

VLA Utilization Report December 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|---|---|----------------------|---------------------------------|----------------|
| AA123 | Andre, P. Feigelson, E. Leous, J. Montmerle, T. | NRAO-TUC Penn State Penn State CNRS, France | Circular polarization from magnetic star S1 in rhoOPH cloud. | 3.8 | 12 | 1.5 |
| AB414 | Becker, R. White, R. | Calif., Davis STScI | Monitoring radio stars HD193793 and P Cygni | 2, 6 | 20 | 1.5 |
| AB593 | Batuski, D. Venkatesan, T. Hanisch, R. Burns, J. | Maine Maine STScI New Mexico State | Head-tail radio sources in poor clusters of galaxies. | 6, 20 | 16, 20 | 7.0 |
| AB615 | Baum, S. O'Dea, C. de Bruyn, A. | Johns Hopkins STScI NFRA | Compact double 0108+338 | 3.8, 6, 20 | 23 | 8.1 |
| AB616 | Becker, R. White, R. Deustua, S. | Calif., Davis STScI IGPP/LLNL | A survey of candidate GPS | 3.8, 6, 20, 90 | 30 | 3.5 |
| AB627 | Bookbinder, J. Walter, F. Mutel, R. Neff, J. | Cfa SUNY Iowa Penn State | RS CVn AR Lac | 1.3, 2, 6, 20, 90 | 27, 28, 29, 30 | 48.1 |
| AC278 | Carilli, C. Ho, P. | NRAO-VLA Cfa | Two nuclear starburst galaxies. | 20, 90 | 9 | 4.0 |
| AD252 | de Pater, I. | Calif., Berkeley | Jupiter patrol. | 20 | 30, 31 | 12.0 |
| AE080 | Ellingson, E. Hutchings, J. Gower, A. | DAO DAO Victoria | Environment & the radio properties of quasars | 6, 20 | 7, 18 | 15.5 |
| AF213 | Fernini, I. Burns, J. Bridle, A. Perley, R. | New Mexico New Mexico State NRAO-CV NRAO-VLA | Jet/counterjet ratio in 3CR radio galaxies | 6 | 22, 23 | 16.0 |
| AF217 | Frail, D. Kulkarni, S. Thorsett, S. | NRAO-VLA Caltech Princeton | Young pulsar in G5.4-1.2 | 20 | 19 | 1.5 |
| AG328 | Guedel, M. Benz, A. | Colorado ETH, Zurich | High frequency dMe star radio emission | 2, 3.8, 6, 20 | 4, 21 | 4.0 |
| AG329 | Garay, G. Curiel, S. Rodriguez, L. Torrelles, J. | Chile Cfa Mexico/UNAM IAA, Andalucia | Non thermal radio emission from the strings in Cepheus A? | 2, 6 | 12, 13 | 10.0 |
| AG336 | Grunsfeld, J. Gorham, P. Johnson, N. Prince, T. Skinner, G. | Caltech Caltech NRL Caltech Birmingham | 1E1740.7-2942 | 3.8, 6 | 17 | 6.1 |
| AH437 | Hewitt, J. Turner, E. Chen, G. Angelus, A. | MIT Princeton MIT MIT | Monitoring the "Einstein Ring" gravitation lens MG1131+0456 | 3.8 line | 20 | 2.0 |
| AH446 | Hofner, P. Churchwell, E. | Wisconsin Wisconsin | Water masers in ultracompact HII regions | 1.3 line | 14 | 8.5 |
| AH451 | Hazard, C. Condon, J. McMahon, R. Irwin, M. | Cambridge NRAO-CV Cambridge Cambridge | QSOs with $z > 4$ | 20 | 21, 27 | 3.5 |
| AH452 | Hes, R. Barthel, P. Bridle, A. Perley, R. Zensus, J. | Groningen/Kapteyn Groningen/Kapteyn NRAO-CV NRAO-VLA NRAO-VLA | Morphology and QSR/radiogalaxy unification | 3.8, 6 | 16 | 12.0 |
| AJ200 | Jacobson, A. Erickson, W. Mercier, C. | Los Alamos Maryland Meudon | Ionospheric dynamics | 90 | 3, 16, 17, 19, 20, 26, 30 | 6.1 |
| AK270 | Kronberg, P. Sramek, R. | Toronto NRAO-VLA | Flux density monitoring of 30 brightest compact sources in M82 | 1.3, 2 | 27 | 10.0 |
| AK287 | Kundu, M. White, S. Gopalswamy, N. Lin, R. | Maryland Maryland Maryland Calif., Berkeley | Solar flares | 2, 3.8, 6 | 22, 31 | 14.5 |
| AK291 | Kulkarni, S. Phillips, J. Vasisht, G. | Caltech Caltech Caltech | Polarization monitoring of PSR 1829-10 | 20 | 19 | 2.5 |

VLA Utilization Report December 1991

| Progrm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|--------|--|--|---|------------------|-------------------|----------------|
| AL246 | Lo, K. Plante, R. Yun, M. Ho, P. | Illinois Illinois CfA CfA | HI Zeeman in M82 nuclear ring | 20 line | 12, 13 | 24.0 |
| AL247 | Lang, K. Willson, R. Kile, J. | Tufts Tufts Tufts | Solar corona | 20, 90 | 20, 24 | 13.6 |
| AL249 | Longley, D. Pedlar, A. Hummel, E. van der Hulst, J. | Manchester Manchester Royal Obs Groningen/Kapteyn | Compact flat spectrum core sources in spiral nuclei | 2, 3.8 | 4 | 10.1 |
| AL252 | Ledlow, M. Owen, F. | New Mexico NRAO-VLA | Radio galaxies in rich clusters | 20 | 29 | 10.0 |
| AM305 | Molnar, L. Mutel, R. Deng, J. | Iowa Iowa Iowa | A survey of interstellar scattering in the Cygnus X region. | 3.8 | 13 | 5.0 |
| AM342 | McHardy, I. Lehto, H. | Southampton U. Southampton U. | Globular cluster x-ray sources | 3.8, 6, 20 | 15, 21 | 18.0 |
| AM344 | Menon, T. | British Columbia | Galaxies in high density environments | 20 | 14 | 12.0 |
| AM351 | Mulchaey, J. Mushotzky, R. | Maryland NASA/GSFC | Galaxy-IGM interactions | 20 | 3, 5 | 9.0 |
| A0087 | Owen, F. Eilek, J. Cornwell, T. | NRAO-VLA New Mexico Tech NRAO-VLA | Observations of M87. | 90 | 12 | 6.0 |
| A0098 | Owen, F. Perley, R. | NRAO-VLA NRAO-VLA | B3 classical doubles. | 3.8 | 24 | 4.0 |
| A0105 | Okorogu, A. Akujor, C. Garrington, S. | Nigeria Nigeria Manchester | Radio jets w/o hotspots | 6 | 5 | 3.0 |
| AP209 | Parijskij, Y. Soboleva, N. Temirova, A. Goss, M. | Leningrad Leningrad Leningrad NRAO-VLA | RATAN-600 Sources | 6 | 9 | 1.0 |
| AP216 | Puche, D. Westpfahl, D. Carignan, C. | NRAO-VLA New Mexico Tech Montreal | Dwarf galaxy DDO 47 | 20 line | 26 | 8.1 |
| AP219 | Perlman, E. Stocke, J. Burns, J. | Colorado Colorado New Mexico State | Radiogalaxies in distant clusters | 20 | 1 | 20.5 |
| AP221 | Payne, H. Erickson, W. Anantharamaiah, K. | STScI Maryland Raman Institute | Carbon recombination lines in front of Cas A | 90 line w/BW1 | 1, 2, 3, 6 | 18.6 |
| AQ006 | Quirrenbach, A. Wegner, R. Witzel, A. | NRL MPIFR, Bonn MPIFR, Bonn | Jet and halo of BL Lacertae object 0716+714 | 6 | 30 | 1.0 |
| AR233 | Rodriguez, L. Canto, J. Torrelles, J. Ho, P. | Mexico/UNAM Mexico/UNAM IAA, Andalucia CfA | HL Tau protoplanetary disk. | 1.3 | 19, 20 | 20.1 |
| AR256 | Roberts, D. van der Werf, P. Dickel, H. Goss, M. | NRAO-VLA MPIFEP Garching Illinois NRAO-VLA | HI absorption in DR21 | 20 line | 8 | 7.8 |
| AR258 | Rupen, M. Condon, J. | CfA NRAO-CV | Radio supernova search | 6 w/BW1 | 5 | 12.0 |
| AS333 | Sramek, R. Weiler, K. van Dyk, S. Panagia, N. | NRAO-VLA NRL NRL STScI | Statistical properties of radio supernovae | 2, 6 | 26 | 3.0 |
| AS437 | Seaquist, E. Odegard, N. | Toronto NASA/GSFC | Synchrotron emission from galactic superwinds | 20 | 1 | 8.0 |
| AS453 | Smith, B. | Texas | HI in "ripple" galaxy NGC 2782 | 20 line | 6 | 10.0 |
| AS454 | Schmidt, M. van Gorkom, J. Schneider, D. Gunn, J. | Caltech Columbia Princeton Princeton | Optically selected high-redshift Quasars | 20 | 21 | 16.0 |
| AT118 | Thorsett, S. Taylor, J. McKinnon, M. | Princeton Princeton NMIMT/NRAO-VLA | Binary pulsar timing measurements: pulsars not accessible to Arecibo. | 20, 90 | 12 | 1.5 |
| AU045 | Uson, J. Bagri, D. Cornwell, T. | NRAO-VLA NRAO-VLA NRAO-VLA | HI clump at z=3.4 | 90 line | 2, 7, 8, 15 | 47.1 |
| AW291 | White, G. Liseau, R. | Queen Mary IFSI, Italy | Radio spectrum of the protostellar candidate N1333 IRAS 1 | 1.3, 2, 6, 20 | 27 | 1.0 |

VLA Utilization Report December 1991

| Program | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|---------|--|--|--|--|-------------------|--------------------------------------|
| AW303 | Wood, D. Churchwell, E. Van Buren, D. Mac Low, M. | NRAO-VLA Wisconsin IPAC, Pasadena NASA/Ames | Proper motions of ultra compact HII regions | 3.8 w/BW1 | 6 | 8.0 |
| AW308 | Wang, Z. Kenney, J. Burton, M. | Caltech Caltech AAO, Sydney | HI around IC 443 | 20 line | 9, 11 | 14.1 |
| AY043 | Yusef-Zadeh, F. | Northwestern | High-resolution mosaic of the Sgr A complex | 3.8 | 7 | 8.0 |
| AY044 | Yin, Q. Xu, L. Heeschen, D. | NRAO-CV Beijing NRAO-CV | Nearby starburst galaxies | 3.8 | 17 | 10.0 |
| AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT, Australia NRAO-VLA Illinois Arizona | Flux density variations in Sgr A. | 3.8, 6, 20 | 13 | 2.0 |
| AZ054 | Zhang, Y. Marscher, A. | Boston Boston | GPS source 1404+286=0Q208 | 20 | 3 | 8.0 |
| BW001 | Wrobel, J. | NRAO-VLA | PC-scale twist in the radio galaxy Mrk 501. | 6 Single Antenna VLBI w/AR258, AW303 | 6 | 16.3 |
| | Staff | NRAO | Baseline/Startup/Pointing Electronics Holiday/Shutdown Software General Test | | | 50.1 46.5 37.6 37.2 36.2 |

The average downtime was 2.5%.

The array was scheduled for
 538.4 hours (72.2 % of time) for astronomical programs
 86.3 hours (11.6 % of time) for tests/calibration
 83.8 hours (11.2 % of time) for maintenance
 Total 708.5 hours (95.0 %) scheduled.

The array was in the B configuration from December 1 to December 31.

Total number of astronomical programs was 55.

The following independent proposals shared simultaneous observing time (16.3 hours total simultaneous observing):

| Projects | Hours |
|-----------|-------|
| ap221/bw1 | 2.9 |
| ar258/bw1 | 5.5 |
| aw303/bw1 | 8.0 |

VLA Utilization Report November 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|---|---|-------------------------------------|--|----------------|
| AA123 | Andre, P. Feigelson, E. Leous, J. Montmerle, T. | NRAO-TUC Penn State Penn State CNRS, France | Circular polarization from magnetic star S1 in rhoOPH cloud. | 3.8 w/GB4 | 3, 22 | 3.5 |
| AA128 | Alexander, P. Mackay, C. Leahy, J. Pooley, G. | Cambridge Cambridge Manchester Cambridge | Structure of the inner jet of 3C668 | 2, 3.8 | 4 | 6.0 |
| AA129 | Akujor, C. | Nigeria, U. of | Depolarisation in compact steep-spectrum sources | 6 | 30 | 1.0 |
| AA135 | Anglada, G. Estalera, R. Rodriguez, L. Torrelles, J. | Barcelona Barcelona Mexico/UNAM IAA, Andalucia | Double radio source in L723 | 3.8, 6 | 30 | 4.1 |
| AB414 | Becker, R. White, R. | Calif., Davis STSci | Monitoring radio stars HD193793 and P Cygni | 2, 6 w/GB4 | 22 | 2.0 |
| AB587 | Burns, J. Clarke, D. | New Mexico State Illinois | The inner lobes and jet of Centaurus A. | 3.8 | 9 | 3.5 |
| AC311 | Chambers, K. | Hawaii | 5C sample | 3.8, 20 w/UAH7, GZ7, GP7 | 10, 11, 16, 17 | 24.3 |
| AD254 | Dey, A. van Breugel, W. | Calif., Berkeley Lawrence Livermore | Radio-loud far-infrared galaxies. | 20 | 26 | 8.5 |
| AD269 | de Pater, I. Romani, P. Atreya, S. | Calif., Berkeley NASA/GSFC Michigan | Uranus | 1.3, 2 w/GZ7 | 11 | 8.0 |
| AD275 | Dwarakanath, K. | NRAO-VLA | GEETEE sources | 20, 90 | 5 | 3.0 |
| AD277 | Diamond, P. Frail, D. Cordes, J. van Langevelde, H. | NRAO-VLA NRAO-VLA Cornell Leiden | Highly scattered OH/IR stars at the galactic center | 20 | 2 | 1.0 |
| ADHOC | Becker, R. | Calif., Davis | | | 7 | 1.9 |
| AE086 | Edelson, R. Quirrenbach, A. Madejski, G. Bregman, J. | NASA/GSFC NRL NASA/GSFC Michigan | Monitoring BL Lac PKS 2155-304 | 1.3, 2, 6, 20 w/GZ7, GP4, GB4 | 4, 7, 11, 15, 18, 19, 22, 26, 29 | 21.1 |
| AF196 | Feretti, L. Giovannini, G. Dallacasa, D. | IdR, Bologna IdR, Bologna IdR, Bologna | Radio polarization mapping of head-tail source NGC4869. | 20 w/GV7, GB4 | 22 | 10.0 |
| AF197 | Feretti, L. Giovannini, G. | IdR, Bologna IdR, Bologna | Cluster radio galaxies of small size. | 6, 20 w/US2 | 8, 14 | 10.1 |
| AF217 | Frail, D. Kulkarni, S. Thorsett, S. | NRAO-VLA Caltech Princeton | Young pulsar in G5.4-1.2 | 20 | 12 | 1.5 |
| AG324 | Gregory, P. Scott, W. Duric, N. Taylor, A. | British Columbia British Columbia New Mexico Calgary | New variable galactic radio source w/twin jets, G2318+620 | 2, 3.8, 6, 20 | 12 | 5.0 |
| AG325 | Gavazzi, G. | Milano | Strong halo galaxies in A1367 | 20 | 4 | 6.0 |
| AG336 | Grunsfeld, J. Gorham, P. Johnson, N. Prince, T. Skinner, G. | Caltech Caltech NRL Caltech Birmingham | 1E1740.7-2942 | 3.8, 6 w/GP4 | 19 | 6.0 |
| AH437 | Hewitt, J. Turner, E. Chen, G. Angelus, A. | MIT Princeton MIT MIT | Monitoring the "Einstein Ring" gravitation lens MG1131+0456 | 3.8 line | 19 | 2.0 |
| AH445 | Hankins, T. | NMIMT/NRAO-VLA | Crab "Giant" pulses | 3.8, 6, 20, 90 | 1 | 3.0 |
| AJ200 | Jacobson, A. Erickson, W. Mercier, C. | Los Alamos Maryland Meudon | Ionospheric dynamics | 90 w/GV7, GB4 | 3, 8, 9, 20, 22, 29, 30 | 7.8 |
| AK249 | Klein, U. Brinks, E. Skillman, E. | MPIfR, Bonn NRAO-VLA Minnesota | Low frequency spectral indices of blue compact dwarfs. | 20, 90 | 15 | 1.1 |
| AK272 | Kassim, N. Perley, R. Taylor, G. Erickson, W. Dwarakanath, K. | NRL NRAO-VLA NRAO-VLA Maryland NRAO-VLA | Synthesis of strong radio sources at 4m wavelength | 400 w/GB4, UAH6 | 23 | 20.6 |
| AK284 | Katgert, P. Den Hartog, R. Sjouwerman, L. | Leiden Leiden Leiden | Candidate narrow angle tail sources | 20 | 2, 7 | 16.0 |

VLA Utilization Report November 1991

| Prog# | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|---|---|----------------------------|-----------------------|----------------|
| AK289 | Kollgaard, R. Feigelson, E. | Penn State Penn State | X-rays selected BL Lac objects | 20 w/GP4 | 19 | 8.5 |
| AK291 | Kulkarni, S. Phillips, J. Vasisht, G. | Caltech Caltech Caltech | Polarization monitoring of PSR 1829-10 | 20 | 12 | 2.5 |
| AL150 | Lestrade, J. Preston, R. | JPL JPL | RSCVn stars. | 6 | 3, 14 | 1.8 |
| AL251 | Langston, G. | NRAO-CV | Gravitational lens 2016+112 | 3.8, 6 | 29 | 2.5 |
| AL252 | Ledlow, M. Owen, F. | New Mexico NRAO-VLA | Radio galaxies in rich clusters | 20 | 2 | 10.0 |
| AL255 | Lowenthal, J. Green, R. | Arizona KPNO/NOAO | Ly-alpha galaxy at z=2.3 | 3.8, 6 | 26 | 2.5 |
| AM326 | McCullough, P. Heiles, C. | Calif., Berkeley Calif., Berkeley | Deuterium towards Cas A | 90 line | 1, 3, 6, 8, 11, 17 | 39.6 |
| AM330 | Marcha, M. Browne, I. Patnaik, A. Wrobel, J. | Manchester Manchester Manchester NRAO-VLA | BL Lac objects and flat spectrum radio galaxies | 20 w/GP7 | 15, 19 | 9.0 |
| AM346 | Morris, D. Anantharamaiah, K. Radhakrishnan, V. Dwarakanath, K. Mirabel, F. | IRAM Raman Institute Raman Institute NRAO-VLA CNRS, France | Positronium search in 1E 1740-2942 | 6 line w/GP7 | 16, 17 | 11.9 |
| AM352 | Muhleman, D. Grossman, A. Clancy, R. Weisstein, E. | Caltech Maryland Colorado Caltech | Venus water vapor | 1.3 line | 3 | 11.6 |
| AO103 | O'Donoghue, A. Eilek, J. Owen, F. | St. Lawrence New Mexico Tech NRAO-VLA | Spectral index observations of 3C 465. | 90 | 7 | 5.0 |
| AO105 | Okorogu, A. Akujor, C. Garrington, S. | Nigeria Nigeria Manchester | Radio jets w/o hotspots | 6 | 14, 29, 30 | 5.8 |
| AP209 | Parijskij, Y. Soboleva, N. Temirova, A. Goss, M. | Leningrad Leningrad Leningrad NRAO-VLA | RATAN-600 Sources | 6 w/GP4 | 19 | 1.0 |
| AP214 | Pedlar, A. Longley, D. Kukula, M. Baum, S. O'Dea, C. | Manchester Manchester Manchester Johns Hopkins STScI | NGC 4151 | 2 | 30 | 8.1 |
| AP221 | Payne, H. Erickson, W. Anantharamaiah, K. | STScI Maryland Raman Institute | Carbon recombination lines in front of Cas A | 90 line | 30 | 5.5 |
| AR256 | Roberts, D. van der Werf, P. Dickel, H. Goss, M. | NRAO-VLA MPIFEP Garching Illinois NRAO-VLA | HI absorption in DR21 | 20 line w/US2 | 13 | 8.0 |
| AS437 | Seaquist, E. Odegard, N. | Toronto NASA/GSFC | Synchrotron emission from galactic superwinds | 20 | 29 | 8.0 |
| AT110 | Torrelles, J. Rodriguez, L. Canto, J. Ho, P. Gomez, J. | IAA, Andalucia Mexico/UNAM Mexico/UNAM Harvard IAA, Andalucia | Ammonia observations of protoplanetary disks. | 1.3 line | 18 | 10.0 |
| AT127 | Thorsett, S. Taylor, J. Hankins, T. Stinebring, D. | Princeton Princeton NMIMT/NRAO-VLA Oberlin | Timing fast pulsars | 6, 20, 90 | 8 | 11.0 |
| AU042 | Ulvestad, J. Antonucci, R. | JPL Calif., Santa Barbara | Compact radio sources in NGC 253 | 1.3, 2, 3.8, 6 w/GP7 | 16 | 6.1 |
| AU046 | Uson, J. Bagri, D. Cornwell, T. | NRAO-VLA NRAO-VLA NRAO-VLA | Absorption in galaxies/QSOs at z=3.3 | 90 line | 29 | 6.5 |
| AW249 | Wills, B. Shastri, P. | Texas Texas | Core variability in lobe-dominated quasars. | 6 w/UAH8,US2 | 13 | 10.0 |
| AW301 | Wilson, A. Bland-Hawthorn, J. | Maryland Rice | Ultra luminous galaxy NGC 6240 | 3.6, 6, 20 | 1 | 3.0 |
| AW302 | Weisberg, J. Frail, D. Johnston, S. Cordes, J. | Carleton College NRAO-VLA CSIRO Cornell | HI absorption measurements of pulsars in the inner galaxies | 20 | 4 | 2.5 |

VLA Utilization Report November 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|--------|---|--|---|---|-----------------------|----------------|
| AY046 | Yusef-Zadeh, F. | Northwestern | Proper motions in SgrA | 2 | 15 | 5.0 |
| AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT, Australia NRAO-VLA Illinois Arizona | Flux density variations in Sgr A. | 3.8, 6, 20 w/US2 | 13 | 2.0 |
| GB003 | Bartel, N. Rupen, M. Shapiro, I. Preston, J. Rius, A. Hirabayashi, H. Kobayashi, H. | CfA CfA CfA JPL Madrid ISAS, Japan ISAS, Japan | Expansion of SN 1986J | 3.6 MKIII Phased Array VLBI | 24 | 13.2 |
| GB004 | Bloom, S. Marscher, A. Gear, W. | Boston Boston Royal Obs | Strong millimeter sources | 1.3, 3.6 MKII Single Antenna VLBI w/tests, AK272, AF196, AA123, ... | 22, 23 | 15.4 |
| GB009 | Barthel, P. de Bruyn, A. Schilizzi, R. O'Dea, C. Wieringa, M. Bogers, W. | Groningen/Kapteyn NFRA NFRA STScI Leiden Groningen/Kapteyn | Core evolution in 1245+67 | 3.6 MKIII Phased Array VLBI | 22 | 13.7 |
| GF002 | Fanti, C. Schilizzi, R. Spencer, R. van Breugel, W. Ren-Dong, N. Dallacasa, D. | IdR, Bologna NFRA Manchester Lawrence Livermore Beijing IdR, Bologna | Morphology of compact steep spectrum quasars 3C63 & 3C298 | 18 MKII Phased Array VLBI | 18 | 13.7 |
| GK003 | Krichbaum, T. Witzel, A. Schalinski, C. Standke, K. Steffen, W. | MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn | Superluminal motion in 1803+78 | 1.3 MKIII Phased Array VLBI | 12 | 12.5 |
| GM006 | Marcaide, J. Elosegui, P. Alberdi, A. Guirado, J. Witzel, A. Ratner, M. Shapiro, I. Preston, R. | IAA, Andalucia IAA, Andalucia IAA, Andalucia IAA, Andalucia MPIfR, Bonn CfA CfA JPL | Absolute kinematics of radio source components: 1803+784/1928+738/2007+777 | 3.6, 13 MKIII Phased Array VLBI | 20 | 15.1 |
| GP004 | Pauliny-Toth, I. Unwin, S. Zensus, A. | MPIfR, Bonn Caltech NRAO-VLA | 3C454.3 | 2.8 MKII Single Antenna VLBI w/AG336, AP209, AE86, AK289 | 19 | 12.2 |
| GP006 | Porcas, R. Garrett, M. | NRAO-VLA Manchester | Gravitational lens systems 1042+178 & 2016+112 | 18 MKIII Phased Array VLBI | 14, 15 | 24.0 |
| GP007 | Polatidis, A. Wilkinson, P. Readhead, A. Xu, W. Pearson, T. | Manchester Manchester Caltech Caltech Caltech | Snapshot survey | 18 Single Antenna VLBI w/AM330, tests, AC311, AM346, ... | 15 | 42.0 |
| GS005 | Standke, K. Alef, W. Krichbaum, T. Schalinski, C. Quirrenbach, A. Wegner, R. Zensus, A. Witzel, A. | MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn USNO MPIfR, Bonn NRAO-VLA MPIfR, Bonn | Image wandering in the intraday variable quasar 0917+624 | 1.3, 3.6 MKIII Phased Array | 20 | 21.2 |
| GV007 | Venturi, T. Pearson, T. | IdR, Bologna Caltech | Superluminal radio sources 3C216 & 1642+690 | 3.6, 6 MKII Single Antenna w/AK289, AF196 | 20, 22 | 11.7 |
| GZ007 | Zensus, A. Unwin, S. Wehrle, A. | NRAO-VLA Caltech JPL | Jet in quasar 3C345 | 1.3 MKII Single Antenna w/AC311, AD269 | 11 | 14.2 |
| UA002 | Andre, P. Lestrade, J. Phillips, R. Klein, K. | NRAO-TUC Meudon Haystack Meudon | Magnetic B star Sigma Orionis E. | 3.6 MKIII Phased Array VLBI | 20, 21, 22, 23, 25 | 10.8 |
| UAH006 | Vermeulen, R. | Caltech | Phase reference sources | 3.8 Single Antenna VLBI w/tests, AK272 | 23 | 2.3 |

VLA Utilization Report November 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|--------|--|--|---|---|-------------------|----------------|
| UAH007 | Unwin, S. | Caltech | 3C279 | 1.3 | 10 | 7.0 |
| | | | | Single Antenna VLBI w/UG1, AC311 | | |
| UAH008 | Bartel, N. | CfA | | | 13 | 4.8 |
| UG001 | Greenhill, L. Moran, J. Reid, M. Argon, A. Menten, K. Hirabayashi, H. Gwinn, C. | CfA CfA CfA CfA CfA ISAS, Japan Calif., Santa Barbar | Distance to M33 | 1.3 | 9, 10 | 34.7 |
| | | | | MKIII Phased Array VLBI w/UAH7 | | |
| UH001 | Hough, D. Zensus, A. Vermeulen, R. Readhead, A. Porcas, R. Rius, A. | Trinity NRAO-VLA Caltech Caltech NRAO-VLA NASA/INTA | Superluminal motion in 3C204, 0839+616, 3C205, and 3C175 | 3.6 | 25 | 6.0 |
| | | | | MKIII Phased Array VLBI | | |
| UL003 | Lo, K. Backer, D. Ekers, R. Goss, M. Reid, M. Moran, J. Zhao, J. | Illinois Calif., Berkeley AT, Australia NRAO-VLA CfA CfA NRAO-VLA | Sgr A* | 4 | 25 | 7.1 |
| | | | | MKIII Phased Array VLBI | | |
| UM001 | Marscher, A. Zhang, Y. Roberts, D. Wardle, J. Shaffer, D. Flatters, C. Marcaide, J. Alberdi, A. Elosegui, P. | Boston Boston Brandeis Brandeis Interferometrics NRAO-VLA IAA, Andalucia IAA, Andalucia IAA, Andalucia | 4C 39.25 | 3.6 | 25 | 21.7 |
| | | | | MKIII Phased Array VLBI | | |
| US002 | Shaffer, D. Ma, C. | Interferometrics NASA/GSFC | 0218+357 and 1413+135 | 18 | 13 | 24.2 |
| | | | | MKII Single Antenna VLBI w/AZ44, AR256, AW249, AF197, | | |
| | Staff | NRAO | Baseline/Startup/Pointing | | | 53.1 |
| | | | Electronics | | | 29.0 |
| | | | Move/Operations | | 1 | 4.8 |
| | | | Software | | | 12.5 |
| | | | General Test | | | 24.2 |
| | | | Holiday/Shutdown | | 28 | 24.9 |

The average downtime was 4.2%.

The array was scheduled for
580.1 hours (80.3 % of time) for astronomical programs
75.5 hours (10.5 % of time) for tests/calibration
41.5 hours (5.8 % of time) for maintenance
Total 697.1 hours (96.5 %) scheduled.

The array was in the B configuration from November 1 to November 30.

Total number of astronomical programs was 73.

The following independent proposals shared simultaneous observing time (133.7 hours total simultaneous observing):

| Projects | Hours | Projects | Hours |
|------------|-------|---------------|-------|
| aa123/gb4 | 1.5 | ak289/gv7 | 3.8 |
| ab414/gb4 | 2.0 | am330/gp7 | 5.8 |
| ac311/gp7 | 6.5 | am346/gp7 | 7.4 |
| ac311/gp7 | 6.0 | am346/gp7 | 3.7 |
| ac311/gz7 | 5.0 | ap209/gp4 | 1.0 |
| ac311/uah7 | 6.0 | ar256/us2 | 8.0 |
| ad269/gz7 | 8.0 | au42/gp7 | 6.1 |
| ae86/gb4 | 2.0 | aw249/uah8 | 4.8 |
| ae86/gp4 | 2.0 | aw249/us2 | 3.3 |
| ae86/gz7 | 1.2 | az44/us2 | 2.0 |
| af196/gb4 | 1.7 | baselines/us2 | 5.0 |
| af196/gv7 | 6.7 | tests/gb4 | 0.2 |
| af197/us2 | 5.0 | tests/gp7 | 2.0 |
| ag336/gp4 | 4.4 | tests/gp7 | 4.5 |
| aj200/gb4 | 0.9 | tests/uah6 | 0.6 |
| aj200/gv7 | 1.3 | tests/us2 | 0.9 |
| ak272/gb4 | 7.0 | ug1/uah7 | 0.4 |
| ak272/uah6 | 1.6 | ug1/uah7 | 0.6 |
| ak289/gp4 | 4.7 | | |

VLA Utilization Report October 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|--|--|--|---------------------------|---|----------------|
| AA123 | Andre, P. | NRAO-TUC | Circular polarization from magnetic star S1 in rho OPH cloud. | 3.8 w/GL2 | 15 | 2.0 |
| AA132 | Allington-Smith, J. Oemler, A. | Durham, U. of Yale | Evolution of galaxies in poor clusters | 20, 90 | 4 | 4.0 |
| AA137 | Andre, P. | NRAO-TUC | Young stellar objects in rho OPH A | 3.8, 6 | 14 | 5.0 |
| AB414 | Becker, R. White, R. | Calif., Davis STScI | Monitoring radio stars HD193793 and P Cygni | 2, 6 | 15 | 1.5 |
| AB618 | Baldwin, J. Wilson, A. | NOAO/Chile Maryland | Seyfert galaxy NGC 3393 | 3.8, 6, 20 | 11 | 6.0 |
| AB620 | Bastian, T. Dulk, G. Bookbinder, J. | NRAO-VLA Colorado CfA | Magnetic CV AE Aqr | 1.3, 2, 3.6, 6 | 28 | 11.5 |
| AB625 | Brown, R. Holdaway, M. | NRAO-CV NRAO-VLA | Ionized hydrogen at galactic center: H138 beta | 6 line | 4 | 8.0 |
| AB626 | Beck, S. Ho, P. Turner, J. | Tel Aviv U. CfA Calif., L. A. | NGC 5253 | 3.6, 6 | 13 | 4.1 |
| AC312 | Chambers, K. | Hawaii | Polar cap ultra steep spectrum survey | 20 | 20, 21 | 4.0 |
| AD268 | de Pater, I. Mitchell, D. Ostro, S. Yeomans, D. Palmer, P. Snyder, L. Muhleman, D. | Calif., Berkeley Calif., Berkeley JPL JPL Chicago Illinois Caltech | Asteroid Bamberga | 3.8 w/BW1 | 2, 7 | 11.0 |
| AD276 | Dey, A. van Breugel, W. | Calif., Berkeley Lawrence Livermore | Nearby galaxies with blue continuum | 3.8, 6 | 17, 18, 19 | 14.0 |
| ADHOC | Becker, R. | Calif., Davis | | | 21 | 1.1 |
| AE079 | Elosegui, P. Marcaide, J. Guirado, J. Cotton, W. Owen, F. | IAA, Granada IAA, Granada IAA, Granada NRAO-CV NRAO-VLA | Optical quasar pair 1038+528A,B | 3.8, 6, 20 | 5 | 6.9 |
| AE084 | Erickson, W. Grossman, A. Douglas, J. | Maryland Maryland Texas | Scintillation by Jupiter's magnetosphere | 90 | 4, 15 | 9.2 |
| AE085 | Engels, D. Winnberg, A. Lindqvist, M. Walmsley, M. | Hamburger Sternwarte Chalmers, Onsala Chalmers, Onsala MPIfR, Bonn | Water masers in circumstellar shells | 1.3 line | 20 | 2.0 |
| AF217 | Frail, D. Kulkarni, S. Thorsett, S. | NRAO-VLA Caltech Princeton | Young pulsar in G5.4-1.2 | 6 | 17, 25 | 4.3 |
| AG328 | Guedel, M. Benz, A. | Colorado ETH, Zurich | High frequency dMe star radio emission | 2, 3.8, 6, 20 w/BW1 | 14, 19, 29 | 18.0 |
| AG334 | Griffiths, R. Tolstoy, E. Boyle, B. | STScI Leiden Cambridge | Deep ROSAT fields | 20 | 6, 7, 8 | 11.2 |
| AG337 | Grossman, A. Muhleman, D. Stade, M. | Maryland Caltech JPL | Saturn rings radar | 3.8 line | 8, 12 | 15.0 |
| AH390 | Hjellming, R. Gehrz, R. Taylor, A. Seagquist, E. | NRAO-VLA Minnesota Calgary Toronto | Monitoring radio novae. | 3.8, 6, 20 | 31 | 6.0 |
| AH437 | Hewitt, J. Turner, E. Chen, G. Angelus, A. | MIT Princeton MIT MIT | Monitoring the "Einstein Ring" gravitation lens MG1131+0456 | 3.8 line | 17 | 2.0 |
| AH445 | Hankins, T. | NMIMT/NRAO-VLA | Crab "Giant" pulses | 3.8, 6, 20, 90 | 20, 24, 27, 30 | 12.1 |
| AH447 | Higdon, J. | Texas | Cartwheel | 20 line | 9, 10, 13, 21 | 18.0 |
| AH450 | Hofstadter, M. Gulkis, S. Muhleman, D. | Caltech JPL Caltech | Neptune | 3.8, 6 | 21, 22 | 16.1 |
| AJ200 | Jacobson, A. Erickson, W. Mercier, C. | Los Alamos Maryland Meudon | Ionospheric dynamics | 90 | 1, 3, 4, 6, 13, 15, 16, 18, 21, 22, 27 | 18.9 |

VLA Utilization Report October 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|---|--|-----------------------|-----------------------|----------------|
| AJ214 | Johnston, H. Kulkarni, S. Cornwell, T. Perley, R. | Caltech Caltech NRAO-VLA NRAO-VLA | Pulsar content of globular clusters | 90 w/BW1 | 18, 19, 20 | 24.0 |
| AK285 | Koo, B. Yun, M. Ho, P. Kumar, P. Heiles, C. | Cfa Cfa Cfa NCAR Calif., Berkeley | Structure of HII region G5.48-0.24 | 20 | 17 | 1.0 |
| AK288 | Kollgaard, R. Feigelson, E. Hertz, P. Brinkmann, W. Wielebinski, R. | Penn State Penn State NRL MPIfEP, Munich MPIfR, Bonn | North ecliptic pole | 20 w/BW1 | 18, 19 | 12.0 |
| AK290 | Koribalski, B. Dickey, J. Dahlem, M. | MPIfR, Bonn Minnesota Hamburger Sternwarte | HI absorption in NGC 1808 | 20 line | 17, 18, 21 | 15.1 |
| AK291 | Kulkarni, S. Phillips, J. Vasht, G. | Caltech Caltech Caltech | Polarization monitoring of PSR 1829-10 | 20 | 15 | 2.5 |
| AL150 | Lestrade, J. Preston, R. | JPL JPL | RSCVn stars. | 6 | 7, 8, 17 | 1.8 |
| AL248 | Lang, K. Willson, R. Kile, J. | Tufts Tufts Tufts | Sun: during 2 MAX 91 campaigns | 2, 3.8, 6, 20, 90 | 12 | 5.0 |
| AL250 | Lo, K. Plante, R. Killeen, N. Crutcher, R. | Illinois Illinois AT, Australia Illinois | OH and HI Zeeman measurements in Sgr A | 20 line | 5, 6 | 18.1 |
| AL254 | Leous, J. Andre, P. Stine, P. Barsony, M. | Penn State NRAO-TUC Bloomsburg State Cfa | LkHa 101 | 3.8 | 30 | 10.1 |
| AM326 | McCullough, P. Heiles, C. | Calif., Berkeley Calif., Berkeley | Deuterium towards Cas A | 90 line | 11, 31 | 5.0 |
| AM345 | Mirabel, I. Rodriguez, L. Cordier, B. Paul, J. Lebrun, F. | CNRS, France Mexico/UNAM CNRS, France CNRS, France CNRS, France | 1E 1740.7-2942 | 3.8, 6, 20 | 3, 7 | 12.1 |
| AM348 | Mehring, D. Palmer, P. Yusef-Zadeh, F. Goss, W. | Chicago/NRAO-VLA Chicago Northwestern NRAO-VLA | Sgr B1/B2 | 3.8, 6, 20 | 10, 11 | 16.1 |
| AM353 | Moffett, D. Goss, W. Reynolds, S. | NMIMT/NRAO-VLA NRAO-VLA North Carolina State | SN 1006 - expansion | 20 | 12 | 4.0 |
| AM354 | Molnar, L. Allen, J. Taylor, A. Kenny, H. Hjellming, R. | Iowa Iowa Calgary Calgary NRAO-VLA | Monitoring a cycle of LSI +61 303 | 1.3, 2, 3.8, 6, 20 | 1, 3-8 | 7.7 |
| AR242 | Rucinski, S. | York U. | Close binary ER Vul | 2, 3.8, 6, 20 | 1 | 3.6 |
| AR257 | Reynolds, R. Lockman, F. Langston, G. | Wisconsin NRAO-CV NRAO-CV | HI absorption toward globular clusters | 18, 20 line | 26, 27 | 17.1 |
| AS333 | Sramek, R. Weiler, K. van Dyk, S. Panagia, N. | NRAO-VLA NRL NRL STScI | Statistical properties of radio supernovae | 2, 6 | 5, 20, 31 | 8.0 |
| AS451 | Schilizzi, R. Miley, G. de Bruyn, A. Rottgering, H. | NFRA Leiden NFRA Leiden | AGNs with peaked radio spectra | 2, 20 | 13 | 5.0 |
| AS455 | Sramek, R. Barthel, P. Mirabel, I. Sanders, D. | NRAO-VLA Groningen/Kapteyn CNRS, France Hawaii | ELF-QSO connection | 2, 3.8 | 20, 25, 26, 28, 29 | 31.0 |
| AS456 | Singh, K. Patnaik, A. Harris, D. | TIFR, Bombay Manchester CFA | ZW 0335+096 | 90 | 13 | 6.0 |
| AT114 | Taylor, A. Dougherty, S. | Calgary Calgary | Monitoring of radio variable Be stars. | 3.8 | 9 | 3.0 |

VLA Utilization Report October 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|--|--|---|-----------------------|-----------------------|--------------------------------------|
| AT118 | Thorsett, S. Taylor, J. McKinnon, M. | Princeton Princeton NMIMT/NRAO-VLA | Binary pulsar timing measurements: pulsars not accessible to Arecibo. | 20, 90 | 8 | 2.1 |
| AU044 | Umana, G. Trigilio, C. Hjellming, R. Catalano, S. Frasca, A. | CNR, Bologna CNR, Bologna NRAO-VLA Catania U. CNR, Bologna | Algol-type systems: RZ Cas | 1.3, 2, 3.8, 6, 20 | 5, 23 | 5.6 |
| AV189 | van Breugel, W. Sutherland, W. Heckman, T. | Lawrence Livermore Oxford U. Johns Hopkins | Southern quasar & radio galaxy survey | 20 | 14, 15 | 16.0 |
| AW290 | White, S. Kundu, M. Pallavicini, R. | Maryland Maryland Arcetri | Radio spectra and polarization of naked T Tauri stars | 2, 3.5, 6, 20 | 7, 13 | 6.6 |
| AW292 | Wolfe, A. Brinks, E. Garwood, R. Briggs, F. | Calif., San Diego NRAO-VLA NRAO-CV Pittsburgh | Search for 21cm absorption in damped Ly-alpha system towards MG 0201+11 | 90 line | 23, 24, 25, 26, 27 | 40.1 |
| AW302 | Weisberg, J. Frail, D. Johnston, S. Cordes, J. | Carleton NRAO-VLA CSIRO Cornell | H1 absorption toward pulsars in the inner galaxy | 20 line | 29 | 6.0 |
| AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT, Australia NRAO-VLA Illinois Arizona | Flux density variations in Sgr A. | 3.8, 6, 20 | 14 | 2.0 |
| BK001 | Kemball, A. Diamond, P. | NRAO-CV NRAO-VLA | Mapping the circumstellar structure of OH 17.7-2.0. | 20 | 24 | 9.6 |
| BW001 | Wrobel, J. | NRAO-VLA | PC-scale twist in the radio galaxy Mrk 501. | 6 | 19 | 16.4 |
| BZ001 | Zhang, Y. Marscher, A. | Boston Boston | Spectral investigation of a complete sample of compact doubles. | 1.3, 3.8, 18 | 3 | 10.2 |
| | Staff | NRAO | Baseline/Pointing/Startup Electronics Move/Operations Software General Test | | | 55.4 60.8 28.2 34.5 63.7 |

The average downtime was 6.8%.

The array was scheduled for
 508.2 hours (68.1 % of time) for astronomical programs
 142.6 hours (19.1 % of time) for tests/calibration
 95.3 hours (12.8 % of time) for maintenance
 Total 746.1 hours (100 %) scheduled.

The array was in the AB configuration from October 1 to October 31.

Total number of astronomical programs was 58.

The following independent proposals shared simultaneous observing time (31.1 hours total simultaneous observing):

| Projects | Hours | Projects | Hours |
|-----------|-------|--------------|-------|
| ad276/bw1 | 4.0 | am345/bz1 | 4.5 |
| ag328/bw1 | 1.7 | am354/bz1 | 0.7 |
| aj214/bw1 | 8.0 | move/op/bk1 | 4.5 |
| ak288/bw1 | 2.7 | pointing/bz1 | 5.0 |

VLA Utilization Report September 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|---------|--|--|---|--------------------------------|----------------------------------|----------------|
| ✓ AA123 | Andre, P. Feigelson, E. Leous, J. Montmerle, T. | NRAO-TUC Penn State Penn State CNRS, France | Circular polarization from magnetic star S1 in rhoOPH cloud. | 3.8 w/GL2 | 21 | 2.0 |
| ✓ AA127 | Alexander, P. Crane, P. Wilding, T. Pooley, G. | Cambridge NRAO-VLA Cambridge Cambridge | Star-formation rate in galaxies | 90 | 9 | 10.0 |
| ✓ AA129 | Akujor, C. | Nigeria | Compact steep-spectrum sources | 6, 18 | 14 | 0.5 |
| ✓ AB414 | Becker, R. White, R. | Calif., Davis STScI | Monitoring radio stars HD193793 and P Cygni | 2, 6 | 3, 7 | 3.0 |
| ✓ AB609 | Bridle, A. Clarke, D. Perley, R. Burns, J. | NRAO-CV Illinois NRAO-VLA New Mexico State | Internal structure of jets in 3C219 | 2, 3.8 | 8, 9 | 16.0 |
| ✓ AB616 | Becker, R. White, R. Deustua, S. | Calif., Davis STScI IGPP/LLNL | Candidate GPS | 3.8, 6, 20, 90 w/GX2 | 22 | 11.0 |
| ✓ AC300 | Clegg, A. | NRL | Interstellar OH masers: S269 & ON1 | 20 line w/GX2 | 15 | 3.0 |
| ✓ AD268 | de Pater, I. Mitchell, D. Ostro, S. Yeomans, D. Palmer, P. Snyder, L. Muhleman, D. | Calif., Berkeley Calif., Berkeley JPL JPL Chicago Illinois Caltech | Radar observations of asteroids and comets | 3.8 line w/GC2, GD1 | 8, 12, 15 | 27.0 |
| ✓ ADHOC | Kellermann, K. | NRAO-CV | Structure of the BAL quasar 1700+518 | 2 | 3 | 1.5 |
| ✓ AH390 | Hjellming, R. Gehrz, R. Taylor, A. Sequist, E. | NRAO-VLA Minnesota Calgary Toronto | Monitoring radio novae. | 3.8, 6, 20 | 8 | 4.0 |
| ✓ AH424 | Han, X. Hjellming, R. | NMIMT/NRAO-VLA NRAO-VLA | The radio remnant of the 1989 outburst of V404 Cyg. | 3.8, 6 w/GP7 | 25 | 5.0 |
| ✓ AH433 | Hummel, C. Quirrenbach, A. | MPIfR, Bonn NRL | Kpc-scale structure of the peculiar S5-quasar 0153+744 | 20 | 5 | 4.0 |
| ✓ AI041 | Impey, C. Foltz, C. | Arizona MMTO | The radio structure of optically selected quasars. | 6 w/Move/Op, | 13, 15 GC2 | 20.0 |
| ✓ AJ200 | Jacobson, A. Erickson, W. Mercier, C. | Los Alamos Maryland Meudon | Ionospheric dynamics | 90 w/GL3, GX2 | 11, 18, 20, 22, 26, 29, 30 | 9.3 |
| ✓ AJ202 | Jackson, N. Browne, I. Gower, A. | Manchester Manchester Victoria | Morphology of 0100+108 | 3.8 | 4 | 4.0 |
| ✓ AJ213 | Johnston, H. Kulkarni, S. Verbunt, F. | Caltech Caltech Utrecht | ROSAT X-ray sources in globular clusters | 20 w/Move/Op, | 17, 18, 22 GX2 | 18.2 |
| ✓ AK233 | Kundu, M. White, S. Maran, S. Woodgate, B. | Maryland Maryland NASA/GSFC NASA/GSFC | Stellar coronal plasma & flares. | 2, 6 | 1, 3 | 9.0 |
| ✓ AK277 | Kolman, M. | Columbia | Brightest radio quiet quasar | 1.3, 2, 3.8, 20 | 9 | 1.0 |
| ✓ AK282 | Kulkarni, S. Navarro, J. Tanaka, Y. Frail, D. | Caltech Caltech ISAS, Japan NRAO-VLA | Quiescent LMXBs | 20 | 27 | 8.4 |
| ✓ AK291 | Kulkarni, S. Phillips, J. Vasisht, G. | Caltech Caltech Caltech | Polarization monitoring of PSR 1829-10 | 20 | 28 | 4.5 |
| AK292 | Knopp, G. | Wisconsin | GW Orionis | 2, 3.6, 6 | 30 | 5.5 |
| ✓ AL238 | Ledlow, M. Owen, F. | New Mexico NRAO-VLA | Properties and evolution of radio galaxies in rich clusters | 20 | 8 | 8.0 |
| ✓ AL243 | Lonsdale, C. Lonsdale, C. Smith, H. | Haystack IPAC, Pasadena Calif., San Diego | Enigmatic radio source in the starburst galaxy Mkn 297 | 1.3, 2, 3.8, 6, 20 w/GL3 | 11 | 3.1 |
| ✓ AL253 | Liebert, J. Bieging, J. | Arizona Arizona | Magnetic white dwarf | 3.8, 20 w/GP7 | 25 | 6.0 |
| ✓ AM328 | Mehring, D. Palmer, P. Yusef-Zadeh, F. Goss, W. | NRAO-VLA Chicago Northwestern NRAO-VLA | Search for H2O and OH masers in Sgr B1 | 20 line | 9 | 1.0 |

VLA Utilization Report September 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|---------|---|--|---|---|---|-------------|
| ✓ AM331 | Marscher, A. Bania, T. | Boston Boston | Variable molecular absorption toward extragalactic continuum sources | 6 line | 10 | 7.0 |
| ✓ AM335 | Menten, K. Reid, M. | CfA CfA | The trapezium sources in the Orion Nebula | 1.3, 3.8 | 2, 6 | 20.0 |
| ✓ AM337 | Mirabel, I. Rodriguez, L. Cordier, B. Paul, J. Lebrun, F. | CNRS, France Mexico/UNAM CNRS, France CNRS, France CNRS, France | VLA-Sigma obs. of 1E 1740.7-2942 | 3.8, 6, 20 | 3, 7 | 12.0 |
| ✓ AM341 | Mundy, L. Sandell, G. McMullin, J. Russell, A. Aspin, C. | Maryland Hawaii Maryland Hawaii Hawaii | Extremely young stellar system IRAS 4 in NGC 1333 | 2, 3.8, 6 | 15 | 4.0 |
| ✓ AM354 | Molnar, L. Allen, J. Taylor, A. Kenny, H. Hjellming, R. | Iowa Iowa Calgary Calgary NRAO-VLA | Monitoring a cycle of LSI +61 303 | 1.3, 2, 3.8, 6, 20 | 12-15, 17-19, 21-24, 26-28, 30 | 30.5 |
| ✓ AM355 | Menten, K. Alcolea, J. | CfA CfA | N ascent planetary IRAS 19114+0002 | 20 line w/GL3 | 11 | 1.0 |
| ✓ AO103 | O'Donoghue, A. Eilek, J. Owen, F. | St. Lawrence New Mexico Tech NRAO-VLA | Spectral index observations of 3C 465. | 90 | 3 | 3.5 |
| ✓ AO105 | Okorogu, A. Akujor, C. Garrington, S. | Nigeria Nigeria Manchester | Radio jets w/o hotspots | 3.8, 20 | 3, 24, 26, 28 | 7.2 |
| ✓ AQ006 | Quirrenbach, A. Wegner, R. Witzel, A. | NRL MPIfR, Bonn MPIfR, Bonn | Jet and halo of BL Lacertae object 0716+714 | 6 w/GL3 | 11 | 8.0 |
| ✓ AR242 | Rucinski, S. | York U. | Close binary ER Vul | 2, 3.8, 6, 20 | 29, 30 | 20.6 |
| ✓ AR248 | Rowan-Robinson, M. Broadhurst, T. Lawrence, A. Lonsdale, C. McMahon, R. Condon, J. | Queen Mary Queen Mary Queen Mary IPAC, Pasadena Cambridge NRAO-CV | Luminous, z=2, emission line galaxy IRAS 10214+4724 | 3.8, 20 | 3 | 4.0 |
| ✓ AR257 | Reynolds, R. Lockman, F. Langston, G. | Wisconsin NRAO-CV NRAO-CV | HI absorption toward globular clusters | 18, 20 line w/Move/Op | 20, 21 | 4.0 |
| ✓ AS333 | Sramek, R. Weiler, K. van Dyk, S. Panagia, N. | NRAO-VLA NRL NRL STScI | Statistical properties of radio supernovae | 2, 6 w/GP7 | 17, 25 | 8.0 |
| ✓ AS410 | Simonetti, J. Dennison, B. Dickey, J. | VPI & SU VPI & SU Minnesota | Search for time variation in galactic HI absorption. | 20 line | 6 | 24.2 |
| ✓ AS430 | Seaquist, E. Taylor, A. Krogulec, M. Weston, D. | Toronto Calgary Toronto York U. | A survey of symbiotic stars. | 3.8 w/GJ2 | 21, 24 | 7.5 |
| ✓ AT124 | Thorsett, S. Taylor, J. Stinebring, D. Hankins, T. | Princeton Princeton Oberlin NMIMT/NRAO-VLA | Timing fast pulsars at the VLA | 6, 20 | 2 | 11.0 |
| ✓ AW278 | Wilson, A. Dressel, L. | Maryland ARC/GSFC | Radio mapping of active galaxies to be imaged with the HST. | 3.8 | 1 | 19.5 |
| ✓ AW292 | Wolfe, A. Brinks, E. Garwood, R. Briggs, F. | Calif., San Diego NRAO-VLA NRAO-CV Pittsburgh | Search for 21cm absorption in damped Ly-alpha system towards MG 0201+11 | 90 line | 22 | 8.1 |
| ✓ AW294 | Wood, D. Churchwell, E. | NRAO-VLA Wisconsin | Gas dynamics & physical properties in ultracompact HII regions | 3.8 line | 1, 5 | 4.1 |
| ✓ AY043 | Yusef-Zadeh, F. | Northwestern | High-resolution mosaic of the Sgr A complex | 3.8 w/GL3 | 11 | 4.0 |
| ✓ AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT, Australia NRAO-VLA Illinois Arizona | Flux density variations in Sgr A. | 3.8, 6, 20 w/GL3 | 11 | 2.0 |
| ✓ GA004 | Alef, W. Benz, A. Guendel, M. | MPIfR, Bonn ETH, Zurich ETH, Zurich | dMe Stars | 6, 18 Phased Array MKIII VLBI w/GP7 | 21, 26, 28 | 19.7 |

10/02/91

VLA Utilization Report September 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|--|---|---------------------------------|----------|----------------|-------------|
| GB009 | Barthel, P. de Bruyn, A. Schilizzi, R. O'Dea, C. Wieringa, M. Bogers, W. | Groningen/Kapteyn NFRA NFRA STSci Leiden Groningen/Kapteyn | Core evolution in 1245+67 | 6 | 20 | 13.3 |
| GB011 | de Bruyn, A. van der Hucht, K. Verheyen, M. Spoelstra, T. Williams, P. | NFRA Utrecht NFRA Royal Obs | WR binary HD 193793 (WR140) | 6, 18 | 19, 23 | 20.0 |
| GC002 | Cohen, M. Conway, J. Unwin, S. Goodrich, R. Zensus, A. Wehrle, A. | Caltech Caltech Caltech Caltech NRAO-VLA JPL | 3C345 | 6 | 15 | 13.3 |
| GD001 | Dallacasa, D. Stanghellini, C. Fanti, C. Fanti, R. Schilizzi, R. Spencer, R. O'Dea, C. Baum, S. | IdR, Bologna IdR, Bologna IdR, Bologna IdR, Bologna NFRA Manchester STSci Johns Hopkins | 10 small CSS radio sources | 6 | 15, 16 | 25.1 |
| GJ002 | Jones, D. Murphy, D. Preston, R. Meier, D. Jauncey, D. Tzioumis, A. Reynolds, J. Perley, R. Patnaik, A. Muxlow, T. Rao, P. | JPL JPL JPL JPL AT, Australia AT, Australia AT, Australia NRAO-VLA Manchester Manchester GMRT | Observations of lens 1830-211 | 6 | 21 | 14.2 |
| GL002 | Lestrade, J-F. Phillips, R. | Meudon Haystack | Magnetic structure of UX Ari | 6 | 18, 20, 21 | 14.2 |
| GL003 | Lara, L. Muxlow, T. Alberdi, A. Marcaide, J. Junor, W. Saikia, D. | IAA, Andalucia Manchester IAA, Andalucia IAA, Andalucia NRAO-VLA TIFR | 3C395 | 6 | 11 | 13.0 |
| GL004 | Lestrade, J. Phillips, R. Gabuzda, D. Preston, R. | Meudon Haystack Calgary JPL | RS CVn stars astrometry | 6 | 13 | 12.4 |
| GL005 | Lonsdale, C. Lonsdale, C. Smith, H. | Haystack IPAC, Pasadena Calif., San Diego | Starburst galaxies | 18 | 28 | 18.5 |
| GM010 | Marcaide, J. Elosegui, P. Shapiro, I. | IAA, Andalucia IAA, Andalucia Cfa | Core of 1038+528 A | 6 | 12 | 14.0 |
| GP003 | Phillips, R. Lonsdale, C. Feigelson, E. | Haystack Haystack Penn State | Bright, nonthermal T Tauri star | 6, 18 | 20, 23 | 12.3 |
| GP007 | Polatidis, A. Wilkinson, P. Readhead, A. Xu, W. Pearson, T. | Manchester Manchester Caltech Caltech Caltech | Snapshot survey | 18 | 24 | 45.6 |
| GS001 | Schilizzi, R. Fanti, C. Fanti, R. Spencer, R. Sanghera, H. Venturi, T. Ren-Dong, N. van Breugel, W. | NFRA IdR, Bologna IdR, Bologna Manchester Manchester IdR, Bologna Beijing Lawrence Livermore | Core in 343 | 6 | 14 | 18.0 |

VLA Utilization Report September 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|--------|---|---|---|-------------|---|--------------------------------------|
| GX002 | Xu, W. Readhead, A. Wilkinson, P. Polatidis, A. Pearson, T. Lawrence, C. Herbig, T. | Caltech Caltech Manchester Manchester Caltech Caltech Caltech | Large scale snapshot survey | 6 | 18, 19, 22 Single Antenna VLBI w/AJ213, AJ200, AM354, Move/Op, AB616 | 24.5 |
| UAH005 | Hewitt, J. | Haystack | Phase reference sources | 6 | 27 Phased Array MKIII VLBI | 5.4 |
| UB002 | Bartel, N. Chandler, J. Ratner, M. Shapiro, I. | CfA CfA CfA CfA | Millisecond pulsar astrometry | 18 | 26 Phased Array MKIII VLBI | 11.2 |
| UF001 | Feigelson, E. Phillips, R. Lonsdale, C. | Penn State Haystack Haystack | Classical T Tauri stars | 18 | 27 Phased Array MKIII VLBI | 3.0 |
| | Staff | NRAO | Baseline/Startup/Pointing Electronics Move/Operations Software General Test | | | 17.2 31.1 58.7 30.4 36.6 |

The average downtime was 6.33%.

The array was scheduled for
 573.7 hours (79.5 % of time) for astronomical programs
 86.8 hours (12.0 % of time) for tests/calibration
 61.5 hours (8.5 % of time) for maintenance
 Total 722.0 hours (100 %) scheduled.

The array was in the A configuration from September 1 to September 31.
 AB configuration from September 16 to September 30.

Total number of astronomical programs was 64.

The following independent proposals shared simultaneous observing time (146.7 hours total simultaneous observing):

| Projects | Hours | Projects | Hours |
|---------------|-------|---------------|-------|
| aa123/gj2 | 2.0 | am355/gl3 | 1.0 |
| ab616/gx2 | 11.0 | ao105/gp7 | 0.5 |
| ac300/gc2 | 0.4 | aq6/gl3 | 1.4 |
| ad268/gc2 | 3.0 | ar257/move/op | 2.4 |
| ad268/gd1 | 5.1 | as333/gp7 | 4.0 |
| ah424/gp7 | 5.0 | as430/gj2 | 1.0 |
| ai41/gc2 | 10.0 | as430/gj2 | 1.5 |
| ai41/move/op | 2.5 | as430/gp7 | 5.0 |
| aj200 | 0.9 | ay43/gl3 | 4.0 |
| aj200/gl3 | 1.4 | az44/gl3 | 2.0 |
| aj213/gx2 | 6.2 | ga4/gp7 | 0.5 |
| aj213/gx2 | 1.9 | gd1/gd1 | 0.5 |
| aj213/move/op | 4.7 | gd1/move/op | 5.6 |
| al243/gl3 | 3.1 | gl2/gj2 | 0.4 |
| al253/gp7 | 6.0 | gl4/move/op | 3.5 |
| am354 | 1.5 | move/op/gb11 | 5.8 |
| am354/gl3 | 0.2 | move/op/gb11 | 5.3 |
| am354/gp7 | 1.5 | move/op/gb9 | 3.2 |
| am354/gp7 | 12.0 | move/op/gj2 | 3.3 |
| am354/gp7 | 0.7 | move/op/gp7 | 3.0 |
| am354/gx2 | 1.0 | move/op/gp7 | 0.9 |
| am354/gx2 | 0.7 | move/op/gx2 | 2.7 |
| am354/tests | 1.5 | tests/gj2 | 0.5 |

VLA Utilization Report August 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|----------------|--|--|--|--------------------|---|----------------|
| ✓AA128 | Alexander, P. Mackay, C. Leahy, J. Pooley, G. | Cambridge Cambridge Manchester Cambridge | Structure of the inner jet of 3C66B | 2, 3.8, | 20 19 | 10.0 |
| ✓AA129 | Akujor, C. | Nigeria, U. of | Depolarisation in compact steep-spectrum sources | 6, 20 | 10, 12 | 2.0 |
| ✓AA130 | Anantharamaiah, K. Cornwell, T. | Raman Institute NRAO-VLA | X-shaped structures in 1437-153 | 6, 20, 90 | 6 | 0.8 |
| ✓AB414 | Becker, R. White, R. | Calif., Davis STScI | Monitoring radio stars HD193793 and P Cygni | 2, 6 | 23 | 1.5 |
| ✓AB610 | Burke, B. Ekers, R. Wright, A. Fletcher, A. Griffith, M. | MIT AT, Australia AT, Australia MIT MIT | Southern hemisphere extension to the VLA gravitational lens search | 3.8 w/AB611 | 2 | 24.0 |
| ✓AB611 | Burke, B. Turner, E. Fletcher, A. Lehar, J. Herold, L. Conner, S. | MIT Princeton MIT MIT MIT MIT | MG-VLA gravitational lens search | 3.8 w/AB610 | 1, 2 | 25.5 |
| ✓AC278 | Carilli, C. Ho, P. | NRAO-VLA Cfa | Nuclear starburst galaxy NGC 253 | 90 | 27 | 5.0 |
| ✓AC299 | Catarzi, M. Cesaroni, R. | Arcetri MPIfR, Bonn | Water maser and disk structure in star forming regions | 1.3 line | 1, 7 | 6.9 |
| ✓AC300 | Clegg, A. | NRL | Interstellar OH masers: S269 & ON1 | 20 line | 15 | 3.0 |
| ✓AC301 | Condon, J. Wrobel, J. | NRAO-CV NRAO-VLA | UGC galaxies at high resolution | 20 | 24 | 19.0 |
| ✓AC302 | Conway, J. Vermeulen, R. Hough, D. Readhead, A. | Caltech Caltech Trinity Caltech | Positions for VLBI phase-referencing near lobe-dominated sources | 3.8 | 5, 13, 23 | 5.1 |
| ✓AD266 | Dougherty, S. Taylor, A. | Calgary Calgary | Imaging the circumstellar envelope of the Be Star Psi Persei | 2 | 16 | 12.0 |
| ✓AD269 | de Pater, I. Romani, P. Atreya, S. | Calif., Berkeley NASA/GSFC Michigan | Uranus | 3.8, 6, 20 | 26, 27, 29 | 24.2 |
| ✓ADHOG-Becker, | | | | | 5, 16 | 4.5 |
| ✓AE081 | Eales, S. Rawlings, S. Saunders, R. Taylor, G. | Toronto Cambridge Cambridge NRAO-VLA | Radiogalaxies just below peak of source counts: z>4 candidates | 3.8, 20 | 2, 4 | 16.0 |
| ✓AE082 | Engels, D. Winnberg, A. Lindqvist, M. Walmsley, M. Schmid-Burgk, J. | Hamburger Sternwarte Chalmers, Onsala Chalmers, Onsala MPIfR, Bonn MPIfR, Bonn | Water maser emission in circumstellar shells | 1.3 line | 23 | 1.0 |
| ✓AF212 | Fruchter, A. Backer, D. Goss, W. | Calif., Berkeley Calif., Berkeley NRAO-VLA | Search for cluster pulsars | 20 | 8 | 8.0 |
| ✓AF213 | Fernini, I. Burns, J. Bridle, A. Perley, R. | New Mexico New Mexico State NRAO-CV NRAO-VLA | Jet/counterjet ratio in 3CR radio galaxies | 6 | 4 | 7.0 |
| ✓AF215 | Frail, D. Goss, W. Baldwin, J. | NRAO-VLA NRAO-VLA Cambridge | Scintars: Potential pulsar candidates? | 6, 20 | 18 | 6.0 |
| ✓AG326 | Giovannini, G. Ferretti, L. Venturi, T. Wehrle, A. | IdR, Bologna IdR, Bologna IdR, Bologna JPL | Varying core of the radio galaxy 3C338 | 3.8, 6 | 23 | 1.5 |
| ✓AG328 | Guedel, M. Benz, A. | ETH, Zurich ETH, Zurich | High frequency dMe star radio emission | 2, 3.8, 6, 5 20 | | 2.5 |
| ✓AJ200 | Jacobson, A. Erickson, W. Mercier, C. | Los Alamos Tasmania Meudon | Ionospheric dynamics | 90 | 1, 4, 5, 10, 13, 15, 16, 17, 18, 21, 23, 27, 30 | 14.5 |
| ✓AJ201 | Jackson, N. Browne, I. Shone, D. | Manchester Manchester Manchester | Structure and polarization of 0800+608 | 3.8 | 27 | 6.1 |
| ✓AJ205 | Johnston, H. Kulkarni, S. | Caltech Caltech | Globular cluster pulsars | 20 | 1, 3, 4 | 18.1 |
| ✓AJ206 | Junor, B. Salter, C. Saikia, D. Mantovani, F. | NRAO-VLA NRAO-GB GMRT CNR, Bologna | High frequency polarimetry of compact steep spectrum sources | 1.3, 2, 3.8 | 5, 30 | 22.0 |

VLA Utilization Report August 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|--|--|-----------------------|-------------------|----------------|
| AJ211 | Johnston, H. Kulkarni, S. Goss, W. | Caltech Caltech NRAO-VLA | High frequency obs of the planetary nebula K648 in M15 | 3.8 | 8 | 4.1 |
| AK270 | Kronberg, P. Sramek, R. | Toronto NRAO-VLA | Flux density monitoring of 30 brightest compact sources in M82 | 2, 6 | 10 | 14.1 |
| AK272 | Kassim, N. Perley, R. Taylor, G. Erickson, W. Dwarakanath, K. | NRL NRAO-VLA NRAO-VLA Maryland Raman Institute | Synthesis of 6 strong radio sources at 4m wavelength | 90 | 24 | 24.0 |
| AK273 | Kay, L. Antonucci, R. | Barnard Calif., Santa Barabar | IRAS 20460+1925: A quasar with type II Seyfert properties | 3.8 | 6 | 1.1 |
| AK274 | Kenny, H. Taylor, A. Davis, R. Pavelin, P. Bode, M. Bang, M. | Calgary Calgary Manchester Manchester Lancashire Poly. Lancashire Poly. | Inner geometry of symbiotic stars | 6 | 19 | 8.0 |
| AK275 | King, L. Browne, I. Patnaik, A. Walsh, D. Wilkinson, P. | Manchester Manchester Manchester Manchester Manchester | Small separation gravitational lens candidates | 2, 3.8, 6, 1, 2 20 | | 10.1 |
| AK276 | Kollgaard, R. Holdaway, M. Burns, J. | Penn State NRAO-VLA New Mexico State | Proper motion in the jet of Cen A | 6 | 16, 19 | 9.7 |
| AL150 | Lestrade, J. Preston, R. | JPL JPL | RSCVn stars. | 6 | 12 | 2.0 |
| AL242 | Lehto, H. Johnsson, D. | Southampton, U. of Cardif | R Aqr: proper motion & spectrum of radio components in jet & core | 3.8, 6 | 17 | 8.0 |
| AL243 | Lonsdale, C. Lonsdale, C. Smith, H. | Haystack Caltech Calif., San Diego | Enigmatic radio source in the starburst galaxy Mkn 297 | 1.3, 2, 3.8, 6, 20 | 10 | 5.0 |
| AL244 | Langston, G. | NRAO-CV | Variability of gravitational lens 2016+112 | 3.8, 6 | 28 | 2.5 |
| AM330 | Marcha, M. Browne, I. Patnaik, A. Wrobel, J. | Manchester Manchester Manchester NRAO-VLA | BL Lac objects and flat spectrum radio galaxies | 3.8, 20 | 25 | 18.0 |
| AM332 | Masson, C. Lo, K. Killeen, N. | Cfa Illinois AT, Australia | Proper motions in the galactic center | 6 | 13 | 8.1 |
| AM336 | Miley, G. Rottgering, H. Chambers, K. | Leiden Leiden Leiden | Study of radio galaxies z>2 | 3.8, 20 | 16, 20, 22 | 35.8 |
| AM337 | Mirabel, I. Rodriguez, L. Cordier, B. Paul, J. Lebrun, F. | CNRS, France Mexico/UNAM CNRS, France CNRS, France CNRS, France | VLA-Sigma obs. of 1E 1740.7-2942 | 3.8, 6, 20 30 | | 6.0 |
| AM340 | Muxlow, T. Saikia, D. | Manchester GMRT | VLA, MERLIN, & VLBI 5GHz observations of 3C395 | 6 | 17 | 3.1 |
| AO103 | O'Donoghue, A. Eilek, J. Owen, F. | St. Lawrence New Mexico Tech NRAO-VLA | Spectral index observations of 3C 465. | 90 | 14 | 12.0 |
| AO105 | Okorogu, A. Akujor, C. Garrington, S. | Nigeria Nigeria Manchester | Radio jets w/o hotspots | 3.8, 20 | 11, 31 | 23.0 |
| AR220 | Reid, M. Silverstein, E. | Cfa Cfa | OH masers and the galactic magnetic field. | 20 line | 9 | 13.1 |
| AR247 | Roberts, D. Hewitt, J. Herold, L. Burke, B. | Brandeis MIT MIT MIT | Gravitational Lens 0957+561 | 2, 3.8 | 17, 18 | 24.0 |
| AS333 | Sramek, R. Weiler, K. Van Dyk, S. Panagia, N. | NRAO-VLA NRL NRL STSci | Statistical properties of radio supernovae | 2, 6 | 3 | 3.0 |
| AS442 | Slade, M. Butler, B. Jurgens, R. Muhleman, D. | JPL Caltech JPL Caltech | Dual-polarized radar mapping of Mercury | 3.8 line | 8, 23 | 24.0 |
| AS446 | Spinrad, H. Dickinson, M. Dey, A. van Breugel, W. | Calif., Berkeley Calif., Berkeley Calif., Berkeley Lawrence Livermore | High redshift radio galaxies from the MIT/GB surveys | 3.8, 20 | 12 | 22.0 |

VLA Utilization Report August 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|--|--|---|-------------------|-------------------|----------------|
| AS448 | Schmid-Burgk, J. Mauersberger, R. Schilke, P. Wilson, T. Johnston, K. Gaume, R. | MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn NRL NRL | Molecular outflows and water masers in the core of OMC-1 | 1.3, 3.8, 20 line | 5 | 5.1 |
| AT114 | Taylor, A. Dougherty, S. | Calgary Calgary | Monitoring of radio variable Be stars. | 3.8 | 1, 30 | 6.1 |
| AW249 | Wills, B. Shastri, P. | Texas Texas | Core variability in lobe-dominated quasars. | 6 | 31 | 10.0 |
| AW278 | Wilson, A. Dressel, L. | Maryland ARC | Radio mapping of active galaxies to be imaged with the HST. | 3.8 | 31 | 0.5 |
| AW284 | Walker, R. Benson, J. | NRAO-VLA NRAO-CV | Superluminal motion at 4 arcseconds in 3C120 | 6 | 28 | 14.0 |
| AW285 | Walker, R. Wilkinson, P. | NRAO-VLA Manchester | Large scale structure in 3C48 | 3.8, 20 | 21 | 15.0 |
| AY037 | Yusef-Zadeh, F. Cornwell, T. | Northwestern NRAO-VLA | HH-like streamers in Orion. | 3.8, 6, 20 | 20 | 10.0 |
| AY043 | Yusef-Zadeh, F. | Northwestern | High-resolution mosaic of the Sgr A complex | 3.8 | 15 | 8.1 |
| AY044 | Yin, Q. Xu, L. Heeschen, D. | NRAO-CV Beijing NRAO-CV | Nearby starburst galaxies | 3.8 | 9 | 8.0 |
| AY045 | Yin, Q. Heeschen, D. | NRAO-CV NRAO-CV | Supernovae in MKN297 | 3.6, 6, 20 | 1 | 0.1 |
| AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT, Australia NRAO-VLA Illinois Arizona | Flux density variations caused by RISS in Sgr A. | 3.8, 6, 20 | 16 | 2.0 |
| | Staff | NRAO | Baseline/Startup/Pointing | | | 37.7 |
| | | | Electronics | | | 54.4 |
| | | | Software | | | 42.6 |
| | | | Standard Field Observation | | | 12.0 |
| | | | General Test | | | 21.8 |

The average downtime was 11.2%.

The array was scheduled for
 577.5 hours (77.4 % of time) for astronomical programs
 71.5 hours (9.6 % of time) for tests/calibration
 97.0 hours (13.0 % of time) for maintenance
 Total 746.1 hours (100 %) scheduled.

The array was in the A configuration from August 1 to August 31.

Total number of astronomical programs was 59.

The following independent proposals shared simultaneous observing time (24.0 hours total simultaneous observing):

| | |
|-------------|-------|
| Projects | Hours |
| ab610/ab611 | 24.0 |

VLA Utilization Report July 1991

| Prog# | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|--------|--|---|--|----------------------------|-------------------|----------------|
| ✓AA123 | Andre, P. Feigelson, E. Leous, J. Montmerle, T. | NRAO-TUC Penn State Penn State CNRS, France | Circular polarization from magnetic star S1 in rhoOPH cloud. | 3.8 | 8, 24, 28 | 4.0 |
| ✓AB414 | Becker, R. White, R. | Calif., Davis STScI | Monitoring radio stars HD193793 and P Cygni | 2, 6 | 25 | 1.5 |
| ✓AB456 | Burke, B. Hewitt, J. Roberts, D. | MIT Haystack Obs Brandeis | 0957+561 A, B. | 6 | 10 | 1.1 |
| ✓AB587 | Burns, J. Clarke, D. | New Mexico State Illinois | The inner lobes and jet of Centaurus A. | 3.8 | 1 | 3.5 |
| ✓AB597 | Bookbinder, J. Pye, J. Bromage, G. Saar, S. | CfA Leicester RAL CfA | Stellar flares on UV Ceti and AT Mic: multiband observations. | 2, 3.8, 6, 6, 7 20 line | | 9.0 |
| ✓AB604 | Bastian, T. Zirker, J. | NRAO-VLA NOAO-NSO | Spatial power spectrum of the sun | 1.3, 2, 3.8, 6, 20 | 23, 30 | 12.0 |
| ✓AB605 | Baum, S. O'Dea, C. Pedlar, A. | Johns Hopkins STScI Manchester | HI absorption as a probe of the obscuring Torus in Seyfert Galaxies | 20 line | 19, 22, 23 | 18.0 |
| ✓AB607 | Benz, A. Gudel, M. Schmitt, M. | ETH, Zurich ETH, Zurich MPIfEP, Garching | Monitoring the quiescent radio emission of UV Cet | 2, 3.8, 6 | 1, 4 | 6.0 |
| ✓AB608 | Biretta, J. Perley, R. | NRAO-VLA NRAO-VLA | Search for superluminal motion in kiloparsec scale jets: 3C273, 3C279 | 2, 6 line | 4, 14 | 24.0 |
| ✓AB610 | Burke, B. Ekers, R. Wright, A. Fletcher, A. Griffith, M. | MIT AT, Australia AT, Australia MIT MIT | Southern hemisphere extension to the VLA gravitational lens search | 3.8 w/AB611, BK1 | 25 | 48.0 |
| ✓AB611 | Burke, B. Turner, E. Fletcher, A. Lehar, J. Herold, L. Conner, S. | MIT Princeton MIT MIT MIT MIT | MG-VLA gravitational lens search | 3.8 w/AB610, BK1 | 25 | 48.0 |
| ✓AB612 | Biretta, J. Owen, F. | NRAO-VLA NRAO-VLA | Monitoring of proper motions in the M87 jet | 2 | 1 | 1.1 |
| ✓AD270 | Dey, A. van Breugel, W. | Calif., Berkeley Lawrence Livermore | Radio-loud far-infrared galaxies | 6 | 21 | 24.0 |
| ✓AD271 | Dressel, L. | ARC | Central star formation & AGN in SO galaxies | 20 | 3, 5 | 9.0 |
| ✓AF209 | Frail, D. Moffett, D. | NRAO-VLA NMIMT | Crab-like supernova remnants | 6, 20 | 2, 3, 10 | 21.1 |
| ✓AF210 | Frail, D. Wolszczan, A. | NRAO-VLA NAIC | Accurate position for a new high latitude millisecond pulsar | 20 | 19 | 2.0 |
| ✓AF213 | Fernini, I. Burns, J. Bridle, A. Perley, R. | New Mexico New Mexico State NRAO-CV NRAO-VLA | Jet/counterjet ratio in 3CR radio galaxies | 6 | 17, 19 | 21.0 |
| ✓AF214 | Foster, R. Backer, D. Wolszczan, A. | NRL Calif., Berkeley NAIC | Astrometry of pulsar PSR 1951+32 in radio nebula CTBB0 | 20 | 17 | 8.0 |
| ✓AG324 | Gregory, P. Scott, W. Duric, N. Taylor, A. | British Columbia British Columbia New Mexico Calgary | New variable galactic radio source w/twin jets, GT2318+620 | 2, 3.8, 6, 20 | 29 | 10.0 |
| ✓AG329 | Garay, G. Curiel, S. Rodriguez, L. Torrelles, J. | Chile, U. of CfA Mexico/UNAM IAA, Andalucia | Non thermal radio emission from the strings in Cepheus A? | 6, 20 | 15 | 8.0 |
| ✓AG330 | Gomez, Y. Rodriguez, L. Moran, J. | Mexico/UNAM Mexico/UNAM CfA | Water masers outside the OH velocity range in OH/IR stars | 20 line | 24, 25 | 3.1 |
| ✓AH295 | Habing, H. Goss, W. Winnberg, A. van Langevelde, H. | Leiden NRAO-VLA Chalmers, Onsala Leiden | Monitoring OH/IR stars at the galactic center. | 20 line | 12 | 2.0 |
| ✓AH390 | Hjellming, R. Gehrz, R. Taylor, A. Sequist, E. | NRAO-VLA Minnesota Calgary Toronto | Monitoring radio novae. | 3.8, 6, 20 | 6 | 4.0 |
| ✓AH434 | Hummel, C. Quirrenbach, A. Krichbaum, T. | MPIfR, Bonn NRL MPIfR, Bonn | VLA & MERLIN obs. of quasar 0836+710 | 6 | 19 | 2.0 |

VLA Utilization Report July 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|---------|--|---|--|-------------------|---|----------------|
| ✓ AH437 | Hewitt, J. Turner, E. Chen, G. Angelus, A. | MIT Princeton MIT MIT | Monitoring the "Einstein Ring" gravitation lens MG1131+0456 | 3.5, 6 | 18, 29 | 8.7 |
| ✓ AH439 | Hughes, V. | Queens | Variability of HII regions in Cepheus A | 2, 6, 20 | 6, 7 | 5.5 |
| ✓ AJ200 | Jacobson, A. Erickson, W. Mercier, C. | Los Alamos Tasmania Paris Obs | Ionospheric dynamics | 90 | 1, 2, 3, 9, 11, 15, 17, 18, 20, 24, 27 | 12.2 |
| ✓ AJ204 | Jannuzi, B. Stocke, J. Perlmen, E. Elston, R. | Princeton Colorado Colorado KPNO-NOAO | Detecting radio jets in x-ray selected BL Lacs | 3.8 | 21, 27 | 11.0 |
| ✓ AJ208 | Jackson, J. Paglione, T. Ho, P. | Boston Boston CfA | NH3 imaging of W49 at 750 AU resolution | 1.3 line | 23 | 8.0 |
| ✓ AJ209 | Jones, D. Murphy, D. Meier, D. Preston, R. Jauncet, D. Tzoumis, A. Reynolds, J. Perley, R. Rao, P. | JPL JPL JPL JPL AT, Australia AT, Australia AT, Australia NRAO-VLA GMRT | Short-term monitoring of 1830-211 | 3.8 | 2, 3, 5, 6, 7, 11, 13, 16 | 10.5 |
| ✓ AJ210 | Johnston, K. Gaume, R. Wilson, T. Walmsley, M. Menten, K. | NRL NRL MPIfR, Bonn MPIfR, Bonn CfA | Size of the CH3OH masers in Orion | 1.3 line | 4 | 4.0 |
| ✓ AK271 | Kulkarni, S. Vasisht, G. Frail, D. | Caltech Caltech NRAO-VLA | Interaction of pulsars with supernova shells | 20 | 18 | 8.1 |
| ✓ AL150 | Lestrade, J. Preston, R. | JPL JPL | RSCVn stars. | 6 | 10 | 1.5 |
| ✓ AL234 | Leone, F. Umana, G. | Catania Catania | Synoptic observation of CP2 (chemically peculiar) stars. | 6 | 3 | 2.0 |
| ✓ AL239 | Lang, K. Willson, R. Aschwanden, M. Benz, A. | Tufts Tufts NASA/GSFC ETH, Zurich | VLA-Phoenix-GRO studies of solar bursts | 20, 90 w/AL240 | 1, 3, 8, 11, 18 | 26.0 |
| ✓ AL240 | Lang, K. Willson, R. Noto, J. Gelfreikh, G. Bogod, V. | Tufts Tufts Tufts Pulkovo Obs Lebedev, Moscow | VLA-RATAN 600 observations of noise storm-producing active regions | 90 w/AL239 | 1, 3, 8, 11, 18 | 26.0 |
| ✓ AL244 | Langston, G. | NRAO-CV | Variability of gravitational lens 2016+112 | 3.8, 6 | 1 | 2.5 |
| ✓ AM305 | Molnar, L. Mutel, R. Deng, J. | Iowa Iowa Iowa | A survey of interstellar scattering in the Cygnus X region. | 20 | 11 | 5.0 |
| ✓ AM327 | McKinnon, M. | NMIMT/NRAO-VLA | Polarization of unpulsed radio emission from pulsars | 20 | 5 | 8.0 |
| ✓ AM331 | Marscher, A. Bania, T. | Boston Boston | Variable molecular absorption toward extragalactic continuum sources | 6 line | 13 | 6.0 |
| ✓ AM335 | Menten, K. Reid, M. | CfA CfA | The trapezium sources in the Orion Nebula | 1.3, 3.8 | 5 | 10.0 |
| ✓ AM339 | Muhleman, D. Grossman, A. Butler, B. Slade, M. Ostro, S. | Caltech Maryland Caltech JPL JPL | VLA/Goldstone radar mapping of Ganymede and Callisto | 3.8 line | 17, 20 | 24.1 |
| ✓ AP115 | Payne, H. Terzian, Y. | NRAO-GB NAIC | NGC 6302 | 18 | 5 | 1.0 |
| ✓ AP209 | Parijskij, Y. Soboleva, N. Temirova, A. Goss, W. | Pulkovo Obs Pulkovo Obs Pulkovo Obs NRAO-VLA | RATAN-600 sources | 6 | 6, 7, 15 | 6.0 |
| ✓ AP210 | Pauliny-Toth, I. Porcas, R. Zensus, A. | MPIfR, Bonn MPIfR, Bonn NRAO-VLA | 21 optically selected quasars at 1.3 cm wavelength | 1.3 | 1 | 5.0 |
| ✓ AQ005 | Quirrenbach, A. Standke, K. Alef, W. Witzel, A. Krichbaum, T. | NRL MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn | VLBI phase reference sources for the QSO 0917+624 | 3.8, 6 | 1 | 2.5 |

VLA Utilization Report July 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|---------|--|--|---|---|-------------------|------------------------------|
| ✓ AR244 | Reid, M. Menten, K. | CfA CfA | Direct measurement of the size & temperature of Mira variables | 1.3 w/Move/Op | 6, 7, 12, 13 | 46.0 |
| ✓ AS333 | Sramek, R. Weiler, K. Van Dyk, S. Panagia, N. | NRAO-VLA NRL NRL STScI | Statistical properties of radio supernovae | 2, 6 | 5, 8, 28 | 6.5 |
| ✓ AS438 | Sparks, W. Macchetto, F. Miley, G. | STScI STScI Leiden | 3C66B: a double stranded optical jet | 1.3, 2 | 25 | 10.0 |
| ✓ AT117 | te Lintel Hekkert, Wood, P. Whiteoak, J. | Mt.Stromlo Mt.Stromlo AT, Australia | OH/IR stars in M31. | 20 line | 27, 28 | 24.1 |
| ✓ AT124 | Thorsett, S. Taylor, J. Stinebring, D. Hankins, T. | Princeton Princeton Oberlin NMIMT/NRAO-VLA | Timing fast pulsars at the VLA | 6, 20 | 15 | 10.0 |
| ✓ AT125 | Tang, G. Lonsdale, C. Bartel, N. | CfA Haystack CfA | Primary hotspots in FR II sources | 2 | 28, 30 | 12.1 |
| ✓ AT126 | Taylor, G. Hu, E. | NRAO-VLA Hawaii | Quasar & Lyman Alpha companion in 1033+137 | 20 | 8 | 5.0 |
| ✓ AU042 | Ulvestad, J. Antonucci, R. | JPL Calif., Santa Barbar | Compact radio sources in NGC 253 | 1.3, 2, 3.8, 6 w/Move/Op | 12, 14 | 12.0 |
| ✓ AU043 | Ulvestad, J. Antonucci, R. Goodrich, R. | JPL Calif., Santa Barbar Caltech | Three narrow-line Seyfert 1 galaxies | 3.8 | 15 | 4.0 |
| ✓ AV188 | van der Hulst, J. van Gorkom, J. | Groningen/Kapteyn Columbia | Cen A HI absorption | 20 line | 11 | 5.0 |
| ✓ AW288 | Waldron, W. | ARC | Radio emission from early-type stars: Measure of local x-ray absorption | 3.8 | 4 | 2.5 |
| ✓ AW293 | Wood, D. Churchwell, E. | NRAO-VLA Wisconsin | OH maser emission associated with ultracompact HII regions | 20 line | 22 | 6.0 |
| ✓ AW294 | Wood, D. Churchwell, E. | NRAO-VLA Wisconsin | Gas dynamics & physical properties in ultracompact HII regions | 3.8 line | 8, 13 | 14.0 |
| ✓ AW295 | Wilson, T. Henkel, C. Schilke, P. Walmsley, C. Johnston, K. Gaume, R. | MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn NRL NRL | Size & peak brightness temperature of (J,K)=(9,8) ammonia maser in W51 | 1.3, 3.8 line | 20 | 7.1 |
| ✓ AY045 | Yin, Q. Heeschen, D. | NRAO-CV NRAO-CV | Supernovae in MKN297. | 3.6, 6, 20 | 31 | 3.0 |
| ✓ AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT, Australia NRAO-VLA Illinois Arizona | Flux density variations caused by RISS in Sgr A. | 3.8, 6, 20 | 30 | 1.5 |
| ✓ AZ051 | Zensus, A. Porcas, R. | NRAO-VLA MPIfR, Bonn | Flux measurement of 8 quasars in an orientation unbiased sample | 2, 3.8 | 29 | 4.0 |
| ✓ BK001 | Kemball, A. Diamond, P. | NRAO-CV NRAO-VLA | Mapping the circumstellar structure of OH 17.7-2.0. | 20 Single Antenna VLBI w/Software/AB611 | 25 | 12.9 |
| | Staff | NRAO | Baselines, Pointing, Delays Electronics, etc. Software Testing | | | 40.0 71.5 40.0 15.5 |

The average downtime was 6.9%.

The array was scheduled for
577.4 hours (77.4 % of time) for astronomical programs
75.1 hours (10.1 % of time) for tests/calibration
93.5 hours (12.5 % of time) for maintenance
Total 746.0 hours (100 %) scheduled.

The array was in the A configuration from July 1 to July 31.

Total number of astronomical programs was 66.

The following independent proposals shared simultaneous observing time (111.2 hours total simultaneous observing):

| Projects | Hours |
|---------------|-------|
| ar244/move/op | 2.2 |
| af213/move/op | 3.0 |
| aj209/move/op | 1.0 |
| al239/al240 | 4.5 |
| al239/al240 | 4.5 |
| al239/al240 | 6.5 |
| al239/al240 | 6.5 |
| al239/al240 | 4.0 |
| au42/move/op | 6.0 |
| bk1/ab611 | 12.1 |
| bk1/software | 0.8 |
| bk1/ab611 | 12.1 |
| ab611/ab610 | 48.0 |

VLA Utilization Report June 1991

| Prog# | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|--|--|---|-----------------------------------|---------------------------|----------------|
| AA123 | Andre, P. Feigelson, E. Leous, J. Montmerle, T. | NRAO-TUC Penn State Penn State CNRS, France | Circular polarization from magnetic star S1 in rhoOPH cloud. | 3.8 | 18, 23 | 2.5 |
| AB414 | Becker, R. White, R. | Calif., Davis STScI | Monitoring radio stars HD193793 and P Cygni. | 2, 6 | 27 | 1.5 |
| AB607 | Benz, A. Gudel, M. Schmitt, M. | ETH Zurich ETH Zurich MPIfEP, Garching | Monitoring the quiescent radio emission of UV Cet. | 2, 3.8, 6 | 28, 30 | 4.0 |
| AB612 | Biretta, J. Owen, F. | NRAO-VLA NRAO-VLA | Monitoring proper motions in the M87 jet. | 2 | 30 | 10.9 |
| AF209 | Frail, D. Moffett, D. | NRAO-VLA NMIMT | Crab-like supernova remnants. | 6, 20 | 29 | 14.0 |
| AH295 | Habing, H. Goss, W. Winnberg, A. van Langevelde, H. | Leiden NRAO-VLA Chalmers, Onsala Leiden | Monitoring OH/IR stars at the galactic center. | 20 line | 27 | 2.1 |
| AH424 | Han, X. Hjellming, R. | NMIMT/NRAO-VLA NRAO-VLA | The radio remnant of the 1989 outburst of V404 Cyg. | 3.8, 6 | 3 | 6.0 |
| AH437 | Hewitt, J. Turner, E. Chen, G. Angelus, A. | MIT Princeton MIT MIT | Monitoring the "Einstein Ring" gravitational lens MG1131+0456. | 3.5, 6 | 26 | 2.2 |
| AJ200 | Jacobson, A. Erickson, W. Mercier, C. | Los Alamos Tasmania Meudon | Ionospheric dynamics, including "Distant Image" explosion. | 90 w/GB4, GZ2, GU2 | 17, 20, 23, 24, 26, 29 | 15.8 |
| AK280 | Kulkarni, S. Navarro, J. Tanaka, Y. | Caltech Caltech ISAS, Japan | Quiescent LMXBs and millisecond pulsations. | 20 | 5 | 4.2 |
| AL150 | Lestrade, J. Preston, R. | JPL JPL | Properties of RSCVn stars. | 6 | 9, 13, 14, 17 | 12.0 |
| AL238 | Ledlow, M. Owen, F. | New Mexico NRAO-VLA | Properties and evolution of radio galaxies in rich clusters. | 20 | 27 | 12.0 |
| AM290 | Menon, T.K. | British Columbia | Interacting galaxies. | 6 w/GZ4 | 14 | 1.0 |
| AM313 | McKinnon, M. | NMIMT/NRAO-VLA | A search for pulsar mode-switching. | 20 | 12, 15 | 11.1 |
| AP204 | Patnaik, A. Browne, I. King, L. Wilkinson, P. Wrobel, J. | Manchester Manchester Manchester Manchester NRAO-VLA | Phase calibrators for Merlin. | 3.6 w/GX2, GZ7, GV6 | 16, 19, 21 | 55.1 |
| AP211 | Popov, M. Novikov, A. Hankins, T. | Moscow, Lebedev Moscow, Lebedev NMIMT/NRAO-VLA | Unpulsed emission from pulsars. | 20, 90 | 2 | 9.0 |
| AP212 | Pedlar, A. Axon, D. Kukula, M. Unger, S. Baum, S. O'Dea, C. | Manchester Manchester Manchester RGO STScI STScI | Radio structures of CfA sample of Seyferts. | 3.8 w/GU2, GB4 | 24 | 18.0 |
| AR249 | Rupen, M. Bartel, N. | CfA CfA | Radio survey of optical supernovae. | 6, 20 w/GX2 | 15 | 24.6 |
| AR250 | Rawlings, S. McMahon, R. | Cambridge Cambridge | 1-Jy/1-sr sample of steep-spectrum radioquasars. | 20 | 28 | 18.0 |
| AS333 | Sramek, R. Weiler, K. Van Dyk, S. Panagia, N. | NRAO-VLA NRL NRL STScI | Properties of radio supernovae. | 2, 6 w/GX2, GU2 | 10, 11 | 12.5 |
| AS391 | Sofue, Y. Reich, W. Reich, P. Pedlar, A. | Tokyo MPIfR, Bonn MPIfR, Bonn Manchester | Galactic center jet. | 90 line | 1 | 2.1 |
| AS433 | Skinner, S. Brown, A. Linsky, J. | Colorado Colorado Colorado | Spectral indices of radio-emitting Herbig Ae/Be stars. | 2, 3.6, 6, 1, 3 20 | | 14.0 |
| AS443 | Stanghellini, C. O'Dea, C. Baum, S. Fanti, R. Fanti, C. | IdR, Bologna STScI STScI IdR, Bologna IdR, Bologna | A complete sample of GPS radio sources. | 1.3, 3.5, 8 6, 20, 90 w/GX2 | | 24.0 |
| AS445 | Sanders, W. Fomalont, E. | New Mexico State NRAO-CV | VLBI reference sources in star fields. | 3.8, 6, 20 26 w/GB4 | | 7.0 |
| AS450 | Sahai, R. Claussen, M. | Chalmers, Onsala NRL | Time variation of the enigmatic radio source in IRC+10216. | 1.3, 2, 3.8 | 1 | 5.0 |

VLA Utilization Report June 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|--|---|---|-------------------|----------------|
| AT114 | Taylor, A. Dougherty, S. | Calgary Calgary | Monitoring of radio variable Be stars. | 3.8 | 29 | 3.0 |
| AT118 | Thorsett, S. Taylor, J. McKinnon, M. | Princeton Princeton NMIMI/NRAO-VLA | Binary pulsar timing measurements: pulsars not accessible to Arecibo. | 20, 90 | 18 | 2.0 |
| AT119 | Thorsett, S. Taylor, J. Stinebring, D. Hankins, T. | Princeton Princeton Oberlin NMIMI/NRAO-VLA | Timing fast pulsars. | 6, 20 | 1 | 11.0 |
| AU041 | Uson, J. Bagri, D. Cornwell, T. | NRAO-VLA NRAO-VLA NRAO-VLA | Search for redshifted "21 cm" emission from Zel'dovich pancakes. | 90 line w/GZ2 | 9, 20 | 7.0 |
| AW249 | Wills, B. Shastri, P. | Texas Texas | Core variability in lobe-dominated quasars. | 6 | 29 | 10.0 |
| AW276 | Willson, R. Kile, J. Noto, J. | Tufts Tufts Tufts | Microwave studies of BY Draconis stars. | 20 | 3 | 4.5 |
| AW283 | Wrobel, J. Olszewski, E. | NRAO-VLA Arizona | Radio sources in and beyond the galaxy's dwarf spheroidals. | 3.8 | 25 | 2.0 |
| AW287 | Wilson, A. Ulvestad, J. | Maryland JPL | Deep image of NGC 1068. | 3.8 w/GB4 | 25 | 5.0 |
| AW289 | White, S. Kundu, M. | Maryland Maryland | M Dwarf binary Gliese 890. | 2, 6, 20 | 1 | 3.0 |
| AW290 | White, S. Kundu, M. Pallavicini, R. | Maryland Maryland Arcetri | Radio spectra and polarization of naked T Tauri stars. | 2, 3.5, 6, 9, 10 20 w/GX2, GU2 | | 11.0 |
| AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT, Australia NRAO-VLA Illinois Arizona | Flux density variations caused by RISS in Sgr A. | 1.3, 2, 3.6, 6, 20 w/GX2 | 11 | 2.5 |
| AZ052 | Zhao, J. Goss, W. Lo, K. Ekers, R. | NRAO-VLA NRAO-VLA Illinois AT, Australia | Galactic center region. | 1.3, 3.8 w/GB4 | 25, 26 | 14.0 |
| GB004 | Bloom, S. Marscher, A. Gear, W. | Boston Boston Royal Obs | Millimeter strong sources. | 1.3 Single Antenna VLBI w/AJ200, AP212, AS445, AW287, ... | 25 | 19.7 |
| GC005 | Carilli, C. Bartel, N. | NRAO-VLA Cfa | High dynamic range imaging of nuclear jet in Cyg A. | 6 MKIII | 9 | 16.3 |
| GF001 | van Breugel, W. Fanti, C. Fanti, R. Schilizzi, R. Spencer, R. Ren-Dong, N. Dallacasa, D. | Caltech IdR, Bologna IdR, Bologna NFRA Manchester Beijing Obs IdR, Bologna | The steep spectrum core of 3C293. | 18 VLBI | 13 | 13.4 |
| GG005 | Giovannini, G. Comoretto, G. Feretti, L. Venturi, T. Wehrle, A. | IdR, Bologna Arcetri IdR, Bologna IdR, Bologna JPL | Low luminosity radio galaxy 3C 338. | 18 MKIII | 18 | 13.4 |
| GG006 | Gabuzda, D. Cawthorne, T. | JPL Cfa | Polarization variability in 0716+714, 0917+624, and 0954+658. | 6 MKIII w/Move/Op | 6 | 24.4 |
| GK002 | Kollgaard, R. Feigelson, E. Gabuzda, D. Lonsdale, C. | Penn State Penn State JPL Haystack | X-ray selected BL Lacertae objects. | 6 MKIII w/Move/Op/AS443 | 7 | 24.2 |
| GL004 | Lestrade, J. Phillips, R. Gabuzda, D. Preston, R. | Meudon Haystack JPL JPL | Phase-referenced VLBI observations of RS CVn stars for HIPPARCOS. | 6 MKIII | 12 | 12.4 |
| GM001 | Marcaide, J. Rioja, M. Alberdi, A. Cotton, W. Romney, J. Preston, R. Kardashev, N. Shapiro, I. | IAA, Andalucia MPIFR, Bonn IAA, Andalucia NRAO-CV NRAO-CV JPL SRI, Moscow Cfa | Sgr A*. | 1.35 MKIII | 22 | 12.0 |

VLA Utilization Report June 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|---|--|--|-------------------|----------------|
| GM004 | Marcaide, J. Alberdi, A. Elosegui, P. Marscher, A. Zhang, Y. Shapiro, I. Ratner, M. Preston, R. Shaffer, D. | IAA, Andalucia IAA, Andalucia IAA, Andalucia Boston Boston CfA CfA JPL Interferometrics | 4C39.25 phase-referenced to 0920+390. | 1.3 MKIII | 23 | 11.4 |
| GP004 | Pauliny-Toth, I. Unwin, S. Zensus, J. | MPIfR, Bonn Caltech NRAO-VLA | The quasar 3C454.3 (with ROSAT). | 1.3 VLBI | 23 | 13.7 |
| GS003 | Sakurai, T. Spangler, S. | Iowa Iowa | Turbulence in the outer corona and solar wind. | 18 Single Antenna VLBI | 15 | 10.4 |
| GU002 | Unwin, S. Abraham, Z. Carrara, E. Zensus, J. Urry, C. Wehrle, A. | Caltech Sao Paulo Sao Paulo NRAO-VLA STScI JPL | The jet in 3C279. | 1.3, 6 Single Antenna VLBI w/Move/Op, AP212, AS333, AW290, . | 10, 24 | 26.2 |
| GV006 | Vermeulen, R. Conway, J. Venturi, T. Readhead, A. Marr, J. Backer, D. | Caltech Caltech IdR, Bologna Caltech Haverford Calif., Berkeley | The core and inner jet of 3C84. | 1.3 Single Antenna VLBI w/AP204 | 21 | 17.8 |
| GX002 | Readhead, A. Wilkinson, P. Xu, W. Polatidis, A. Pearson, T. Lawrence, C. Herbig, T. | Caltech Manchester Caltech Manchester Caltech Caltech Caltech | Large scale VLBI snapshot survey. | 6, 18 Single Antenna VLBI w/Move/Op, AS443, AW290, AZ44, .. | 8, 11, 15 | 90.9 |
| GZ002 | Zensus, J. Unwin, S. | NRAO-VLA Caltech | Imaging of 3C 273. | 1.3 Single Antenna VLBI w/AJ200, AU41, Tests | 20 | 10.2 |
| GZ004 | Zhang, F. Spencer, R. Schilizzi, R. Fanti, C. Fanti, R. van Breugel, W. Chu, H. | Chalmers, Onsala Manchester NFRA IdR, Bologna IdR, Bologna Caltech | Fine structure of CSS radio source 3C286. | 18 VLBI | 14 | 11.4 |
| GZ007 | Zensus, A. Unwin, S. Wehrle, A. | NRAO-VLA Caltech JPL | The jet in quasar 3C345. | 1.3 Single Antenna VLBI w/AP204 | 19 | 14.3 |
| UA002 | Andre, P. Lestrade, J. Phillips, R. Klein, K. | NRAO-TUC Meudon Haystack Meudon | Two magnetic B stars. | 3.6 MKIII | 11, 17 | 12.6 |
| UAH00 | Phillips, R. | Haystack | HD 283447. | 3.8 MKIII | 22 | 3.3 |
| UAH00 | Lonsdale, C. Lonsdale, C. Smith, H. | Haystack Caltech Calif., San Diego | NGC 3690. | 3.6 Phased Array VLB | 22 | 2.1 |
| UG002 | Gwinn, C. Barthel, P. Antonucci, R. Ulvestad, J. Barvainis, R. Neff, S. | Calif., Santa Barbar Groningen/Kapteyn Calif., Santa Barbar JPL Haystack NASA/GSFC | Megamasers in NGC 1068. | 1.3 MKIII | 22 | 2.5 |
| UL001 | Lo, K. Kellermann, K. Backer, D. Reid, M. Moran, J. Staff | Illinois NRAO-CV Calif., Berkeley CfA CfA NRAO | Sgr A*. | 1.35 MKIII | 21 | 8.7 |
| | | | Baseline/Startup/Pointing | | | 31.7 |
| | | | Electronics | | | 41.4 |
| | | | Move/Operations | | | 42.2 |
| | | | Software | | | 22.5 |
| | | | General Test | | | 34.3 |

The average downtime was 10.5%.

The array was scheduled for

564.0 hours (78.1 % of time) for astronomical programs

94.1 hours (13.0 % of time) for tests/calibration

63.9 hours (8.8 % of time) for maintenance

Total 722.0 hours (100 %) scheduled.

Array was in configuration A/D from June 1 to June 10.

A from June 10 to June 30.

Total number of astronomical programs was 60.

The following independent proposals shared simultaneous observing time (185.2 hours total simultaneous observing):

| | | | |
|-------------|--------------|-------------|--------------|
| gb4/aj200 | (1.0 hours) | gx2/ap204 | (24.5 hours) |
| gb4/ap212 | (6.5 hours) | gx2/ar249 | (19.7 hours) |
| gb4/as445 | (2.1 hours) | gx2/as333 | (4.0 hours) |
| gb4/aw287 | (4.0 hours) | gx2/as333 | (3.7 hours) |
| gb4/az52 | (6.1 hours) | gx2/as433 | (24.0 hours) |
| gg6/move/op | (3.0 hours) | gx2/aw290 | (1.5 hours) |
| gu2/aj200 | (1.4 hours) | gx2/az44 | (0.5 hours) |
| gu2/ap212 | (11.5 hours) | gx2/move/op | (6.5 hours) |
| gu2/as333 | (4.5 hours) | gx2/tests | (6.5 hours) |
| gu2/aw290 | (4.6 hours) | gz2/aj200 | (0.5 hours) |
| gu2/move/op | (4.2 hours) | gz2/au41 | (5.0 hours) |
| gv6/al150 | (0.3 hours) | gz2/tests | (4.7 hours) |
| gv6/ap204 | (17.4 hours) | gz7/ap204 | (14.3 hours) |

VLA Utilization Report May 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|--|---|-------------------------|-------------------|----------------|
| AA120 | Andre, P. Feigelson, E. Leous, J. Montmerle, T. | NRAO-Tuc Penn State Penn State CNRS, France | Possible dust emission of young stellar objects. | 6 | 19 | 3.0 |
| AA123 | Andre, P. Feigelson, E. Leous, J. Montmerle, T. | NRAO-TUC Penn State Penn State CNRS, France | Circular polarization from the magnetic star S1 in the p OPH cloud. | 3.5 | 31 | 1.0 |
| AB414 | Becker, R. Becker, R. White, R. White, R. | Calif., Davis Calif.-Davis STSci STSci | Monitoring radio stars HD193793 and P Cygni | 2, 6 | 10 | 2.0 |
| AB582 | Bastian, T. Bookbinder, J. Dulk, G. Lecacheux, A. Belkora, L. | NRAO-VLA Cfa Colorado Meudon Colorado | Stellar flares on AD Leo: multiband observations. | 2, 3.8 | 7, 8 | 19.0 |
| AB586 | Brinks, E. Skillman, E. Taylor, C. | NRAO-VLA Minnesota Minnesota | Search for intergalactic HI clouds. | 20 line | 5 | 3.0 |
| AB593 | Batuski, D. Venkatesan, T. Hanisch, R. Burns, J. | Maine Maine STSci NMSU | Head-tail radio sources in poor clusters of galaxies. | 6 | 24 | 5.0 |
| AB597 | Bookbinder, J. Pye, J. Bromage, G. Saar, S. | Cfa Leicester RAL Cfa | Stellar flares on UV Ceti and AT Mic: multiband observations. | 2, 3.8, 6, 20 line | 3 | 7.5 |
| AB602 | Byrne, R. Gottesman, S. | Florida Florida | HI observations of dwarf galaxies: UGC 10805. | 20 w/BY1 | 15 | 10.1 |
| AB603 | Bastian, T. Dulk, G. Bookbinder, J. | NRAO-VLA Colorado Cfa | Multiband observations of AE Aquarii | 1.3, 2, 3.8, 6 | 14, 17 | 7.0 |
| AC289 | Curiel, S. Gomez, J. Torrelles, J. Rodriguez, L. Anglada, G. | Cfa Cfa IAA, Andalucia Mexico/UNAM Barcelona | Temperature gradients in bipolar outflows L1448S and NGC 2264G. | 1.3 line | 26 | 12.0 |
| AD262 | Dahlem, M. Lesch, H. Hummel, E. | MPIfR, Bonn Heidelberg Obs Manchester | Magnetic fields in interacting galaxies: NGC 5426/27. | 20 | 18 | 8.0 |
| AD264 | Drake, S. Brown, A. Simon, T. Judge, P. | NASA/GSFC Colorado Hawaii High Altitude Obs | Procyon - is it losing mass? | 3.8 | 13, 18, 19 | 10.0 |
| AD265 | Drake, S. Walter, F. Jetsy, L. Florkowski, D. | NASA/GSFC SUNY Helsinki USNO | Radio emission from rapidly-rotating cool giant stars. | 3.8 w/BY1 | 7, 8, 16, 27 | 13.6 |
| AE077 | Evans, D. Romig, J. de Pater, I. Crane, P. McKinnon, M. | Radiophysics Inc Radiophysics Inc Calif., Berkeley NRAO-VLA NMIMT/NRAO-VLA | Search for Saturn Electrostatic Discharge. | 90 | 12, 13 | 14.0 |
| AG318 | Gunn, J. Knapp, G. Athanasoula, E. Bosma, A. van Gorkom, J. | Princeton Princeton Marseille Obs Marseille Obs Columbia | Spiral structure and the disk/halo mass ratio. | 20 line | 12 | 8.0 |
| AG322 | Gopalswamy, N. Kundu, M. Schmahl, E. White, S. Thejappa, G. | Maryland Maryland Maryland Maryland Maryland | Flares and precursors. | 6, 20, 90 w/AK269 | 11, 12 | 19.9 |
| AH390 | Hjellming, R. Gehrz, R. Taylor, A. Seagquist, E. | NRAO-VLA Minnesota Calgary Toronto | Monitoring radio novae. | 3.8, 6, 20 w/Move/Op | 30 | 7.0 |
| AH417 | Hibbard, J. van Gorkom, J. | Columbia Columbia | Interacting and merging galaxies. | 20 line | 16, 17 | 28.1 |
| AH420 | Hoffman, G. Salpeter, E. Dickey, J. | Lafayette College Cornell Minnesota | HI mapping of two close galaxy pairs. | 20 line | 10 | 4.0 |

VLA Utilization Report May 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|--|---|-----------------------|---------------------------|----------------|
| AH428 | Hjellming, R. Han, X. Roussel-Dupre, D. | NRAO-VLA NMIMT/NRAO-VLA LANL | X-ray sources observed with URA x-ray telescope on Space Shuttle. | 3.8, 6, 20 | 1, 2, 3, 4, 5, 6 | 32.6 |
| AH429 | Hughes, V. | Queens | HH objects in GGD-37. | 3.8, 6 | 4 | 3.5 |
| AH431 | Habbal, S. Walker, A. Hoover, R. Dowdy, J. Gonzalez, R. | CfA Stanford NASA/MSFC NASA/MSFC NRAO-CV | Multiwavelength ground and space observations of the Sun. | 1.3, 6, 3.5, 2 | 13 | 5.5 |
| AJ198 | Joncas, G. Roger, R. Kompe, C. | Laval DRAO IRAM, Spain | Multi-frequency study of the Sh 247 star forming complex. | 1.3, 2, 6, 20 line | 4 | 10.0 |
| AK249 | Klein, U. Brinks, E. Skillman, E. | MPIfR, Bonn NRAO-VLA Minnesota | Low frequency spectral indices of blue compact dwarfs. | 90, 20 | 22 | 3.5 |
| AK269 | Kundu, M. White, S. | Maryland Maryland | Acoustic waves in the solar chromosphere. | 2 w/AG322 | 11, 12 | 19.9 |
| AL150 | Lestrade, J. Preston, R. | JPL JPL | Properties of RSCVn stars. | 6 | 7, 27, 31 | 5.1 |
| AL234 | Leone, F. Umaña, G. | Catania Bologna | Synoptic observation of CP2 (chemically peculiar) stars. | 6 | 10, 17, 25 | 5.0 |
| AM322 | Myers, S. Lawrence, C. Dave, R. | CITA Caltech Caltech | Survey of OVRO microwave background fields. | 2, 3.8 w/BB2 | 9, 13, 14 | 36.6 |
| AM323 | Muhleman, D. Grossman, A. Butler, B. Slade, M. | Caltech Maryland Caltech JPL | Titan bistatic radar. | 3.8 w/BT1 | 21, 22, 23, 28 | 28.0 |
| AP194 | Pedelty, J. Pisarski, R. Dickel, J. Odegard, N. | NASA/GSFC NASA/GSFC Illinois General Sciences Cor | Cygnus loop. | 90 | 25 | 10.0 |
| AP205 | Pauls, T. Johnston, K. Gaume, R. Wilson, T. Huettemeister, S. | NRL NRL NRL MPIfR, Bonn MPIfR, Bonn | NH3 (2,2) and (4,4) observations toward Sgr A. | 1.3 line | 10 | 8.0 |
| AR231 | Reid, M. Menten, K. | CfA CfA | "Light curves" for Mira variables. | 3.8 | 7, 11 | 7.0 |
| AR241 | Rodriguez, L. Reipurth, B. | Mexico/UNAM ESO | Search for the exciting sources of new Herbig-Haro objects. | 2, 3.8 | 17 | 7.0 |
| AS333 | Sramek, R. Weiler, K. Van Dyk, S. Panagia, N. | NRAO-VLA NRL NRL STScI | Properties of radio supernovae. | 2, 6, 20 | 8 | 1.0 |
| AS391 | Sofue, Y. Reich, W. Reich, P. Pedlar, A. | Tokyo MPIfR, Bonn MPIfR, Bonn Manchester | Galactic center jet. | 90 line | 7, 31 | 8.9 |
| AS430 | Seaquist, E. Taylor, A. Krogulec, M. Weston, D. | Toronto Calgary Toronto York | A survey of symbiotic stars. | 3.8 | 20, 24 | 9.0 |
| AS435 | Smoker, J. Axon, D. Davies, R. Hummel, E. | Manchester Manchester Manchester Manchester | Dark matter in the galaxy NGC428. | 20 line | 19 | 8.0 |
| AS436 | Szomoru, A. van Gorkom, J. Gregg, M. | Groningen/Kapteyn Columbia Mt. Stromlo | HI survey of the Bootes void. | 20 line w/BT1 | 20, 21, 22, 25, 26, 27 | 48.6 |
| AT108 | Terlevich, R. Brinks, E. Skillman, E. Terlevich, E. | RGO NRAO-VLA Minnesota RGO | Seyfert galaxy NGC 1068. | 20 line | 21 | 4.5 |
| AT114 | Taylor, A. Taylor, A. Dougherty, S. Dougherty, S. | Calgary Calgary Can Calgary Calgary Canada | Monitoring of radio variable Be stars. | 3.8 | 14 | 4.5 |
| AT115 | Taylor, G. Perley, R. | NRAO-VLA NRAO-VLA | A search for HI gas in Hydra A. | 20 line | 3 | 8.1 |

VLA Utilization Report May 1991

| Progrm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|--------|--|---|---|----------------------|--|--------------------------------------|
| AT121 | Torrelles, J. Gomez, J. Ho, P. Rodriguez, L. Canto, J. Anglada, G. | IAA, Andalucia Cfa Harvard Mexico/UNAM Mexico/UNAM Barcelona | Ammonia observations of HH1, HH2 | 1.3 line | 24 | 10.0 |
| AT123 | Tyson, N. van Gorkom, J. | Columbia Columbia | HI near supernovae distant from the galactic nucleus. | 20 line | 19, 23 | 16.1 |
| AU041 | Uson, J. Uson, J. Bagri, D. Bagri, D. Cornwell, T. Cornwell, T. | NRAO-VLA NRAO-VLA NRAO-VLA NRAO-VLA NRAO-VLA | Search for redshifted "21 cm" emission from Zel'dovich pancakes. | 90 line | 5, 6, 11, 24 | 17.1 |
| AW275 | White, S. Kundu, M. Gopalswamy, N. Schmahl, E. | Maryland Maryland Maryland Maryland | Coronal magnetic fields above solar active regions. | 2, 3.8, 6, 20 | 7, 8, 9, 10 | 17.0 |
| AW279 | Wiseman, J. Ho, P. | Harvard Harvard | Extended structure and high velocity outflows in OMC-1. | 1.3 line | 5 | 8.0 |
| AW280 | Womble, D. Dickey, J. Burbidge, E. | Calif., San Diego Minnesota Calif., San Diego | Probing the extent of galaxies: Ca II absorption vs. HI emission. | 20 line | 27 | 6.0 |
| AW282 | Worrall, D. Murray, S. Birkinshaw, M. | Cfa Cfa Harvard | The Eridanus Einstein deep survey field. | 6, 20 | 25 | 3.0 |
| AY035 | Yin, Q. Thuan, T. | NRAO-CV Virginia | Blue compact dwarf galaxies. | 20, 6 | 17 | 2.5 |
| AY041 | Yun, M. Ho, P. Lo, K. | Harvard Harvard Illinois | HI synthesis mapping of the M81-M82-NGC3077 system. | 20 line w/Move/Op | 1 | 1.1 |
| AZ044 | Zhao, J. Zhao, J. Ekers, R. Ekers, R. Goss, W. Goss, W. Lo, K. Lo, K. Narayan, R. Narayan, R. | NRAO-VLA NRAO-VLA AT, Australia AT Australia NRAO-VLA NRAO-VLA Illinois Illinois Arizona Steward | Flux density variations caused by RISS in Sgr A. | 1.3, 2, 3.6 | 8, 20 | 3.0 |
| BB2 | Brown, R. Benson, J. | NRAO-CV NRAO-CV | Structure of SgrA | 6, 1.3 | 14 Single Antenna VLBI w/AM322, Tests | 8.8 |
| BT001 | Taylor, G. Perley, R. | NRAO-VLA NRAO-VLA | 3C 295 hot spot observations. | 21 | 20 w/AM323, AS436, Startup | 15.7 |
| BY1 | Yusef-Zadeh, F. Melia, F. Walker, C. | Northwestern Northwestern NRAO-VLA | SgrA* | 3.8, 1.3 | 15 Single Antenna VLBI w/AB602, AD265, Tests | 11.4 |
| UG1 | Greenhill, L. Moran, J. Reid, M. Argon, A. Menten, K. Hirabayashi, H. Gwinn, C. | Cfa Cfa Cfa Cfa Cfa ISAS, Japan Calif., Santa Barbar | Measurement of distance to M33 | 1.35 | 29, 30 MKIII VLBI | 34.8 |
| | Staff | NRAO | Baseline/Startup/Pointing Electronics Move/Operations Software General Test | | | 37.5 60.9 14.1 49.1 38.2 |

The average downtime was 8.55%.

The array was scheduled for
550.8 hours (73.8 % of time) for astronomical programs
86.2 hours (11.6 % of time) for tests/calibration
109.0 hours (14.6 % of time) for maintenance
Total 746.1 hours (100 %) scheduled.

Array was in configuration D from May 1 to May 28.
A/D from May 28 to May 31.

Total number of astronomical programs was 55.

The following independent proposals shared simultaneous observing time (57.0 hours total simultaneous observing):

| | |
|---------------|--------------|
| ab602/by1 | (8.5 hours) |
| ad265/by1 | (2.5 hours) |
| ag322/ak269 | (10.0 hours) |
| ah390/move/op | (1.1 hours) |
| am322/bb2 | (7.0 hours) |
| am323/bt1 | (4.2 hours) |
| as436/bt1 | (5.7 hours) |
| startup/bt1 | (5.8 hours) |
| tests/bb2 | (1.8 hours) |
| tests/by1 | (0.4 hours) |

VLA Utilization Report April 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|---|--|---|-----------------------------|-------------------|----------------|
| AA108 | Anderson, M. Rudnick, L. Perley, R. | Minnesota Minnesota NRAO-VLA | The time evolution of SNR Cassiopeia A. | 6, 20 | 2 | 8.0 |
| AA125 | Appleton, P. Marcum, P. | Iowa State Iowa State | HI observations of the edge-on galaxy NGC4631. | 20 line | 29 | 8.0 |
| AB414 | Becker, R. White, R. | Calif., Davis STScI | Monitoring radio stars HD193793 and P Cygni | 2, 6 | 7 | 1.5 |
| AB591 | Beck, R. Horellou, C. Neininger, N. Brouillet, N. | MPIfR, Bonn Meudon MPIfR, Bonn MPIfR, Bonn | The detailed magnetic field structure of M51. | 6 w/AB595,AB599,AH430 | 1 | 11.1 |
| AB595 | Beck, R. Ehle, M. Neininger, N. | MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn | Magnetic fields and star formation in NGC 6946. | 6 w/AB591,AB599,AH430 | 1 | 11.1 |
| AB596 | Birkinshaw, M. | Harvard | Radio sources in clusters observed in the Sunyaev-Zel'dovich effect. | 2, 6, 20 | 18 | 18.0 |
| AB598 | Bregman, J. Brinks, E. Roberts, M. | Michigan NRAO-VLA NRAO-CV | High velocity clouds in NGC 5668. | 20 line | 3, 6, 23 | 24.5 |
| AB599 | Brett, B. Beck, R. | Manchester MPIfR, Bonn | The magnetic field of NGC 2903. | 6 w/AB591,AB595,AH430 | 1 | 11.1 |
| AC278 | Carilli, C. Ho, P. | NRAO-VLA Harvard | Two nuclear starburst galaxies. | 3.8, 6, 20 | 7 | 7.0 |
| AC284 | Carignan, C. | Montreal | HI studies of gas-rich dwarf irregulars. | 20 line | 16 | 8.1 |
| AC293 | Churchwell, E. Walmsley, M. Cesaroni, R. Wood, D. Hofner, P. | Wisconsin MPIfR, Bonn MPIfR, Bonn NRAO-VLA Wisconsin | Hot (shocked?) ammonia associated with UC HII regions. | 1.3 line | 22, 25 | 11.0 |
| AD263 | Dewdney, P. Purton, C. McCutcheon, W. Roger, R. | DRAO DRAO British Columbia DRAO | Sources associated with IRAS 23545+6508. | 2 | 8 | 1.5 |
| AD264 | Drake, S. Brown, A. Simon, T. Judge, P. | NASA/GSFC Colorado Hawaii High Altitude Obs | Procyon - is it losing mass? | 3.8 | 29 | 3.5 |
| AD265 | Drake, S. Walter, F. Jetsy, L. Florkowski, D. | NASA/GSFC SUNY Helsinki USNO | Radio emission from rapidly-rotating cool giant stars. | 3.8 | 12 | 5.0 |
| AF196 | Feretti, L. Giovannini, G. Dallacasa, D. | Bologna Bologna Bologna | Radio polarization mapping of head-tail source NGC4869. | 3.8, 6, 20 | 8 | 7.0 |
| AG319 | Gaume, R. Fey, A. Claussen, M. Johnston, K. Nedoluha, G. | NRL NRL NRL NRL NRL | Hydrogen recombination lines toward G34.25+0.14. | 1.3, 3.8 line | 18 | 6.0 |
| AH382 | Ho, P. Martin, R. Turner, J. Jackson, J. | Harvard Harvard Calif., L.A. MPIfE, Munich | Extragalactic ammonia emission. | 1.3 line | 20, 21 | 20.5 |
| AH390 | Hjellming, R. Gehrz, R. Taylor, A. Sequist, E. | NRAO-VLA Minnesota Calgary Toronto | Light curve measurements. | 2, 3.6, 6, 10, 18, 27 20 | | 5.9 |
| AH407 | Ho, P. Ishiguro, M. Kawabe, R. Okumura, S. Turner, J. | Harvard Nobeyama Obs Nobeyama Obs Nobeyama Obs Calif., L.A. | Synchrotron emission in nearby normal spiral galaxies. | 20 w/Move/Op | 5, 28 | 19.0 |
| AH428 | Hjellming, R. Han, X. Roussel-Dupre, D. | NRAO-VLA NMIMT/NRAO-VLA LANL | X-ray sources observed with URA x-ray telescope on Space Shuttle. | 3.8, 6, 20 | 28, 29, 30 | 16.0 |
| AH430 | Hummel, E. Beck, R. Krause, M. | Manchester MPIfR, Bonn MPIfR, Bonn | The B-field structure in the central 1 kpc of IC342. | 3.8 w/AB591,AB595,AB599 | 1 | 11.1 |
| AH431 | Habbal, S. Walker, A. Hoover, R. Dowdy, J. Gonzalez, R. Harvey, K. | Cfa Stanford NASA/MSFC NASA/MSFC NRAO-CV Solar Phys. Res. Cor | Multiwavelength ground and space observations of the Sun. | 1.3, 2, 3.5, 6 | 25 | 6.0 |
| AH444 | Hjellming, R. | NRAO-VLA | Gamma Transient 1217+066. | 3.8 | 5 | 1.5 |

VLA Utilization Report April 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|--|--|---|------------------|---------------------|----------------|
| AK266 | Keene, J. Masson, C. Menten, K. | Caltech CfA CfA | Mapping of NH ₃ emission in B335. | 1.3 line | 11 | 10.0 |
| AL150 | Lestrade, J. F. Preston, R. A. | JPL JPL | Properties of RSCVn stars. | 6 | 20, 21 | 2.6 |
| AL216 | Leahy, D. | Calgary | Sharpless regions S217 and S219. | 6, 20 | 29 | 2.0 |
| AL225 | Li, G. Seaquist, E. Wrobel, J. | Toronto Toronto NRAO-VLA | Radio morphology of star forming SO galaxies. | 3.8 | 17, 18 | 8.0 |
| AM311 | Mangum, J. Wootten, A. | Texas NRAO-CV | Hot ammonia and the star forming core in DR21(OH). | 1.3 line | 16 | 10.0 |
| AM318 | McHardy, I. Lehto, H. Branduardi-Raymont, Mason, K. Green, A. | Southampton, U. of Southampton, U. of U. College London U. College London Southampton, U. of | Radio survey of deep ROSAT x-ray survey area-spectral indices. | 6 | 25 | 15.1 |
| AM319 | McMullin, J. Mundy, L. Zhou, S. Evans, N. | Maryland Maryland Texas Texas | Probing molecular depletions in protostellar objects. | 1.3 line | 15 | 10.0 |
| AN055 | Nash, A. Geldzahler, B. | ARC ARC | Survey of radio emission from Cepheid variables. | 6 | 16, 18, 30 | 4.6 |
| AO101 | Odehahn, S. | Minnesota | Magellanic type galaxy NGC 4618. | 20 line | 10 | 5.0 |
| AP201 | Pratap, P. Menten, K. | CfA CfA | A multitransitional ammonia study of the NGC7538 star-forming region. | 1.3 line | 6 | 9.0 |
| AP206 | Phookun, B. Mundy, L. | Maryland Maryland | NGC4254 and NGC4654: HI observations of one-armed spiral galaxies. | 20 line | 13 | 8.6 |
| AP207 | Porter, A. Green, R. Osmer, P. | KPNO-NOAO KPNO-NOAO KPNO-NOAO | The highest redshift quasars. | 3.8 | 7 | 16.0 |
| AR231 | Reid, M. Menten, K. | CfA CfA | "Light curves" for Mira variables. | 3.8 | 14 | 3.0 |
| AR232 | Reynolds, S. | N. C. State | Small-scale structure in young supernova remnants. | 6, 20 | 12 | 9.0 |
| AR241 | Rodriguez, L. Reipurth, B. | Mexico/UNAM ESO | Search for the exciting sources of new Herbig-Haro objects. | 2, 3.8 | 1 | 7.0 |
| AS391 | Sofue, Y. Reich, W. Reich, P. Pedlar, A. | Tokyo U. MPIfR, Bonn MPIfR, Bonn Manchester | Galactic center jet. | 90 line | 20, 21 | 13.4 |
| AS431 | Serabyn, G. Masson, C. | Caltech CfA | Zeeman measurement of magnetic field near galactic center arc. | 18 | 27, 28 | 16.0 |
| AT113 | Troland, T. Crutcher, D. Roberts, D. Goss, W. | Kentucky Illinois NRAO-VLA NRAO-VLA | New VLA Zeeman observations of Orion A, Orion B, and W3. | 20 line | 6, 8 | 15.0 |
| AT114 | Taylor, A. Dougherty, S. | Calgary Calgary | Monitoring of radio variable Be stars. | 3.8 | 19 | 3.0 |
| AT116 | Taylor, J. Thorsett, S. McKinnon, M. | Princeton Princeton NMIMT/NRAO-VLA | Binary pulsar timing measurements: 0655+64. | 90 | 22 | 25.0 |
| AT118 | Thorsett, S. Taylor, J. McKinnon, M. | Princeton Princeton NMIMT/NRAO-VLA | Binary pulsar timing measurements: pulsars not accessible to Arecibo. | 20, 90 | 2-9, 11, 12, 17, 25 | 13.5 |
| AT120 | Torrelles, J. Gomez, J. Curiel, S. Ho, P. Rodriguez, L. Eiroa, C. | IAA, Granada CfA CfA CfA Mexico/UNAM Madrid Obs | Ammonia observations of the Serpens triple. | 1.3 line | 13 | 10.5 |
| AU041 | Uson, J. Bagri, D. Cornwell, T. | NRAO-VLA NRAO-VLA NRAO-VLA | Search for redshifted "21 cm" emission from Zel'dovich pancakes. | 90 line | 1, 5, 11, 21 | 33.5 |
| AV187 | van der Werf, P. Genzel, R. | MPIfE, Garching MPIfE, Garching | HI observations of M17 and NGC2023. | 20 line | 14, 15 | 18.0 |
| AW249 | Wills, B. Shastri, P. | Texas Texas | Core variability in lobe-dominated quasars. | 6 | 19 | 10.0 |
| AW269 | Wilkinson, P. Polatidis, A. Readhead, A. Pearson, T. Xu, W. | Manchester Manchester Caltech Caltech Caltech | Survey of strong sources. | 6 | 29 | 1.0 |
| AW273 | Wootten, A. Sahai, R. | NRAO-CV Chalmers | Circumstellar chemistry of cyanopolyynes: HC5N. | 1.3, 3.8 line | 2, 4 | 20.0 |

VLA Utilization Report April 1991

| Progm | Observer | Affiliation | Program Title | Bands cm | Observing Date | Sched Hours |
|-------|--|--|--|-----------------------|-------------------|----------------|
| AW277 | Wilson, T. Gaume, R. Pauls, T. Johnston, K. | MPIfR, Bonn NRL NRL NRL | NH3 observations toward W30H: the (1,1), (2,2) and (3,3) lines. | 1.3 line | 26 | 12.0 |
| AW283 | Wrobel, J. Olszewski, E. | NRAO-VLA Arizona | Radio sources in and beyond the galaxy's dwarf spheroidals. | 3.8 | 17 | 2.0 |
| AY035 | Yin, Q. Thuan, T. | NRAO-CV Virginia | Blue Compact Dwarf Galaxies. | 6 | 27 | 2.0 |
| AY041 | Yun, M. Ho, P. Lo, K. | Harvard Harvard Illinois | HI synthesis mapping of the M81-M82-NGC3077 system. | 20 line | 28, 30 | 14.9 |
| AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT, Australia NRAO-VLA Illinois Arizona | Flux density variations caused by RISS in Sgr A. | 1.3, 2, 3.6, 6, 20 | 3, 5, 17, 29 | 6.0 |
| AZ050 | Zhou, S. Evans, N. Mangum, J. Wang, Y. Staff | Texas Texas Texas Texas NRAO | Formaldehyde in low-mass dense cores. | 6 line | 12, 13, 14 | 24.9 |
| | | | Baseline/Startup/Pointing | | | 45.1 |
| | | | Electronics | | | 48.2 |
| | | | Software | | | 55.8 |
| | | | Standard Field Observation | | | 12.0 |
| | | | General Test | | | 23.5 |

The average downtime was 9.33%.

The array was scheduled for
 528.5 hours (73.3 % of time) for astronomical programs
 88.5 hours (12.3 % of time) for tests/calibration
 104.0 hours (14.4 % of time) for maintenance
 Total 721.0 hours (100 %) scheduled.

Array was in configuration D from April 1 to April 30.

Total number of astronomical programs was 56.

The following independent proposals shared simultaneous observing time (49.1 hours total simultaneous observing):

ab591/ab595 (11.1 hours)
 ab591/ab599 (11.1 hours)
 ab591/ah430 (11.1 hours)
 ad264/move/ops (5.0 hours)
 ah407/move/ops (10.9 hours)

VLA UTILIZATION REPORT MARCH 1991

| Program | Observer | Affiliation | Program Title | Bands cm | Obsv Date | Sched hrs |
|---------|---|---|---|------------------------------|--------------------------------------|--------------|
| AA114 | Aller, H. Aller, M. Bregman, J. | Michigan Michigan Michigan | Search for Correlated Radio X-Ray Variability in Active Galactic Nuclei | 2 | 1 w/GZ1 | 2.6 |
| AA116 | Alexander, P. Crane, P. Wilding, T. Pooley, G. | Cambridge NRAO-VLA Cambridge Cambridge | Star formation in nine late-type galaxies. | 3.8 | 7 w/GM3 | 4.0 |
| AA118 | Anderson, M. Katz, D. Rudnick, L. | Minnesota Minnesota Minnesota | Spectral Index Variations in Shell Supernova Remnants | 6 | 26, 30 | 17.5 |
| AA119 | Andre, P. Wootten, A. Despois, D. Sargent, A. | NRAO-Tucson NRAO-CV Bordeaux Obs. Caltech | Circumstellar Gas Around the Very Young Outflow-Driving Source VLA 1623 | 1.3 | 17 | 7.5 |
| AA122 | Allen, J. Molnar, L. | Iowa Iowa | Radio emission from x-ray binary systems: Monitoring Cygnus X-1. | 1.3, 2, 3.8, 6, 20 | 15, 16, 17, 18-25 w/BG3, Tests | 32.6 |
| AB414 | Becker, R. White, R. | Calif.-Davis STScI | Monitoring radio stars HD193793 and P Cygni | 2, 6 | 16 | 1.5 |
| AB586 | Brinks, E. Skillman, E. Taylor, C. | NRAO-VLA Minnesota Minnesota | Search for intergalactic HI clouds. | 20 line | 29 | 9.0 |
| AB591 | Beck, R. Horellou, C. Neininger, N. Brouillet, N. | MPIfR, Bonn Meudon MPIfR, Bonn MPIfR, Bonn | The detailed magnetic field structure of M51. | 6 w/AB595, AB599, AH430 | 23, 31 | 24.9 |
| AB595 | Beck, R. Ehle, M. Neininger, N. | MPIfR, Bonn MPIfR, Bonn MPIfR, Bonn | Magnetic fields and star formation in NGC 6946. | 6 w/AB591, AB599, AH430 | 23, 31 | 24.9 |
| AB597 | Bookbinder, J. Eye, J. Bromage, G. Saar, S. | Cfa Leicester Rutherford Cfa | Stellar flares on UV Ceti and AT Mic: multiband observations. | 2, 3, 8, 6, 20 line | 4 w/GV2 | 2.0 |
| AB599 | Brett, B. Beck, R. | Manchester MPIfR, Bonn | The magnetic field of NGC 2903. | 6 w/AB591, AB595, AH430 | 23, 31 | 24.9 |
| AB601 | Brown, D. Wood, D. Yusef-Zadeh, F. | Northwestern NRAO-VLA Northwestern | Survey of a sample of molecular outflow sources. | 3.8 | 31 | 6.8 |
| AC278 | Carilli, C. Ho, P. | NRAO-VLA Cfa | Two nuclear starburst galaxies. | 3.8, 6, 20 | 30 | 7.0 |
| AC286 | Churchwell, E. Kurtz, S. Wood, D. | Wisconsin Wisconsin NRAO-VLA | The dynamics and structure of ultracompact HII regions. | 1.3 line | 9, 11 | 15.5 |
| AC290 | Curiel, S. Rodriguez, L. Ho, P. | Cfa Mexico/UNAM Cfa | Radio continuum sources in the HH7-11 region. | 3.8, 20 | 17 | 8.0 |
| AC291 | Caillault, J. Magnani, L. | Georgia Arecibo | A search for FMS stars in the high-latitude molecular clouds. | 3.8 | 7, 26 w/GM3 | 12.0 |
| AC292 | Carpenter, J. Snell, R. Schloerb, F. | Massachusetts Massachusetts Massachusetts | Search for embedded massive stars in the Gem OB1 molecular cloud complex | 3.8, 20 | 9 | 9.5 |
| AC294 | Corbelli, E. Schneider, S. | Arcetri Massachusetts | Neutral hydrogen absorption in 3C275.1/NGC4651. | 20 line | 26 | 10.0 |
| AD253 | de Pater, I. | Calif., Berkeley | Jupiter's changing atmospheric morphology. | 1.3, 2 | 8 | 10.0 |
| AD259 | Dettmar, R. Koribalski, B. Wielebinski, R. | Bonn MPIfR, Bonn MPIfR, Bonn | A sensitive high frequency study of M104. | 6 | 20, 21 w/BG3 | 16.5 |
| AE076 | Edelson, R. Maikan, M. Rush, B. Spinoglio, L. | Colorado UCLA UCLA IAS, Frascati | The 12 um Seyfert Galaxy sample. | 6, 20 | 7, 15 w/GM3 | 9.5 |
| AF198 | Frail, D. Kulkarni, S. | NRAO-VLA Caltech | Possible PSR/SNR Association | 20 | 5, 15 | 3.2 |
| AG320 | Geldzahler, B. Nash, A. | ARC ARC | Open clusters and OB associations: search for parallax objects. | 20 | 6, 7 w/GM3 | 3.0 |
| AG323 | Goss, W. Cowan, J. Ekers, R. Sramek, R. Roberts, D. Branch, D. | NRAO-VLA Oklahoma AT, Australia NRAO-VLA NRAO-VLA Oklahoma | H66 α recombination lines observations of the PN or G25.57+0.2. | 1.3 | 12 | 11.0 |
| AH364 | Hunt, G. Patnaik, A. Salter, C. Shaver, P. | NRAO-VLA U. Manchester TIFR ESO | High surface brightness SNRs and SNRs with "blow-outs". | 90 | 29 | 2.0 |
| AH390 | Hjellming, R. Gehrz, R. Taylor, A. Sequist, E. | NRAO-VLA Minnesota Calgary Toronto | Light Curve Measurements and Imaging or Resolving Radio Novae | 20, 6, 3.6, 2 | 28 | 0.5 |
| AH425 | Hankins, T. | NMIMT/NRAO-VLA | Ultra-high time resolution measurements of Crab Pulsar PSR0531+21. | 3.8, 6, 20 | 19, 21, 26 | 7.0 |
| AH426 | Harris, D. Willis, A. Dewdney, P. McHardy, I. Stern, C. | CFA DRAO DRAO Southampton U. Cfa | Radio halo in a distant galaxy cluster. | 6 | 12 | 5.1 |
| AH430 | Hummel, E. Beck, R. Krause, M. | U. Manchester MPIfR, Bonn MPIfR, Bonn | The B-field structure in the central 1 kpc of IC342. | 3.8 w/AB591, AB595, AB599 | 23, 31 | 24.9 |

VLA UTILIZATION REPORT MARCH 1991

| Program | Observer | Affiliation | Program Title | Bands cm | Obsv Date | Sched hrs |
|---------|---|--|--|-------------|------------------------------------|--------------|
| AH444 | Hjellming, R. Han, X. Russell-Dupre, D. | NRAO-VLA NMIMT/NRAO LANL | Search for Radio Counterpart of GRS1217+006. | | 27 | 1.1 |
| AK243 | Krauss, M. Lesch, H. | MPIfR, Bonn Heidelberg Obs | Structure in edge-on galaxies: NGC 2638 and NGC 5907. | 6, 20 | 27, 28 | 24.0 |
| AK267 | Koo, B. Yun, M. Ho, P. | CfA CfA CfA | Structure of an expanding HI shell in the supernova remnant CTB80. | 20 line | 2, 3 w/UAH2, UAH4 | 12.5 |
| AK268 | Koo, B. Yun, M. Ho, P. Kumar, P. Riffert, H. Heiles, C. | CfA CfA CfA NCAR Tubingen, Germany Calif., Berkeley | HI study of two giant molecular clouds near the galactic center. | 20 line | 4 w/GV2 | 8.2 |
| AK279 | Kulkarni, S. Frail, D. | Caltech NRAO-VLA | The pulsar in G5.4-1.1. | 20 | 29, 31 | 3.2 |
| AL234 | Leone, F. Umana, G. | Catania Bologna | Synoptic observation of CP2 (chemically peculiar) stars. | | 1, 3, 4, 19 w/GZ1, UAH4, GV2 | 9.0 |
| AL235 | Lizano, S. Rodriguez, L. Canto, J. Escalante, V. | Mexico/UNAM Mexico/UNAM Mexico/UNAM Mexico/UNAM | Atomic hydrogen in reflection nebulae. | 20 line | 25, 29 | 8.0 |
| AL236 | Lacy, M. Warner, P. | Cambridge Cambridge | Observations of NGC6512. | 20, 90 | 2 w/UAH2 | 2.5 |
| AM312 | McCullough, P. Heiles, C. | Calif., Berkeley Calif., Berkeley | A rocketing globule in the HII region NGC281. | 20 line | 22 | 8.0 |
| AM320 | Mohringer, D. Yusef-Zadeh, F. Palmer, P. Goss, W. | Chicago Northwestern Chicago NRAO-VLA | H2CO toward the Sgr B complex near the galactic center. | 6 line | 8 w/GM3 | 8.0 |
| AM321 | Moriarty-Schlieven, G Wannier, P. | JPL JPL | Search for circumstellar disks around T-Tauri-like stars. | 1.3 line | 24 | 10.0 |
| AP196 | Puche, D. Brinks, E. Westpfahl, D. | NRAO-VLA NRAO-VLA NMIMT | Structure of the ISM in nearby dwarf galaxies. | 20 line | 6 w/GS2 | 5.0 |
| AR231 | Reid, M. Menten, K. | CfA CfA | "Light curves" for Mira variables. | 3.8 | 11, 31 | 6.0 |
| AS428 | Sage, L. Westpfahl, D. Huchtmeier, W. | MPIfR, Bonn NMIMT MPIfR, Bonn | A coordinated study of the ISM in nearby galaxies. | 20 line | 22 | 14.0 |
| AT108 | Terlevich, R. Brinks, E. Skillman, E. Terlevich, E. | RGO NRAO-VLA Minnesota RGO | Seyfert galaxy NGC 1068. | 20 line | 6, 16 w/GS2 | 5.6 |
| AT113 | Troland, T. Crutcher, D. Roberts, D. Goss, W. | Kentucky Illinois NRAO-VLA NRAO-VLA | New VLA Zeeman observations of Orion A, Orion B, and W3. | 20 line | 8 w/GM3 | 1.9 |
| AT114 | Taylor, A. Dougherty, S. | Calgary Calgary | Monitoring of radio variable Be stars. | 3.8 | 31 | 3.0 |
| AT118 | Thorsett, S. Taylor, J. McKinnon, M. | Princeton Princeton NMIMT/NRAO-VLA | Binary pulsar timing measurements: pulsars not accessible to Arecibo. | 20, 90 | 15, 18, 19, 21 | 4.4 |
| AT119 | Thorsett, S. Taylor, J. Stinebring, D. Hankins, T. | Princeton Princeton Oberlin NMIMT/NRAO-VLA | Timing fast pulsars. | 6, 20 | 10 | 11.0 |
| AU041 | Uson, J. Bagri, D. Cornwell, T. | NRAO-VLA NRAO-VLA NRAO-VLA | Search for redshifted "21 cm" emission from Zel'dovich pancakes. | 90 line | 5, 12, 14, 15, 18, 19, 24 | 56.1 |
| AV186 | van Driel, W. van den Broek, A. de Jong, T. | Amsterdam U. of Amsterdam U. of Amsterdam U. of | The thermal radiation of extreme IRAS galaxies. | 2 | 25 | 4.5 |
| AW279 | Wiseman, J. Ho, P. | CfA CfA | Extended structure and high velocity outflows in OMC-1. | 1.3 line | 11, 15, 16, 18 | 32.0 |
| AW280 | Womble, D. Dickey, J. Burbridge, E. | Calif., San Diego Minnesota Calif.-San Diego | Probing the extent of galaxies: Ca II absorption vs. HI emission. | 20 line | 17 | 12.0 |
| AW281 | Wootten, A. Rieu, N. | NRAO-CV Meudon | Circumstellar photochemistry of cyanopolynes: HCSN. | 3.8 line | 30 | 10.0 |
| AY037 | Yusef-Zadeh, F. Cornwell, T. | Northwestern NRAO-VLA | HH-like streamers in Orion. | 3.8, 6 | 10 | 10.5 |
| AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT, Epping NRAO-VLA Illinois Arizona | Flux density variations caused by RISS in Sgr A. | | 6, 20 | 2.5 |
| AZ049 | Zhao, J. Goss, W. Diamond, P. | NRAO-VLA NRAO-VLA NRAO-VLA | Zeeman effect in H2O masers. | 1.3 line | 29 | 7.5 |
| BG3 | Ge, J. Zensus, A. Owen, F. | NMIMT/NRAO-VLA NRAO-VLA NRAO-VLA | 3C 317 Compact Core. | 20 | 20 | 10.6 |
| GG5 | Giovannini, G. Comoretto, G. Feretti, L. Venturi, T. Wehrle, A. | IRA, Bologna Arcetri IRA, Bologna IRA, Bologna JPL | Low luminosity radio galaxy 3C 338. | 3.8 | 1 Phased Array MKIII VLBI | 11.0 |

VLA UTILIZATION REPORT MARCH 1991

| Program | Observer | Affiliation | Program Title | Bands cm | Obsv Date | Sched hrs |
|---------|---|--|--|-------------|--------------|--------------|
| GH1 | Hough, D. Vermeulen, R. Zensus, J. Readhead, A. Porcas, R. | Trinity Caltech NRAO-VLA Caltech MPI | Superluminal speeds in double-lobed quasars: 3C245 and 3C263. | 3.8 | 4 | 10.3 |
| GM3 | Matveyenko, L. Baath, L. Mantovani, F. Nesterov, N. Padielli, L. Rantakyro, F. | ISR, USSR Chalmers, Onsala IRA, Bologna ISR, USSR IRA, Bologna Chalmers, Onsala | Superluminal radio sources at meter wavelengths. | 90 | 7 | 33.7 |
| GS2 | Scheuer, P. Black, A. Spencer, R. | Cambridge Cambridge Manchester | 327 MHz observations of 3C295. | 90 | 6 | 8.3 |
| GS3 | Sakurai, T. Spangler, S. | Iowa Iowa | Density turbulence in the outer corona and solar wind. | 90 | 6 | 7.3 |
| GV2 | de Vicente, P. Alef, W. Romney, J. Kellerman, K. | CAY, Spain MPIFR, Bonn NRAO-CV NRAO-CV | 3C84 | 3.8 | 4 | 7.1 |
| GZ1 | Zhang, Y. Marscher, A. | Boston Boston | The peaked spectrum variable source 0528+134. | 3.6 | 1 | 12.1 |
| UAH2 | Unwin, S. | Caltech | 3C279 | 3.6 | 2 | 6.5 |
| UAH4 | Akujor, C. Porcas, R. | Manchester MPIFR, Bonn | 0646+60 | 3.8 | 3 | 3.3 |
| UH1 | Hough, D. Zensus, J. Vermeulen, R. Readhead, A. Porcas, R. Rius, A. Staff | Trinity NRAO-VLA Caltech Caltech MPI NASA/INTA NRAO | The search for superluminal motion in very weak nuclei of double-lobed quasars: 3C204, 0839+616, 3C205, and 3C175. | 3.6 | 2, 3 | 25.1 |
| | | | Baseline/Startup/Pointing | | | 49.0 |
| | | | Electronics | | | 51.6 |
| | | | Move/Operations | | | 0.0 |
| | | | Software | | | 34.8 |
| | | | General Test | | | 34.6 |
| | | | Holiday/Shutdown | | | 0.0 |
| | | | Standard Field | | | 0.0 |

The average downtime for the month of March, 1991 was 6.47%.

The array was scheduled 100.0% (746.1 hours) percent of the time: 78.6% (586.6 hours) to astronomical programs, 9.8% (73.0 hours) to scheduled test/calibration, and the remaining 11.6% (86.5 hours) went to scheduled maintenance.

The array was in the D configuration from March 1 through March 31.

The total number of programs run for the month of March, 1991 was 69.

The following independent proposals shared simultaneous observing time (131.5 hours total simultaneous observing):

| Projects | Hours |
|---------------|-------|
| AA114/GZ1 | 1.1 |
| AA116/GM3 | 2.8 |
| AA122/Tests | 3.5 |
| AB591/AB595 | 6.9 |
| AB591/AB599 | 18.0 |
| AB595/AH430 | 6.9 |
| AB597/GV2 | 2.0 |
| AB599/AH430 | 18.0 |
| AC291/GM3 | 10.0 |
| AD259/BG3 | 7.1 |
| AE76/GM3 | 4.5 |
| AG320/GM3 | 1.0 |
| AK267/UAH2 | 0.5 |
| AK267/UAH4 | 2.3 |
| AK268/GV2 | 2.0 |
| AL234/GV2 | 3.0 |
| AL234/GZ1 | 3.0 |
| AL234/UAH4 | 1.1 |
| AL236/UAH2 | 2.5 |
| AM320/GM3 | 8.0 |
| AP196/GS2 | 5.0 |
| AT108/GS2 | 2.0 |
| AT113/GM3 | 1.8 |
| Baselines/GZ1 | 5.0 |
| GH1/GV2 | 0.2 |
| Pointing/GZ1 | 3.0 |
| Pointing/UAH2 | 3.5 |
| Tests/GM3 | 1.5 |
| Tests/GM3 | 4.1 |
| Tests/GS2 | 1.3 |

VLA UTILIZATION REPORT FEBRUARY 1991

| Program | Observer | Affiliation | Program Title | Bands cm | Obsv Date | Sched hrs |
|---------|---|---|---|----------------|---------------------------------------|--------------|
| AA114 | Aller, H. Aller, M. Bregman, J. | Michigan Michigan Michigan | X-ray/radio variability in active galactic nuclei (with ROSAT). | 2 | 4 | 1.0 |
| AA119 | Andre, P. Wootten, A. Despois, D. Sargent, A. | NRAO-Tuc NRAO-CV Bordeaux CalTech | Circumstellar gas around the very young outflow-driving source VLA 1623 | 1,3 line | 22 | 7.5 |
| AB414 | Becker, R. White, R. | Calif., Davis STScI | Monitoring radio stars HD193793 and P Cygni | 2, 6 | 21 | 1.5 |
| AB555 | Blommaert, J. van Langevelde, H. Habing, H. | Leiden (Neth) Leiden (Neth) Leiden (Neth) | Low luminosity OH/IR stars in the galactic disk. | 18 line | 2 | 8.5 |
| AB573 | Becker, R. Helfand, D. White, R. | Calif., Davis Columbia STScI | A sample of O-stars from a survey of galactic plane. | 6 | 8,28 W/AW268 | 15.5 |
| AB578 | Bowers, P. Knapp, G. | SFA/NRL Princeton | Search for ionized gas in globular clusters. | 3,8 | 16 | 17.5 |
| AB585 | Bietenholz, M. Frail, D. | Toronto (Canada) NRAO-VLA | Compact synchrotron nebula around the Vela pulsar. | 6 | 13, 14 | 6.0 |
| AB586 | Brinks, E. Skillman, E. Taylor, C. | NRAO-VLA Minnesota Minnesota | Search for intergalactic HI clouds. | 20 line | 15 | 3.0 |
| AB587 | Burns, J. Clarke, D. | NMSU Illinois | The inner lobes and jet of Centaurus A. | 3,8 | 13, 16 | 7.0 |
| AB597 | Bookbinder, J. Pye, J. Bromage, G. Saar, S. | CfA Leicester (UK) Rutherford (London) CfA | Stellar flares on dMe stars: multiband observations. | 2,3,8,6, 20 | 21 | 2.0 |
| AD258 | Dahlem, M. Koribalski, B. Mebold, U. | MPfIR (Bonn) Bonn U. Bonn U. | Mass outflow from the disk of interacting galaxy NGC 1792. | 20 line | 22, 23 | 10.0 |
| AD260 | Dubner, G. Arnal, M. Winkler, F. Goss, M. | IAFE (Argentina) IAR, Buenos Aires Middlebury College NRAO-VLA | Galactic plane supernovae remnants. | 20 | 23 | 7.0 |
| AE064 | Elias, N. | Pennsylvania | Serpentid binary star V367 Cygni. | 6,3,8 | 9,10,12, 15,17,22,23 | 16.5 |
| AF198 | Frail, D. Kulkarni, S. | NRAO-VLA Caltech | A possible PSR/SNR association. | 20 | 4 | 1.9 |
| AF208 | Fomalont, E. | NRAO-CV | A peculiar Im galaxy. | 20 line | 7 | 5.0 |
| AG315 | Garwood, R. Briggs, F. Wolfe, A. | Pittsburgh Pittsburgh Calif., San Diego | HI absorption at z=3.0626 in PKS 0336-017. | 90 line | 3 | 8.0 |
| AG317 | Gregorini, L. de Ruyter, H. Parma, P. Vettolani, G. Ekers, R. Sadler, E. | Bologna (Italy) Bologna (Italy) Bologna (Italy) Bologna (Italy) AT (Australia) AAT (Australia) | A complete sample of optically selected dumb-bells. | 6 | 5,10,24 | 17.5 |
| AG318 | Gunn, J. Knapp, G. Athanasoula, E. Bosma, A. van Gorkom, J. | Princeton Princeton Marseille Obs Marseille Obs Columbia | Spiral structure and the disk/halo mass ratio. | 20 line | 14 | 2.0 |
| AH422 | Ho, P. Ho, L. Szczepanski, J. Jackson, J. | Harvard CfA CfA MPfIR (Bonn) | Molecular clouds within 10 pc of the galactic center. | 1,3 line | 9,10,14 | 26.9 |
| AJ199 | Joersaeter, S. van Moorsel, G. | ESO (FRG) ESO (FRG) | HI mapping of barred spiral NGC1365. | 20 line | 18 | 6.5 |
| AK251 | Koribalski, B. Dahlem, M. Mebold, U. Klein, U. | Bonn U. MPfIR (Bonn) Bonn U. MPfIR (Bonn) | Peculiar filaments in the halo of NGC 1448. | 20 line | 21 | 2.6 |
| AL150 | Lestrade, J. Preston, R. | JPL JPL | Statistical properties of RSCVn stars. | | 7,25 | 5.7 |
| AL232 | Langston, G. | NRL | K-band bright compact sources. | 1,3 | 2 | 25.5 |
| AL234 | Leone, F. Umana, G. | Catania Obs Bologna (Italy) | Synoptic observation of CP2 (chemically peculiar) stars. | 6 | 8,17,18 19,26 | 9.1 W/GX1 |
| AM279 | Melnick, G. Rodriguez, L. | CfA UNAM (Mexico) | Atomic hydrogen in the M17 photodissociation region. | 20 line | 12 | 5.0 |
| AM310 | Malkan, M. Baganoff, F. | Calif., L.A. Calif., L.A. | Variability of northern ecliptic pole active galactic nuclei. | 2,3,8,6 | 4 | 1.0 |
| AM315 | McMahon, P. Richter, O. van Gorkom, J. Ferguson, H. | Columbia STScI Columbia Johns Hopkins | A complete volume limited survey of the hydra cluster of galaxies. | 20 line | 14,16,17, 18,19,20, 21,22,23,24 | 56.7 |
| AM317 | Moore, E. Gottesman, S. | Florida Florida | HI observations of barred spirals NGC 1398 and NGC 1784. | 20 line | 11 | 10.0 |
| AM324 | Marvel, K. | NMSU | Masers near the galactic center. | 18,1,3 line | 4 | 2.1 |
| AN055 | Nash, A. Geldzahler, B. | Appl Research Appl Research | Survey of radio emission from Cepheid variables. | 3,8 | 12,20,22 | 8.5 |
| AP192 | Pottasch, S. Bignell, C. | U. Groningen NRAO-VLA | Stellar evolution AGB through planetary nebulae. | 2,3,8,6 | 24 | 7.0 |
| AR228 | Roberts, D. van Gorkom, J. Goss, M. Leahy, P. | NRAO-VLA Columbia NRAO-VLA NRAO-VLA | Recombination Line observations of Sgr A West. | 3,8 line | 19 | 8.5 |

VLA UTILIZATION REPORT FEBRUARY 1991

| Program | Observer | Affiliation | Program Title | Bands cm | Obsv Date | Sched hrs |
|---------|--|---|---|----------------------------------|---------------------------------|---|
| AR231 | Reid, M. Menten, K. | Cfa Cfa | "Light curves" for Mira variables. | 3.8 | 1, 19, 27 W/Move/Op, GX1 | 10.0 |
| AS421 | Simkin, S. Sadler, E. | Michigan State AAO (Australia) | HI content of powerful radio galaxies. | 20 line | 12, 14, 15, 17 | 12.5 |
| AS423 | Skinner, S. Brown, A. Linsky, J. | Colorado Colorado Colorado | Spectral indices and variability of radio-emitting Herbig Ae/Be stars. | 2, 3, 8, 6, 20 | 7 | 12.0 |
| AS430 | Seaquist, E. Taylor, A. Krogulec, M. Weston, D. | Toronto (Can) Calgary (Can) Toronto (Can) York U. | A survey of symbiotic stars. | 3.8 | 1, 26 | 18.0 |
| AT109 | Torrelles, J. Gomez, J. Verdes-Montenegro, L. Rodriguez, L. Gomez, Y. Roth, M. Tapia, M. | IAP, Granada IAP, Granada IAP, Granada UNAM (Mexico) UNAM (Mexico) Mt. Wilson UNAM (Mexico) | Southern blister HII region GM24. | 3.8, 6 line | 21 | 5.0 |
| AT114 | Taylor, A. Dougherty, S. | Calgary (Can) Calgary | Monitoring of radio variable Be stars. | 3.8 | 17 | 4.0 |
| AU040 | Uchida, K. Morris, M. Yusef-Zadeh, F. | Calif., L.A. Calif., L.A. Northwestern | Study of a large supernova remnant near the galactic center. | 3.8, 6, 20 line | 15, 18 | 14.0 |
| AV172 | van Breugel, W. Silk, J. Fomalont, E. van Gorkom, J. | Calif., Berkeley Calif., Berkeley NRAO-CV Columbia | HI in the foreground of Fornax A. | 20 line | 9, 10 | 11.0 |
| AV181 | van Gorkom, J. van der Hulst, J. | Columbia U. Groningen | HI imaging of nearby galaxy Centarus A. | 20 line | 12 | 5.0 |
| AW261 | Whiteoak, J. Gray, A. Cram, L. Goss, W. | Sydney Sydney Sydney NRAO-VLA | High resolution imaging of a cluster near the galactic center. | 20 | 17 | 7.5 |
| AW267 | Wootten, A. Mangum, J. Butner, H. | NRAO-CV Texas NASA/Ames | Structure of a cloud at the threshold of star formation. | 2 line | 11 | 7.5 |
| AW268 | White, R. Becker, R. Wachter, S. van Breugel, W. | STScI Calif., Davis Calif., Davis Caltech | Population studies of extragalactic flat-spectrum radio sources. | 20 | 1, 4, 6, 8 21, 24 W/AB573 | 28.5 |
| AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT (Australia) NRAO-VLA Illinois Steward | Flux density variations caused by RISS in Sgr A. | 3.8, 6, 20 | 4, 15, 21 25 W/GX1 | 7.0 |
| BF001 | Frail, D. van Langevelde, H. Habing, H. Cordes, J. | NRAO-VLA Leiden (Neth) Leiden (Neth) Cornell | Angular broadening measurements of OH masers. | 20 Phased Array VLBI | 1 | 7.0 |
| GB3 | Bartel, N. Rupen, M. Shapiro, I. Preston, R. Rius, A. Hirabayashi, H. Kobayashi, H. | Cfa Cfa Cfa JPL Madrid, U. of ISAS ISAS | A movie of an exploding star. | 3, 6 Phased Array VLBI | 28 | 14.9 |
| GC5 | Giovannini, G. Comoretto, G. Feretti, L. Venturi, T. Wehrle, A. | Bologna (Italy) OAA (Italy) Bologna (Italy) Bologna (Italy) JPL | 3.6 and 18 cm. observations of the low luminosity radio galaxy 3C 338. | 3.6, 18 Phased Array VLBI | 28 | 1.0 |
| GV5 | Vermeulen, R. Hough, D. Readhead, A. | Caltech Trinity Caltech | Double-lobed quasar cores: 3C47 & 3C207. | 2.8, 3.6 Phased Array VLBI | 27 | 18.4 |
| GX1 | Xu, W. Readhead, A. Pearson, T. Wilkinson, P. Polatidis, A. | Caltech Caltech Caltech NRAL(Jodrell Bank) NRAL(Jodrell Bank) | Sources with jet opposite to large scale structure. | 3.6 Single Antenna VLBI | 26 | 13.3 |
| UA1 | Andre | NRAO Staff | Electronics Baseline/Startup/Pointing Move/Operations Software General Test Holiday/Shutdown Standard Field | | 25 | 6.9 49.7 49.1 29.7 22.0 33.6 0.0 0.0 |

VLA UTILIZATION REPORT FEBRUARY 1991

The average downtime for the month of February, 1991 was 4.96%.

The array was scheduled 100% (673.9 hours) percent of the time: 73.3% (493.6 hours) to astronomical programs, 16.1% (108.3 hours) to scheduled test/calibration, and the remaining 10.7% (71.9 hours) went to scheduled maintenance.

The array was in the CD configuration from February 1 through February 26.
D configuration from February 26 through February 28.

The total number of programs run for the month of February, 1991 was 51.

The following independent proposals shared simultaneous observing time (27.5 hours total simultaneous observing):

| <u>Projects</u> | <u>Hours</u> |
|-----------------|--------------|
| AL234/GX1 | 0.5 |
| AR231/GX1 | 3.0 |
| AR231/Move/Op | 1.1 |
| AW268/AB573 | 13.0 |
| AZ044/GX1 | 2.0 |
| GV5B/GX1 | 0.8 |
| Move/Op/GX1 | 5.0 |
| Test/GX1 | 2.0 |

VLA UTILIZATION REPORT JANUARY 1991

| Program | Observer | Affiliation | Program Title | Bands cm | Obsv Date | Sched hrs |
|---------|--|--|--|-------------------|------------------------------|--------------|
| AA114 | Aller, H. Aller, M. Bregman, J. | Michigan Michigan Michigan | X-ray/radio variability in active galactic nuclei (with ROSAT). | 2 | 5,14,21 24, 31 w/BF3 | 5.5 |
| AA116 | Alexander, P. Crane, P. Wilding, T. Pooley, G. | MRAO (Manchester) NRAO-VLA MRAO (Manchester) MRAO (Manchester) | Star formation in nine late-type galaxies. | 3.8, 20 | 9 | 8.0 |
| AB414 | Becker, R. White, R. | Calif.-Davis STScI | Monitoring radio stars HD193793 and P Cygni. | 2, 6 | 27 | 2.0 |
| AB456 | Burke, B. Hewitt, J. Roberts, D. | MIT Haystack Brandels | Monitoring Lens 0957+561. | 6 | 16 | 2.0 |
| AB588 | Buta, R. Higdon, J. | Alabama Texas | NGC 5850: a ringed barred spiral with interacting nearby elliptical. | 20 line | 7 | 9.1 |
| AC278 | Carilli, C. Ho, P. | NRAO-VLA Harvard | Two nuclear starburst galaxies. | 3.8,6,20 | 7 | 7.5 |
| AC285 | Carilli, C. van Gorkom, J. Womble, D. | NRAO-VLA Columbia Calif.-San Diego | HI of quasar-galaxy pair PHL 1226-IC 1746. | 20 line | 27 | 10.0 |
| AD253 | de Pater, I. | Calif.-Berkeley | Jupiter's changing atmospheric morphology. | 1.3, 2, 3.8, 6 | 7, 11 | 13.0 |
| AD261 | Dulk, G. Bastian, T. Belkora, L. Lindsey, C. Roellig, T. | Colorado NRAO-VLA Colorado Hawaii NASA/Ames | Simultaneous sunspots and plage from the JCM1 and VLA. | 1.3, 2 | 18,20,22, 24, 26 w/BF3 | 25.0 |
| AE068 | Elias, N. | Pennsylvania | Detection of more serpentids. | 3.6, 6 | 26 | 7.0 |
| AE073 | Eales, S. Rawlings, S. Alexander, P. | Toronto (Canada) Cambridge Univ. MRAO (Manchester) | Search for HI around protogalaxy candidates 0902+34 and 1232+39. | 90 line | 24 | 12.1 |
| AF195 | Feigelson, E. Hertz, P. Brinkmann, W. Wielebinski, R. | Penn State NRL MPIFEP MPIFR | Survey of north Ecliptic pole region in support of ROSAT mission. | 20 | 1 | 15.0 |
| AF198 | Frail, D. Kulkarni, S. | NRAO-VLA Caltech | A possible PSR/SNR association. | 20 | 30 | 1.8 |
| AF207 | Fruchter, A. Goss, W. | Carnegie Inst. NRAO-VLA | Deep 6 cm images of Terzan 5 and NGC 6440. | 6 | 18, 25 | 12.0 |
| AG316 | Gorham, P. Kulkarni, S. Prince, T. | Caltech Caltech Caltech | Small-diameter sources from Clark Lake galactic plane survey. | 20 | 19 | 12.0 |
| AG318 | Gunn, J. Knapp, G. Athanassoula, E. Bosma, A. van Gorkom, J. | Princeton Princeton Observ. de Marseille Observ. de Marseille Columbia | Spiral structure and the disk/halo mass ratio. | 20 line | 20,21,22, 26 | 32.0 |
| AH295 | Habing, H. Goss, W. Winnberg, A. van Langevelde, H. | Leiden (Neth) NRAO-VLA Onsala (Sweden) Leiden (Neth) | Monitoring OH/IR stars at the galactic center. | 20 line | 26 | 2.0 |
| AH390 | Hjellming, R. Gehrz, R. Taylor, A. Seagquist, E. | NRAO-VLA Minnesota Calgary (Can) Toronto (Can) | Monitoring radio novae. | 3.8,6,20 | 31 | 6.0 |
| AH415 | Hankins, T. Kobulnicky, H. McKinnon, M. Rankin, J. | NMIMT/NRAO-VLA Iowa/NRAO NMIMT/NRAO-VLA Vermont | P-band polarimetry of PSR1702-19. | 90 | 29 | 2.0 |
| AH417 | Hibbard, J. van Gorkom, J. | Columbia Columbia | Interacting and merging galaxies. | 20 line | 10,12,17 | 27.0 |
| AI042 | Impey, C. Foltz, C. Weymann, R. Hewett, P. | Arizona MMT Observatory Carnegie Obs. IoA, Cambridge | The radio properties of optically selected quasars. | 3.8 | 27 w/BF2 | 20.0 |
| AJ191 | Jauncey, D. Jones, D. Meier, D. Murphy, D. Preston, R. | CSIRO (Sidney) JPL JPL JPL JPL | Monitoring possible Einstein ring 1830-211. | 3.6 | 14 | 1.0 |
| AJ195 | Jackson, J. Rieu, N. Ho, P. | MPIFR (Bonn) Paris (Meudon) Harvard | HC3N in the starburst galaxies M82 and IC342. | 3.8 line | 18, 25 | 20.0 |
| AK247 | Knapp, G. Bowers, P. Young, K. Phillips, T. | Princeton NRL Caltech Arecibo | Circumstellar envelopes of evolved stars. | 3.8 | 2, 27 | 14.5 |
| AK262 | Krishna, G. Kulkarni, V. | GMRT, TIFR GMRT, TIFR | Flux variability of nuclear cores in giant radio galaxies. | 6 | 1 | 3.0 |
| AK264 | Kundu, M. White, S. Gopalswamy, N. Schmahl, E. Golla, T. | Maryland Maryland Maryland Maryland Maryland | Simultaneous VLA and balloon-born X-ray solar flare studies. | 2, 6 | 6, 13 | 16.0 |
| AL216 | Leahy, D. | Calgary (Canada) | Sharpless regions S217 and S219. | 6, 20 | 12 | 2.0 |
| AL229 | La Franca, F. Cristiani, S. Gregorini, L. de Ruiter, H. Owen, F. | IRA (Bologna) Padua (Italy) Bologna (Italy) Bologna (Italy) NRAO-VLA | A complete sample of optically selected quasars. | 6 | 11 | 8.0 |

VLA UTILIZATION REPORT JANUARY 1991

| Program | Observer | Affiliation | Program Title | Bands cm | Obsv Date | Sched hrs |
|---------|--|---|---|---|-----------------------------------|---|
| AL230 | Lang, K. Willson, R. | Tufts Tufts | Solar activity during the max 91 campaign. | 2, 3.8, 20, 90 | 4, 11 | 14.0 |
| AM310 | Malkan, M. Baganoff, F. | UCLA UCLA | Variability of northern ecliptic pole active galactic nuclei. | 2,3,8,6 | 5,12,18 24, 31 | 6.0 |
| AM314 | McKinnon, M. | NMIMT/NRAO-VLA | Pulsar mode-switching and depolarization. | 20 | 4, 6 | 16.5 |
| AM316 | Migenes, V. Cohen, R. Wilson, T. Johnston, K. | NRAL/Jodrell Bank NRAL/Jodrell Bank MPIfR (Bonn) NRL | (3,2) transition of NH3 in star forming regions. | 1.3 | 5 | 10.0 |
| AO104 | Owen, F. White, R. | NRAO-VLA STScI | Completion of two radio surveys of Abell clusters. | 20 | 5,27,28 | 15.5 |
| AP197 | Partridge, B. Franceschini, A. | Haverford Padua (Italy) | Survey of galaxies in the CFA deep red- shift survey. | 20 | 15, 17 w/BB2 | 18.0 |
| AP198 | Patterson, R. Thuan, T. Schneider, S. | Virginia Virginia Massachusetts | HI distribution and kinematics of extreme dwarf galaxies. | 20 line | 15, 22 | 24.0 |
| AP202 | Puche, D. | NRAO-VLA | Study of dwarf galaxies in the Virgo low velocity cloud. | 20 line | 25 | 10.0 |
| AR226 | Rucinski, S. | York (Canada) | Three T Tauri stars. | 3.5,6,20 | 30, w/Move/Op | 5.5 |
| AR231 | Reid, M. Menten, K. | CfA CfA | "Light curves" for Mira variables. | 3.8 | 28 | 3.0 |
| AR235 | Rhee, G. | NMSU | High redshift galaxies; morphology of sources. | 2 | 17 | 3.0 |
| AR239 | Rawlings, S. Eales, S. | MRAO (Cambridge) Toronto (Canada) | High redshift galaxy candidates. | 3.5 | 5 | 3.5 |
| AS419 | Schneider, S. Schombert, J. Bothun, G. Knezek, P. | Massachusetts Michigan Michigan Massachusetts | The neutral hydrogen properties of LSB giants. | 20 line | 10,17,21, 22,24 w/BB2 & BF3 | 33.5 |
| AT108 | Terlevich, R. Brinks, E. Skillman, E. Terlevich, E. | RGO (Cambridge) NRAO-VLA Minnesota RGO | Seyfert galaxy NGC 1068. | 20 line | 6 | 6.0 |
| AT111 | Thorsett, S. Nice, D. Stinebring, D. Taylor, J. | Princeton Princeton Oberlin Princeton | The eclipsing binary millisecond pulsar in Terzan 5. | 20 | 12 w/AT112 | 14.0 |
| AT112 | Thorsett, S. Stinebring, D. Taylor, J. Hankins, T. | Princeton Oberlin Princeton NRAO-VLA | Timing fast pulsars at the VLA. | 20,90 | 12 w/AT111 | 14.0 |
| AT113 | Troland, T. Crutcher, D. Roberts, D. Goss, W. | Kentucky Illinois NRAO-VLA NRAO-VLA | New VLA Zeeman observations of Orion A, Orion B, and W3. | 20 line | 13,19,20 | 24.5 |
| AT122 | Torrelles, J.M. Gomez, J.F. Anglada, G. Estalella | IAA (Spain) CfA Barcelona (Spain) Barcelona (Spain) | Estimation of the H2O maser positions. | 1.3 line | 29 | 2.0 |
| AV182 | van Gorkom, J. Bothun, G. Impey, C. | Columbia Michigan Arizona | HI imaging of low surface brightness galaxies. | 20 line | 12 | 9.0 |
| AW230 | Wrobel, J. Unger, S. | NRAO-VLA RGO (Cambridge) | Monitoring of the Seyfert NGC 5548. | 3.5 | 4 | 1.0 |
| AW249 | Wills, B. Shastri, P. | Texas Texas | Core variability in lobe-dominated quasars. | 6 | 23 w/BF3 | 10.1 |
| AW266 | Warwick, R. McHardy, I. Lehto, H. | Leicester (UK) Southampton (UK) Southampton (UK) | Medium sensitivity survey at 20cm in support of ROSAT observations. | 20 | 3 | 10.6 |
| AW268 | White, R. Becker, R. Wachter, S. van Breugel, W. | STScI Calif.-Davis Calif.-Davis Lawrence Livermore | Population studies of extragalactic flat-spectrum radio sources. | 20 | 31 | 4.5 |
| AY037 | Yusef-Zadeh, F. Cornwell, T. | Northwestern NRAO-VLA | HH-like streamers in Orion. | 3.8, 6 | 14 | 10.0 |
| AZ044 | Zhao, J. Ekers, R. Goss, W. Lo, K. Narayan, R. | NRAO-VLA AT (Australia) NRAO-VLA Illinois Steward | Flux density variations caused by RISS in Sgr A. | 3.8,6,20 | 20 | 1.5 |
| AZ046 | Zwarthoed, G. Penninx, W. | Amsterdam (Neth) Amsterdam (Neth) | Four unclassified low mass x-ray binaries. | 6 | 20 | 1.5 |
| BB2 | Benson, J. | NRAO-CV | The apparent structure of Sgr A*. | w/AP197, AS419 | 17 | 9.4 |
| BF3 | Fiedler, R. | NRL | Observations of Cygnus X-3. | w/A1042, tests,AW249,AM310, AA114,AS419 | 24,28 | 22.7 |
| | NRAO Staff | | Baselines, Pointing, Delays Electronics, etc. Move/Operations New Year Software Test Standard Field | | | 47.5 46.9 21.4 16.2 46.9 22.6 0.0 |

VLA UTILIZATION REPORT JANUARY 1991

The average downtime for the month of January, 1991 was 4.87%.

The array was schedule 97.8% (729.9 hours) of the time: 73.8% (550.3 hours) to astronomical programs, 11.5% (85.9 hours) to scheduled test/calibration, and the remaining 12.6% (93.8 hours) went to scheduled maintenance.

The array was in the C configuration from January 1 through January 29
C/D configuration from January 29 through January 31

The total number of programs run for the month of January, 1991 was 56.

The following independent proposals shared simultaneous observing time (54.4 hours total simultaneous observing):

| <u>Projects</u> | <u>Hours</u> |
|-----------------|--------------|
| AP197/BB2 | 7.3 |
| AR226/Move/Op | 5.3 |
| AS419/BB2 | 2.1 |
| AT111/AT112 | 14.0 |
| BF3/AA114 | 1.0 |
| BF3/AD261 | 5.0 |
| BF3/AI042 | 12.3 |
| BF3/AM310 | 1.0 |
| BF3/AS419 | 3.0 |
| BF3/AW249 | 0.2 |
| BF3/Tests | 0.1 |
| Tests/Move/Op | 3.0 |