONES, D.L.; PRESTON, R.A.; and PHILLIPS, R.B. "High-Precision VLBI Astrometric Observations of Radio-Emitting Stars for Detection of Extrasolar Planets." Ap&SS 212: 251-260, 1994.
- LI, J.G. and SEAQUIST, E.R. "Neutral Hydrogen Distribution in the NGC 7465 Group of Galaxies." AJ 107: 1953-1961, 1994.
- LI, J.G.; SEAQUIST, E.R.; WANG, Z.; and SAGE, L.J. "Aperture Synthesis Observations of H I and CO in the Early-Type Starburst Galaxy NGC 3928." AJ 107: 90-98, 1994.

- LICHTL, G.G.; VON MONTIGNY, C.; BALONEK, T.; COURVOISIER, T.J.-L.; JOHNSON, N.; MCCONNELL, M.; PACIESAS, W.; ROBSON, E.I.; SADUN, A.; SCHALINSKI, C.; STEPPE, H.; SMITH, A.G.; STAUBERT, R.; SWANENBURG, B.N.; TURNER, M.J.L.; ULRICH, M.-H.; and WILLIAMS, O.R. "Simultaneous Observations of the Continuum Emission of the Quasar 3C 273 from Radio to γ -Ray Energies." In: Compton Symp. 2 (AIP, ed. C.E. Fichtel, *et al.*): 611-615, 1994.
- LIKKEL, L.; MORRIS, M.; KASTNER, J.H.; and FORVIELLE, T. "Radio and Near-Infrared Images of IRAS 21282+5050: A Transitional Planetary Nebula." A&A 282: 190-196, 1994.
- LIS, D.C.; MENTEN, K.M.; SERABYN, E.; and ZYLKA, R. "Star Formation in the Galactic Center Dust Ridge." ApJ 423: L39-L42, 1994.
- LISTER, M.L.; GOWER, A.C.; and HUTCHINGS, J.B. "High Frequency VLA Observations of Low-Redshift Quasars: Core Structure, Variability, and Orientation." AJ 108: 821-827, 1994.
- LISZT, H.S. "Survey of Local CO Emission Toward Compact Extragalactic Millimeter-Wave Continuum Sources and Implications for Local Galactic Structure." ApJ 429: 638-644, 1994.
- LISZT, H.S. and LUCAS, R. "3 Millimeter J = 1-0 HCO⁺ Emission From the Diffuse Cloud Toward ζ Ophiuchi." ApJ 431: L131-L134, 1994.
- LOBANOV, A.P. and ZENSUS, J.A. "Spectral Evolution of Jet Emission in 3C345." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 157-162, 1994.
- LUCAS, R. and LISZT, H. "Plateau de Bure Observations of mm-Wave Molecular Absorption from ¹³CO, HCO⁺, and HCN." A&A 282: L5-L8, 1994.
- LUDKE, E.; AKUJOR, C.E.; and GARRINGTON, S.T. "Multifrequency Polarimetry of CSS Sources." IAU Symp. 159: 471, 1994.
- MACKENTY, J.W.; SIMKIN, S.M.; GRIFFITHS, R.E.; ULVESTAD, J.S.; and WILSON, A.S. "Markarian 315: A Test Case for the Active Galactic Nucleus-Merger Hypothesis?" ApJ 435: 71-78, 1994.
- MACKENTY, J.W.; SIMKIN, S.M.; GRIFFITHS, R.E.; and WILSON, A. "Evidence for a Tidal Interaction in the Seyfert Galaxy Markarian 315." In: Mass-Transfer Induced Activity in Galaxies (Cambridge, ed. I. Shlosman): 353-357, 1994.

MAGNANI, L.; CAILLAULT, J.-P.; HEARTY, T.; and BUCHALTER, A. "Is L134N a Stellar Nursery?" In: Cool Stars, Stellar Systems, and the Sun 8 (ASP, ed. J.-P. Caillault): 720-722, 1994.

MAGRI, C. "Arm Structure in Normal Spiral Galaxies. I. Multivariate Data for 492 Galaxies." AJ 108: 896-912, 1994.

MANGUM, J.G. and WOOTTEN, A. "Discovery of $^{14}\text{NH}_3$ (3,3) Maser Emission in the Interstellar Medium." ApJ 428: L33-L36, 1994.

MANTOVANI, F.; JUNOR, W.; and BONDI, M. "Gaseous Cocoons Around CSSs - Hints from VLBI and VLA Polarimetric Observations." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 29-34, 1994.

MANTOVANI, F.; JUNOR, W.; FANTI, R.; PADRIELLI, L.; and SAIKIA, D.J. "Gaseous Cocoons Around Compact Steep Spectrum Sources." A&A 292: 59-66, 1994.

MARDONES, D.; MYERS, P.; CASELLI, P.; and FULLER, G. "Infall Line Asymmetries in Cores with Candidate Protostars." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 192-196, 1994.

MARSCHER, A.P.; BLOOM, S.D.; ZHANG, Y.F.; and GEAR, W.K. "Contemporaneous Multiwaveband Observations of Blazars." IAU Symp. 159: 155-158, 1994.

MASHEDER, M.R.W.; FIELD, D.; GRAY, M.D.; MIGENES, V.; COHEN, R.J.; and BOOTH, R.S. "Very Long Baseline Interferometry of 1720 MHz Masers in W3(OH)" A&A 281: 871-881, 1994.

MAYER, C.E.; EMERSON, D.T.; and DAVIS, J.H. "Design and Implementation of an Error-Compensating Subreflector for the NRAO 12-m Radio Telescope." IEEE Proc. 82: 756-762, 1994.

MCHARDY, I.M.; MERRIFIELD, M.R.; ABRAHAM, R.G.; and CRAWFORD, C.S. "Hubble Space Telescope Observations of the BL Lac Object PKS 1413+135: The Host Galaxy Revealed." MNRAS 268: 681-689, 1994.

MCHARDY, I.M.; PAPADAKIS, I.; LEACH, C.M.; ROBSON, E.I.; JUNOR, W.; STAUBERT, R.; STEPPE, H.; and GEAR, W.K. "Correlated X-ray and Millimetre Variability of the Blazar 3C273." IAU Symp. 159: 193-196, 1994.

MCMULLIN, J.P.; MUNDY, L.G.; and BLAKE, G.A. "The Circumstellar Environment of IRAS 05338-0624." ApJ 437: 305-316, 1994.

MCMULLIN, J.P.; MUNDY, L.G.; WILKING, B.A.; HEZEL, T.; and BLAKE, G.A. "Structure and Chemistry in the Northwestern Condensation of the Serpens Molecular Cloud Core." ApJ 424: 222-236, 1994.

MEHRINGER, D.M. "Radio Continuum and Radio Recombination Line Observations of W51." ApJS 91: 713-748, 1994.

MEHRINGER, D.; GOSS, W.M.; and PALMER, P. "New Formaldehyde Masers in Sagittarius B2." ApJ 434: 237-243, 1994.

MIGENES, V.; YATES, J.A.; COHEN, R.J.; SHEPHERD, M.C.; and BOWERS, P.F. "High Resolution and High Sensitivity Spectral-Line Imaging with Multiple Arrays." IAU Symp. 158: 334-336, 1994.

MIRABEL, I.F. "Multiwavelength Approach to Gamma-Ray Sources in the Galactic Center Region." ApJS 92: 369-373, 1994.

MIRABEL, I.F.; DUC, P.A.; RODRIGUEZ, L.F.; TEYSSIER, R.; PAUL, J.; CLARET, A.; AURIERE, M.; GOLOMBEK, D.; MARTI, J. "The Radio/Infrared Counterpart of the Hard X-ray Transient in Aquila: A Possible Source of Repeated Soft Gamma-Ray Bursts." A&A 282: L17-L20, 1994.

MIRABEL, I.F.; DUC, P.A.; TEYSSIER, R.; PAUL, J.; CLARET, A.; RODRIGUEZ, L.F.; AURIERE, M.; GOLOMBEK, D.; and MARTI, J. "Multiwavelength Observations of the Possible Soft Gamma-Ray Burster GRS 1915+105." In: Compton Symp. 2 (AIP, ed. C.E. Fichtel, *et al.*): 351-355, 1994.

MIRABEL, I.F. and RODRIGUEZ, L.F. "Time Variations in the Radio Emission from 1E1740.7-2942 and GRS 1758-258." In: Compton Symp. 2 (AIP, ed. C.E. Fichtel, *et al.*): 413-420, 1994.

MIRABEL, I.F. and RODRIGUEZ, L.F. "A Superluminal Source in the Galaxy." Nature 371: 46-48, 1994.

MIRALLES, M.P.; RODRIGUEZ, L.F.; and SCALISE, E. "Radio Continuum, Ammonia, and Water Maser Observations of Bright, Unassociated IRAS Point Sources." ApJS 92: 173-188, 1994.

MIRALLES, M.P.; RODRIGUEZ, L.F.; TAPIA, M.; ROTH, M.; PERSI, P.; FERRARI-TONIOLO, M.; and CURIEL, S. "VLA Observations of Cyg OB2 No. 5: Detection of a Weak Radio Companion and New Observations and Models for the Main Component." A&A 282: 547-553, 1994.

MITCHELL, D.L. and DE PATER, I. "Microwave Imaging of Mercury's Thermal Emission at Wavelengths From 0.3 to 20.5 cm." Icarus 110: 2-32, 1994.

- MITCHELL, K.J.; DENNISON, B.; CONDON, J.J.; ALTSCHULER, D.R.; PAYNE, H.E.; O'DELL, S.L.; and BRODERICK, J.J. "Results of a Five-Year Program of Multifrequency Monitoring of Low-Frequency Variable Radio Sources." ApJS 93: 441-453, 1994.
- MOFFETT, D.A. and REYNOLDS, S.P. "Multifrequency Studies of Bright Radio Supernova Remnants. I. 3C 391." ApJ 425: 668-686, 1994.
- MOFFETT, D.A. and REYNOLDS, S.P. "Multifrequency Studies of Bright Radio Supernova Remnants. II. W49B." ApJ 437: 705-726, 1994.
- MUHLEMAN, D.O.; BUTLER, B.J.; SLADE, M.A.; and GROSSMAN, A.W. "Radar Imaging of the Planets Using the Very Large Array." IAU Symp. 158: 457-468, 1994.
- MUNDELL, C.G.; PEDLAR, A.; and AXON, D.J. "Neutral Hydrogen in the Seyfert Galaxy NGC 3227." IAU Symp. 159: 429, 1994.
- MUTEL, R.L.; DENN, G.R.; and DRYER, M.J. "A New Superluminal Component in BL Lac: Evidence for Precession?" In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 191-196, 1994.
- NAPIER, P.J. "The Very Long Baseline Array." IAU Symp. 158: 117-124, 1994.
- NAPIER, P.J.; BAGRI, D.S.; CLARK, B.G.; ROGERS, A.E.E.; ROMNEY, J.D.; THOMPSON, A.R.; and WALKER, R.C. "The Very Long Baseline Array." IEEE Proc. 82: 658-672, 1994.
- NAUNDORF, C.E.; WEGNER, R.; WITZEL, A.; and ZENSUS, A. "Three Weeks of Multi-Frequency Blazar Monitoring." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 255-258, 1994.
- NEFF, S.G.; FANELLI, M.N.; ROBERTS, L.J.; O'CONNELL, R.W.; BOHLIN, R.; ROBERTS, M.S.; SMITH, A.M.; and STECHER, T.P. "Ultraviolet Imaging of the AGN + Starburst Galaxy NGC 1068." ApJ 430: 545-549, 1994.
- NICE, D.J.; SAYER, R.W.; and TAYLOR, J.H. "A Search for Radio Pulsars in the Directions of EGRET High-Latitude Point Sources." In: Compton Symp. 2 (AIP, ed. C.E. Fichtel, *et al.*): 82-85, 1994.
- NORROD, R.D.; BEHRENS, G.H.; GHIGO, F.D.; and LEVIN, B.J. "Design and Implementation of a Low-Noise Prime-Focus S/X Receiver System for Radio Astronomy." IEEE Proc. 82: 768-775, 1994.

- NORTON, L. and LO, K.Y. "On the Structure and Kinematics of the Gas in Leo A." In: Dwarf Galaxies (ESO, ed. G. Meylan & P. Prugniel): 291-294, 1994.
- O'DEA, C.P.; BAUM, S.A.; and GALLIMORE, J. "Detection of Extended H I Absorption Toward PKS 2322-123 in Abell 2597." ApJ 436: 669-677, 1994.
- O'DEA, C.P.; BAUM, S.A.; MALONEY, P.R.; TACCONI, L.J.; and SPARKS, W.B. "Constraints on Molecular Gas in Cooling Flows and Powerful Radio Galaxies." ApJ 422: 467-479, 1994.
- OHISHI, M.; MCGONAGLE, D.; IRVINE, W.M.; YAMAMOTO, S.; and SAITO, S. "Detection of a New Interstellar Molecule, H₂CN." ApJ 427: L51-L54, 1994.
- ONELLO, J.S.; PHILLIPS, J.A.; BENAGLIA, P.; GOSS, W.M.; and TERZIAN, Y. "Aperture Synthesis Imaging of Partially Ionized Gas in W48." ApJ 426: 249-253, 1994.
- OOSTERBROEK, T.; LEWIN, W.H.G.; VAN PARADIJS, J.; VAN DER KLIS, M.; PENNINX, W.; and DOTANI, T. "Simultaneous Radio and X-ray Observations of GX 340+0." A&A 281: 803-807, 1994.
- OWEN, F.N. and LEDLOW, M.J. "The FR I/II Break and the Bivariate Luminosity Function in Abell Clusters of Galaxies." In: Physics of Active Galaxies (ASP, ed. G.V. Bicknell, *et al.*): 319-323, 1994.
- PALLA, F.; TESTI, L.; NATTA, A.; STANGA, R.; PRUSTI, T.; HUNTER, T.R.; and TAYLOR, G.B. "BD+40°4124: Water Maser, CO Outflow and Young Stars." In: Nature and Evolutionary Status of Herbig Ae/Be Stars (ASP, ed. P.S. The, *et al.*): 353-354, 1994.
- PARISE, R.A.; MARAN, S.P.; LANDSMAN, W.B.; BOHLIN, R.C.; GREASON, M.R.; HINTZEN, P.M.N.; O'CONNELL, R.W.; ROBERTS, M.S.; SMITH, A.M.; and STECHER, T.P. "An Ultraviolet-Visible Investigation of the Globular Cluster NGC 1851." ApJ 423: 305-309, 1994.
- PAYNE, J.M.; LAMB, J.W.; COCHRAN, J.C.; and BAILEY, N. "A New Generation of SIS Receivers for Millimeter-Wave Radio Astronomy." IEEE Proc. 82: 811-823, 1994.
- PERLEY, R.A. "Radio Arrays - mm to Meters." IAU Symp. 158: 109-116, 1994.

PERLEY, R.A.; ERICKSON, W.C.; KASSIM, N.E.; and DWARAKANATH, K. "High Resolution Radio Source Maps at 73.8 MHz." IAU Symp. 158: 243-246, 1994.

PERLMAN, E.S. and STOCKE, J.T. "New Very Large Array Maps of Highly Core-Dominated BL Lacs: Testing Unified Schemes." AJ 108: 56-63, 1994.

PERLMAN, E.S.; STOCKE, J.T.; SHAFFER, D.B.; CARILLI, C.L.; and MA, C. "High Dynamic Range Radio Observations of PKS 1413+135: A BL Lacertae Object with a Parsec-Scale Counterjet." ApJ 424: L69-L72, 1994.

PHILLIPS, J.A.; CHANDLER, C.J.; and RUPEN, M.P. "Supernova 1994I in NGC 5194." IAU Circ. 5968: 8 April 1994.

PHILP, C.; FRAIL, D.A.; EVANS, C.R.; and LEONARD, P.J.T. "A Search for Pulsar Companions to Runaway OB Stars." In: Evolution of X-ray Binaries (AIP, ed. S.S. Holt & C.S. Day): 299-302, 1994.

PLANTE, R.L.; LO, K.Y.; CRUTCHER, R.M.; and KILLEEN, N.E.B. "The Magnetic Field at the Galactic Center: Detection of HI Zeeman Splitting." In: Nuclei of Normal Galaxies (Kluwer, ed. R. Genzel & A.I. Harris): 205-207, 1994.

POSPIESZALSKI, M.W.; NGUYEN, L.D.; LUI, M.; LIU, T.; THOMPSON, M.A.; and DELANEY, M.J. "Very Low Noise and Low Power Operation of Cryogenic AlInAs/GaInAs/InP HFET's." IEEE Int. Microwave Symp.: 1345-1346, 1994.

POTTASCH, S.R. and ZIJLSTRA, A.A. "VLA Measurements of a Sample of Planetary Nebulae." A&A 289: 261-264, 1994.

PRATAP, P.; MENTEN, K.M.; and SNYDER, L.E. "Detection of Formaldehyde Maser Emission Near the Ultracompact H II Region G29.96-0.02." ApJ 430: L129-L132, 1994.

PUCHE, D. and WESTPFAHL, D. "Neutral Hydrogen Observations of Nearby Dwarf Galaxies" In: Dwarf Galaxies (ESO, ed. G. Meylan & P. Prugniel): 273-281, 1994.

RABACA, C.R. and ZENSUS, J.A. "A Parameterized Shock Model for the Flux Evolution of 3C345." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 163-168, 1994.

REACH, W.T. "Phase Transitions in Interstellar Cirrus." In: Infrared Cirrus and Diffuse Interstellar Clouds (ASP, ed. R.M. Cutri & W.B. Latter): 197-200, 1994.

- REACH, W.T.; KOO, B.-C.; and HEILES, C. "Atomic and Molecular Gas in Interstellar Cirrus Clouds." ApJ 429: 672-693, 1994.
- REASENBERG, R.D.; BABCOCK, R.W.; PHILLIPS, J.D.; JOHNSTON, K.J.; and SIMON, R.S. "Newcomb: A Scientific Interferometry Mission at Low Cost." SPIE Proc. 2200: 18-26, 1994.
- REUTER, H.-P.; KLEIN, U.; LESCH, H.; WIELEBINSKI, R.; and KRONBERG, P.P. "The Magnetic Field in the Halo of M82. Polarized Radio Emission at $\lambda\lambda$ 6.2 and 3.6 cm." A&A 282: 724-730, 1994.
- RICHTER, O.-G.; SACKETT, P.D.; and SPARKE, L.S. "A Neutral Hydrogen Survey of Polar-Ring Galaxies. I. Green Bank Observations of the Northern Sample." AJ 107: 99-117, 1994.
- RILEY, J.M. and WARNER, P.J. "High Resolution Observations of a Complete Sample of Radio Sources Variable at 151 MHz." MNRAS 269: 166-175, 1994.
- ROBERTS, M.S. and HAYNES, M.P. "Global Properties Along the Morphological Sequence From Im to Sa." In: Dwarf Galaxies (ESO, ed. G. Meylan & P. Prugniel): 197-200, 1994.
- ROBERTS, M.S. and HAYNES, M.P. "Physical Parameters Along the Hubble Sequence." ARAA 32: 115-152, 1994.
- RODRIGUEZ, L. "Radio Continuum Observations of Disks and Outflows in Young Stars." Rev. Mex. Astron. Astrof. 29: 69-78, 1994.
- RODRIGUEZ, L.F. "Very Large Array Upgrade to 7-mm." In: The Cold Universe (Ed. Frontiers, ed. Th. Montmerle, *et al.*): 433-436, 1994.
- RODRIGUEZ, L.F. and BASTIAN, T.S. "Rotation in the Ionized Envelope of MWC 349A." ApJ 428: 324-328, 1994.
- RODRIGUEZ, L.F.; CANTO, J.; TORRELLES, J.M.; GOMEZ, J.F.; ANGLADA, G.; and HO, P.T.P. "Subarcsecond VLA Maps of the Disk and the Jet in HL Tauri." ApJ 427: L103-L106, 1994.
- RODRIGUEZ, L.F.; GARAY, G.; CURIEL, S.; RAMIREZ, S.; TORRELLES, J.M.; GOMEZ, Y.; and VELAZQUEZ, A. "Cepheus A HW2: A Powerful Thermal Radio Jet." ApJ 430: L65-L68, 1994.

- RODRIGUEZ, L.F. and REIPURTH, B. "The Exciting Source of the Herbig-Haro 111 Jet Complex: VLA Detection of a One-Sided Radio Jet." A&A 281: 882-888, 1994.
- ROETTIGER, K.; BURNS, J.O.; CLARKE, D.A.; and CHRISTIANSEN, W.A. "Relic Radio Emission in 3C 388." ApJ 421: L23-L26, 1994.
- ROGERS, A.E.E.; DOELEMEN, S.; WRIGHT, M.C.H.; BOWER, G.C.; BACKER, D.C.; PADIN, S.; PHILLIPS, J.A.; EMERSON, D.T.; GREENHILL, L.; MORAN, J.M.; and KELLERMANN, K.I. "Small-Scale Structure and Position of Sagittarius A* from VLBI at 3 Millimeter Wavelength." ApJ 434: L59-L62, 1994.
- ROTH, K.C. and MEYER, D.M. "Interstellar Cyanogen Measurements of the Cosmic Microwave Background Temperature in Diffuse Clouds." In: Infrared Cirrus and Diffuse Interstellar Clouds (ASP, ed. R.M. Cutri & W.B. Latter): 343-346, 1994.
- ROTTGERING, H.J.A.; LACY, M.; MILEY, G.K.; CHAMBERS, K.C.; and SAUNDERS, R. "Samples of Ultra-Steep Spectrum Radio Sources." A&AS 108: 79-141, 1994.
- ROTTGERING, H.; SNELLEN, I.; MILEY, G.; DE JONG, J.P.; HANISCH, B.; and PERLEY, R. "VLA Observations of the Rich X-ray Cluster Abell 2256." ApJ 436: 654-668, 1994.
- ROWND, B.K.; DICKEY, J.M.; and HELOU, G. "H I Distribution and Kinematics in the Peculiar Spiral Galaxy NGC 5474." AJ 108: 1638-1647, 1994.
- RUCINSKI, S.M.; and LIM, J. "VLA and AT Survey of High Latitude T Tauri Stars." In: Cool Stars, Stellar Systems, and the Sun 8 (ASP, ed. J.-P. Caillault): 462-464, 1994.
- RUPEN, M.P.; CONWAY, J.E.; BEASLEY, A.J.; BARTEL, N.; BIETENHOLTZ, M.F.; SRAMEK, R.A.; ROMNEY, J.D.; TITUS, M.A.; GRAHAM, D.A.; ALTUNIN, V.I.; JONES, D.L.; RIUS, A.; VENTURI, T.; UMANA, G.; WEILER, K.; VAN DYK, S.D.; PANAGIA, N.; CANNON, W.H.; POPELAR, J.; and DAVIS, R.J. "VLBI Observations of Supernova 1993J in M81: Shape, Expansion, and Distance." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 103-108, 1994.
- RUPEN, M.P.; SRAMEK, R.A.; VAN DYK, S.D.; WEILER, K.W.; and PANAGIA, N. "Supernova 1994I in NGC 5194." IAU Circ. 5963: 4 April 1994.

SAAR, S.H.; MORGAN, M.R.; BOOKBINDER, J.A.; NEFF, J.E.; WALTER, F.M.; VALENTI, J.; MISCH, T.; BOPP, B.W.; and HALE, A. "Spatial and Temporal Activity Variations on AD Leo." In: Cool Stars, Stellar Systems, and the Sun 8 (ASP, ed. J.-P. Caillault): 471-473, 1994.

SAGE, L.J. and GALLETTA, G. "Counter-Rotating Molecular Gas in NGC 4546." AJ 108: 1633-1637, 1994.

SAHAI, R.; WOOTTEN, A.; SCHWARZ, H.E.; and WILD, W. "Multiple Outflows in the Bipolar Planetary Nebula M1-16: A Molecular Line Study." ApJ 428: 237-249, 1994.

SAIKIA, D.J. and PEDLAR, A. "High-Resolution Radio Observations of Nearby Galaxies." IAU Symp. 159: 189-192, 1994.

SAIKIA, D.J.; PEDLAR, A.; UNGER, S.W.; and AXON, D.J. "Radio-Continuum Observations of the Central Regions of Sersic-Pastoriza Galaxies." MNRAS 270: 46-64, 1994.

SAKURAI, T. and SPANGLER, S.R. "The Study of Coronal Plasma Structures and Fluctuations with Faraday Rotation." ApJ 434: 773-785, 1994.

SAKURAI, T. and SPANGLER, S.R. "Use of the Very Large Array for Measurement of Time Variable Faraday Rotation." Radio Sci. 29: 635-662, 1994.

SANDQVIST, A.; JORSATER, S.; and LINBLAD, P.O. "The Central Region of NGC 1365, SEST and VLA Observations of CO and the Radio Continuum." IAU Symp. 159: 431, 1994.

SCHAEFER, B.E.; BARTHELMI, S.D.; PALMER, D.M.; CLINE, T.L.; HURLEY, K.C.; SOMMER, M.; BOER, M.; NEIL, M.; FISHMAN, G.J.; KOUVELIOTOU, C.; MEEGAN, C.A.; COE, M.J.; ELMEGREEN, B.G.; MCNAMARA, B.J.; HARRISON, T.; OWENS, A.; SOLLEE, N.; STULL, J.; PALERMITI, M.; SCHWARTZ, R.; BROOKS, J.; VANDERSPEK, R.; RICKER, G.R.; KRIMM, H.A.; WENZEL, W.; GREINER, J.; HUDEC, R.; NOVAK, M.; BOROVICKA, J.; PREDOTA, M.; BAILYN, C.D.; HANLON, L.O.; BENNETT, K.; SPOELSTRA, T.A.T.; SMETTE, A.; PEDERSON, H.; FLORENTIN, R.; POLLAS, C.; STEINLE, H.; SCHRAMM, K.-J.; IYENGAR, K.V.K., and PRABHU, T.P. "Rapid Searches for Counterparts of GRB 930131." ApJ 422: L71-L74, 1994.

SCHALINSKI, C.J.; WITZEL, A.; KRICHBAUM, T.P.; GRAHAM, D.A.; STANDKE, K.J.; ROGERS, A.E.E.; DOLEMAN, S.; ZENSUS, J.A.; GREVE, A.; BAATH, L.B.; and BOOTH, R.S. "MM Observations of Active Galactic Nuclei with a High Sensitivity VLB-Array." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 45-48, 1994.

SCHIMINOVICH, D.; VAN GORKOM, J.H.; VAN DER HULST, J.M.; and KASOW, S. "Discovery of Neutral Hydrogen Associated with the Diffuse Shells of NGC 5128 (Centaurus A)." ApJ 423: L101-L104, 1994.

SCHMELZ, J.T.; HOLMAN, G.D.; BROSIUS, J.W.; and WILLSON, R.F. "Coronal Magnetic Structures Observing Campaign. III. Coronal Plasma and Magnetic Field Diagnostics Derived from Multiwaveband Active Region Observations." ApJ 434: 786-794, 1994.

SCHMITT, J.H.M.M.; GUDEL, M.; and PREDEHL, P. "Spatially Resolved X-ray and Radio Observations of Castro A+B+C." A&A 287: 843-851, 1994.

SCHULMAN, E.; BREGMAN, J.N.; and ROBERTS, M.S. "An H I Survey of High-Velocity Clouds in Nearby Disk Galaxies." ApJ 423: 180-189, 1994.

SEAQUIST, E.R. and IVISON, R.J. "A Search for Symbiotic Behaviour Amongst OH/IR Colour Mimics." MNRAS 269: 512-516, 1994.

SHAFFER, D.B. "VLBI Observations of 0218+357 at 18 cm." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 132-134, 1994.

SHETH, R.K.; MO, H.J.; and SASLAW, W.C. "The Distribution of IRAS Galaxies on Linear and Nonlinear Scales." ApJ 427: 562-573, 1994.

SHETH, R.K. and SASLAW, W.C. "Synthesizing the Observed Distribution of Galaxies." ApJ 437: 35-55, 1994.

SHRADER, C.R.; WAGNER, R.M.; HJELLMING, R.M.; HAN, X.H.; and STARRFIELD, S.G. "The Early Ultraviolet, Optical, and Radio Evolution of the Soft X-ray Transient GRO J0422+32." ApJ 434: 698-706, 1994.

SHRADER, C.R.; WAGNER, R.M.; HJELLMING, R.M.; HAN, X.H.; and STARRFIELD, S.G. "Multiwavelength Properties of GRO J0422+32." In: Compton Symp. 2 (AIP, ed. C.E. Fichtel, *et al.*): 365-369, 1994.

SHRADER, C.R.; WAGNER, R.M.; HJELLMING, R.M.; HAN, X.H.; and STARRFIELD, S.G. "Multiwavelength Study of the X-ray Nova GRO J0422+32." In: Evolution of X-ray Binaries (AIP, ed. S.S. Holt & C.S. Day): 95-98, 1994.

SHUPE, D.L.; HERTER, T.; CHERNOFF, D.F.; STACEY, G.J.; and CUTRI, R.M. "Probing the Atomic ISM: IRAS, HI, CII, and Optical Observations of an Isolated Cirrus Filament." In: Infrared Cirrus and Diffuse Interstellar Clouds (ASP, ed. R.M. Cutri & W.B. Latter): 193-196, 1994.

SIMPSON, C.E. and GOTTESMAN, S.T. "An HI Survey for Dwarf Galaxies." In: Dwarf Galaxies (ESO: G. Meylan & P. Prugniel): 283-286, 1994.

SIZEMORE, W.A. "The National Radio Quiet Zone and the Green Bank RFI Environment." In: Vanishing Universe: Adverse Environmental Impacts on Astronomy (Cambridge, ed. D. McNally): 180-184, 1994.

SKINNER, S.L. and BROWN, A. "The Enigmatic T Tauri Radio Source." AJ 107: 1461-1468, 1994.

SLEE, O.B.; ROY, A.L.; and SAVAGE, A. "A VLA Survey of Rich Clusters of Galaxies. II. The Stronger Sources: Maps, Polarizations and Identifications." Aust. J. Phys. 47: 145-243, 1994.

SMITH, B.J. "Optical Imaging and High Spatial Resolution 21 cm H I Observations of the Peculiar Galaxy NGC 2782 (Arp 215)" AJ 107: 1695-1712, 1994.

SMITH, B.J. and HIGDON, J.L. "A Search for CO (1-0) Emission from the Tidal Structures of Interacting and Merging Galaxies." AJ 108: 837-843, 1994.

SMITH, H.A. and BECK, S. "The Structure and Nature of NGC 2071 IRS 1: High-Resolution Radio Continuum Maps." ApJ 420: 643-648, 1994.

SNOWDEN, S.L.; HASINGER, G.; JAHODA, K.; LOCKMAN, F.J.; MCCAMMON, D.; and SANDERS, W.T. "Soft X-ray and H I Surveys of the Low N_{H} Region in Ursa Major." ApJ 430: 601-609, 1994.

SRAMEK, R.A.; RUPEN, M.P.; VAN DYK, S.D.; WEILER, K.W.; and PANAGIA, N. "Supernova 1994I in NGC 5194." IAU Circ. 5966: 6 April 1994.

STARK, R.; DICKEY, J.M.; BURTON, W.B.; and WENNMACHER, A. "The H I Gas Kinetic Temperature of High Galactic Latitude Cirrus Clouds." A&A 281: 199-208, 1994.

- STARK, R.; DICKEY, J.M.; BURTON, W.B.; and WENNMACHER, L. "The HI Gas Kinetic Temperature of High Latitude Cirrus Clouds." In: Infrared Cirrus and Diffuse Interstellar Clouds (ASP, ed. R.M. Cutri & W.B. Latter): 201, 1994.
- STEFFES, P.G. and DEBOER, D.R. "A SETI Search of Nearby Solar-Type Stars at the 203-GHz Positronium Hyperfine Resonance." Icarus 107: 215-218, 1994.
- SZOMORU, A.; GUHATHAKURTA, P.; VAN GORKOM, J.H.; KNAPEN, J.H.; WEINBERG, D.H.; and FRUCHTER, A.S. "Properties of an H I-Selected Galaxy Sample." AJ 108: 491-506, 1994.
- TAFALLA, M.; MYERS, P.C.; and WILNER, D.J. "Evidence for Disruption of a Core by an Outflow in L1228." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 391-395, 1994.
- TARAMOPOULOS, A.; BRIGGS, F.H.; and TURNSHEK, D.A. "A Search for H I 21 cm Emission From a Damped Ly α Absorption Line System and Possible Cluster of Galaxies at Redshift $z \approx 3.4$ in the Direction of Q0000-2619." AJ 107: 1937-1941, 1994.
- TASKER, N.J.; CONDON, J.J.; WRIGHT, A.E.; and GRIFFITH, M.R. "The Parkes-MIT-NRAO Surveys. V. Maps for the Tropical Survey Covering $-29^\circ < \delta < -9^\circ$." AJ 107: 2115-2119, 1994.
- TAYLOR, C.L.; BRINKS, E.; and SKILLMAN, E.D. "A Complete Survey of HII Galaxies to Detect HI Companions." In: Dwarf Galaxies (ESO, ed. G. Meylan & P. Prugniel): 287-290, 1994.
- TAYLOR, C.L.; BRINKS, E.; POGGE, R.W.; and SKILLMAN, E.D. "Star Formation Thresholds in H II Galaxies with H I Companions." AJ 107: 971-983, 1994.
- TAYLOR, G.B.; BARTON, E.J.; and GE, J.P. "Searching for Cluster Magnetic Fields in the Cooling Flows of 0745-191, A2029, and A4059." AJ 107: 1942-1952, 1994.
- TAYLOR, G.B.; VERMEULEN, R.C.; PEARSON, T.J.; READHEAD, A.C.S.; HENSTOCK, D.R.; BROWNE, I.; and WILKINSON, P.N. "The Second Caltech-Jodrell Bank VLBI Survey. I. Observations of 91 of 193 Sources." ApJS 95: 345-369, 1994.
- THOMPSON, R.J. JR. and CORDOVA, F.A. "Revised Proper-Motion Results for the Soft X-ray-Emitting Radio Pulsar PSR 0656+14." ApJ 421: L13-L14, 1994.

- TONGUE, T.; GRAHAM, M.; STANLEY, M.; TRUESDELL, L.; and WESTPFAHL, D. "Supernova 1994I in NGC 5194." IAU Circ. 5990: 18 May 1994.
- TORRELLES, J.M.; GOMEZ, J.F.; HO, P.T.P.; RODRIGUEZ, L.F.; ANGLADA, G.; and CANTO, J. "The Puzzling Distribution of the High-Density Molecular Gas in HH 1-2: A Contracting Interstellar Toroid?" ApJ 435: 290-312, 1994.
- TURNER, B.E. "Interstellar SO⁺" ApJ 430: 727-742, 1994.
- TURNER, B.E. "The Physics and Chemistry of Cirrus Cloud Cores and Other Translucent Clouds." In: Infrared Cirrus and Diffuse Interstellar Clouds (ASP, ed. R.M. Cutri & W.B. Latter): 307-318, 1994.
- TURNER, B.E. "The Physics and Chemistry of Small Molecular Clouds in the Galactic Plane. I. Physical Conditions from C¹⁸O and ¹³CO Observations." ApJ 420: 661-691, 1994.
- TURNER, B.E. "The Physics and Chemistry of Small Molecular Clouds in the Galactic Plane. II. H₂CO." ApJ 437: 658-677, 1994.
- TURNER, B.E.; STEIMLE, T.C.; and MEERTS, L. "Detection of Sodium Cyanide (NaCN) in IRC 10216." ApJ 426: L97-L100, 1994.
- TURNER, J.L. and HO, P.T.P. "Bright Radio Continuum Emission From Star Formation in the Cores of Nearby Spiral Galaxies." ApJ 421: 122-139, 1994.
- ULVESTAD, J.S. and ANTONUCCI, R.R.J. "Do the Compact Radio Sources in NGC 253 and M82 Fade Over Time?" ApJ 424: L29-L32, 1994.
- UNWIN, S.C.; DAVIS, R.J.; and MUXLOW, T.W.B. "The Whole Earth Array: 3C273 at 18cm." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 81-86, 1994.
- UNWIN, S.C.; WEHRLE, A.E.; URRY, C.M.; GILMORE, D.M.; BARTON, E.J.; KJERULF, B.C.; ZENSUS, J.A.; and RABACA, C.R. "Inverse-Compton X-ray Emission from the Superluminal Quasar 3C 345." ApJ 432: 103-113, 1994.
- VAN DYK, S.D.; HYMAN, S.D.; SRAMEK, R.A.; and WEILER, K.W. "Supernova 1968D in NGC 6946." IAU Circ. 6045: 2 August 1994.

- VAN DYK, S.D.; SRAMEK, R.A.; WEILER, K.W.; HYMAN, S.D.; and VIRDEN, R.E. "The Radio Counterpart to the Luminous X-ray Supernova Remnant in NGC 6946." ApJ 425: L77-L79, 1994.
- VAN DYK, S.D.; WEILER, K.W.; PANAGIA, N.; RUPEN, M.P.; and SRAMEK, R.A. "Supernova 1994I in NGC 5194." IAU Circ. 5979: 25 April 1994.
- VAN DYK, S.; WEILER, K.W.; PANAGIA, N.; and SRAMEK, R.A. "Radio Supernovae as Probes of Progenitor Winds." In: Circumstellar Media in the Late Stages of Stellar Evolution (Cambridge, ed. R.E.S. Clegg, *et al.*): 112-119, 1994.
- VAN DYK, S.D.; WEILER, K.W.; SRAMEK, R.A.; RUPEN, M.P.; and PANAGIA, N. "SN 1993J: The Early Radio Emission and Evidence for A Changing Presupernova Mass-Loss Rate." ApJ 432: L115-L118, 1994.
- VAN OJK, R.; ROTTGERING, H.J.A.; MILEY, G.K.; BREMER, M.N.; MACCHETTO, F.; and CHAMBERS, K.C. "TX 0211-122: A Starburst Radio Galaxy at $z = 2.34$?" A&A 289: 54-60, 1994.
- VANDEN BOUT, P.A. "National Radio Astronomy Observatory (Report, July 1990 - June 1993)" BAAS 26: 441-457, 1994.
- VANDEN BOUT, P.A. "Preserving Wilderness Areas in the Radio Spectrum." In: Vanishing Universe: Adverse Environmental Impacts on Astronomy (Cambridge, ed. D. McNally): 97-101, 1994.
- VANDEN BOUT, P.A. and BROWN, R.L. "CO at High Redshifts." In: Structure and Content of Molecular Clouds (Springer, ed. T.L. Wilson & K.J. Johnston): 304-308, 1994.
- VASISHT, G.; KULKARNI, S.R.; FRAIL, D.A.; and GREINER, J. "Supernova Remnant Candidates for the Soft γ -ray Repeater 1900+14." ApJ 431: L35-L38, 1994.
- VENKATESAN, T.C.A.; BATUSKI, D.J.; HANISCH, R.J.; and BURNS, J.O. "Why Do Head-Tail Sources Exist in Poor Clusters of Galaxies?" ApJ 436: 67-78, 1994.
- VENTURI, T.; CASTALDINI, C.; FERETTI, L.; GIOVANNINI, G.; COTTON, W.D.; LARA, L.; MARCAIDE, J.; and WEHRLE, A.E. "Parsec-Scale Properties of the Two FR I Radio Galaxies: 0836+29 and 3C465." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 67-72, 1994.

- VENTURI, T.; GIOVANNINI, G.; FERETTI, L.; COTTON, W.D.; LARA, L.; MARCAIDE, J.M.; and WEHRLE, A.E. "VLBI Observations of FR-I Radio Galaxies." In: Physics of Active Galaxies (ASP, ed. G.V. Bicknell, *et al.*): 249-251, 1994.
- VERMEULEN, R.C.; READHEAD, A.C.S.; and BACKER, D.C. "Discovery of a Nuclear Counterjet in NGC 1275: A New Way to Probe the Parsec-Scale Environment." ApJ 430: L41-L44, 1994.
- VERSCHUUR, G.L. and MAGNANI, L. "On the Nature of 21 cm Emission Profile Structure at High Galactic Latitude: Implications for the Warm Neutral Medium." AJ 107: 287-297, 1994.
- VIALS-BOAS, J.W.S.; MYERS, P.C.; and FULLER, G.A. "Dense Cores in Dark Clouds. IX. Observations of ^{13}CO and C^{18}O in Vela Chamaeleon, Musca, and the Coalsack." ApJ 433: 96-116, 1994.
- VOURLIDAS, A. and BASTIAN, T.S. "A Multiband Study of Radio Emission from Solar Active Regions." In: Solar Active Region Evolution (ASP, ed. K.S. Balasubramaniam & G.W. Simon): 369-376, 1994.
- WAGNER, R.M.; STARRFIELD, S.G.; HJELLMING, R.M.; HOWELL, S.B.; and KREIDL, T.J. "ROSAT Observations of the Black Hole Candidate V404 Cygni in Quiescence." ApJ 429: L25-L28, 1994.
- WAGNER, R.M.; STARRFIELD, S.G.; KREIDL, T.J.; HOWELL, S.B.; and HJELLMING, R.M. "X-ray Observations of the Black Hole Binary V404 Cygni in Quiescence." In: The Evolution of X-ray Binaries (AIP, ed. S.S. Holt & C.S. Day): 111-114, 1994.
- WALKER, C.E. and WILSON, C.D. " ^{13}CO Emission from Molecular Clouds in M33." In: Infrared Cirrus and Diffuse Interstellar Clouds (ASP, ed. R.M. Cutri & W.B. Latter): 219-222, 1994.
- WALKER, R.C.; ROMNEY, J.D.; and BENSON, J.M. "Detection of a VLBI Counterjet in NGC 1275: A Possible Probe of the Parsec-Scale Accretion Region." ApJ 430: L45-L48, 1994.
- WALKER, R.C.; ROMNEY, J.D.; and BENSON, J.M. "A New Feature on the Counterjet Side in 3C84." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 121-124, 1994.
- WALTMAN, E.B.; FIEDLER, R.L.; JOHNSTON, K.J.; and GHIGO, F.D. "The Quiescent Level of Cygnus X-3 at 2.25 and 8.3 GHz: 1988-1992." AJ 108: 179-187, 1994.

- WATANABE, H.; KITAMOTO, S.; MIYAMOTO, S.; FIEDLER, R.L.; WALTMAN, E.B.; JOHNSTON, K.J.; and GHIGO, F.D. "Correlation Between X-ray Intensity and Radio Outbursts of Cygnus X-3." ApJ 433: 350-356, 1994.
- WEILER, K.W.; VAN DYK, S.D.; SRAMEK, R.A.; PANAGIA, N.; and RUPEN, M.P. "The Early Radio Emission from SN 1993J." In: Circumstellar Media in the Late Stages of Stellar Evolution (Cambridge, ed. R.E.S. Clegg, *et al.*): 207-212, 1994.
- WELLS, D.C. "VLBA Archive & Distribution Architecture." In: Handling and Archiving Data From Ground-Based Telescopes (ESO, ed. M. Albrecht & F. Pasian): 49-52, 1994.
- WESTPFAHL, D. and PUCHE, D. "Neutral Hydrogen in the Smallest Members of the M81 Group." In: Dwarf Galaxies (ESO, ed. G. Meylan & P. Prugniel): 295-297, 1994.
- WHITE, S.M.; LIM, J.; and KUNDU, M.R. "Radio Constraints on Coronal Models for dMe Stars." ApJ 422: 293-303, 1994.
- WHITE, S.M.; SILVA, A.S.; DE PATER, I.; LIN, R.P.; GARY, D.E.; HUDSON, H.S.; DOYLE, J.G.; HAGYARD, M.J.; and KUNDU, M.R. "Multiwavelength Observations of a Solar Flare." In: New Look at the Sun (Nobeyama Radio Observatory, ed. S. Enome & T. Hirayama): 203, 1994.
- WHITNEY, J.H.; O'CONNELL, R.W.; ROOD, R.T.; DORMAN, B.; BOHLIN, R.C.; CHENG, K.P.; HINTZEN, P.M.N.; LANDSMAN, W.B.; ROBERTS, M.S.; SMITH, A.M.; SMITH, E.P.; and STECHER, T.P. "UV Photometry of Hot Stars in Omega Centauri." In: Hot Stars in the Galactic Halo (Cambridge, ed. S.J. Adelman, *et al.*): 163-167, 1994.
- WHITNEY, J.H.; O'CONNELL, R.W.; ROOD, R.T.; DORMAN, B.; LANDSMAN, W.B.; CHENG, K.-P.; BOHLIN, R.C.; HINTZEN, P.M.N.; ROBERTS, M.S.; SMITH, A.M.; SMITH, E.P.; and STECHER, T.P. "Far-Ultraviolet Photometry of the Globular Cluster ω Cen." AJ 108: 1350-1363, 1994.
- WILCOTS, E.M. "Classical H II Regions in the Magellanic Clouds. I. Physical Properties." AJ 107: 1338-1362, 1994.
- WILCOTS, E.M. "Classical H II Regions in the Magellanic Clouds. II. Stellar Content." AJ 108: 1674-1695, 1994.
- WILKING, B.A.; CLAUSSEN, M.J.; BENSON, P.J.; MYERS, P.C.; TEREBEY, S.; and WOOTTEN, A. "Water Masers Associated with Low-Mass Stars: A 13 Month Monitoring Survey." ApJ 431: L119-L222, 1994.

- WILKING, B.A.; CLAUSSEN, M.J.; BENSON, P.J.; MYERS, P.C.; TEREBEY, S.; and WOOTTEN, A. "Water Masers Associated with Low Mass Stars: A 13 Month Monitoring Survey." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 299-303, 1994.
- WILKINSON, P.N.; POLATIDIS, A.G.; READHEAD, A.C.S.; XU, W.; and PEARSON, T.J. "Two-Sided Ejection in Powerful Radio Sources: The Compact Symmetric Objects." ApJ 432: L87-L90, 1994.
- WILNER, D.J. and WELCH, W.J. "The S140 Core: Aperture Synthesis HCO⁺ and SO Observations." ApJ 427: 898-913, 1994.
- WILSON, A.S. and TSVETANOV, Z.I. "Ionization Cones and Radio Ejecta in Active Galaxies." AJ 107: 1227-1234, 1994.
- WILSON, C.D. and WALKER, C.E. "Diffuse Molecular Clouds and the Molecular Interstellar Medium from ¹³CO Observations of M33." ApJ 432: 148-157, 1994.
- WISEMAN, J.J. and HO, P.T.P. "Fragmentation and Heating of Streamers in Orion." Ap&SS 216: 139-142, 1994.
- WISEMAN, J.J. and HO, P.T.P. "Large Scale Structure and Kinematics of the Orion Ridge." IAU Colloq. 140: 234-235, 1994.
- WISEMAN, J.J. and HO, P.T.P. "Molecular Streamers in Orion: Haystack C¹⁸O and VLA NH₃ Observations." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 396-400, 1994.
- WOLTER, A.; CACCIANIGA, A.; DELLA CECA, R.; and MACCACARO, T. "Luminosity Functions of BL Lacertae Objects." ApJ 433: 29-38, 1994.
- WOMACK, M.; ZIURYS, L.M.; APPONI, A.J.; and YODER, J.T. "Interstellar CH₃D: Deuterated Methane in the Orion Hot Core?" In: Molecules and Grains in Space (New York: AIP, ed. I. Nenner): 305-310, 1994.
- WOOD, D.O.S.; MYERS, P.C.; and DAUGHERTY, D.A. "IRAS Dark Cloud Cores." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 14-18, 1994.
- WOOD, D.O.S.; MYERS, P.C.; and DAUGHERTY, D.A. "IRAS Images of Nearby Dark Clouds." ApJS 95: 457-501, 1994.
- WOOTTEN, A.; ANDRE, P.; DESPOIS, D.; and SARGENT, A. "Ammonia Distribution on 1000 AU Scales Near VLA 1623." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 294-298, 1994.

WOOTTEN, A.; LATTER, W.B.; and DESPOIS, D. "HCN Emission from Comet P/Swift-Tuttle 1992t." Planet. Sp. Sci. 42: 727-731, 1994.

WOOTTEN, A.; NGUYEN-Q-RIEU; and TRUONG-BACH "Images of Low Excitation HC₃N Emission from IRC+10° 216." A&A 290: 198-206, 1994.

WROBEL, J.M. "Relativistic Jets in UGC Galaxy Nuclei." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 79-80, 1994.

WU, T.K. and SHILLUE, W.P. "Dichroic Design for the Orbiting VLBI Earth Station Antenna." IEE Proc. Microwvs. Ant. Prop. 141: 181-184, 1994.

YANG, H.; SKILLMAN, E.D.; and SRAMEK, R.A. "A Kinematic Search for Supernova Remnants in Giant Extragalactic H II Regions." AJ 107: 651-661, 1994. Erratum: AJ 107: 2300-2301, 1994.

YIN, Q.F. "The Clumpy Galaxy Markarian 297 and Its Supernova Activity." ApJ 420: 152-158, 1994.

YUN, M.S.; HO, P.T.P.; and LO, K.Y. "A High-Resolution Image of Atomic Hydrogen in the M81 Group of Galaxies." Nature 372: 530-532, 1994.

YUSEF-ZADEH, F. "The IRS 16 Complex: The Importance of Stellar Winds at the Galactic Center." In: Nuclei of Normal Galaxies (Kluwer, ed. R. Genzel & A.I. Harris): 355-372, 1994.

YUSEF-ZADEH, F.; COTTON, W.; WARDLE, M.; MELIA, F.; and ROBERTS, D.A. "Anisotropy in the Angular Broadening of Sagittarius A* at the Galactic Center." ApJ 434: L63-L66, 1994.

ZENSUS, J.A. "The Parsec-Scale Jet in 3C345." In: Compact Extragalactic Radio Sources (NRAO, ed. J.A. Zensus & K.I. Kellermann): 153-156, 1994.

ZHANG, F.J.; BAATH, L.B.; and SPENCER, R.E. "1404+286: A Non-Ideal Calibrator for VLBI Observations." A&A 281: 649-652, 1994.

ZHANG, F.J.; SPENCER, R.E.; SCHILIZZI, R.T.; FANTI, C.; BAATH, L.B.; and SU, B.M. "Are There Two Engines at the Center of 3C 286?" A&A 287: 32-37, 1994.

- ZHANG, Q. and HO, P.T.P. "Ammonia Maser Associated with Massive Star Formation." In: Clouds, Cores, and Low Mass Stars (ASP, ed. D.P. Clemens & R. Barvainis): 304-306, 1994.
- ZHANG, X.; WRIGHT, M.; and ALEXANDER, P. "High Resolution CO and H I Observations of an Interacting Galaxy NGC 3627" In: Mass-Transfer Induced Activity in Galaxies (Cambridge: ed. I. Shlosman): 367-371, 1994.
- ZHANG, Y.F.; MARSCHER, A.P.; ALLER, H.D.; ALLER, M.F.; TERASRANTA, H.; and VALTAOJA, E. "Radio and X-ray Observations of the Gamma-Ray Bright Quasar PKS 0528+134." ApJ 432: 91-102, 1994.
- ZHOU, S.; BUTNER, H.M.; EVANS, N.J. II; GUSTEN, R.; KUTNER, M.L.; and MUNDY, L.G. "CS Multitransitional Study of Density Distribution in Star-Forming Regions. II. The S140 Region." ApJ 428: 219-232, 1994.
- ZIURYS, L.M.; ANDERSON, M.A.; APPONI, A.J.; and ALLEN, M.D. "Metal-Containing Molecules in the Laboratory and in Space." In: Molecules and Grains in Space (New York: AIP, ed. I. Nenner): 311-320, 1994.
- ZIURYS, L.M.; APPONI, A.J.; HOLLIS, J.M.; and SNYDER, L.E. "Detection of Interstellar N₂O: A New Molecule Containing an N-O Bond." ApJ 436: L181-L184, 1994.
- ZIURYS, L.M.; HOLLIS, J.M.; and SNYDER, L.E. "New Detections of Interstellar HNO at 2 and 1.2 Millimeters: More N-O Bonds." ApJ 430: 706-712, 1994.

ADDITIONS TO THE 1993 PUBLICATIONS LIST

DANLY, L.; ALBERT, C.E.; and KUNTZ, K.D. "A Determination of the Distance to the High-Velocity Cloud Complex M." ApJ 416: L29-L32, 1993.

DANLY, L.; ALBERT, C.E.; and KUNTZ, K.D. "An Absorption Line Detection of the High Velocity Cloud Complex M." In: Back to the Galaxy (AIP, ed. S.S. Holt & F. Verter): 532-535, 1993.

HAWKINS, G. and PROCTOR, D. "A Search for HI Emission From W Hydrae With the VLA." In: Mass Loss on the AGB and Beyond (ESO, ed. H.E. Schwarz): 461-467, 1993.

LOCKMAN, F.J. "Understanding Radio Surveys of Galactic HI." In: Workshop on Databases for Galactic Structure (L. Davis Press, ed. A.G.D. Philip, *et al.*): 181-188, 1993.

MURPHY, D.W.; BROWNE, I.W.A.; and PERLEY, R.A. "VLA Observations of a Complete Sample of Core-Dominated Radio Sources" MNRAS 264: 298-318, 1993.

RODRIGUEZ, L.F. and BASTIAN, T.S. "The Kinematics of the Ionized Envelope of MWC 349A." In: Mass Loss on the AGB and Beyond (ESO, ed. H.E. Schwarz): 468-474, 1993.

ROGERS, A.E.E.; CAPPALLO, R.J.; COREY, B.E.; HINTEREGGER, H.F.; NIELL, A.E.; PHILLIPS, R.B.; SMYTHE, D.L.; WHITNEY, A.R.; HERRING, T.A.; BOSWORTH, J.M.; CLARK, T.A.; MA, C.; RYAN, J.W.; DAVIS, J.L.; SHAPIRO, I.I.; ELGERED, G.; JALDEHAG, K.; JOHANSSON, J.M.; RÖNNÄNG, B.O.; CARTER, W.E.; RAY, J.R.; ROBERTSON, D.S.; EUBANKS, T.M.; KINGHAM, K.A.; WALKER, R.C.; HIMWICH, W.E.; KUEHN, C.E.; MACMILLAN, D.S.; POTASH, R.I.; SHAFFER, D.B.; VANDENBERG, N.R.; WEBBER, J.C.; ALLSHOUSE, R.L.; SCHUPLER, B.R.; and GORDON, D. "Improvements in the Accuracy of Geodetic VLBI." In: Contributions of Space Geodesy to Geodynamics: Technology (American Geophysical Union, ed. D.E. Smith & D.L. Turcotte): 47-63, 1993.

VERSCHUUR, G.L. "Beam Bias: The Influence of Beamwidth on Observations of H I 'Clouds' and the Significance of Derived Cloud Densities." AJ 106: 2580-2586, 1993.