

VLA UTILIZATION DECEMBER 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AA-63	Appleton, P. van Gorkom, J. Chigo, F.	Iowa State NRAO-VLA Minnesota	H I observations of Apr 143 (NGC 2445/4) and NGC 2793.	20 line	1,3	16
AB-324	Struck-Marcell, C. Blaha, C. Pedelty, J. Dickey, J.	Iowa State Minnesota Minnesota Minnesota	Hot spot nuclei.	2 and 20	8	7
AB-360	Kennicutt, R. Burns, J. Eilek, J. Christiansen, W. Clarke, D.	Minnesota New Mexico MIMI North Carolina New Mexico	Polarization mapping of the turbulent lobes in 0816+526.	2	20,27	17
AB-396	Braun, R. Walterbos, R. Brinks, E.	NRAO-VLA Leiden ESO, Garching	Interstellar medium of M31.	20 line	7,14	24
AB-412	Broderick, J. Condon, J.	VPI & SU NRAO-CV	Radio identification of UGC galaxies.	20	4	8
AB-414	Becker, R. White, R.	Calif, Davis STScI	Monitoring flux of HD 193793 and P Cygni.	2 and 6	24	1.5
AB-419	Braun, R. Liszt, H.	NRAO-VLA NRAO-CV	Wide-field imaging of four galactic H I region complexes.	20	18	7
AC-149	Clarke, D. Burns, J. Norman, M. Christiansen, W. Cawthorne, T.	New Mexico New Mexico LANL North Carolina Glasgow	Search for active magnetic field effects in extragalactic sources.	6	19	6
AC-165			Spectral studies of 3C280.1.	2	12	4.4
AC-166	Carilli, C. Dreher, J. Perley, R.	MIT MIT NRAO-VLA	Further studies of Cygnus A.	1.3,2, 20,90	1	14
AC-176	Crane, P. Dahari, O. Ford, H. Jacoby, G. Ciardullo, R.	NRAO-VLA STScI STScI NOAO STScI	Anomalous spiral arms of NGC 4258.	6 and 20	16	8
AD-181	de Pater, I. Dickel, J.	Calif, Berkeley Illinois	Saturn.	2	13	9
AD-188	Drake, S. Simon, T. Florkowski, D. Stencel, R. Bookbinder, J. Linsky, J.	NASA-Goddard Hawaii USNO Colorado Colorado Colorado	Variability of emission in three M supergiants: Alpha Ori, Alpha Sco A, and Alpha 1 Her.	2 and 6	15	1
AD-189	Dewdney, P. Roger, R.	DRAO Texas	H I near compact H II regions.	20 line	12,15	18
AE-48	Evans, N. Kutner, M. Mundy, L.	Texas Rensselaer Caltech	Embedded continuum sources in the S140 molecular cloud.	6	5	1.9
AE-50	Ekers, R. Morris, M. Yusef-Zadeh, F.	NRAO-VLA Calif, Los Angeles Columbia	Sgr A West.	1.3 and 2	28	7.5
AF-115	Fiegelson, E. Schwartz, D. Majelski, G.	Penn State CFA	Radio structures of X-ray BL Lac objects.	20	12	11
AF-128	Fiedler, R. Dennison, B. Johnston, K.	NRL VPI & SU NRL	Search for refractive scintillation in CTA 26.	20 and 90	12,31	2.5

VLA UTILIZATION DECEMBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AF-133	Fich, M.	Washington	The unusual object S266.	6	23	4
AG-224	Gaume, R. Mutel, R.	Michigan Iowa	Evidence of supernova induced star formation?	20 line	8	1
AG-227	Gwinn, C. Linfield, R.	CFA JPL	VLB1 millisecond pulsar astrometry.	18 phased array MK III VLB	6	7.8
AG-230	Ma, C. Gottesman, S. Hunter, J. Hawarden, T.	NASA/Goddard Florida Florida Royal Obs	Peculiar ellipsoidal galaxy NGC 660.	21 line	11	8.5
AG-232	Gottesman, S. Hunter, J. Erickson, L.	Florida Florida Florida	HI observations of NGC 3893 and NGC 4111.	20 line	6,7	24 w/AG233
AG-233	Gottesman, S. Hunter, J. Erickson, L.	Florida Florida Florida	HI observations of NGC 4258 and NGC 4303.	20 line	6,7	24 w/AG232
AH-227	Hjellming, R.	NRAO/VLA	1741-038: a rapid "scintillator".	1.3, 2, 6, 20 and 90	8, 23	2
AH-242	Henkel, C. Mauersberger, R. Wilson, T. Wadiak, E. Malmsley, C. Johnston, K.	MPIR, Bonn MPIR, Bonn MPIR, Bonn NRAO-CV MPIR, Bonn NRL	The 15NH3 maser and the velocity of the ionized gas toward NGC 7538 - IRS1.	1.3 line	31	8
AH-245	Hankins, T. Horton, E.	Dartmouth Dartmouth	Measurements of the Crab pulsar average profile.	6	10, 12, 14	9.1
AH-246	Hummel, E. Harnett, J. Beck, R. Larssen, N.	MPIR, Bonn Sydney MPIR, Bonn MPIR, Bonn	Search for linearly polarized emission in four spiral galaxies.	20	21	18.5
AH-248	Hummel, E. Grave, R. Krause, M. Beck, R.	MPIR, Bonn MPIR, Bonn MPIR, Bonn MPIR, Bonn	High resolution polarization observations of IC 342.	20	19	8
AH-250	Helfand, D. Becker, R.	Columbia Calif, Davis	A 327 MHz survey of the galactic plane: test fields.	90	27	10
AH-254	Hjellming, R. Gehrz, R. Taylor, A. Sequist, E.	NRAO/VLA Minnesota Groningen Toronto	Three pre-87 and bright 87 novae to complement extensive infrared	1.3, 2, 6 and 20	9, 20, 23	4.5
AJ-135	Johnston, K. Bowers, P. Florkowski, D. de Veigt, C. Lestrade, J.	NRL USNO Hamburger Sternwarte Bureau des Longitudes	Hipparcos reference stars.	6	18	19
AK-140	Katley, W. Elston, R.	Steward Obs Steward Obs	Search for supernova remnants near the nucleus of M33.	20	13	8
AK-150	Kundu, M. Jackson, P. White, S.	Maryland Maryland Maryland	Complete sample of nearby flare stars.	6 and 20	4	0.7
AL-111	Lake, G. Schommer, R. Van Gorkom, J.	Bell Labs Rutgers NRAO-VLA	The rotation curve of NGC 5666.	20 line	30, 31	17
AL-112	Lake, G. Schommer, R. Van Gorkom, J.	Bell Labs Rutgers NRAO-VLA	Rotation curves of dwarf galaxies.	20 line	24	8

VLA UTILIZATION DECEMBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AL-130	Lehto, H. Heeschen, D. Seielstad, G. Valtonen, M. Saslaw, W.	Virginia NRAO-CV NRAO-CB Turku Virginia	Simultaneous observations of OJ287.	1.3 and 2	16,30	17.5
AM-189	Miley, G. Chambers, K. Van Breugel, W.	STScI Johns Hopkins Calif., Berkeley	Study of ultra-steep spectrum radio sources.	2 and 6	11,20	24.5
AN-41	Nakai, N. Tsuboi, M. Inoue, M. Morimoto, M. Miyamoto, M. Yoshizawa, M.	Nobeyama Nobeyama Nobeyama Nobeyama Tokyo Obs Tokyo Obs	Linkage of optical reference frame with radio reference frame by use of H2O Maser stars.	1.3 line	1	8.5
AO-77	O'Dea, C. Owen, F.	NRAO-CV NRAO-VLA	Brightest cluster members in Abell clusters.	20	23	3
AP-123	Pedlar, A. Anantharamaiah, K. Van Gorkom, J. Ekers, R.	NRAL NRAO-VLA NRAO-VLA NRAO-VLA	Continuum and recombination line observations of the galactic center.	90	26	9
AP-124	Puxley, P. Hawarden, T. Mountain, C. Leggett, S.	Edinburgh Royal Obs Royal Obs Edinburgh	Circumnuclear star formation in barred spiral galaxies.	6	4	6.5
AP-125	Pottasch, S. Zijlstra, A. Biggeli, R.	Groningen NRAO-VLA NRAO-VLA	Spatial distribution of planetary nebulae near the galactic center.	6	11	7.5
AR-131	Rodriguez, L. Torrelles, J. Canto, J. Curiel, S. Ho, P. Praydo, S.	UNAM UNAM UNAM UNAM CFA JPL	Multiconfiguration mapping of the Herbig-Haro 1 and 2 region.	6	8	9
AS-80	Sramek, R. van der Hulst, J. Weller, K.	NRAO-VLA NRA NRL	Supernova SN1980 in NGC 6946 and SN1979c in M100.	2,6,20	15,23	4
AS-211	Sramek, R. Weller, K. van der Hulst, J. Panagia, N.	NRAO-VLA NRL NRA STScI	Statistical properties of radio supernovae.	2,6,20	3,5	3
AS-263	Subrahmanyan, R. Gopal-Krishna Swarup, G. Thum, C.	TIFR TIFR TIFR IRAM, Granada	Orion A.	90	11	1
AS-276	Subrahmanyan, R. Swarup, G.	TIFR TIFR	Search for protoclusters at $z = 3.35$.	90 line	22	10
AS-278	Staveley-Smith, L. Axon, D. Davies, R.	NRAL NRAL NRAL	HI observations of the dwarf irregular galaxy MAl-017.	21 line	28	10
AS-279	Hurlley, S. Schmidt, E. Kundu, M. White, S.	Manchester Maryland Maryland Maryland	The emergence of new solar cycle bipolar regions.	2,6,20	4,5	16.9
AT-78	Turner, J. Ho, P.	UCIA CFA	Spectral index maps of Brackett line galaxies.	2	26	14
AV-96	Beck, S. van der Hulst, J. Sramek, R. Weiler, K.	Northeastern NRAO-VLA NRAO-VLA NRL	Radio supernova in NGC 4258.	6 and 20	15	2

VLA UTILIZATION DECEMBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AV-127	van Breugel, W. McCarthy, P. Heckman, T. Miley, G.	Calif, Berkeley Calif, Berkeley Maryland STSCI	Three radio galaxies with extended line emission.	21	2	5.5
AW-48	Wade, C. Johnston, K. Seidelmann, P. Kaplan, G.	NRAO-VLA NRL USNO USNO	Astrometric observations of minor planets.	2	26, 29	9
AW-137	Wrobel, J. Heeschen, D. Willis, B.	NM/MT NRAO-CV Texas	Survey of a volume-limited sample of bright E/SO galaxies. Radio beaming and quasar emission lines.	6	14 8, 15	10 9
AW-142	White, R. L. Becker, R. Zensus, A. Cohen, M. H. Readhead, A. JPL	STSci Calif, Davis Caltech Caltech Caltech	Spectra of point sources near Lk H alpha 101. Radio galaxies 3C123 and 3C303.	2 and 6	5 8, 10	6.5 6
AW-167	NRAO Staff		Tests Base lines/Startup/Shutdown/Pointing Electronics/etc. Software Holiday Standard Field Observations General Tests	4	16	4 56.0 57.9 20.2 32.0 12.0 53.5

The average downtime for the month of December, 1986 was approximately 4.06 percent.

Average downtime of operational antennas = $\frac{\text{Total number of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}}$ x 100

where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 95.7 percent (714.0 hours) of the time: 68.9 percent (514.3 hours) to astronomical programs, 16.3 percent (121.6 hours) to scheduled test/calibration, and the remaining 10.5 percent (78.1 hours) went to scheduled maintenance.

The total number of programs run for the month of December, 1986 was 58.

The following independent proposals shared simultaneous observing time (24 hours Total Simultaneous Observing):

AG232/AG233 24.0

VLA UTILIZATION NOVEMBER 1985

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AA-62	Anantharamiah, K.	NRAO-VLA	Recombination line and continuum towards W44.	20 and 90 line	3	8.5
AB-129	Burke, B. Hewitt, J.	MIT	Monitoring time variations in 0957+561.	6	12	2
AB-387	Roberts, D.	Brandeis	Composite remnant G24.7+0.6.	90	15	4
AB-400	Becker, R. Helfand, D.	Calif, Davis Columbia	HI and continuum of blue compact dwarf galaxies.	6	12	2
AB-412	Brinks, E. Klein, U. Weiland, H.	ESO MPIR, Bonn MPIR, Bonn VPI & SU	Radio identification of UGC galaxies.	20	26	10
AB-414	Broderick, J. Condon, J.	NRAO-CV	Monitoring flux of HD 193793 and P Cygni.	2 and 6	20	2
AB-417	Becker, R. White, R.	Calif, Davis STScI	Spectra of IRAS radio quiet quasars.	6 and 20	7	5
AB-418	Barvainis, R. Antonucci, R.	NRAO-CV STScI	Rotation curves of early type spirals.	20 line	1	4.5
AB-419	Bosma, A. Athanasoula, E.	Marseille Marseille	Wide-field imaging of four galactic HI region complexes.	20	2,10	26
AC-1146	Braun, R. Liszt, H.	NRAO-VLA NRAO-CV	High dynamic range mapping of Orion A.	6 and 20	8	10
AC-163	Churchwell, E. Felli, M. Massi, M.	Wisconsin Arceetri Arceetri	Radio jets and the emission line regions of active galaxies.	6	8	12.5
AC-168	Crane, P. Danari, O. Ford, H.	NRAO-VLA STScI STScI	Search for late-type disk galaxies with extended HI envelopes.	20 line	7,13	5.5
AC-173	Jacoby, G. Ciardullo, R. Casertano, S. van Gorkom, J.	STScI Princeton NRAO-VLA	Search for late-type disk galaxies with extended HI envelopes. PKS 2149-158, a binary radio jet system.	6, 18 and 21	1,6	16
AC-174	Cameron, R. Parma, P. de Ruiter, H.	Mt. Stromlo Bologna Bologna	Complementary VLA/Merlin observations of 3C179.	2	29	3
AD-182	Conway, J. Wilkinson, P. Cornwell, T.	NRAO-VLA NRAO-VLA	Interacting elliptical-irregular galaxy pairs.	6	11,13	20
AD-188	Dahari, O. Brosch, N. Drake, S. Simon, T. Florkowski, D. Stencel, R. Bookbinder, J.	STScI Wise Obs NASA-Goddard Hawaii USNO Colorado Colorado Colorado	Variability of emission in three M supergiants: Alpha Ori, Alpha Sco A, and Alpha 1 Her.	2 and 6	17	1.5 w/VSS64
AF-123	Linsky, J. Fomalont, E. Sanders, W.	NRAO-CV New Mexico State	Stellar radio luminosity function.	6	11,15 w/VZ13	6 Move/OP
AF-128	Fiedler, R. Dennison, B. Johnston, K.	NRL VPI & SU NRL	Search for refractive scintillation in CTA 26.	20 and 90	1,17	2.5
AF-132	Fischer, J. Rickard, L.	NRL NRL	Search for central driving source in Lynds 1592/93 and three others with similar morphology.	6	29	4

VLA UTILIZATION NOVEMBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AG-145	Geldzahler, B. Schwartz, P. Ade, P. Robson, E. Nolt, I. Smith, M.	NRL NRL Queen Mary Coll Queen Mary Coll Preston Polytech Oregon Royal Obs	Simultaneous multifrequency observations of blazars.	1.3, 2, 6, 20 and 90	14, 15, 17	4.5 w/VL39, VS64
AG-220	Garrington, S. Conway, R. Leahy, J. Laing, R.	NRAL NRAL NRAL RCO	Depolarization asymmetries and jet sidedness.	6	3, 17	9.2
AG-226	Gunn, J. Knapp, G. Van Gorkom, J. Gregorini, L.	Princeton Princeton NRAO-VLA Bologna	Measurement of the thickness of HI disks in the edge-on spiral galaxies NGC 891, 4565 and 7814. Sample of dust lane galaxies observed at infrared wavelengths. 1741-038: a rapid "scintillator".	20 line 6	19, 21	28.1 w/VL39, VS51, VA11
AH-227	Hjelming, R.	NRAO/VLA		1.3, 2, 6, 20 and 90	11	1
AH-240	Habbal, S. Withbroe, G. Gonzalez, R.	CFA CFA NRAO-VLA	Spatial and temporal variations in solar coronal bright point emission.	2, 6 and 20	1, 2	16
AH-244	Huang, Y. Claussen, M.	Massachusetts Massachusetts	Search for remnants of three possible historical supernovae.	2, 6 and 20	14	10
AH-247	Hummel, E. Dettmar, R. Bajaja, E. Wielebinski, R.	MPIR, Bonn Bonn Ins Rad, Argentina MPIR, Bonn	Large and small scale structures structure of M104.	20	29	6 w/VB73
AK-150	Kundu, M. Jackson, P. White, S.	Maryland Maryland Maryland	Complete sample of nearby flare stars.	6 and 20	22	1.7
AK-157	Kutner, M. Mead, K. Evans, N.	Rensselaer Rensselaer Texas	HI regions in outer galaxy molecular clouds.	20	28	8.5
AK-158	Kogut, A. Smoot, G. Petuchowski, S. Bennett, C.	Calif, Berkeley Calif, Berkeley NASA-Goddard NASA-Goddard	Formaldehyde absorption in W51.	6 line	8	8
AL-112	Lake, G. Schommer, R. van Gorkom, J.	Bell Labs Rutgers NRAO-VLA	Rotation curves of dwarf galaxies.	20 line	11, 15, 16, 17, 20, 28	50.5 w/VZ13, VD12, VS64, VS67
AL-113	Leahy, J.	NRAL		6	5	15 w/AL113
AL-124	Leahy, J. Muxlow, T. Stephens, P. Morrison, I.	NRAL NRAO NRAO NRAO	Faraday rotation and depolarization in classical double radio sources. Spectral mapping of classical doubles.	6	5	15 w/AL124
AL-128	Lang, K. Willson, R.	Tufts Tufts	Simultaneous VLA/IME observations of RS CVn stars.	6 and 20	2, 3	16
AM-187	Maccacaro, T. Gioia, I. Wolter, A. Morris, S. Stocke, J.	CFA CFA CFA Steward Obs Colorado	Extragalactic component of the Expanded Medium Sensitivity Survey.	6	9	24
AN-41	Nakai, N. Tsuboi, M. Inoue, M. Morimoto, M. Miyamoto, M. Yoshizawa, M.	Nobeyama Nobeyama Nobeyama Nobeyama Tokyo Obs Tokyo Obs	Linkage of optical reference frame with radio reference frame by use of H2O Maser stars.	1.3 line	30	15.5

VLA UTILIZATION NOVEMBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AO-62	O'Donoghue, A. Owen, F. Eilek, J.	NRAO-VLA NRAO-VLA MMIMI	Wide angle tail sources.	20	29	1
AO-75	Odegard, N. Seagquist, E. O'Dea, C.	Toronto Toronto NRAO-CV	Polarization mapping of the galaxy NGC 3631. Brightest cluster members in Abell clusters.	6 20	24 29	12 18
AO-108	Phillips, J. Mambaso, A.	Queen Mary Coll IAC, Tenerife	Core mapping of post-main-sequence binaries.	2,6,20	28	2.5
AP-114	Pederty, J. Rudnick, L. Spinrad, H. van Breugel, W.	Minnesota Calif, Berkeley Calif, Berkeley	Extended extranuclear emission-line gas in 3C337.	2	7	8
AP-125	Pottasch, S. Zijlstra, A. Bignelli, R.	Groningen NRAO-VLA NRAO-VLA	Spatial distribution of planetary nebulae near the galactic center.	6	14	7
AR-154	Rucinski, S.	Toronto	Coronal radio emission of late A/early F-type dwarfs.	2,6,20	2	3.5
AS-211	Sramek, R. Weiler, K. van der Hulst, J.	NRAO-VLA NRL NRA	Statistical properties of radio supernovae.	2,6,20	26	1.5
AS-273	Panagia, N. Staveley-Smith, L. Chapman, J. Unger, S. Feast, M.	STSCI NRAO-VLA NRAO-VLA NRAO-VLA SAAO	The peculiar IRAS source 0937+1212.	2,6,20	19	3
AS-277	Snell, R. Strom, S. Strom, K. Morgan, J. Bally, J. Cambell, B.	Massachusetts Massachusetts Massachusetts Massachusetts Bell Labs Mt Wilson	Continuum emission from young stellar objects in Orion.	6	15	10 w/Move/Op, VZ13
AS-278	Staveley-Smith, L. Axon, D. Davies, R. Hurley, S.	NRAO-VLA NRAO-VLA NRAO-VLA Manchester	HI observations of the emission line galaxy MCG-160.	21 line	25	10 w/VZ14, VM42
AS-292	Simon, M.	SUNY	A peculiar IRAS galaxy.	2,6,20	12	0.8
AT-64	Taylor, A. Pottasch, S. Seagquist, E.	Groningen Groningen Toronto	Monitoring nova Vulpeculae 1984 no. 2.	2	11	4
AW-48	Wade, C. Johnston, K. Seidelmann, P. Kaplan, G.	NRAO-VLA NRL USNO USNO USNO	Astrometric observations of minor planets.	2	9	4.5
AW-157	Williams, B. van Gorkom, J.	North Carolina NRAO-VLA	HI study of 2 compact groups of galaxies.	20 line	12	8
AW-170	Weinberg, D. Guhathakurta, P. van Gorkom, J.	Princeton Princeton NRAO-VLA	HI rotation curve of UGC 12591.	20 line	16,20,24	27.5 w/VD12, VS67, V8652
VA-11	Alef, W.	NRAO-VLA MPIR, Bonn	3C390.3 and 3C11.	6 cm VLB	21,22	22.5 w/AG226, VB74, tests
VB-73	Backer, D. Wright, M. Plambeck, R. van Breugel, W. Marr, J. Readhead, A.	Calif, Berkeley Calif, Berkeley Calif, Berkeley Calif, Berkeley Calif, Berkeley Calif, Berkeley	NGC 1275 = 3C84.	1.3 cm three antenna VLB	14	10.9 w/AP125, AH244

VLA UTILIZATION NOVEMBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
VB-74	Barthel, P. Pearson, T. Readhead, A.	Caltech Caltech Caltech	Third-epoch observations of a complete sample.	6 cm phased array MK 11 VLB	22, 23	38 w/VA11
VD-12	Diamond, P. Nyman, L.	MPIR, Bonn Goddard Inst	Proper motion of masers in W43.	1.3 cm three antenna VLB	16	11.5 w/AL112, AW170
VG-51	Gurvits, L. Kardashev, N. Popov, M. Schilizzi, R. Pauliny-Toth, I. Kellerman, K.	Space Research Inst Space Research Inst Space Research Inst NFA MPIR, Bonn NRAO-CV	Radio structure of quasars with Z greater than three.	6 cm phased array MK 111 VLB	21	9.5
VL-39	Linfield, R. Porcas, R.	JPL MPIR, Bonn	Mapping the core of Cygnus A.	6 cm phased array MK 111 VLB	19	10.4
VL-44	Lestrade, J. Preston, R. Mutel, R. Niell, A.	Bureau de Longitudes JPL Iowa JPL	Astrometry of Cyg X1 and determination of component masses.	6 cm phased array MK 111 VLB	19, 20, 22, 23	9.3 w/V567
VS-64	Spencer, J.	NRL	M87.	1.3 cm three antenna VLB	17	9.6 w/AG145, AD188, AL112
VS-67	Simon, R.	NRL	3C395	6 cm single antenna VLB	20	9.5 w/AW170, VL44
VW-42	Walker, R. Seielstad, G. Unwin, S. Cohen, M.	NRAO-VLA NRAO-GB Caltech Caltech	Monitoring 3C120.	6 cm single antenna VLB	25	12.5 w/AS278, AB412, tests
VZ-13	Zensus, A. Biretta, J. Unwin, S. Cohen, M. Baath, L.	Caltech CFA Caltech Caltech Onsala	3C273, 3C345.	1.3 cm three antenna VLB	15, 16 w/AL112, AG145, AF123, AB387, AS277	18
VZ-14	Zensus, A. Cohen, M. Unwin, S. Biretta, J.	Caltech Caltech Caltech CFA	3C273, 3C345.	6 cm single antenna VLB	25	12.9 w/AO75, AS278, tests
V8652	Pauliny-Toth, I.	MPIR, Bonn	3C454.3.	6 cm single antenna VLB	24	11 w/AW170, AO75, tests
	JPL NRAO Staff		Tests w/V8652, VZ14 Baselines/Startup/Shutdown/Pointing Electronics/etc. Holiday General Tests	4 24, 25	6.9 24, 25	50.2 41.3 24.2 24.0 39.8

VLA UTILIZATION NOVEMBER 1986 (Cont.)

The average downtime for the month of November, 1986 was approximately 3.49 percent.

Average downtime of operational antennas = $\frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}}$ x 100
 where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 96.7 percent (698.0 hours) of the time: 76.5 percent (552.1 hours) to astronomical programs, 11.1 percent (80.4 hours) to scheduled test/calibration, and the remaining 9.1 percent (65.5 hours) went to scheduled maintenance.

The total number of programs run for the month of November, 1986 was 65.

The following independent proposals shared simultaneous observing time (141.4 hours Total Simultaneous Observing):

AL113/AL124	15.0
AP125/VB73	1.5
AH244/VB73	9.4
AB387/VZ13	4.0
AG145/VZ13	1.0
AF123/VZ13	2.0
AF123/Move/Op	1.5
AS277/Move/Op	6.5
AS277/VZ13	3.5
AL112/VZ13	7.5
AL112/VD12	6.5
AM170/VD12	5.0
AG145/VS64	0.9
AD188/VS64	1.5
AL112/VS64	7.2
AL112/VS67	2.5
VL44/VS67	0.2
AB414/VS67	2.0
AM170/VS67	4.8
AG226/VA11	19.0
Tests/VA11	3.3
VB14/VA11	0.2
Tests/V8652	1.9
AM179/V8652	9.0
A075/V8652	0.1
A075/VZ14	6.8
Tests/VZ14	2.5
AS278/VZ14	3.6
AS278/VW42	6.4
Tests/VW42	3.5
AB412/VW42	2.6

VLA UTILIZATION OCTOBER 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AA-60	Ambruster, C. Bookbinder, J.	JILA JILA	Flare star EV Lac.	6 and 20	18, 19	7
AA-62	Anantharamaiah, K.	NRAO-VLA	Recombination line and continuum towards W44.	20 and 90 line	26	9
AB-339	Becker, R. H. Helfand, D.	Calif, Davis Columbia	Detailed studies of G5.3-1.0 and G357.7-0.1.	6 and 20	5	4
AB-343	Bosma, A. Carignan, C. Marcellin, M. Athanasoulas, E.	Obs Marseille Montreal Obs Marseille Obs Marseille	HI in the Sc III galaxy NGC 300.	20 line	14	6
AB-399	Becker, R. H. Helfand, D.	Calif, Davis Columbia	Two possible plerions.	6 and 20	17	8
AB-400	Brinks, E. Klein, U. Weiland, H.	ESO Univ Bonn Univ Bonn	HI and radio continuum observations of blue compact dwarf galaxies.	20 line	29	3
AB-403	Baum, S. Bridle, A. Heckman, T. Miley, G. van Breugel, W.	NRAO-CV NRAO-CV Maryland STScI Calif, Berkeley	3C98: a radio galaxy with associated extranuclear optical emission line gas.	6, 18 and 21	28	8
AB-405	Brown, A.	JILA/Colorado	Bipolar flow source IR87 and and other PMS radio sources in Corona Australis.	1.3, 2, 6 and 18	2, 3, 9	14.1
AB-407	Baily, J. Stark, A. Wilson, R. Yusef-Zadeh, F.	Bell Labs Bell Labs Bell Labs Columbia	Survey of 10 degrees near the galactic center.	6 and 20	11	8
AB-408	Bookbinder, J. Callault, J. Gary, D. Gampapa, M. Golub, L. Linsky, J. Gibson, D.	JILA/Colorado JILA/Colorado Caltech NOAO NOAO JILA/Colorado MMMT	A first epoch, volume-limited, multifrequency survey of M dwarf stars.	1.3, 2, 6 and 20	10, 11, 13	21
AB-414	Becker, R. H. White, R.	Calif, Davis STScI	Monitoring the radio flux of the radio stars HD193793 and P Cygni.	2 and 6	14	1.5
AB-417	Barvainis, R. Antonucci, R.	NRAO-CV STScI	Spectra of IRAS radio quiet quasars.	6 and 20	30	5
AB-418	Bosma, A. Athanasoulas, E.	Obs Marseille Princeton	Rotation curves of early type spirals.	20 line	27, 31	19.5
AC-168	Casertano, S. van Gorkom, J.	Princeton NRAO-VLA	Search for late-type disk galaxies with extended HI envelopes.	20 line	26	5
AC-170	Chance, D. Yusef-Zadeh, F.	STScI Columbia	Structural details of filamentary features in Orion nebula.	20	25	10
AC-172	Caganoff, S. Bicknell, G. Ekers, R.	Mt Stromlo Mt Stromlo NRAO-VLA	Relationship between optical and radio properties of powerful extragalactic radio sources.	6 and 20	4	20
AC-175	Clark, D. Burns, J. Feigelson, E.	New Mexico New Mexico Penn State	Inner lobes of Centaurus A.	18 and 20	3	4
AD-185	Dickel, H. Goss, W.	Illinois NRAO-VLA	An H2CO absorption and H76 alpha recombination line study of NGC 6334.	2 and 6 line	18, 19	16
AD-187	Drake, S. Linsky, J.	SASC Technologies JILA/Colorado	Properties and extent of emission in B-type magnetic Helium stars.	2, 6 and 20	9	6.5

VLA UTILIZATION OCTOBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AD-188	Drake, S. Simon, T. Florkowski, D. Stencel, R. Bookbinder, J. Linsky, J.	SASC Technologies Hawaii USNO Colorado JILA/Colorado JILA/Colorado	Variability of radio emission in three M supergiants: Alpha Ori, Alpha Sco A, and Alpha 1 Her.	2 and 6	11, 24, 31	6
AF-104	Felli, M. Massi, M. Persi, P. Ferrari-Toniolo, M.	Arceetri Arceetri IAS IAS	Star forming regions in NGC 6357.	2 and 6	16	6
AF-108	Fomation, E. Ekers, R. van Breugel, W.	NRAO-CV NRAO-VLA Calif, Berkeley	Fornax A.	20	7, 11, 12	18
AF-123	Fomation, E. Sanders, W.	NRAO-CV New Mexico State	Stellar radio luminosity function.	6	5, 14	14
AF-128	Feidler, R. Dennison, B. Johnston, K. Giotia, I.	NRL VPI & SU NRL CFA	Search for refractive scintillation in CTA 26.	20 and 90	14	1.5
AG-239	Gopal-Krishna	TIFR	CTD 93.	6	24	1
AG-240	Hjelming, R. Davis, R.	NRAO-VLA NRAL	Recurrent Nova RS Oph.	2 and 6	24	1
AH-195	Helfand, D. Becker, R. H. Zoonematkermani, S. Ho, P. Turner, J.	Columbia Calif, Davis Columbia CFA CFA	Field surrounding G12.0-0.1: a cluster of supernova remnants?	2, 6 and 20 20 line	20 12	3.5 w/move/Op 7
AH-211	Hjelming, R.	NRAO-VLA	HI synthesis mapping of NGC 253.	21 line	16	8.5
AH-227	Johnston, K. Bowers, P. Florkowski, D. de Veigt, C. Lestrade, J.	NRL NRL USNO Hamburger Sternwarte B. des Longitudes	1741-038: a rapid scintillator. Hipparcos reference stars.	1.3, 2, 6, 20 and 90 6	12, 25 19	2 4.5
AJ-135	Jorsater, S. van Moorsel, G. Lindblad, P.	ESO ST-ECF Stockholm Obs	High resolution HI study of the barred spiral galaxy NGC 1365.	20 line	6, 9	12
AJ-138	Jauncey, D. White, G. Savage, A. Condon, J.	CSIRO Royal Obs Royal Obs NRAO-CV	Positions of southern flat-spectrum sources.	6	1, 4	12.5
AJ-143	Johnston, K. Molnar, L. Mason, K. Reid, M. Hjellming, R.	NRL CFA Univ Coll London CFA NRAO-VLA	Coordinated observations of Cyg X-3.	1.3, 2, 6, 18, 20, 90	10, 23, 24, 25	35.5
AK-149	Knapp, G. Bowers, P.	Princeton NRL	Search for protoplanetary nebulae associated with OH/IR stars.	6	30	14
AK-150	Kundu, M. Jackson, P. White, S.	Maryland Maryland Maryland	Complete sample of nearby flare stars.	6 and 20	24	2.3
AK-151	Kundu, M. Jackson, P. White, S.	Maryland Maryland Maryland	Narrow band flares on red dwarf stars.	6 and 20	2	8.3
AL-127	Lang, K. Willson, R.	Tufts Tufts	Narrow band emission from the dwarf M flare stars: AD Leo.	6 and 20	6	7.5

VLA UTILIZATION OCTOBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AN-43	Neff, S. Joseph, R. Rickard, L. Johnston, K.	NASA-Goddard Imperial Coll NRL NRL	Merging galaxies.	2 and 6	18,19, 20	6
AO-76	O'Dea, C. Gregorini, L. Ferretti, L. Giovannini, G.	NRAO-CV Bologna Bologna Bologna	Complex radio emission in Abell 568.	6	30	5
AR-143	Rodriguez, L. Roth, M. Tapia, M.	UNAM UNAM UNAM	Compact HII region associated with GM24.	2 line	4	4
AR-149	Roberts, D. Lazzarin, A. Wardle, J. Dreher, J. Lehar, J. de Bruyn, A.	Brandeis Brandeis Brandeis MIT MIT NRAO	Rapid variability in OJ 287.	6	16,18	17.5
AR-152	Roeser, H. Perley, R.	MPI, Heidelberg NRAO-VLA	The hotspot in Pictor A.	2,6 and 20	2,3	9
AR-153	Rucinski, S. Sequist, E.	Toronto Toronto	Orbital phase dependence of emission from contact binary VW CEP.	2,6 and 20	20 w/Move/Ops	20
AR-154	Rucinski, S.	Toronto	Coronal emission of late A/ early F-type dwarfs.	2,6 and 20	20,22	8
AS-211	Sramek, R. Weiler, K. van der Hulst, J. Panagia, N.	NRAO-VLA NRL Westernbork SISCI	Statistical properties of radio supernovae.	2,6 and 20	11,16	6
AS-222	Savage, A. Smith, M. Condon, J.	Royal Obs Royal Obs NRAO-CV	Survey of QSO fields.	20	18	2
AS-262	Saripalli, L. Subrahmanya, C. Gopal-Krishna	TIFR CSIRO TIFR	Giant radio galaxy 0503-286.	6 and 20	19,20	12
AS-272	Saripalli, L.	TIFR	Five giant radio galaxies.	6,20 and 90	28,30	7.5
AS-274	Sequist, E. Henriksen, R. Bell, M.	Toronto Queen's NRC	Study of the galactic wind from M82.	20 and 90	31	12
AS-275	Odegard, N. Stine, P. Feigelson, E. Myers, P.	Toronto Penn State Penn State CFA	Search for continuum flares in windless pre-main sequence stars.	6	24	6
AT-60	Mathieu, R. Taylor, A. Sequist, E.	CFA Groningen Toronto	Radio-optical-UV monitoring of symbiotic stars.	1.3,2,6 and 20	13	12
AT-79	Kenyon, S. Tuan, T. Schneider, S. Loose, H.	SAO Virginia Virginia Gottigen	HI distribution and kinematics of Haro2, an extreme example of a star- forming young elliptical galaxy.	21 line	27	12
AU-23	Unger, S. Pedlar, A. Wolstencroft, R. Savage, A.	NRAL NRAL Royal Obs Royal Obs	Complete far-infrared selected sample of galaxies.	6 and 20	1,2, 3,9	24
AU-27	Leggett, S. Umama, G. Catalano, S. Gibson, D.	Royal Obs Catania Catania NMIMT	Survey of nearby Be stars.	2	22	18

VLA UTILIZATION OCTOBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AW-48	Wade, C. Johnston, K. Seidelmann, P.	NRAO-VLA NRL USNO	Astrometric observations of minor planets.	2 and 6	25	4
AW-160	Kaplan, G. Wootten, H.	USNO NRAO-CV	Search for ionized component in the L1689N Bipolar flow.	2 and 6	5	2
AY-15	Yusef-Zadeh, F. Morris, M. Selradakis, J. Lasenby, A. Weilebinski, R. Klein, J.	Columbia Calif, Los Angeles Thessaloniki MPAL MPIR, Bonn MPIR, Bonn	Polarized lobe near the galactic center below the plane.	6 and 20	6	7
	JPL NRAO Staff		Tests Baselines/Startup/Pointing Move/Operations Electronics/etc. Software General Tests	4	26.27	7

The average downtime for the month of October, 1986 was approximately 2.73 percent.

Average downtime of operational antennas = $\frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}} \times 100$

where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 100.0 percent (747.0 hours) of the time: 71.1 percent (531.0 hours) to astronomical programs, 18.7 percent (139.4 hours) to scheduled test/calibration, and the remaining 10.2 percent (76.6 hours) went to scheduled maintenance.

The total number of programs run for the month of October, 1986 was 58.

The following independent proposals shared simultaneous observing time (7.4 hours Total Simultaneous Observing):

- AH195/Move/Operations 2.1
- AR153/Move/Operations 5.3

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VLA UTILIZATION SEPTEMBER 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AA-58	Anantharamaiah, K. Baqri, D.	NRAO-VLA NRAO-VLA	Search for OD towards W49 and W3. Time variations in 0957+561.	90 cm line	6 11	2 6.5
AB-129	Burke, B. Hewitt, J. Roberts, D.	MIT MIT MIT		6	12	2
AB-357	Becker, R. White, R.	Calif, Davis STScI	Monitoring the radio flux of the radio star HD193793.	2,6,18 and 20	5	1.5
AB-376	Baum, S. Bridle, A. Heckman, T. Miley, G. van Breugel, W.	NRAO-CV NRAO-CV Maryland STScI Calif, Berkeley	Complete sample of equatorial extragalactic radio sources.			
AB-396	Braun, R. Walterbos, R. Brinks, E.	NRAO-VLA Leiden ESO	Interstellar medium of M31.	20 line	3,18, 19	36
AB-398	Burns, J. Moody, J. Zhao, J. Gregory, S.	New Mexico New Mexico New Mexico New Mexico	Survey of supergiant CD galaxies.	6	6,13	20
AB-400	Brinks, E. Klein, U. Weiland, H.	Univ-Bonn Univ-Bonn Chicago	HI and radio continuum observations of blue compact dwarf galaxies.	20 cm line	1	24
AB-406	Bookbinder, J. Lamb, D.	Chicago Chicago	Radio emission from AE Aqr.	6,20	21	11
AB-408	Bookbinder, J. Caillaud, J. Gary, D. Giampapa, M. Golub, L. Linsky, J. Gibson, D.	Colorado Colorado Caltech NOAO NOAO SAO Colorado	A first epoch, volume-limited, multifrequency survey of M dwarf stars.	1.3,2,6 and 20	17,22, 26	37.6 w/move, VM80
AC-149	Clarke, D. Burns, J. Norman, M. Christiansen, W.	New Mexico New Mexico Los Alamos North Carolina	Search for active magnetic field effects in extragalactic radio sources: 3C219 and 3C388.	6 and 20	6	15
AC-163	Crane, P. Dahari, O. Ford, H. Jacoby, G. Giardullo, R.	NRAO-VLA STScI STScI NOAO STScI	Radio jets and the emission-line regions of active galaxies.	20	4,8	12
AC-166	Carilli, C. Dreher, J. Perley, R.	MIT MIT NRAO-VLA	Further studies of Cygnus A.	1.3,20, 90	2,4	15.6
AC-170	Chance, D. Yusef-Zadeh, F.	STScI Columbia	Orion Nebula.	20	2	10.5
AD-160	de Pater, I.	Calif, Berkeley	Jupiter Patrol.	6,20	11,12	12.5
AD-180	Dickel, H. Goss, W.	Illinois NRAO-VLA	H2CO towards W 49A.	6 cm line	5	12
AD-182	Dahari, O. Brosch, N.	STScI Wise Obs	Interacting elliptical-irregular galaxy pairs.	2,6,20	25,26	11.5
AD-187	Drake, S. Linsky, J.	NASA-Goddard Colorado	B-type magnetic Helium stars.	2,6	11,12, 24	6
AD-188	Drake, S. Simon, T. Florkowski, D. Stencel, R. Bookbinder, J. Linsky, J.	NASA-Goddard Hawaii USNO Colorado Colorado Colorado	Long-term variability in M supergiants: Alpha Ori, Alpha Sco A, and Alpha 1 Her.			

VLA UTILIZATION SEPTEMBER 1986 (cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AF-128	Fiedler, R. Dennison, B. Johnston, K.	NRL VPI & State U NRL	Refractive scintillation in CTA 26.	20 and 90	16,28	2.5
AG-145	Geldzahler, B. Schwartz, P. Gear, W. Ade, P. Robson, E. Nolt, I. Smith, W.	NRL NRL Queen Mary Coll Queen Mary Coll Preston Polytech Oregon Royal Obs	Simultaneous multifrequency observations of blazars.	1.3,2,6, 20 and 90	27	4.5 w/VM80, VH18
AG-222	Gaume, R.	Michigan	Investigation into the nature of OH 340.78-0.10.	6 and 18 line	11	3.5
AG-224	Gaume, R. Mutel, R.	Michigan Iowa	Evidence of supernova induced star formation?	18 cm line	11	w/AG224 3.5
AH-227	Hjellming, R.	NRAO-VLA	1741-038: a rapid "scintillator".	2, 6, 20,90	4,20	w/AG222 2.5
AH-228	Henkel, C. Wilson, T. Mauersberger, R. Walmsley, M. Johnston, K.	MPIR, Bonn MPIR, Bonn MPIR, Bonn MPIR, Bonn NRL	Ammonia masers in hot molecular clouds.	1.3 cm line	20,23,	13
AH-231	Hummel, E. Jorsater, S. Lindblad, P. Sandqvist, A.	MPIR, Bonn ESO Stockholm Obs Stockholm Obs	Central region of NGC 613, a peculiar radio galaxy.	2 and 6	11	6
AH-240	Habbal, S. Withbroe, G. Gonzalez, R.	CFA CFA NRAO-VLA	Solar coronal bright point emission.	20,90	11,12	16
AJ-140	Jaffe, W. Owen, T. Caldwell, J.	Leiden SUNY SUNY	Thermal radiation from Titan.	2	8	10
AJ-141	Jauncey, D. White, G. Savage, A. Condon, J.	CSIRO Royal Obs Royal Obs NRAO-CV	Positions of southern flat- spectrum sources.	6	30	3
AJ-144	Jackson, P. Kundu, M.	Maryland Maryland	Survey of Hyades Cluster.	20	19,24, 30	14
AK-150	Jackson, P. White, S.	Maryland Maryland	Synoptic observations of a complete sample of nearby flare stars.	6 and 20	21	w/VM80 1
AK-152	Kundu, M. Jackson, P. White, S.	Maryland Maryland Maryland	Observations of narrowband flares on red dwarf stars.	6 and 20	18,26	10
AK-159	Kassim, N. Baum, S.	Maryland NRAO-CV	Two peculiar SNRs with evidence for steep spectrum components.	2,6,20 and 90	27	6.5 w/VH18
AM-180	Maslowski, J. Kellermann, K.	Jagellonian Univ NRAO-CV	Mapping MPJK weak sources.	6	7	20
AM-182	Masson, C.	Caltech	Expansion of planetary nebulae.	2,6	13,14	24
AM-190	Muhleman, D. Berge, G. Grossman, A.	Caltech Caltech Caltech	Saturn: properties of the atmosphere and rings.	2	30	9
AP-121	Pottasch, S. Zijlstra, A. Bignelli, R.	Groningen NRAO-VLA NRAO-VLA	Relationship between OH/IR stars and planetary nebulae.	2,6	16	2.5

VLA UTILIZATION SEPTEMBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AR-131	Rodriguez, L. Torreilles, J. Canto, J. Curiel, S. Ho, P. Praydo, S.	UNAM UNAM UNAM UNAM CFA CFA JPL	Herbig-Haro 1 and 2 region.	6,20	12,13	12
AR-147	Rucinski, S. Gibson, D.	David Dunlap Obs MIMI	Survey of evolved W Ursa Major's stars.	2,6,20	25	12
AS-80	Sramek, R. van der Hulst, J. Weller, K.	NRAO-VLA NRAO-VLA NRAO-VLA	Monitoring SNT1980 in NGC 6946 and SN 1979c in M100.	6,20	10,25	5
AS-211	Sramek, R. Weller, K. van der Hulst, J. Panagia, N.	NRAO-VLA NRAO-VLA NRAO-VLA STSCI	Statistical properties of radio supernovae.	2,6,20	20	3
AS-266	Skillman, E.	NRAO-VLA	A super-bubble in IC 10.	20	8	4
AT-64	Taylor, A. Pottasch, S. Seagquist, E.	Groningen Groningen Toronto	Monitoring Nova Vulpeculae 1984 No. 2.	2,6,20	18	3
AT-76	Taylor, A. Waters, L. Lamers, H.	Groningen LSR-Utrecht LSR-Utrecht	IRAS selected Be stars.	6	20,21	6
AU-25	Unger, S. Axon, D. Pedlar, A. Taylor, K. Wolstencroft, R.	NRAO-VLA NRAO-VLA NRAO-VLA NRAO-VLA NRAO-VLA	Gas ejection in the hotspot galaxy NGC 1808.	6,20 cm line	21,23	10.4
AV-96	van der Hulst, J. Sramek, R. Weller, K.	NRAO-VLA NRAO-VLA NRAO-VLA	Radio supernova in NGC 4258.	6,20	25	1.5
AV-163	Welch, D. Duric, N.	DAO British Columbia	Search for radio emission from Geheld variable stars.	6	1,8	5.5
VAH-48	Bartel, N. Unger, S.	CFA NRAO-VLA	Supernova in NGC 891.	18 VLB	28	2.5
VB-70	Barthel, P. Lonsdale, C.	Caltech Penn State	Hotspots in 3C205.	18 phased array	29	14
VH-18	Hodges, M. Mutel, R.	Caltech Iowa	Compact double DA344.	18 single antenna	27	11
VM-80	Marscher, A. Rickett, B. Padrielli, L. Romney, J. Bartel, N.	Boston Calif, San Diego Bologna NRAO-CV CFA	NRAO 140, a low frequency variable.	18 single antenna VLB	26,30 w/AB408, baselines, AG144, AG145, tests	14.5
VP-75	Phillips, R.	Haystack		18 phased array VLB	28	11.5
VS-65	Spangler, S. Mutel, R. Benson, J. Cordes, J. JPL	Iowa Iowa NRAO-CV Cornell	Interstellar scattering of 2013+370.	18 phased array VLB	29	8.7
			Tests	4	16	7.7

VLA UTILIZATION SEPTEMBER 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
	NRAO Staff		Baselines/Startup/Pointing			41.9
			P Band Calibrators			24.0
			Move/Operations			30.1
			Electronics/etc.			47.8
			Software			20.3
			Standard Field Observation			12.0
			General Tests			66.5

The average downtime for the month of September, 1986 was approximately 5.27 percent.

Average downtime of operational antennas = $\frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}} \times 100$

where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 100.0 percent (722.0 hours) of the time: 68.5 percent (494.5 hours) to astronomical programs, 22.1 percent (159.4 hours) to scheduled test/calibration, and the remaining 9.4 percent (68.1 hours) went to scheduled maintenance.

The total number of programs run for the month of September, 1986 was 52.

The following independent proposals shared simultaneous observing time (42.6 hours Total Simultaneous Observing):

P-band Calibrators/Move/Operations	6.0
AG224/AG222	3.5
AB408/Move/Operations	6.1
AB408/VM80	3.8
AM80/Baselines	5.0
AG145/AM80	1.0
VM80/Tests/Braun	0.7
VLB-Cal/Tests	0.5
VH18/Tests/Braun	1.8
VH18/Tests/Palmer	3.0
AG145/VH18	2.0
AK159/VH18	4.2
VLB-Cal/Tests/Crane	0.5
AJ144/VM80	4.0
AJ144/VM80	0.5

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VLA UTILIZATION AUGUST 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AA-57	Anantharamiah, K. Shaver, P. van Gorkom, J.	NRAO/VLA ESO Princeton	Search for redshifted recombination lines towards 3C286.	90 line	15,28	8
AB-340	de Bruyn, A. Becker, R. White, R.	Calif, Davis STScI	Scaled array observations of Lick H alpha 101.	20	1	1.5
AB-357	Becker, R. White, R.	Calif, Davis STScI	Monitoring the radio flux of the radio star HD193793.	6	23	1.5
AB-376	Baum, S. Bridle, A. Heckman, T. Miley, G. van Breugel, W.	NRAO/CV NRAO/CV Maryland STScI	Complete sample of equatorial extragalactic radio sources.	2,6,18 and 20	9,18	13.5
AB-389	Baum, S. Bridle, A. Heckman, T. Miley, G. van Breugel, W.	NRAO/CV NRAO/CV Maryland STScI	Multifrequency mapping of 1717-00 = 3C353.	2,6 and 20	14,15	20.5
AB-392	Branch, D. Cowan, J.	Oklahoma Oklahoma	Spectral index measurement of the radio source at the site of SN 1961V in NGC 1058.	6	13	12
AB-396	Braun, R. Walterbos, R. Brinks, E.	NRAO/VLA Leiden ESO	Interstellar medium of M31.	20 line	16-18, 22,23, 27,28	84.5
AB-401	Baum, S. O'Dea, C.	NRAO/CV NRAO/CV	Search for molecular gas in cluster accretion flows: OH absorption in NGC 1275.	20 line	16	6
AB-416	Brown, R.	NRAO/CV	Extended radio structure of 0235+164.	6,18 and 20	1,31	9
AC-138	Christiansen, W. Stoeker, J.	North Carolina Steward Obs	Study of helical jet in 3C436.	6 and 20	1	8.5
AC-149	Clarke, D. Burns, J. Norman, M. Christiansen, W.	New Mexico New Mexico Los Alamos North Carolina	Search for active magnetic field effects in extragalactic radio sources: 3C388.	6 and 20	30	9
AC-158	Cowan, J. Branch, D.	Oklahoma Oklahoma	Observations of the historical supernova 1959d in NGC 7331.	6	10	12
AC-169	Cordes, J. Clegg, A. Heiles, C. Kulkarni, S. Simonetti, J. Stevens, M.	Cornell Cornell Calif, Berkeley Caltech NRAO/CV Calif, Berkeley	Faraday rotation measure toward the inner galaxy.	20	8,11 w/Basel lines	22
AC-174	Conway, J. Wilkinson, P. Cornwell, T.	NRAO NRAO NRAO/VLA	Multifrequency synthesis of 3C179.	2 and 6	11	5
AC-175	Clarke, D. Burns, J. Feldelson, E.	New Mexico New Mexico Penn State	Multiconfiguration mapping of the inner lobes of Centaurus A.	18 and 20	11	4
AD-176	Davies, R. Hummel, E. Pedlar, A. van der Hulst, J. Wolstencroft, R.	NRAO MPI, Bonn NRAO/VLA NFRA Royal Obs	Nuclei of Sbc galaxies.	6	16	12

VLA UTILIZATION AUGUST 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AD-188	Drake, S. Simon, T. Florkowski, D. Stencel, R. Bookbinder, J. Linsky, J.	NASA-Goddard Hawaii USNO Colorado Colorado	Long-term variability in M supergiants: Alpha Ori, Alpha Sco A, and Alpha 1 Her.	2, 6	1, 14, 28	3.5
AE-47	Eales, S. Devereux, N.	Hawaii Hawaii	Observations of the 50 nearest starburst galaxies.	6 and 20	26, 27	8.5
AF-128	Fiedler, R. Dennison, B. Johnston, K.	NRL VPI & State U NRL	Search for refractive scintillation in CTA 26.	20 and 90	5, 20, 31	3
AG-181	Giovannini, G. Feretti, L.	Bologna Bologna	High resolution observation of NGC 4869.	6	30	3
AG-189	Glendenning, B. Kronberg, P.	Toronto Toronto	Peculiar spiral NGC 2146.	6 and 20	31	8
AG-220	Garrington, S. Conway, R. Leahy, J. Lainy, R.	NRAL NRAL NRAL RGO	Depolarization asymmetries and jet sidedness.	6 and 20	15	4
AG-226	Gunn, J. Knapp, G. van Gorkom, J.	Princeton Princeton Princeton	Measurement of the thickness of the HI disks in the edge-on spiral galaxies NGC 891, NGC 4565, NGC 7814.	20 cm line	20	48
AH-195	Hjellming, R. Davis, R.	NRAO/VLA NRAL	Recurrent Nova RS Oph.	1.3	10	2
AH-227	Hjellming, R.	NRAO/VLA	1741-038: a rapid "scintillator".	2, 6, 20, 90	19	1.5
AH-231	Hummel, E. Jorsater, S. Lindblad, P. Sandqvist, A.	MPIR, Bonn ESO Stockholm obs Stockholm obs	Central region of NGC 613, a peculiar radio source.	2 and 6	15	6
AH-236	Hughes, V. MacLeod, G.	Queen's Queen's	Star forming regions.	6	3	12
AI-24	Irwin, J. Sequist, E. Duric, N. Taylor, A.	Toronto Toronto British Columbia Groningen	Neutral hydrogen observations of NGC 3079.	21 cm line	2	12
AI-27	Israel, F. Skillman, E.	Leiden Obs NFFA	NGC 2403.	20	25	12
AI-28	Irwin, J. Sequist, E. Duric, N.	Toronto Toronto British Columbia	Four edge-on spiral galaxies.	20	1	14
AJ-135	Johnston, K. Bowers, P. Florkowski, D. de Veigt, C. Lestrade, J.	NRL NRL USNO Hamburger Sternwarte Bureau de Longitude	Hipparcos reference stars.	6	25	20
AJ-140	Jaffe, W. Owen, T. Caldwell, J.	Leiden SUNY SUNY	Thermal radiation from Titan.	2	31	10
AK-150	Kundu, M. Jackson, P. White, S.	Maryland Maryland Maryland	Nearby flare stars.	6 and 20	5	6
AK-153	Killeen, N. O'Dea, C. Bridle, A.	NRAO/CV NRAO/CV NRAO/CV	Extragalactic radio jets.	90	19	8
AK-154	Keto, E. Ho, P. Haschick, A.	Harvard CFA Haystack Obs	Temperature map of collapsing molecular core G10.6-0.4 at 0.01 pc resolution.	1.3 cm line	7	8

VLA UTILIZATION AUGUST 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AL-122	Leahy, D. Kwok, S.	Calgary Calgary	Einstein galactic plane X-ray sources.	20	2,5	11.5
AL-123	Langston, G. Carrilli, C. Burke, B.	MIT MIT MIT	Radio cluster 1355+083.	6,20,90	28	4.5
AL-126	Lang, K. Willson, R.	Tufts Tufts	Coordinated observations of the quiet sun.	2,6	23,24	20.5
AM-174	Miley, G. van Breugel, W. Chambers, K.	STScI Calif, Berkeley Johns Hopkins	Properties of ultra-steep- spectrum radio sources.	6	3	20
AO-62	O'Donoghue, A. Owen, F. Elek, J.	NMIMT NRAO NMIMT	Wide angle tail sources.	6	8,17	18
AO-72	Odegard, N. Seagquist, E.	Toronto Toronto	Polarization mapping of the galaxy NGC 3631.	20	10	12
AP-122	Pedlar, A. Perley, R. Crane, P. Davies, R.	NRAO/VLA NRAO/VLA NRAO/VLA NRAL	NGC 1275 (3C84, Perseus A).	90 cm line	29	12
AP-123	Pedlar, A. Anantharamaiah, K. van Gorkom, J. Ekers, R.	NRAO/VLA NRAO/VLA Princeton NRAO/VLA	Continuum and recombination line observations of the galactic center.	90	4	9
AS-211	Sramek, R. Weiler, K. van der Hulst, J. Panagia, N.	NRAO/VLA NRAO/VLA NRAO/VLA STScI	Statistical properties of radio supernovae.	2,6,20	11,19	4.5
AS-263	Subrahmanyam, R. Gopal-Krishna Swarup, G. Thum, C.	TIFR TIFR TIFR IRAM, Spain	Orion A and Orion B.	90	9	1
AT-74	Turner, J. Ho, P. Martin, R. Henkel, C.	CFA CFA Steward Obs MPLR, Bonn	Extragalactic H2O masers in NGC 253 and M51.	1.3 cm line	6,7,9	21.5
AT-75	Taylor, A. Seagquist, E. Bode, M.	Groningen Toronto Manchester	Radio and optical interferometry of symbiotic variables.	2,6,20	3	6
AT-77	Turner, E. Langston, G. Hewitt, J. Burke, B.	Princeton MIT MIT MIT	Gravitationally lensed pair of quasar images with a separation of 2.6 arcminutes.	6	7,8	16
AT-78	Turner, J. Ho, P.	CFA CFA	Spectral index maps of Brackett line galaxies.	6	5,10	8
AV-127	Beck, S. van Breugel, W. McCarthy, P. Heckman, T.	Northeastern Calif, Berkeley Calif, Berkeley Maryland	Three radio galaxies with extended emission line.	2,6,21	29	14
AW-158	Wood, D. Churchwell, E.	Wisconsin Wisconsin	Ultracompact HII regions.	1.3,2	5,6,9	12
AW-163	Weich, D. Duric, N.	DRAO British Columbia	Search for emission from cepheid variable stars.	6	31	0.5
AZ-30	Zijlstra, A. Biggell, R.	NRAO/VLA NRAO/VLA	Identification of a suspected radio galaxy.	20	26	1

VLA UTILIZATION AUGUST 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
JPL				4	24	4.7
NRAO Staff			Tests			51.5
			Baselines/Startup/Pointing			49.0
			Electronics/etc.			11.0
			Software			24.3
			General Tests			

The average downtime for the month of August, 1986 was approximately 4.69 percent.

Average downtime of = Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing / Total number of antenna-hours of operational antennas scheduled where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN

The array was scheduled 100.0 percent (746.0 hours) of the time: 81.5 percent (608.0 hours) to astronomical programs, 10.4 percent (78.0 hours) to scheduled test/calibration, and the remaining 8.1 percent (60.0 hours) went to scheduled maintenance.

The total number of programs run for the month of August, 1986 was 53.

The following independent proposals shared simultaneous observing time (5.0 hours Total Simultaneous Observing):

AC169/Baselines 5.0

860908PDH/ap

VLA UTILIZATION JULY 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AA-57	Anantharamiah, K. Shaver, P. van Gorkom, J.	NRAO/VLA ESO Princeton	Search for redshifted recombination lines towards 3C286.	90 line	27	4.5
AB-129	Burke, B. Hewitt, J. de Bruyn, A.	MIT MIT NRAO	Time variations in lensed quasar 0957+561.	6	20	2
AB-357	Becker, R. Roberts, D. White, R.	Brandeis Calif, Davis STScI	Monitoring radio flux of HD 193793.	6	23	2.5
AB-369	Browne, I. Bridle, A. Burns, J. Dreher, J. Hough, D. Laing, R. Owen, F. Readhead, A. Scheuer, P. Wardle, J. Lonsdale, C.	NRAO/CV New Mexico MIT Caltech RGO NRAO/VLA Caltech MRAO Brandeis Penn State	Sidedness of jets in high luminosity sources.	6	18	26 w/AB410
AB-387	Becker, R. Helfand, D. Bastian, T. Dulk, G.	Calif, Davis Columbia Colorado Colorado	Composite remnant G24.7+0.6. dme flare stars.	90 6,20 line	20 2	7 6
AB-394	Bookbinder, J.	JILA	Inner emission regions of HL Tau and XZ Tau.	2,6	25	4
AB-395	Brown, A. Drake, S. Mundt, R.	Colorado NASA-Goddard MPI-Heidelberg	Interstellar medium of M31.	20 line	25,26	24
AB-396	Braun, R. Walterbos, R. Brinks, E.	NRAO/VLA Leiden ESO		18,21	17	8
AB-403	Baum, S. Bridle, A. Heckman, T. Miley, G. van Breugel, W. Brown, A.	NRAO/CV NRAO/CV Maryland STScI Calif, Berkeley Colorado	3C98: A radio galaxy with associated extranuclear optical emission line gas.	2,6, 18	2,4	6
AB-405	Brown, A.	Colorado	Bipolar flow source IRS7 and other PMS radio sources in Corona Australis.	4	18	9.1
AB-410	Broderick, J. Condon, J. Jauncey, D. Nicolson, G. Preston, R.	VPI&SU NRAO/CV CSIRO Hartebeesthoek JPL	2300-189, a quasar with a well modeled jet.	single antenna VLB	18	w/AB369
AC-146	Churchwell, E. Felli, M. Massi, M.	Wisconsin Arcetri Arcetri	High dynamic range continuum mapping of Orion A.	2,6, 20	18,21	20
AC-153	Cooke, B. Porman, T. McHardy, I.	Leicester Birmingham Leicester	A source in the error box of the X-ray source GX349+2.	6,20	1,3	4
AC-164	Carilli, C. van Gorkom, J. Langston, G.	MIT Princeton MIT	Search for neutral hydrogen absorption along the line of sight to PKS2020-370.	20 line	7,8	12.5
AC-169	Cordes, J. Clegg, A. Heiles, C. Kulkarni, S. Simonetti, J. Stevens, M.	Cornell Cornell Calif, Berkeley Caltech NRAO/CV Calif, Berkeley	Faraday rotation measure toward the inner galaxy.	20	10	11 w/Move/Op

VLA UTILIZATION JULY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AC-171	Cameron, R. Bicknell, G. Ekers, R.	NRAO/VLA NRAO/VLA NRAO/VLA	Twin jet source PKS 2104-25.	90	3	7
AD-181	de Pater, I. Dickel, J.	Calif, Berkeley Illinois	Saturn.	6	17	9
AD-186	de Pater, I. Gulkis, S.	Calif, Berkeley JPL	Neptune	6,20	5,6	18
AD-187	Drake, S. Linsky, J.	NASA-Goddard Colorado	Radio emission in B-type magnetic helium stars.	2,6, 20	7	7
AD-188	Drake, S. Simon, T. Fiorowski, D. Stencel, R. Bookbinder, J. Linsky, J.	NASA-Goddard Hawaii USNO Colorado Colorado Colorado	Long-term variability in M supergiants: Alpha Ori, Alpha Sco A, and Alpha 1 Her.	2,6	3,13, 29,31	5.5
AF-125	Ferretti, L. Giovannini, G. Gregorini, L.	Bologna Bologna Bologna	The NAT galaxy in Abell 115.	6	23	1
AF-128	Fiedler, R. Dennison, B. Johnston, K.	NRL NRL NRL	Search for refractive scintillation in CTA 26.	20,90	13,28	2
AG-220	Garrington, S. Conway, R. Leahy, J. Laing, R.	NRL NRL NRL RCO	Depolarization asymmetries and jet sidedness.	20	15,21	12
AG-225	Garwood, R. Dickey, J. Perley, R.	Minnesota Minnesota NRAO/VLA	Continuum survey of the galactic plane.	20	23,24	14
AH-227	Hjellming, R.	NRAO/VLA	1741-038: a rapid "scintillator".	2,6, 20,90	24	2
AH-230	Hummel, E. Kotanyi, C. van Gorkom, J.	MPIR, Bonn ESO Princeton	Peculiar radio features in NGC 4388 and NGC 4438.	6	20,24	12
AH-234	Heeschen, D. Wrobel, J.	NRAO/CV NMI/MT	Clumpy irregular galaxies.	2	26	12
AH-235	Henkel, C. Ho, P. Martin, R. Turner, J.	MPIR, Bonn CFA Steward Obs CFA	Extragalactic H2O maser in IC10.	1.3 line	28	3
AH-238	Hoolmeyer, J. Barthel, P. Schilizzi, R. Miley, J.	Leiden Caltech NFRA STSCI	Comparison of large and small scale structure in extended quasars.	2,6	29	8
AH-239	Hewitt, J. Turner, E. Langston, G. Burke, B.	MIT Princeton MIT MIT	Two gravitational lens candidates.	2	18	2
AH-241	Heaton, B. Little, L.	Kent, UK Kent, UK	Disk-outflow source G35.2N.	2,6	21	2
AJ-138	Jorsater, S. van Moorsel, G. Lindblad, P.	ESO ESO Stockholm Obs	High resolution HI study of the barred spiral galaxy NGC 1365.	20 line	1,5, 6,7	24
AK-144	Kronberg, P. Sramek, R.	Toronto NRAO/VLA	Monitoring M82.	1.3,2	25	4
AK-147	Kulkarni, S. Djorgovski	Caltech Harvard	Deep radio map of IE 0630+178 Geminga field.	20	22,24	12

VLA UTILIZATION JULY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AK-150	Kundu, M. Jackson, P. White, S.	Maryland Maryland Maryland	Synoptic observations of a complete sample of nearby flare stars.	6, 20	3, 4, 5, 9, 11, w/AK151, 22, 29 Move/Op	61.2 54.5
AK-151	Kundu, M. Jackson, P. White, S.	Maryland Maryland Maryland	Observations of narrowband flares on red dwarf stars.	6, 20	3, 4, 5, 9, 11 w/AK150, Move/Op	54.5 20.5
AL-113	Leahy, J.	NRAL	Faraday rotation and depolarization in Classical double radio sources.	6, 18, 20	12 w/AL124, 125	20.5
AL-124	Leahy, J. Muxlow, T. P. Stephens, P. Morrison, I.	NRAL NRAL NRAL NRAL	Spectral mapping of classical doubles.	20	12 w/AL113, 125	20.5
AL-125	Leahy, J. Muxlow, T. Shone, D.	NRAL NRAL NRAL	Bridges of distant radio sources.	20	12 w/AL113, 124	2
AM-166	Mahoney, M. Erickson, W. Becker, R.	Maryland NRAO/VLA Calif, Davis	Pulsar candidate in the globular cluster M28.	20, 90	1	2
AM-174	Miley, G. van Breugel, W. Chambers, K.	STSci Calif, Berkeley Johns Hopkins	Properties of ultra-steep-spectrum radio sources.	6	25	4
AM-179	Muhlman, D. Berge, G. Grossman, A.	Caltech Caltech Caltech	Saturn: properties of the atmosphere and rings.	6	14	9
AM-183	Meurs, E.	Cambridge	Radio properties of double nucleus galaxies.	6	14	4
AM-184	Meurs, E.	Cambridge	Radio cores in Seyfert galaxies.	1.3, 2	27	4
AM-186	Muhlman, D. Berge, G. Linfield, R.	Caltech Caltech JPL	Astrometric measurements of the Neptune/Triton system.	2	13, 16, 19	21
AN-40	Norris, R. Allen, D. Whiteoak, J. Gardner, F.	CSIRO AAO CSIRO CSIRO	The new Megamaser galaxy 11506-3851.	18 line	1, 3	8.6
AO-73	Ondrechen, M. McElroy, D. van der Hulst, J.	Minnesota Comp Sci Corp Westerbork	Barred spiral galaxies.	20	28	11
AP-116	Pottasch, S. Bignell, R. Zijlstra, A.	Groningen NRAO/VLA NRAO/VLA	Survey of planetary nebulae.	6	25, 27, 28	25.5
AR-141	Rao, A. Ananthakrishnan, S.	TIFR TIFR	Structure of compact sources in the galactic plane.	2, 6, 20	1	1.6
AR-148	Rudnick, L. Pedelty, J. Chan, V.	Minnesota Minnesota Minnesota	Structural details of extragalactic radio source hot spots: 3C33.	2	13	11
AR-152	Roeser, H. Perley, R.	MPI-Heidelberg NRAO/VLA	Observations of the hotspot in Pictor A.	2, 6, 20	3, 4	9
AS-211	Sramek, R. Weiler, K. van der Hulst, J. Panagia, N.	NRAO/VLA NRL NFFA STSci	Statistical properties of radio supernovae.	2, 6, 20	6, 25	4
AS-262	Saripaliti, L. Subrahmanya, C. Gopal-Krishna	TIFR CSIRO TIFR	Giant radio galaxy 0503-286.	20	1	1

VLA UTILIZATION JULY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AS-264	Swarup, G.	TIFR	Search for a radio jet associated			
	de Serego Alighieri, S.	ESO	With the optical jet in 3C227.	2,6	13	4
AS-265	Schwartz, P.	NRL	Ionized bright rims.	6	22	7.2
AS-267	Sanders, D.	Caltech	Complete sample of the most			
	Helou, G.	Caltech	luminous IRAS galaxies.	20	31	20
	Soifer, B.	Caltech				
AT-64	Taylor, A.	Groningen	Monitoring nova Vulpeculae			
	Pottasch, S.	Groningen	1984 No. 2.	2,6,20	5	4
	Seagrist, E.	Toronto				
AW-160	Wooten, A.	NRAO/CV	Search for an ionized component			
	Whiteoak, J.	CSIRO	in the L1689N bipolar flow.	2,6	2	2
	Wood, P.	Mt Stromlo	OH/IR stars in M31.	18	14,20,	25
	Bessel, M.	Mt Stromlo		line	22	
	Summer Students					
	JPL		Tests		6,13	4
	NRAO Staff		Baselines/Startup/Pointing		7	4
			Electronics/etc.			72.9
			Software			64.1
			General Tests			22.4
						35.6

The average downtime for the month of July, 1986 was approximately 5.06 percent.

Average downtime of operational antennas lost due to hardware and software failures during scheduled observing = $\frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}}$ X 100

where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 100.0 percent (746.1 hours) of the time: 73.6 percent (549.3 hours) to astronomical programs, 14.8 percent (110.3 hours) to scheduled test/calibration, and the remaining 11.6 percent (86.5 hours) went to scheduled maintenance.

The total number of programs run for the month of July, 1986 was 59.

The following independent proposals shared simultaneous observing time (89.2 hours Total Simultaneous Observing):

- AK150/AK151 49.1
- AK150/AK151/Move/Op 5.4
- AC169/Move/Op 5.1
- AL113/AL124/AL125 20.5
- AB369/AB410 9.1

VLA UTILIZATION JUNE 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AB-357	Becker, R. White, R.	Calif, Davis STScI	Monitoring radio flux of HD 193793.	6	10,24	2
AB-371	Baldwin, J.E. Rossitter, D.	MRAO MRAO	Evolution of high power sources at redshifts greater than 1.5.	20	2,3	4.4
AB-394	Bastian, T. Dulk, G. Bookbinder, J.	Colorado Colorado JILA	dme flare stars.	6,20 line	28	20
AC-153	Cooke, B. Poman, T. McHardy, I.	Leicester Birmingham Leicester	Further observations of a source in the error box of the X-ray source GX349+2.	6	12,13 w/VCL3&VK17	24 14
AC-155	Caillaud, J.	JILA	Microwave observations of M-Dwarfs in the Hyades.	2	29,30	14
AC-159	Campbell, B. Torbett, M.	Mt Wilson Kentucky	Bipolar wind morphologies in cataclysmic variables.	6	21	8.5
AD-181	de Pater, I. Dickel, J.	Calif, Berkeley Los Alamos/Illinois	Saturn.	2,6	16	8
AD-184	Drake, S. Reimers, D. Brown, A.	SASC Technologies Hamburg JILA	Study of Zeta Aurigae and similar binaries containing B dwarf secondaries.	20	2	6
AE-45	Ekers, R. Sramek, R. Cowan, J. Branch, D. Goss, W.	NRAO/VLA NRAO/VLA Oklahoma Oklahoma Kapteyn Lab	Search for very young SNRs.	20,90	3,15, 30	3
AE-46	Emerson, D. Forveille, T. Weliachey, L.	IRAM, Grenoble IRAM, Grenoble IRAM, Grenoble	Nature of the compact HII region in the bipolar source Cep A.	1.3,2,6	7	8
AF-126	Forster, J. Caswell, J. Komasaroff, M.	CSIRO CSIRO CSIRO	Ultracompact HII with OH/H2O masers.	1.3 line	5	8
AF-128	Fiedler, R. Dennison, B. Johnston, K.	NRL VPI & SU NRL	Search for refractive scintillation in CTA 26.	20	4	16
AG-220	Garrington, S. Conway, R. Leahy, J. Laing, R.	NRL NRL NRL RCO	Depolarization asymmetries and jet sidedness.	20	19	3.5
AH-204	Hollis, J. Furenlid, I.	Goddard Georgia State	Mass loss of BW Vulpeculae.	6	24	8
AH-211	Ho, P. Turner, J.	CFA NRAO/VLA	HI synthesis mapping of NGC 253.	21 line	24	8
AH-224	Hjellming, R. Johnston, K. Schilizzi, R.	NRAO/VLA NRAO/VLA NRAO/VLA	High resolution imaging of the SS433 radio source.	2,6	7,16	11
AJ-131	Johnston, K. Florkowski, D. de Veigt, C. Wade, C.	NRL USNO Hamburger Sternwarte NRAO/VLA	Parallax of the nearby stars UX Ari and HR 5110.	6	8,9	17.5
AJ-136	Johnston, K. Odenwald, S. Kühr, H.	NRL NRL MPL, Bonn	Survey of QSO galaxy pairs.	2,6	8	3.2
AJ-138	Jorsater, S. van Moorsel, G. Lindblad, P.	ESO ESO Stockholm Obs	High resolution HI study of the barred spiral galaxy NGC 1365.	20 line	26,27, 29,30	24
AK-132	Kazes, I. Dickey, J.	Meudon Minnesota	Extragalactic OH absorption in B2 1506+34.	20 line	3,6	13

VLA UTILIZATION JUNE 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AL-113	Leahy, J.	NRAL				
AL-118	Lang, K. Willson, R.	Tufts Tufts	Faraday rotation and depolarization in classical double radio sources. Slowly-varying microwave emission and stellar bursts from dwarf M flare stars.	6, 18, 20	4 W/AG220, V442, V442	16 24.5
AM-124	McHardy, I. Warwick, R. Smith, A.	Leicester Leicester ESTEC	Coordinated radio, optical and X-ray observations of optically violently variable extragalactic sources (OVVs) and BL Lacertae objects.	2, 6, 20	10, 15 W/VP58, VM38, Move/Op, VH18	6.9
AM-173	Morris, M. Yusef-Zadeh, F.	Calif, Los Angeles Columbia	High resolution mosaic of galactic center arc.	6	25, 26, 28	24
AM-179	Muhleman, D. Berge, G. Grossman, A.	Caltech Caltech Caltech	Saturn: properties of the atmosphere and rings.	20	23	8
AO-62	O'Donoghue, A. Owen, F. Eilek, J.	NMIMT NRAO/VLA NMIMT	Wide angle tail sources.	6	10, 17	6.7
AP-113	Parsons, S. Bopp, B. Feldman, P.	STScI Toledo Herzberg	Luminous F supergiants and giants with hot binary companions.	2, 6	18	W/tests, VM38 4
AP-115	Payne, H. Terzian, Y.	NRAO/GB Cornell	OH observations of NGC 6302.	18 line	15	4
AP-116	Pottasch, S. Bignelli, R. Zilstra, A.	Kaptein Lab NRAO/VLA NRAO/VLA	Radio emission from planetary nebulae.	6	20	W/VH18 1.5
AR-141	Rao, A. Ananthakrishnan, S. Ulvestad, J.	TIFR TIFR JPL	Structure of compact sources in the galactic plane.	2, 6, 20	24, 30	6.4
AR-144	Rodriguez, L. Gomez, Y. Garcia-Barreto, J.	UNAM UNAM UNAM	Mapping peculiar structures in VV 2-2.	2, 6	6	3.5
AR-145	Reid, A. Walsh, D. Shone, D.	NRAL NRAL NRAL	Quasars from the Jodrell Bank complete sample.	6, 20	2	2
AR-147	Rucinski, S. Gibson, D.	Toronto NMIMT	Survey of evolved W Ursa Majoris stars.	2, 6, 20	27, 29, 30	14.5
AR-148	Rudnick, L. Pedelty, J. Chan, V.	Minnesota Minnesota Minnesota	Structural details of extragalactic radio source hot spots: 3C33 and other sources.	6, 20	3, 5 W/V442, V443	26
AS-80	Sramek, R. van der Hulst, J. Weller, K.	NRAO/VLA NRAO/VLA NRAO/VLA	Monitoring SNT1980 in NGC 6946 and SNT1979c in M100.	2, 6, 20	11, 15 W/VM38, VH18	4.5
AS-211	Sramek, R. Weller, K. van der Hulst, J. Panagia, N.	NRAO/VLA NRL NRAO/VLA STScI	Statistical properties of radio supernovae.	2, 6, 20	7, 15, 26W/VK17, VH18	7
AS-226	Sumi, D. Smarr, L. Owen, F.	Illinois Illinois NRAO/VLA	Mapping emission from CD galaxy in Abell 2029.	6, 20	20	5
AS-248	Stewart, R. Slee, O. Nelson, G. Vaughan, A. Coates, D.	CSIRO CSIRO CSIRO Macquarie Univ, Aust. Monash Univ, Aust.	Quiescent emission from late type stars.	6, 20	10, 11, 12, 13, 17, 19, 20, W/VP58, 21, 22, 23	19.8
AS-256	Sandqvist, A. Karlsson, R.	Stockholm Obs Stockholm Obs	OH in the Sgr A molecular clouds.	18 line	29	8

VLA UTILIZATION JUNE 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AU-23	Unger, S. Pedlar, A. Wolstencroft, R. Savage, A. Leggett, S.	NRAL NRAO/VLA Royal obs Royal obs Royal obs	Studies of a complete far-infrared selected sample of galaxies.	6,20	23,25,26,27	12
AU-25	Unger, S. Axon, D. A. Pedlar, A. Taylor, K. Wolstencroft, R.	NRAL NRAL NRAO/VLA RGO Royal obs	Gas ejection in the hotspot galaxy NGC 1808.	6,20	line	21
AU-26	Unger, S. Chapman, J. Staveley-Smith, L. Cohen, R. J. Pedlar, A.	NRAL NRAL NRAL NRAL NRAO/VLA	OH megamaser in III Zw 35.	6,18	line	4
AV-96	van der Hulst, J. Sramek, R. Weiler, K.	NRAO/VLA NRL	Monitoring the supernova in NGC 4258.	6,20	line	15
AW-143	Whiteoak, J. Gardner, F.	CSIRO CSIRO	OH observations of molecular clouds near Sgr A (West).	18	line	24
AW-147	Whiteoak, J. Gardner, F. Forster, J.	CSIRO CSIRO CSIRO	A search for H2CO Masers in NGC 6334.	6	line	22
AW-155	Wilson, A.	Maryland	Seyfert galaxy ES0263-G13.	6,20	line	21
VB-65	Bartel, N.	CFA	Supernova 1979c in M100.	6 cm	phased array MK III VLB	14
VB-72	Barthel, P. Hoolmeyer, J. Schilizzi, R. Preuss, E.	Caltech Leiden NRA MPIR, Bonn	Cores of three large doubles.	6 cm	phased array MK III VLB	8
VC-36	Gordes, J. Simonetti, J.	Cornell NRAO/CV	Fast flickering sources.	6 cm	phased array VLB	12,15
VC-42	Canzian, B. Readhead, A. Pearson, T. Barthel, P. Cohen, M. Lind, K.	Caltech Caltech Caltech Caltech Caltech Caltech	Superluminal candidates.	6 cm	single antenna VLB	4
VC-43	Cohen, M. Barthel, P. Canzian, B. Unwin, S. Zensus, A. Allen, H. Aller, M.	Caltech Caltech Caltech Caltech Caltech Michigan Michigan	Strong compact sources.	6 cm	single antenna VLB	5,12,13
VF-10	Felli, M. Pallavicini, R. Lang, K. Willson, R.	Arcetri Arcetri Tufts Tufts	RS Cvn stars.	6 cm	phased array MK III VLB	11
VH-18	Hodges, M. Mutel, R.	Caltech Iowa	Compact double DA344.	6 cm	single antenna VLB	15

W/AL113, AG220, AR148
w/AR148, AF126, AC155, AS248, Move/Op
w/AF128, VC36, AM124, AS211, AD184, AS80, AV96, AP115, AC153, Tests
w/Move/Op
15.8

VLA UTILIZATION JUNE 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
VH-25	Hooimeyer, J. Barthel, P. Schilizzi, R. Miley, G.	Leiden Caltech NRA STSCI	Extended quasars.	6 cm 6 cm VLB	1	36.1
VI-2	Irwin, J. Sequist, E.	Toronto Toronto	NGC 3079.	6 cm	7	3.5
VK-17	Kus, A. Wilkinson, P. Pearson, T. Readhead, A.	Torun NRA Caltech Caltech	Helical instabilities in the 3C309.1 jet.	phased array w/VLB-System 1, MK 111 VLB 6 cm VLB	7, 13 18.5	1, 18.5
VM-75	Mutel, R. Bucciferro, R. Hodges, M. Phillips, R.	Iowa Iowa Caltech Haystack	Compact doubles.	6 cm phased array VLB	1	3
VP-58	Pearson, T. Readhead, A.	Caltech Caltech	Complete sample, second epoch.	6 cm single antenna VLB	9	12
VP-73	Porcas, R. Bahattii, D. Gopal-Krishna	MPIR, Bonn MPIR, Bonn TIFR	CTD 93.	6 cm 6 cm phased array VLB	AM124, AB357, Move/Op 2, 3	10.5
VR-36	Roberts, D. Wardle, J. Brown, L. Gabuzda, D. Rogers, A.	Brandeis Brandeis Brandeis Brandeis Haystack	Polarization monitoring.	6 cm phased array MK 111 VLB	13	20.7 w/VK17
VM-38	Witzel, A. Eckart, A. Schalinski, C. Biermann, P. Johnston, K. Simon, R.	MPIR, Bonn MPIR, Bonn MPIR, Bonn MPIR, Bonn NRL	Flat spectrum sources.	6 cm single antenna VLB	10 w/tests, A062, AM124, AC153, AS248, AS80, Move/Op, Elect	11.5
VM-42	Walker, R. Benson, J. Unwin, S. NRAO & JPL Staff	NRAO/VLA NRAO/CV Caltech	Monitoring 3C120.	6 cm single antenna VLB	4 AU26, AG220, Tests	14 10

The average downtime for the month of June, 1986 was approximately 5.80 percent.

Average downtime of operational antennas lost due to hardware and software failures during scheduled observing = $\frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}}$ x 100

Where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 100.0 percent (722.0 hours) of the time: 75.6 percent (545.4 hours) to astronomical programs, 14.6 percent (105.7 hours) to scheduled test/calibration, and the remaining 9.8 percent (70.9 hours) went to scheduled maintenance.

The total number of programs run for the month of June, 1986 was 62.

The following independent proposals shared simultaneous observing time (147.1 hours Total Simultaneous Observing):

SIMULTANEOUS OBSERVATIONS.

AU26 /VM42	3.3Hrs.
AL113/AG220/VM42	7.7 "
Tests/VM42	3.0 "
AL113/AG220/VC42	8.3 "
AR148/VC42	15.7 "
AR148/VC43	2.3 "
AF126/VC43	6.2 "
AK132/VLB-System1	1.2 "
AE46 /VLB-System1	1.2 "
Tests/VLB-System1	8.0 "
V12 /VLB-System1	2.0 "
V12 /VK17	0.3 "
AS211/VK17	0.1 "
AH224/VK17	2.0 "
AJ136/VLB-System2	7.9 "
AJ131/VLB-System2	2.7 "
AJ131/MLB-Cal	8.3 "
AJ131/VP58/Move/Op	0.5 "
AC153/VP58	4.9 "
AS248/VP58	1.0 "
AM124/VP58	2.0 "
AB357/VP58	1.0 "
VP58 /Move/Op	1.0 "
A062 /VM38	2.1 "
Tests/VM38/A062	0.3 "
AM124/VM38/Move/Op	2.3 "
AC153/VM38/Move/Op	2.9 "
AS248/VM38	1.0 "
AS80 /VM38	2.0 "
VM38 /Electronics	0.5 "
VF10 /Move/Op	4.8 "
AC155/VC43	2.8 "
VC43 /Move/Op	3.2 "
AS248/VC43	1.8 "
AC155/VC43	3.7 "
AC155/VK17	8.3 "
VR36 /VK17	0.2 "
VC36 /VM18	0.1 "
AF128/VM18	1.0 "
AM124/VM18	3.0 "
Tests/VM18	0.5 "
AS211/VM18	2.0 "
AS80 /VM18	2.0 "
AV96 /VM18	2.0 "
AP115/VM18	4.0 "
AC153/VM18	1.0 "
AD184/VM18	0.2 "
A062 /Tests	3.5 "

VLA UTILIZATION MAY 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AB-129	Burke, B. Hewitt, J. Roberts, D.	MIT MIT Brandeis	Time variations in 0957+561.	6	20	2
AB-369	Bridle, A. Browne, I. Burns, J. Dreher, J. Hough, D. Lainig, R. Owen, F. Readhead, A. Scheuer, P. Wardle, J. Lonsdale, C.	NRAO/CV NRAL, UK New Mexico MIT Caltech RGO NRAO/VLA Caltech MRAO Brandeis Penn State	Stedness of jets in high luminosity sources.	6	4	24.5
AB-376	Baum, S. Bridle, A. Heckman, T. Miley, G. van Breugel, W.	NRAO/Maryland NRAO/CV Maryland STScI Calif, Berkeley	Complete sample of equatorial extragalactic radio sources.	2, 6, 18 and 20	10	1
AB-379	Barvainis, R. O'Dea, C.	NRAO/CV NRAO/CV	Polarization observations of low frequency variable sources.	90	27, 30	15
AB-388	Backer, D. Sramek, R.	Calif, Berkeley NRAO/VLA	Proper motion of SgrA.	2, 6, 20	28	7.5
AB-389	Baum, S. Bridle, A. Heckman, T. Miley, G. van Breugel, W.	NRAO/Maryland NRAO/CV Maryland STScI Calif, Berkeley	Multifrequency mapping of 1717-00 = 3C353.	6, 20	18, 20	16
AB-390	Briggs, F. Wolfe, A.	Pittsburgh Pittsburgh	Radio structure of PKS 0458-02: a QSO with 21cm absorption at $z = 2.04$.	6, 20, 90	3	4
AB-393	Branch, D. Cowan, J.	Oklahoma Oklahoma	Search for 20cm emission from two of the nearest extragalactic type I SN.	20	2, 3	24
AB-395	Brown, A. Drake, S. Mundt, R.	Colorado/JILA Goddard MPI, Heidelberg	Inner emission regions of HL Tau and XZ Tau.	2, 6	26	7
AC-147	Crane, P. van der Hulst, J. Ford, H. Lawrie, D. Jacobv, G.	NRAO/VLA NRAO STScI Ohio State NOAO	Nuclear region of M51.	6	9, 11, 15	35.5
AC-148	Camaron, R. Parma, P. de Ruiter, H.	Mt Stromlo Bologna Bologna	Structure of dumbbell galaxy radio sources.	20	28	1
AC-149	Clarke, D. Burns, J. Norman, M. Christiansen, W.	New Mexico New Mexico Los Alamos North Carolina	Search for active magnetic field effects in extragalactic sources.	6, 20	18, 22	23
AC-156	Carral, P. Turner, J. Ho, P.	Calif, Berkeley CFA CFA	15 GHz mapping of compact structure in galactic nuclei.	2	10	13
AC-161	Clifton, T. Kulkarni, S. Backer, D.	Calif, Berkeley Caltech Calif, Berkeley	Investigation of new high dispersion pulsars and the scattering associated with inner regions of the galaxy.	20, 90	10, 11	8
AC-162	Cordes, J. Dewey, R. Hankins, T. Thiering, I.	Cornell Cornell Dartmouth Cornell	Astrometry of pulsars.	6, 20	12	25

VLA UTILIZATION MAY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AH-181	de Pater, I. Dicker, J.	Calif, Berkeley Los Alamos/Illinois	Saturn.	2, 20	27	9.5
AE-45	Ekers, R. Sramek, R. Cowan, J. Branch, D. Goss, W.	NRAO/VLA NRAO/VLA Oklahoma Oklahoma Kapteyn Lab	Search for very young SNRs.	20	11	3
AE-46	Emerson, D. Forville, T. Wellachew, L.	IRAM, Grenoble IRAM, Grenoble	Nature of compact HII region in in the bipolar source Cep A.	1.3, 2, 6	25	4.5 w/VW39
AF-114	Fanti, R. Mantovani, F. Padrielli, L.	Bologna Bologna Bologna	Steep spectrum low frequency variables.	6	30	8
AF-117	Fomont, E. Geldzahler, B.	NRAO/CV NRL	Further observations of Sco X-1.	2, 6	21	9 w/tests
AF-118	Fomont, E. Goss, W. Lyne, A. Manchester, R.	NRAO/CV Kapteyn Lab NRAO CSIRO	Pulsar positions and proper motions.	20 line	23	24 w/VL43
AF-125	Feretti, L. Giovannini, G. Gregorini, L.	Bologna Bologna Bologna	High resolution observations of the NAT galaxy in Abell 115.	20	10	1
AF-128	Fiedler, R. Dennison, B. Johnston, K.	NRL VPI & SU NRL	Search for refractive scintillation in CTA 26.	20, 90	9, 24	2
AG-209	Glendenning, B. Kronberg, P. Green, D.	Toronto Toronto MRAO	Further observations of NGC 2146.	2, 6	25	12 w/VW39, VZ13
AG-214	Green, D. Gull, S.	MRAO MRAO	HI absorption towards point source in Tycho's SNR.	20 line	8, 9	13
AG-215	Giovannini, G. Feretti, L.	Bologna Bologna	High resolution observations of NGC 4869.	6, 20	29	4
AG-220	Garrington, S. Leahy, J. Conway, R. Laing, R.	NRAO NRAO NRAO RGO	Depolarization asymmetries and jet sidedness.	20	17	4
AH-201	Hintzen, P. Owen, F.	Goddard NRAO/VLA	Snapshot survey of QSOs to identify distorted sources.	20	20	1.5
AH-202	Hollis, J. Michalitsianos, A. Kafatos, M.	Goddard Goddard George Mason U	Investigating the sub-arc-sec structure of RX Puppis.	1.3, 2	19, 20	8
AH-220	Hughes, V.	Queen's	Star formation in Cep A.	2, 6, 20	30	12
AH-221	Helvand, D. Zoonematkermani, S. Becker, R.	Columbia Columbia Calif, Davis	Search for Crab-like SNRs in M31.	6, 20	18	6
AH-227	Hjellming, R.	NRAO/VLA	1741-038: a radio "scintillator".	1.3, 2, 6, 20, 90	7, 25	2 w/VW39
AH-230	Hummel, E. Kotanyi, C. Van Gorkom, J.	MPI, Bonn ESO Princeton/NRAO	Peculiar radio features in NGC 4388 and NGC 4438.	6, 20	24	12 w/VW39, VZ13
AH-231	Hummel, E. Jorsater, S. Lindblad, P. Sandqvist, A.	MPI, Bonn ESO Stockholm Obs Stockholm Obs	Central region of NGC 613, a peculiar radio source.	6	11	6
AH-232	Hewitt, J. Burke, B. Turner, E. Lawrence, C.	MIT MIT Princeton Caltech	Multifrequency maps of the probable gravitational lens 0023+171.	2, 6, 18, and 20	1, 2	24

VLA UTILIZATION MAY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AJ-136	Johnston, K. Odenwald, S.	NRL NRL-SFA	VLA survey of QSO - galaxy pairs.	2,6	10	4.5
AK-142	Kuhr, H. Kwok, S.	MPIR, Bonn Calgary	Compact planetary nebulae.	2,6	18	4
AK-144	Aquist, O. Kronberg, P.	Calgary Toronto	Monitor M82.	1.3,2,6	16	10
AK-145	Sramek, R. Kulkarni, S.	NRAO/VLA Caltech	Astrometry of binary pulsars and proper motion of two pulsars.	20	5,8	16
AL-117	Backer, D. Clifton, T.	Calif, Berkeley Calif, Berkeley	Simultaneous VLA/SMM observations of the inner solar corona.	20,90	29	12.5
AM-167	Lang, K. Willson, R.	Tufts Tufts	Scattering size of Cygnus X-3.	20,90	20	4.5
AM-171	Molnar, L. Reid, M.	CFA CFA	Search for emission from the black-hole binary A0620-00.	6,20	24	3
AM-174	McClintock, J. Remillard, R.	CFA MIT	Properties of ultra-steep-spectrum radio sources.	20	18,19	13.5
AM-179	Molnar, L. Miley, G.	CFA STScI	Properties of ultra-steep-spectrum radio sources.	20	20	6
AM-181	van Breugel, W. Chambers, K.	Calif, Berkeley Johns Hopkins	Saturn: properties of the atmosphere and rings.	20	26	8.6
AM-179	Muhleman, D. Berge, G.	Caltech Caltech	High resolution measurements of the W3(OH) methanol masers.	1.3 line	19	8.5
AN-37	Grossman, A. Menten, K.	Caltech MPI, Bonn	High resolution observations of merging galaxies.	2,6,20	14,15	6
AO-62	Wilson, T. Walmsley, C.	MPI, Bonn MPI, Bonn	Wide angle tail sources.	20	16	6
AO-70	Henkel, C. Wadiak, E.	MPI, Bonn NRL	Polarization observations of core-dominated sources.	2,6	5,6	9.5
AO-71	Johnston, K. Neff, S.	NRL Goddard	HI absorption in the nuclei of two barred spiral galaxies.	20	7	6
AR-119	Joseph, R. Rickard, L.	Imperial Coll NRL	Double source showing peaked spectrum.	1.3,2,6	7	2
AR-144	Johnston, K. Owen, F.	NRL NRAO/VLA	Mapping of peculiar structures in VY 2-2.	2,6	9	4
AS-211	Ellik, J. Gomez, U.	NMIMT UNAM	Statistical properties of radio supernovae.	2,6,20	5,20, 22,28	5
AS-226	Garcia-Barreto, J. Sramek, R.	NRAO/VLA NRL	Detailed mapping of emission from the CD galaxy in Abell 2029.	20	8	6
AT-64	Weiler, K. van der Hulst, J.	Westerbork STScI	Monitoring of Nova Vulpeculae 1984 No. 2.	2,6,20	3	5.5
AT-69	Sumi, D. Smarr, L.	Illinois Illinois	Two epoch, multifrequency mapping of the CH Cyg radio jet.	1.3,2,6 and 20	26	8
AT-69	Owen, F. Taylor, A.	NRAO/VLA Kapteyn Lab				8
AT-69	Taylor, A. Sequist, E.	Kapteyn Lab Toronto				8

VLA UTILIZATION MAY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AT-71	Turner, J. Ho, P.	CFA CFA				
AV-127	van Breugel, W. McCarthy, P. Heckman, T. Miley, G.	Calif, Berkeley Calif, Berkeley Maryland STScI	Polarization and spectral indices of nuclear hot spots in NGC 253. Three radio galaxies with extended emission lines.	1.3, 2 2, 6, 21	22 6	6 7.5
AV-134	Vanden Bout, P.	NRAO/CV	Compact HII regions in S88B.	6	8	4.5
AW-152	Wilson, A. Keel, W.	Maryland Sterrewacht, Leiden	Seyfert galaxy NGC 5929.	2	1	5
AW-159	Wehrle, A. Morris, M.	Calif, Los Angeles Calif, Los Angeles	Nuclei of edge-on spiral galaxies N891, N3628, N4565, N4594 (M104), and Seyfert galaxy N5506.	2, 6	1, 3, 26	19 w/VM78
AV-12	Yee, H. Hintzen, P.	Montreal Columbia	Snapshot survey of Southern Parkes quasars.	6, 20	16	24
AV-13	Yusef-Zaden, F. Morris, M.	Columbia Calif, Los Angeles	Compact sources in the galactic center region.	2, 6, 20	14	8
VD-12	Diamond, P. Nyman, L.	MPI, Bonn Goddard Inst.	Masers in W43.	1.3 cm	22	10.5
VL-43	Lawrence, C. Readhead, A. Linfield, R. Schilizzi, R.	Caltech Caltech JPL NRAO	Maps of sources from the 1.35 cm survey.	3 antenna VLB 1.3 cm 3 antenna VLB	23	24.1 w/AC149, AF118
VM-75	Mutzel, R. Bucciferro, R. Hodges, M. Phillips, R.	Iowa Iowa Caltech Haystack	Compact doubles.	6 cm	31	21.5
VM-78	McHardy, I. Gear, W. Marscher, A.	Leicester Lancashire Polytech Boston	Biazar 1156+295.	1.3 cm antenna VLB	26	9.5 w/AB395, AM179, AM152
VM-39	Witzel, A. Eckart, A. Schalinski, C. Biermann, P. Johnston, K. Simon, R.	MPI, Bonn MPI, Bonn MPI, Bonn MPI, Bonn NRL	A complete sample of radio sources.	1.3 cm antenna MKIII VLB	25	9.5 w/AE46, AG209, AH230, AH227
VZ-13	Zensus, A. Birretta, J. Unwin, S. Cohen, M. Baath, L.	Caltech Caltech Caltech Caltech Onsala	3C273.	1.3 cm antenna VLB	24, 25	23.5 w/AG209, AH230, AT69
	NRAO Staff		X-Band Tests		4	22, 25
			Pointing/Baselines/Startup			6.0
			Electronics/etc.			32.9
			Software			47.5
			General Tests			24.3
						32.4

VLA UTILIZATION MAY 1986 (Cont.)

The average downtime for the month of May, 1986 was approximately 9.82 percent.

$$\text{Average downtime of operational antennas} = \frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}} \times 100$$

where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 100.0 percent (746.1 hours) of the time: 82.0 percent (611.8 hours) to astronomical programs, 8.4 percent (62.5 hours) to scheduled test/calibration, and the remaining 9.6 percent (71.8 hours) went to scheduled maintenance.

The total number of programs run for the month of May, 1986 was 68.

The following independent proposals shared simultaneous observing time (78.7 hours Total Simultaneous Observing):

AS211/VD12	0.7
AC149/VD12	9.8
AC149/VL43	3.7
AF118/VL43	20.4
AH230/VZ13	10.0
AH230/VW39	1.5
AH227/VW39	1.0
AE46/VW39	4.5
AG209/VW39	2.5
AG209/VZ13	3.0
Tests/VZ13	4.0
AT69/VZ13	6.5
AB395/Tests	0.5
AB395/VM78	1.9
AM159/VM78	5.0
AM179/VM78	2.6
AF114/Tests	1.1

VLA UTILIZATION APRIL 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AA-54	Antonucci, R.	STScI	A Space Telescope/VLA study of	20	5, 29	10.3
AA-55	Ford, H. Antonucci, R. Barvainis, R. Wills, B. Wills, D.	STScI STScI NRAO/CV Texas Texas	Quasar FUZZ. Extended radio emission around newly discovered blazars.	20	11	6.5
AB-129	Burke, B. Hewitt, J. Roberts, D.	MIT MIT Brandeis	Time variations in 0957+561.	6	2	2
AB-324	Blaha, C. Pedelty, J. Dickey, J. Kennicutt, R.	Minnesota Minnesota Minnesota Minnesota	Hot spot nuclei.	20	1	6
AB-357	Becker, R. White, R.L.	Calif. Davis STScI	Monitoring the radio flux of the radio star HD193793.	6	17	1.5
AB-370	Bushouse, H. Callaghan, J.	Illinois/NOAO NOAO	Survey of strongly interacting galaxies.	20	1	6
AB-371	Baldwin, J.E. Rossitter, D.A.	MRAO, UK MRAO, UK	Evolution of high power sources - redshifts greater than 1.5.	20	26, 29	17.2 w/tests, AR139
AB-374	Brebner, G.C. Cohen, R.J. Pedlar, A.	NRAL, UK NRAL, UK NRAO-VLA/NRAL	Masers associated with bipolar outflow.	1.3, 18 line	13, 20	7
AB-375	Burke, B. Lawrence, C. Hewitt, J. Langston, G.I. Turner, E.L.	MIT Caltech MIT MIT Princeton	Search for gravitational lenses.	6	7, 21	50.5
AB-378	Barvainis, R. Deguchi, S.	NRAO/CV Illinois	Magnetic field mapping using linear polarization of H2O masers.	1.3	5	6
AB-388	Backer, D. Stramek, R.	Calif, Berkeley NRAO/VLA	Proper motion of SgrA.	2, 6, 20	17, 29	15
AB-391	Boisse, P. Kazes, I. Bergeron, J. Dickey, J.	ENS, Paris Meudon Inst d'Astrophy, Paris Minnesota Colorado	HI absorption in QSO galaxy pairs.	20 line	14	13.5
AB-397	Bookbinder, J.	Colorado	A search for a planetary companion to Barnard's Star.	6	16	4
AC-146	Churchwell, E. Felli, M. Massi, M.	Wisconsin Arceetri Arceetri	High dynamic range continuum mapping of Orion A.	6, 20	28	10.5
AC-148	Cameron, R. Parma, P. de Ruiter, H.	NRAO-VLA/Mt Stromlo Bologna Bologna	The structure of dumbbell galaxy radio sources.	20	25	9
AC-158	Cowan, J. Branch, D.	Oklahoma Oklahoma	Observations of the historical supernova 1959d in NGC 7331.	20	18	12
AD-167	de Pater, I. Ip, W-H. Snyder, L. Palmer, P. Bolton, S.	Calif, Berkeley MPI, Lindau Illinois Chicago Calif, Berkeley	Radio source occultations by Comet Halley.	18, 20 line	2, 4, 18, 23	19.5
AF-113	Feigelson, E. Clarke, D. Burns, J.	Penn State New Mexico New Mexico	Search for motion in jet knots of Centaurus A.	2, 6	17	5
AF-122	Fich, M.	Washington	Compact flat spectrum sources in the outer galaxy.	6	12	2

VLA UTILIZATION APRIL 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AF-127	Fricke, J. Kollatschny, W. Courvoisier, Jorsater, S. Veron, P.	Gottingen Gottingen ESO ESO ESO	Radio morphology of galaxies with low level nuclear activity.	6,20	13,16	8
AF-128	Fiedler, R. Dennison, B. Johnston, K.	NRL VPI&SU NRL	Search for refractive scintillation in CTA 26.	20,90	15,29	2
AF-129	Fix, J.	Iowa	OH emission from TW Aq1.			
AG-116	Gibson, D.M. Priedhorsky, W.C.	NMINT LANL	Search for 300 day periodicity in Cyg X-1.	18 line	24	1
AG-218	Garcia, M. Grindlay, J. Molnar, L. Reid, M.	CFA CFA CFA CFA	Origin and evolution of radio flares from GX13+1.	2,6,20	4,5	1.5 16.3
AH-221	Heifand, D. Zoonematkermani, S. Becker, R. Hjellming, R.M.	Columbia Columbia Calif, Davis NRAO/VLA	Search for Crab-like SNRS in M31.	6,20	6	12
AH-227	Johnston, K. Florkowski, D. de Veigt, C. Made, C.	NRL USNO Hamburger Stern. NRAO/VLA	1741-038: a rapid "scintillator". Parallax of the nearby stars UX Ari and HR 5110.	1.3,2,6, 20,90	14 4,12	1 17
AJ-131	Johnston, K. Florkowski, D. Made, C.	NRL USNO NRAO/VLA	Relationship of the radio and optical reference frames.	6	19	24
AJ-136	de Veigt, C. Johnston, K. Odenwald, S. Kuhr, H.	Hamburger Stern. NRL NRL-SFA MPIR, Bonn	VLA survey of QSO - galaxy pairs.	2,6	17	6
AK-119	Kailey, W. Elston, R.	Arizona Arizona	Search for supernova remnants near the nucleus of M33.	20	10	12
AK-139	Kapahi, V.K. Kulkarni, V.K.	TIFR TIFR	Epoch dependence of the sizes and spectra of radio galaxies.	20	1	5.5
AK-142	Kwok, S. Aguist, O.	Calgary Calgary	Radio survey of compact planetary nebulae.	2,6	2,14	9
AK-148	Karaji, H. Dennefeld, M.	Ins d'Astrophy, Paris Ins d'Astrophy, Paris	IRAS galaxies with violent star formation.	6	10	4
AL-119	Lonsdale, C. Barthel, P.	Penn State Caltech	High redshift quasars.	2,6	27,29	28.3
AM-175	Masson, C.	Caltech	Motions of OH masers in Orion A.	18 line	14	9.5
AM-177	Meurs, E.	Inst Ast., Cambridge	Radio cores in Seyfert galaxies.	2,6	1	1.5
AM-178	Mutel, R. Gopal-Krishna	Iowa TIFR	Compact double radio sources,	20	13,23	12
AO-65	Oort, M. Katgert, P.	Leiden Leiden	Morphology of blue radio galaxies and deep identifications of radio sources from a very deep survey.	6,20	11	16
AO-67	Owen, F. Cornwell, T. Hardee, P. Biretta, J.	NRAO/VLA NRAO/VLA Alabama Caltech	1.3,18,20 5,6,25 36 w/AR139			

VLA UTILIZATION APRIL 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AP-117	Pedlar, A. Unger, S. Whittle, M.	NRAO/VLA NRAL Inst Ast., Cambridge	Seyfert II nucleus of Mkn78.	2,6	17	6
AR-139	Reid, M. Moran, J. Guinn, C. Schnepps, M. Genzel, R.	CFA CFA CFA CFA Calif, Berkeley	Statistical parallax of the Sgr B2 water masers.	1.3 VLBI	25,26	22.7 w/A067, AV117, tests, AB371, AW158
AR-151	Rickard, L. Turner, B.	NRL-SFA NRAO/CV	A study of the 1667 MHz "megamaser" in UGC 8696.	18 line	3,4	6.7
AS-211	Sramek, R. Weller, K. van der Hulst, J. Panagia, N.	NRAO/VLA NSF Westerbork STScI	Statistical properties of radio supernovae.	2,6,20	2,13, 25,29	7.7
AS-230	Sramek, R. Skillman, E.	NRAO/VLA NFRA	The SNR in NGC 5471.	6	2	8
AS-249	Sanders, R. Bridle, A. Clark, B.	Kapteyn Lab NRAO/CV NRAO/VLA	Alignment of sources in the B3 survey.	20	10	7
AS-255	Schwartz, P. Johnston, K. de Vegt, C.	NRL NRL Hamburger Stern.	Precise position of T Tau.	1.3,2	4	12
AS-261	Spangler, S. Muter, R. Cordes, J.	Iowa Iowa Cornell	Inspection of candidate VLBI sources behind the Cygnus OB1 association.	1.3,2,6 and 20	1	2
AT-71	Turner, J. Ho, P.	CFA CFA	Polarization and spectral indices of nuclear hot spots in NGC 253.	1.3,2	2	6
AT-73	Taylor, A. Kwok, S. Pottasch, S.	Kapteyn Lab Calgary Kapteyn Lab	Multi-frequency high-resolution maps of compact planetary nebulae.	1.3,2,6 and 20	18,19	15
AV-117	Veron, P. Roland, J.	ESO Ins d'Astroph, Paris	Compact radio sources with very steep radio spectra.	6,20	26	3 w/AR139
AV-127	van Breugel, W. McCarthy, P. Heckman, T. Miley, G.	Calif, Berkeley Calif, Berkeley Maryland STScI	Three radio galaxies with extended emission lines.	2,6,21	9	10
AV-133	van Breugel, W. Spinrad, H. Djorgovski, S.	Calif, Berkeley Calif, Berkeley CFA	Evolution of powerful radio galaxies.	2,6	15	6.5
AW-141	Wingee, R. Dulk, G. Bastian, T.	Colorado Colorado Colorado	Substellar and planet-like companions.	20,90	1	1.4
AW-150	White, R. Becker, R.	STScI Calif, Davis	High resolution observations of point sources near Lkhalpha 101.	2,6	25	6
AW-156	Wynn-Williams, G. Becklin, E.	Hawaii Hawaii	Search for non-stellar activity in luminous IRAS galaxies.	6,20	12,13	5.5
AW-158	Wood, D. Churchwell, E. NRAO Staff	Wisconsin Wisconsin	Ultracompact HII regions.	6	27	7 w/AR139
			Baselines/Pointing/Startup Electronics/Software/Pointing P Band Calibrator Evaluation Software			38.5 58.5 13.0 31.6 47.0

VLA UTILIZATION APRIL 1986 (Cont.)

The average downtime for the month of April, 1986 was approximately 9.20 percent.

Average downtime of operational antennas = $\frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}}$ X 100
 where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 100.0 percent (721.0 hours) of the time: 74.1 percent (534.6 hours) to astronomical programs, 13.4 percent (96.3 hours) to scheduled test/calibration, and the remaining 12.5 percent (90.1 hours) went to scheduled maintenance.

The total number of programs run for the month of April, 1986 was 56.

The following independent proposals shared simultaneous observing time (26.2 hours Total Simultaneous Observing):

A067/AR139	7.4
AV117/AR139	3.0
Tests/AR139	0.9
Tests/AB371	3.5
AB371/AR139	4.9
AW158/AR139	6.5

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VLA UTILIZATION MARCH 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AA-52	Alexander, P. Eales, S. Pooley, G.G.	Cambridge Hawaii Calif. Davis	Structural evolution in high-redshift quasars and galaxies.	2,6,20	7	10 w/V8569
AB-357	Becker, R. White, R.L.	STScI	Monitoring the radio flux of the radio star HD193793.	6 line	9	8 w/V8568
AB-368	Baan, W.A. Gusten, R.	UC Berkeley/MPiR, Bonn Haystack	The H2CO maser in 104553.			
AB-369	Haschick, A.D. Bridle, A. Browne, I. Burns, J. Dreher, J. Hough, D. Loring, R. Owen, F. Readhead, A. Scheuer, P. Wardle, J. Lonsdale, C.	NRAO/CV Jodrell Bank New Mexico MIT Caltech RGO NRAO/VLA Caltech Cambridge Brandeis Penn State	Sidedness of jets in high luminosity sources.	6	29	24
AB-370	Bushouse, H.A. Gallagher, J.S.	Illinois/NOAO-KPNO NOAO/KPNO	Survey of strongly interacting galaxies.	20	28	6
AB-373	Bowers, P.F. Johnston, K.J.	NRL NRAO-CV/Maryland	OH/IR stars.	18 line	8	12 w/V8569
AB-376	Baum, S. Bridle, A. Heckman, T. Miley, G. Van Breugel, W.	NRAO-CV/Maryland NRAO/CV Maryland STScI Calif. Berkeley	Complete sample of equatorial extragalactic radio sources.	2,6,18 20	9,11,14	7
AB-386	Bottinelli, L. Gouguenheim, L. Le Squeren, A.M. Martin, J.M. Dennefeld, M.	Meudon Meudon Meudon Meudon Inst. Astrophys., Paris	OH megamaser in IRAS 17208-0014.	18,20 line	23	8.7 w/VLB-Cal
AB-391	Boisse, P. Kazes, I. Bergeron, J. Dickey, J.	Meudon Inst. de Ap., Paris Minnesota North Carolina	HI absorption in QSO galaxy pairs.	20 line	12	13
AC-138	Christiansen, W.A. Stocke, J.T.	Steward Obs NRAO	Helical jet in 3C436.	6,20	28	8 w/AR139
AC-150	Conway, J.E. Wilkinson, P.N. Cornwell, T.J.	NRAO NRAO/VLA	Complementary VLA/MERLIN observations of 3C sources.	6,18	20	5.5 w/VLB-Cal
AD-167	de Pater, I. Ip, W-H. Snyder, L. Palmer, P. Bolton, S.	Calif. Berkeley MPI, Lindau Illinois Chicago Calif. Berkeley	Radio source occultations by comet Halley.	18,20 line	16	8
AD-176	Davies, R.D. Hummel, E. Pedlar, A. van der Hulst, J.M. Molstencroft, R.D.	Jodrell Bank MPIR, Bonn NRAO/Jodrell Bank NRAO	Nuclei of Sbc galaxies.	20	17	12
AD-179	Djorgovski, S. Spinrad, H. Perley, R.	CFA Calif. Berkeley NRAO/VLA	A galaxy with $z = 3.218$.	20	28	4 w/AR139
AE-40	Emerson, D.T. Forveille, T. Weliachew, L.	IRAM IRAM IRAM	Compact HII regions in Cep A.	1,3,2,6	31	2

VLA UTILIZATION MARCH 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AE-44	Erickson, W.C. Mahoney, M.J. Kassim, N.E.	NRAO/VLA Maryland Maryland	0314+577.	90	7	5
AF-113	Feigelson, E. Clarke, D. Burns, J.	Penn State New Mexico New Mexico	Search for motion in the jet knots of Centaurus A.	2,6	14,15	10
AG-116	Gibson, D.M. Priedhorsky, W.C.	NMIMT LANL	Search for 300 day periodicity in Cyg X-1.	2,6,20	17	1.5
AG-191	Gavazzi, G. Jaffe, W.	Milan STScI	Coma/A1367 supercluster survey.	20	8,9	11
AG-206	Gardner, F.F. Whiteoak, J.B.	CSIRO CSIRO	Galaxy NGC 5793.	2,6	W/V8568, VM70	1
AG-210	Gwinn, C.R. Bartel, N.H.	CFA CFA	Search for reference sources for pulsar astronomy.	2,6	1,5	9
AG-211	Gwinn, C.R. Reid, M.J. Moran, J.M. Bloemhof, E.E.	CFA CFA CFA CFA	Search for reference sources for maser astrometry.	1,3,6	1,5	W/AG211 9
AH-201	Hintzen, P. Owen, F.	NASA-GSFC NRAO/VLA	Survey of radio QSOs to identify distorted sources.	20	6	4.5
AH-223	Harrison, B. Unger, S.W. Pedlar, A. Axon, D.J.	Jodrell Bank Jodrell Bank NRAO/Jodrell Bank Jodrell Bank	NGC 7674.	2	7	1
AH-224	Hjellming, R.M. Johnston, K.J. Schilizzi, R.	NRAO/VLA NRAO/VLA NRAO/VLA	High resolution imaging of the SS433 radio source.	2,6	10	11
AH-225	Hjellming, R.M. Davis, R.	NRAO/VLA Jodrell Bank	Radio remnant of the Jan 1985 outburst of RS Oph.	2	7	W/VM70 9
AH-227	Hjellming, R.M.	NRAO/VLA	1741-038: a rapid "scintillator".	1,3,2,6	6,20	2
AJ-129	Joseph, R.D. Collins, C.A.	Imperial College Imperial College	Discovery of a primeval galaxy?	6,20	9	W/VG32 4.5
AJ-133	Johnston, K.J. Florkowski, D. Wade, C. de Veigt, C.	NRL USNO NRAO/VLA Hamburger Stern., FRG	Relationship of the radio and optical reference frames.	6	21 24	W/VLB-Cal, VS53 24
AJ-137	Jauncey, D. White, G. Johnston, K.	CSIRO CSIRO NRL	Complementary high resolution observations of gravitational lens candidates.	2,6	30	6
AK-132	Kazes, I. Dickey, J.M.	Paris Obs Minnesota	Extragalactic OH absorption in B2 1506+34.	21 line	26	13
AK-139	Kapahi, V.K. Kulkarni, V.K.	Tata Tata	Epoch dependence of the sizes and spectra of radio galaxies.	20	31	W/AR139 12.4
AK-142	Kwok, S. Aaquist, O.	Calgary Calgary	Radio survey of compact planetary nebulae.	2,6	13,15	9
AL-108	Liszt, H. Briggs, F.H. Wolfe, A.M.	NRAO/GV Pittsburgh Pittsburgh	Search for H2CO absorption at z=2.04 towards PKS0458-02.	18 line	19	8.5
AM-169	Masson, C.R.	Caltech	Evolution of compact HII regions.	1,3,2	6	W/VG32 16
AM-170	Morris, M. Yusef-Zadeh, F.	Calif, Los Angeles Columbia	Radio extensions and the fine-scale structure of Sgr A.	2,6	3	8
AO-61	Oznovich, I. Gibson, D.M.	NMIMT NMIMT	Magnetic activity in five late-type giants and supergiants.	6	13	3.8
AO-62	O'Donoghue, A. Owen, F. Eileck, J.	NMIMT NRAO/VLA NMIMT	Wide angle tail sources.	20	25,30	30

VLA UTILIZATION MARCH 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands		Obsv date	Sched hrs
				(cm)			
AO-70	O'Dea, C. Barvainis, R.	NRAO/CV NRAO/CV	Polarization observations of core-dominated sources.	2,6	20	9	5
AP-108	Phillips, J.P. Mampaso, A.	Queen Mary College IAC, SPAIN	Core mapping of post-main-sequence binaries.	2,6,20	20,25	1	2
AP-111	Pedlar, A. Ekers, R.D. van Gorkom, J.H. Anantharamaiah, K.R.	NRAO/Jodrell Bank NRAO/VLA Princeton/NRAO Raman Inst.	Galactic Centre.	90 line	20,25	29	8
AP-112	Pedlar, A. Perley, R. Crane, P.C. Davies, R.D.	NRAO/Jodrell Bank NRAO/VLA NRAO/VLA Jodrell Bank	NGC 1275.	90	20,25	2	11.7
AP-114	Pedlety, J. Rudnick, L. Spinrad, H. van Breugel, W.	Minnesota Minnesota Calif, Berkeley Calif, Berkeley	Extended extranuclear emission-line gas in 3C337.	2,6	20,25	18	12
AR-119	Rao, A. Subrahmanyan, R.	TIFR TIFR	Double source showing peaked spectrum.	6	12,13	12	1.8
AR-131	Rodriguez, L.F. Torrelles, J.M. Canto, J. Curiel, S. Ho, P.T.P. Pravdo, S.	UNAM UNAM UNAM UNAM CFA JPL	Herbig-Haro 1 and 2 region.	2,6	12,13	1,3	19
AR-139	Reid, M.J. Moran, J.M. Gwinn, C.R. Schneps, M.H. Genzel, R.	CFA CFA CFA CFA Calif, Berkeley	Distance to the Galactic Center region via a statistical parallax of the Sgr B2 H2O masers.	1.3 one antenna MK 111 VLB1	26,27	W/AK132, AS80, AV96, AD179, AC138	22.5
AS-80	Sramek, R.A. van der Hulst, J.M. Weller, K.W.	NRAO/VLA NRAO/VLA NRL	Supernovae SN1980 in NGC 6946 and SN1979c in M100.	6,20	27	W/AR139	5
AS-211	Sramek, R. Weller, K. van der Hulst, J.	NRAO/VLA NSF NRAO/VLA STSci	Statistical properties of radio supernovae.	2,6,20	12,15	W/VB64	3.5
AS-246	Schmelz, J.T. Haschick, A.D. Baan, W.A.	Arecibo Haystack Arecibo	H1 and OH characteristics of Mrk 273.	21 line	12,13		17.5
AT-69	Taylor, A.R. Seagquist, E.R.	Kapteyn Lab Toronto	Two epoch mapping of the OH Cyg radio jet.	1.3,2,6 20	20,25 W/VG32, V8468		20.2
AT-72	Tyson, J.A. Partridge, R.B. Windhorst, R. Seitzer, P.	Bell Labs Haverford College Mt Wilson NOAO	Radio survey of ultra deep optical fields.	20	1,2,3,5		24
AV-96	van der Hulst, J.M. Sramek, R.A. Weller, K.W.	NRAO/VLA NRAO/VLA NRL	Radio supernova in NGC 4258.	6,20	27		1.5
AV-128	Van Buren, D.	Colorado, JILA /NBS	M1-67, a rapidly expanding shell of ejecta from the WR star BAC209.	2	11		5
AV-130	Velusamy, T. Goss, W.M.	Tata Groningen	G54.7+06, a very steep spectrum source.	6,20	2		1
AW-149	Wrobel, J.M. Cohen, M.H. Lind, K.R. Pearson, T.J. Readhead, A.C.S.	NMIMT Caltech Caltech Caltech Caltech	Rotation measures of VLBI survey core-jet sources.	6,18,20	22		14

VLA UTILIZATION MARCH 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AW-154	Walmsley, M. Wouterloot, J. Johnston, K.J. Wilson, T.	MPiR, Bonn MPiR, Bonn NRL MPiR, Bonn	Position and 6cm flux density of IRAS 05413-0104.	1.3, 6 line	17	1.5
VB-64	Bloemhof, E.E. Reid, M.J. Moran, J.M.	CFA CFA CFA	Proper motions of Hydroxyl masers in M3(OH).	18	12	14.2
VC-32	Cotton, W.D. Baath, L.B. Geldzahler, B.J.	NRAO/CV Onsala NRL	Optically quiet quasars.	90 MK 11 VLB	19 MK 11 VLB	24 21
VL-41	Lestrade, J.P. Mutel, R. Preston, R. Niell, A.	Bureau de Longitudes, Paris Iowa JPL JPL	Choice of active stars for VLB astrometry.	6, 18	2	3.8
VM-70/ V8571	Mutel, R. Spangler, S. Cordes, J. Le Squeren, A.	Iowa Iowa Cornell Meudon	Angular broadening near the the Cygnus superbubble.	18 single antenna VLB	10	12.5 w/AG191, AH224
VM-75	Mutel, R.L. Bucciferro, R. Hodges, M.W. Phillips, R.B.	Iowa Iowa Caltech Haystack	Two new compact doubles.	6, 18 phased array MK 11 VLB	16	21
VS-53	Simon, R.S. Cotton, W.D. Rickett, B.J.	NRL NRAO/CV Calif., San Diego	Refractive scintillation model for low frequency variability.	92 single antenna MK 11 VLB	21	10.7 w/AJ133
VS-58	Spangler, S. Mutel, R. Cordes, J.	Iowa Iowa Cornell	Source near the supernova remnant HB9.	92 phased array MK 11 VLB	23	14.4
V8459	van Breugel, W. Fanti, C. Fanti, R. Parma, P. Schilizzi, R.	Calif., Berkeley Bologna Bologna Bologna NRAO		18 phased array VLB	11, 13	16.4
V8468	Altschuler, D. Dennison, B.	Puerto Rico VPI&SU	Low frequency variables.	90 phased array VLB	22, 24	48.5 w/AT69
V8568	Wilkinson, P. Conway, J.E. Benson, J.M.	Jodrell Bank Jodrell Bank NRAO/CV		18 single antenna VLB	8	16 w/AB368, tests, AG191, AJ129
V8569	Davis, R.J. Umwin, S. Porcas, R. Conway, R.	Jodrell Bank Caltech MPiR, Bonn Jodrell Bank		18 single antenna VLB	7	8.8 w/AA52, AB373
	NRAO staff		Electronics Software Pointing, baselines, startup General tests JPL tests VLB-Cal			50.3 23.2 40.1 51.0 5.5 2.5

VLA UTILIZATION MARCH 1986 (Cont.)

The average downtime for the month of March, 1986 was approximately 8.80 percent.

$$\text{Average downtime of operational antennas} = \frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}} \times 100$$

where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 100.0 percent (7746.1 hours) of the time: 77.5 percent (578.3 hours) to astronomical programs, 12.6 percent (94.3 hours) to scheduled test/calibration, and the remaining 9.9 percent (73.5 hours) went to scheduled maintenance.

The total number of programs run for the month of March, 1986 was 67.

The following independent proposals shared simultaneous observing time (131.4 hours Total Simultaneous Observing):

AG210/AG211	6.0
AA52/V8569	7.4
AB373/V8569	1.4
Tests/V8568	0.6
AG191/V8568	4.0
AB368/V8568	8.0
AJ129/V8568	3.4
AG191/VMT0	1.5
AH224/VMT0	11.0
AB391/VB64	13.0
AS211/VB64	1.2
AB357/VC32	0.8
AL108/VC32	8.5
VC32/Pointing	5.0
Tests/VC32	1.5
AH227/VC32	1.0
AT69/VC32	7.2
AC150/VLB-Ca1	0.7
AJ133/VLB-Ca1	1.1
AJ133/VS53	10.7
AB386/VLB-Ca1	0.7
AT69/V8468	11.2
AK132/AR139	10.3
AS80/AR139	1.2
AV96/AR139	1.5
AD179/AR139	4.0
AC138/AR139	5.5

VLA UTILIZATION FEBRUARY 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AB-129	Burke, B.F. Hewitt, J.N. Roberts, D.H.	MIT MIT Brandeis	Time variations in 0957+561.	6	18	2
AB-318	Brown, A. Drake, S.A. Walter, F.M.	Colorado NASA/GSFC Colorado	Southern PMS stars.	6	27 w/VL43, VC41	4
AB-357	Becker, R. White, R.L.	Calif Davis STScI	Monitoring radio flux of radio star HD193793.	6	28	1
AB-376	Baum, S. Bridle, A. Heckman, T. Miley, G. Van Breugel, W.	NRAO/Maryland NRAO/CV Maryland STScI Calif Berkeley	Complete sample of equatorial extragalactic radio sources.	2,6,18 20	2	3.5
AB-382	Brown, A.	Colorado	Variability of CQ Dra: a red giant 'AM Her' system?	6	14,21 w/Move/Op	8
AB-383	Bookbinder, J. Lamb, D.	Colorado Chicago	Monitoring radio emission from AE Aqr.	6,20	20	10
AB-384	Bookbinder, J. Golub, L.	Colorado CFA	Search for radio emission from K and M stars.	6	7,8,9	20 w/VC41
AC-151	Caillaud, J-P.	Colorado	By Draconis variables.	6		39
AD-178	Drake, S.A. Simon, T. Linsky, J.L.	NASA/GSFC Hawaii Colorado	Radio survey of confirmed and proposed RS Canum venaticorum binaries.	6	21,24	19.5
AE-45	Ekers, R.D. Sramek, R.A. Cowan, J. Branch, D. Goss, W.M.	NRAO/VLA NRAO/VLA Oklahoma Oklahoma Groningen, NETH	Search for very young SNRs.	2,20 line	2	6
AF-119	Feldman, P.A. Bopp, B.W.	HIA, CAN Toledo	FK Comae stars.	2,6	16	24
AF-120	Florkowski, D.R. Johnston, K.J.	USNO NRL	Search for radio emission stars from two Cyg X-3 - like binaries: 2A/4U 1822-371 and 4U 2129+470.	6	22	8.5
AG-116	Gibson, D.M. Priedhorsky, W.C.	NMIMT LANL	Search for 300 day periodicity in Cyg X-1.	2,6,20	13,28	2
AG-145	Geldzahler, B. Schwartz, P. Gear, W. Ade, P. Robson, I. Nolt, I. Smith, M.	App. Res. Corp./NRL NRL Queen Mary Coll, UK Queen Mary Coll, UK UKIRT Oregon ROE, UK	Spectra of Blazars.	1.3,2,6, and 20	23,26	7 w/VR39
AG-208	Geldzahler, B.	App. Res. Corp./NRL	Low-mass X-ray binaries.	6	12,15	5
AH-195	Hjellming, R.M. Davis, R.	NRAO/VLA Jodrell Bank, UK	Recurrent nova RS Oph	1.3,2,6 20	15	2
AH-226	Hjellming, R.M.	NRAO/VLA	Radio source evolution in VV Cep type binaries.	2,6,20	15,21	19 w/Move/Op
AH-227	Hjellming, R.M.	NRAO/VLA	1741-038, a rapid "scintillator".	1.3,2,6 20,90	20	1
AJ-130	Johnston, K. Wadiak, J. Rood, R. Wilson, T.	NRL NRAO/CV Virginia MPIR, Bonn	Protostars in Orion: Formaldehyde in the peaks north of BN/KL.	2 line	1	9
AK-141	Kronberg, P.P.	Toronto, CAN	Polarization of quasars from the Molongolo survey.	1.3,2,6 20	5	24

VLA UTILIZATION FEBRUARY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
VB-67	Backer, D. Wright, M. Plambeck, R. van Breugel, W. Readhead, A.	Calif. Berkeley Calif. Berkeley Calif. Berkeley Calif. Berkeley Caltech	3084.	single antenna VLB	25	12.9 w/AM124, A061, Tests
VC-41	Corey, B. Jones, D. Shapiro, I. Whitney, A.R.	Haystack JPL CFA	Search for changes in 0235+164 and 0234+285.	single antenna VLB	27	10 w/AB318, AB384
VL-33	Lo, K.Y. Backer, D. Kellermann, K. Ekers, R. Johnston, K. Moran, J. Cohen, M.H.	Caltech Calif. Berkeley NRAO/CV NRAO/VLA NRL CFA	Sgr A compact source.	phased array MK III VLB	25	8.5
VL-43	Lawrence, C. Readhead, A. Linfield, R. Payne, D.G. Preston, R.A. Schilizzi, R. Porcas, R. Booth, R. Burke, B.	Caltech Caltech JPL JPL JPL NFFRA, NETH MPIR, Bonn Onsala MIT	Strong source survey.	single antenna VLB	26	21.9 w/Cal. Evaluations, Move/Op, AM148, AM124, AB318
VR-39	Reid, M. Moran, J. Gwinn, C. Schneps, M. Genzel, R. NRAO staff	CFA CFA CFA CFA Calif. Berkeley	Statistical parallax of Sgr B2 masers.	single antenna MK III VLB	26	11.6 w/Cal. Evaluations, Tests, AG145

The average downtime for the month of February, 1986 was approximately 10.51 percent.

Average downtime of $\frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}}$ x 100
 where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 100.0 percent (673.9 hours) of the time: 69.7 percent (469.9 hours) to astronomical programs, 19.8 percent (133.3 hours) to scheduled test/calibration, and the remaining 10.5 percent (70.7 hours) went to scheduled maintenance.

The total number of programs run for the month of February, 1986 was 46.

The following independent proposals shared simultaneous observing time (73.8 hours Total Simultaneous Observing):

AM153/Move/Op	5.0
AL115/Move/Op	4.2
AB382/Move/Op	0.5
AN36/Move Op	2.5
AH226/Move/Op	5.2
AM124/VB67	3.9
A061/VB67	4.0
Tests/VB67	5.0
Tests/VR39	5.2
AG145/VR39	4.0
VR39/Cal. Evaluations	2.4
VL43/Cal. Evaluations	8.1
Tests/VL43	0.5
VL43/Move/Op	4.5
AM148/VL43	3.0
AM124/VL43	3.0
AB318/VL43	2.8
AB318/VC41	1.2
AB384/VC41	8.8

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VLA UTILIZATION JANUARY 1986

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AB-347	Brown, A. Mundt, R.	Colorado MPI Heidelberg, FRG	Extended microwave-emitting regions around HL and XZ Tau.	2	14	4.5
AB-351	Drake, S.A. Birkinshaw, M.	NASA, Goddard Harvard Coll. Obs	Radio sources confusing observations of the microwave background decrement.	2, 6	11	20
AB-353	Moffet, A.T. Bhattacharya, D. Srinivasan, G.	Caltech Raman Inst, INDIA Raman Inst, INDIA	H10 alpha recombination line toward compact sources in the Galactic Plane.	6 line	3, 11	8.5
AB-357	van Gorkom, J.H. Becker, R.	Princeton/VLA Calif Davis	Monitoring the radio flux of the radio star HD193793.	6	28	1
AB-367	White, R.L. Bode, M.F. Sequist, E.R. Evans, A.	STScI Manchester, UK Toronto, CANADA Keele, UK	Follow-up survey of extended nova remnants.	6, 20	28	4
AB-376	Albinson, J.S. Baum, S. Bridle, A. Heckman, T.	NRAO/Maryland NRAO/CV Maryland	Complete sample of equatorial extragalactic radio sources.	2, 6, 18 20	11, 28	5
AB-381	Miley, G. van Breugel, W. Beckwith, S. Cordes, J.	Calif Berkeley Caltech/Cornell Cornell	Young stellar object HL Tau: search for dust emission.	1.3	17, 18	17
AB-385	Sargent, A. Barsony, M. Scoville, N.	Caltech Caltech	R Mon star-forming region.	1.3, 2, 6	2	6.5
AC-101	Condon, J.J.	NRAO/CV	Continuum survey of bright spiral galaxies.	20	23, 28, 29	23
AC-146	Churchwell, E. Felli, M. Massi, M.	Wisconsin Arcetri, ITALY	Orion A.	6, 20	9	11
AC-148	Cameron, R. Parma, P. de Ruiter, H.	ANU, AUST Bologna, ITALY Bologna, ITALY	Structure of dumbell radio galaxies.	6	9, 11, 23	6
AC-152	Chance, D. Yusef-Zadeh, F.	Columbia Columbia	Filamentary features in the outer Orion Nebula.	6, 20	24	10
AD-166	Dulk, G.A. Bastian, T.S. Lang, K.R.	Colorado Colorado	Solar transition region and Corona.	6, 20	24	8
AD-167	Willson, R.F. de Pater, J. Ip, W-H. Snyder, L. Palmer, P. Bolton, S.	Tufts Calif Berkeley MPI Lindau, FRG Illinois Chicago Calif Berkeley	OH in comet Halley.	18 line	4, 6	16
AD-173	Dickey, J.M. Salpeter, E.E.	Minnesota Cornell	H I in galaxies in the cluster A400.	20 line	19	12
AD-177	Duric, N. Sequist, E.R.	British Columbia, CANADA Toronto, CANADA Toronto, CANADA	NGC 3079.	2, 6, 20	15	12.5
AE-42	Crane, P.C. Ekers, R.D. Fanti, R. Fanti, C. Parma, P.	NRAO/VLA NRAO/VLA NRAO/VLA Bologna, ITALY Bologna, ITALY	B2 1637+28.	6	10	5
AE-43	Elston, R.	Steward Obs	3 interacting galaxies with extended radio emission.	2	3	12

VLA UTILIZATION JANUARY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AE-45	Ekers, R.D. Sramek, R.A. Cowan, J. Branch, D. Goss, W.M.	NRAO/VLA NRAO/VLA Oklahoma Oklahoma Groningen, NETH	Search for very young SNRs.	2, 20 line	31	3
AF-116	Fergelson, E.	Penn State	Multi-band observations of rapidly variable BL Lac H0323+022. Sco X-1.	2, 6, 20	3-6, 8	5
AF-117	Fomalont, E.B. Geidzhaler, B.J.	NRAO/CV NRL/ARC	Sco X-1.	6, 20	9	6
AG-116	Gibson, D.M. Priedhorsky, W.C.	NMIMT LANL	Search for 300 day periodicity in Cyg X-1.	2, 6, 20	16, 28	2.5
AG-205	Garay, G. Andersson, M.	ESO, FRG Onsala, SWEDEN	Ammonia observations of the hot molecular gas associated with the ultracompact HII region G34.3+0.2.	1.3 line	23	8 w/AR139
AG-210	Gwinn, C.R. Bartel, N.H.	CFA CFA	Search for reference sources for pulsar astrometry.	20	18	9 w/AG211
AG-211	Gwinn, C.R. Reid, M.J. Moran, J.M. Bloemhof, E.E.	CFA CFA CFA CFA	Search for reference sources for maser astrometry.	6, 20	18	9 w/AG210
AH-195	Hjellming, R.M. Davis, R.	NRAO/VLA Jodrell Bank, UK	Recurrent nova RS Oph.	1.3, 2, 6	21	2
AH-206	Heifand, D.J. Becker, R. Zoonevakermani, S.	Columbia Calif Davis Columbia	Field surrounding G12.0-0.1: a cluster of supernova remnants?	21 line	21	4
AH-207	Heiou, G. Salpeter, E.E. Hoffman, G.L.	IPAC/Caltech Cornell Lafayette College	H I mapping irregular and dwarf galaxies.	21 line	11, 13, 14	18.5
AH-210	Ho, P.T.P. Haschick, A. D. Klein, R.L.	CFA Haystack Obs Calif Berkeley	Dynamics of ionized gas surrounding OB clusters.	6 line	25	8
AH-214	Higdon, J.L.	Texas	H I in ring galaxies.	21 line	8, 10	17
AH-218	Ho, P.T.P. Heiles, C.E.	CFA Calif Berkeley	Survey for OH emission in magnetic(?) disk-like structures.	18 line	25	6.5
AH-222	Hardy, E. Noreau, L.	Laval, CANADA Laval, CANADA	H I environment of high redshift quasars.	90 line	18, 19, 23	13
AH-227	Hjellming, R.M.	NRAO/VLA	1741-038: a rapid "scintillator".	1.3, 2, 6 20, 90	11, 31	2
AI-24	Irwin, J.A. Seagquist, E.R. Durrig, N. Taylor, A.R.	Toronto, CANADA Toronto, CANADA British Columbia, CANADA Groningen, NETH	Neutral hydrogen observations of NGC 3079.	21 line	14	6
AJ-131	Johnston, K. Florkowski, D. devegt, C. Wade, C.M.	NRL USNO Hamburg, FRG NRAO/VLA	Parallax of the nearby stars: HR 5110, search for comparison sources.	20	31	4
AJ-134	Johnston, K. Eckart, A. Witzel, A. Schalinski, C.	NRL Arizona MPI FR, FRG MPI FR, FRG	Search for extended structure in bright S5 sources.	20	3, 10, 26	12.5
AK-133	Keto, E. Ho, P.T.P. Haschick, A.	CFA CFA Haystack Obs	Spin-up and accretion in molecular cloud cores around OB clusters.	1.3 line	27	8
AK-140	Kailey, W.F. Elston, R.	Steward Obs Steward Obs	Search for supernova remnants near the nucleus of M33.	6	31	8

VLA UTILIZATION JANUARY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AL-107	Little, L.T. Heaton, B.D. Davies, S.R. Dent, W.R.F.	Kent, UK Kent, UK Kent, UK Kent, UK	Interactions of HI regions and stellar winds with surrounding molecular material.	1.3 line	13,14,19	15
AL-109	Liszt, H.	NRAO/CV	Sgr C.	6	30	4
AL-111	Lake, G. Schommer, R.A. van Gorkom, J.	Bell Labs Rutgers Princeton/NRAO	Rotation curve of NGC 5666.	21 line	6	6
AL-112	Lake, G. Schommer, R.A. van Gorkom, J.	Bell Labs Rutgers Princeton/NRAO	Rotation curves of dwarf galaxies.	21 line	16,20	16.6
AL-114	Lang, K.R. Willson, R.F.	Tufts Tufts	Compact, transient sources on the sun.	2	17	10
AM-157	Mirabel, I.F. Rodriguez, L.F. Canto, J. Ruiz, A.	Puerto Rico UNAM, MEXICO UNAM, MEXICO Puerto Rico	High velocity OH in absorption toward selected sources.	18 line	12 13	10 9.5 w/AR131
AO-64	Owen, F.	NRAO/VLA	Large scale structure of M87.	18,20	21,28	12.5
AP-109	Partridge, R.B. Windhorst, R.	Haverford College Mt Wilson	Spectral indices of mJy and sub-mJy sources.	6	21,22,26	24.6
AP-110	Pottasch, S. Bignell, C. Zijlstra, A.	Groningen, NETH NRAO/VLA Groningen, NETH	Survey of planetary nebulae.	6,20	4	21
AR-131	Rodriguez, L. Torrelles, J. Canto, J. Curiel, S. Ho, P. T. P.	UNAM, MEXICO UNAM, MEXICO UNAM, MEXICO UNAM, MEXICO CFA	Herbig-Haro 1 and 2 region.	2,6	13	9.5 w/AM157
AR-138	Pravdo, S. Rickard, L.J. Welland, J. Hauser, M.G. Magnani, L. Blitz, L.	JPL NRL Maryland NASA Goddard Maryland Maryland	Study of the HI structures of high-latitude molecular clouds.	21 line	20	14.9
AR-139	Reid, M.J. Moran, J.M. Gwinn, C.R. Schneps, M.H. Genzel, R.	CFA CFA CFA CFA Calif Berkeley	Distance to the Galactic Center region via a statistical parallax of the Sgr B2 H2O masers.	1.3 cm VLB w/AG205, single antenna	23 w/AG205, AP109	10.9 10.9
AS-247	Seauquist, E.R. Frail, D. Bode, M.F. Evans, A. Albinson, J.S.	Calif Berkeley Toronto, CANADA Toronto, CANADA Manchester, UK keele, UK keele, UK	HI absorption observations of GK Per.	21 line	27	12
AS-250	Seauquist, E.R. Henriksen, R.N. Bell, M.B.	Toronto, CANADA Queen's U, CANADA NRC, CANADA	Search for a galactic wind from the nuclear region of M82.	6,20	25	12
AS-254	Schwartz, P.R.	NRL	Radio emission from bright rims.	2,6	30	8
AS-257	Snyder, L. de Pater, I. Palmer, P.	Illinois Calif Berkeley Chicago	Search for Formaldehyde in comet Halley.	6 line	12,26,31	19.5
AT-68	Torrelles, J.M. Rodriguez, L.F. Canto, J. HO, P. T. P.	UNAM, Mexico UNAM, Mexico UNAM, Mexico CFA	Broad ammonia emission from L1551 and Cep A.	1.3 line	16	10.2

VLA UTILIZATION JANUARY 1986 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AU-22	Uson, J.M.	NRAO/CV	Background sources contaminating measurements of the Sunyaev-Zeldovich effect.	2,6	1,30	11
AV-131	Vilhu, O. Caillaud, J.P.	Colorado Colorado	Radio and X-ray emission in contact binaries: VV Cep.	6	2	12
AW-151	White, R.L. Becker, R.H. NRAO staff	STScI Calif Davis	Nebulosity around Lk Halpha 101. Electronics Software Pointing, baselines, startup General tests Tests JPL New Years Day	6	3	3

The average downtime for the month of January, 1986 was approximately 15.36 percent.

Average downtime of $\frac{\text{Total number of antenna-hours of operational antennas lost due to hardware and software failures during scheduled observing}}{\text{Total number of antenna-hours of operational antennas scheduled}}$ X 100

Where "antenna-hours" definition is: An array consisting of N antennas operating for Y hours is defined to have YN antenna-hours operation.

The array was scheduled 97.8 percent (730.0 hours) of the time: 74.6 percent (556.8 hours) to astronomical programs, 12.5 percent (93.5 hours) to scheduled test/calibration, and the remaining 10.7 percent (79.7 hours) went to scheduled maintenance.

The total number of programs run for the month of January, 1986 was 58.

The following independent proposals shared simultaneous observing time (29.4 hours Total Simultaneous Observing):

AR131/AM157	9.5
AG210/AG211	9.0
AP109/AR139	1.5
AH222/AR139	2.0
AG205/AR139	7.4
	<u>29.4</u> hours

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