VLA UTILIZATION REPORT—DECEMBER 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv date	Sched hrs
AB-213	A.O. Benz E. Furst W. Hirth A. Kiplinger	ETHZ Zurich, SWITZERLAND MPIR, FRG U. Bonn, FRG NASA/GSFC	Search for radio emission in different phases of dwarf novae.	6 and 2 or 18	8,10 16,20 21	25.5 w/VS-33, VW-24
AB-228	R. White R. Becker	STScI VPI & SU	Early-type stars.	2 and 20	4	3
AB-243	A. Bosma E. Athanassoula A.H. Rots J.M. van der Hulst P.C. Crane	Leiden U, NETHERLANDS Obs. Besancon, FRANCE NRAO/VLA NFRA, THE NETHERLANDS NRAO/VLA	HI in the grand design spiral galaxy M51 (NGC 5194).	21 line	31	12
AB-256	D. Branch J.J. Cowan	Oklahoma U of Oklahoma U of	Search for supernovae in NGC 3184.	20	17	6.5
AB-261	P. Biermann A.H. Bridle P.P. Kronberg	MPIR, FRG NRAO/CV Toronto U, CANADA	Structure of the extended radio emission associated with the X-ray emitting galaxy NGC5846.	2, 6 and 20	26	1
AB-262	A. Brown R. Mundt S.A. Drake J.L. Linsky F.M. Walter	Colorado U of MPI Heidelberg, FRG Colorado U of Colorado U of Colorado U of	Jets from young stars.	6	30	5
AB-268	J. Bookbinder L. Golub	CFA CFA	Mu Orionis and the Am stars.	2, 6 and 20	17	4
AC-81	M.J. Claussen K.Y. Lo J. van Gorkom	Caltech Caltech NRAO/VLA	Monitoring the flux of the compact source at the galactic center.	1.3, 2 and 6	13	2
AC-85	S. Colgan E. Salpeter Y. Terzian	Cornell Cornell Cornell	Formaldehyde absorption in 3C123.	6	27	6.5
AC-86	J.J. Cowan D. Branch	Oklahoma U of Oklahoma U of	Supernova 1957d in M83.	20	15	6
AD-85	I. de Pater D.M. Hunten J. Caldwell J.R. Dickel T.Owen	Arizona U of Arizona U of SUNY, Stony Brook Illinois U of SUNY, Stony Brook	Planetary atmospheres: Saturn.	20	4	6
AD-90	J.M. Dickey R. Perley	Minnesota U of NRAO/VLA	Survey of the first quadrant of the Galactic Plane.	20	30	9
AD-94	I. de Pater K.W. Weiler R. Fanti C. Fanti	Arizona U of NSF Bologna U, ITALY Bologna U, ITALY	Polarization characteristics in variable radio sources.	2, 6 and 21	1,4,9	7 w/VS-33, VW-24
AD-96	J. Danziger W.M. Goss R.D. Ekers	ESO, FRG VLA/Groningen U, NETH NRAO/VLA	PKS 0521-36, a BL Lac object with optical jets.	20	14	3
AD-115	H.R. Dickel W.M. Goss	Illinois U of VLA/Groningen U, NETH	Continuum structure of the ultra compact HII regions W58 C1 and C2.	2 and 6	27	1
AF-61	J.R. Forster J.L. Caswell	CSIRO, AUSTRALIA CSIRO, AUSTRALIA	Absolute positions of OH and H2O masers.	18	6,11 w/VP-46,VS-33,	20 VW-24
AG-116	D.M. Gibson W.C. Priedhorsky	NMIMT/Colorado U of LANL	Monitoring to search for 300 day period in Cyg X-1.	2, 6 and 20	4	1
AG-117	D.M. Gibson J.L. Linsky J.A Warwick C.O. Hayenga	NMIMT/Colorado U of Colorado U of Colorado U of NMIMT	Quiescent emission from dMe stars at M1C.	2, 6 and 20	9,12,15 19,23	15 w/VS-33, VW-24

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv date	Sched hrs
AG-127	F.F. Gardner J.B. Whiteoak V. Pankonin	CSIRO, AUSTRALIA CSIRO, AUSTRALIA NSF	13C isotope of formaldehyde: Sgr B2.	6 line	16	7.5 w/AG128
AG-128	F.F. Gardner J.B. Whiteoak J.R. Forster V. Pankonin	CSIRO, AUSTRALIA CSIRO, AUSTRALIA CSIRO, AUSTRALIA NSF	Formaldehyde masers in Sgr B2.	6 line	16	7.5 w/AG127
AG-129	D.E. Gary J.L. Linsky	Caltech Colorado U of	Coordinated microwave, optical and ultraviolet observations of the eclipsing binary YY Gem.	2, 6 and 20	10,13	18 w/VS-33 VW-24
AG-138	D.M. Gibson J.P. Cox	NMIMT/Colorado U of NMIMT	Survey of solar neighbourhood flare stars.	2	3,12 22	15 w/VN-8, VS-33,VW-24
AH-122	D. Hunter J.H. van Gorkom	KPNO NRAO/VLA	HI observations of non-interacting irregular galaxies.	21 line	26	16
AH-138	R.M. Hjellming R.C. Bignell B. Balick	NRAO/VLA NRAO/VLA Huygens Lab, The NETHERLANDS	Interacting wind shock front in IC3568.	2	28	3
AJ-102	W.J. Jaegers H. van der Laan R.H. Sanders A.H. Bridle E.B. Fomalont	Leiden U, THE NETHERLANDS Leiden U, THE NETHERLANDS Groningen U, NETHERLANDS NRAO/CV NRAO/VLA	The 3C130 sources.	6 and 20	29	8
AK-97	N. Killeen G. Bicknel R. Ekers	ANU, AUSTRALIA ANU, AUSTRALIA NRAO/VLA	PKS 1333-33	6	12,13,16 22 18	w/VS-33, VW-24
AK-98	N. Killeen G. Bicknel R. Ekers	ANU, AUSTRALIA ANU, AUSTRALIA NRAO/VLA	PKS 0336-35	6, 18 and 20	11,13,15 24 16	w/VS-33, VW-24
AL-66	J.L. Linsky S.A. Drake	Colorado U of Colorado U of	Mass loss rates from late-type giant and supergiant stars.	2 and 6	23,26	9
AL-71	J-F. Lestrade R.L. Mutel R.A. Preston D. Doiron	JPL/CNRS, FRANCE Iowa U of JPL Iowa U of	RS CVn binaries: search for radio emission.	6 and 18	23	8
AM-74	J.M. Moran L.F. Rodriguez	CFA UNAM, MEXICO	Precise astrometric measurements of the maser in NGC6334.	20	9	4.5 w/VS-33,VW-24
AM-99	S. Morris M.J. Ward A.S. Wilson	IA, Cambridge, ENGLAND IA, Cambridge, ENGLAND Maryland U of	Barred spiral NGC 5643.	6 and 20	17	3.5
AM-107	L. Molnar M. Reid J. Grindlay	Harvard U CFA CFA	Polarization monitoring of Cygnus X-3 to verify 4.8h periodicity in position angle of polarization.	2 and 6	3	11 w/VN-8, VP-46
AR-86	N. Kameswara Rao V.R. Venugopal	Indian Inst. Astr.,INDIA TIFR, INDIA	Extreme hydrogen deficient stars.	2 and 6	12	2.5 w/VS-33,VW-24
AS-79	S. Spangler W. Cotton S. Allendorf	Iowa U of NRAO/CV Iowa U of	Monitoring low frequency variables.	1.3, 2, 6 and 20	2,18	7.5
AS-80	R.A. Sramek J.M. van der Hulst K.W. Weiler	NRAO/VLA NFRA, THE NETHERLANDS NSF	Monitoring supernovae SN1980k in NGC6946 and SN1979c in M100.	6 and 20	4,19,22	10 w/VP-46
AS-177	R. Schlickeiser W. Seiber H. Kuhr	MPIR MPIR Arizona U of	Radio sources near gamma ray sources.		26,28	8

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv date	Sched hrs
AS-180	E.E. Salpeter S. Schneider Y. Terzian G. Helou J.M. Dickey	Cornell U Cornell U Cornell U Cornell U Minnesota U of	Search for absorption in tenuous envelopes of galactic disks.	21 line	9,30	3
AT-44	R.J. Tuffs P.E. Angerhofer M.T. Brown S.F. Gull R.A. Perley	MRAO, ENGLAND USNO MRAO, ENGLAND MRAO, ENGLAND NRAO/VLA	Structural and secular changes within Cassiopeia A.	6	31	9.5
AT-45	C. Tadhunter R.A. Laing R.A.E. Fosbury	Sussex U, ENGLAND RGO, ENGLAND RGO, ENGLAND	Elliptical radio galaxies with extended emision-line regions.	6	18	17.5
AV-86	W. van Breugel T. Heckman G. Miley M-H. Ulrich	Arizona U of Maryland U of Leiden U, THE NETHERLANDS ESO, FRG	Optical line emission along the radio axes of two classical doubles.	20	13	4.5
AV-89	W. van Breugel C. Fanti R. Fanti R. Schilizzi G. Miley T. Heckman	Arizona U of Bologna U, Italy Bologna U, Italy NFRA, THE NETHERLANDS Leiden U, THE NETHERLANDS Maryland U of	Steep spectrum radio cores.	20	26	1
AV-90	W. van Breugel R. Schilizzi	Arizona U of NFRA, THE NETHERLANDS	Curved jet in Mk 501.	20	27	1
AW-48	C.M. Wade K.J. Johnston P.K. Seidelmann G.H. Kaplan	NRAO/VLA NRL USNO USNO	Astrometric observations of minor planets.	2 and 6	10,17	21.5 w/VS-33, VW-24
AW-78	J.F.C. Wardle R.A. Laing	Brandeis U RGO, ENGLAND	Monitoring the variability of the central components of extended radio sources.	2 and 6	19,20	9
AW-82	A.S. Wilson R.A.E. Fosbury E.J.A. Mears	Maryland U of RGO, ENGLAND MPIA, FRG	Arakelyan 102, giant radio galaxy, and ZW 1504+105, highly polarized source.		28,29	7.5
AW-101	P.N. Wilkinson T.J. Cornwell	Jodrell Bank, UK/NRAO-CV NRAO/VLA	Polarization and spectral study of the peculiar radio structure in QSO1828+48 (3C380).	1.3, 2 and 6	26	4
VAH-19	N. Bartel	CFA	0014+81.	6 cm phased array MK III VLB	4	1.7
VAH-20	D.E. Harris C. Costain P. Dewdney M. Reid	CFA NRCC, CANADA DRAO, CANADA CFA	Test of X-ray emission process for a radio galaxy in Abell 754.	6 cm phased array MK III VLB	8	1
VB-47	N. Bartel	CFA	SN 1979c (second epoch).	6 cm phased array MK III VLB	1	6
VB-50	A.G. de Bruyn S.G. Neff	NFRA, THE NETHERLANDS NFRA, THE NETHERLANDS	Structure and Proper motions in core-jet Seyfert Mkn348.	6 cm phased array MK III VLB	2	12 w/VN-8
VD-2	G. de Waard G.K. Miley R.T. Schilizzi E. Preuss	Leiden, THE NETHERLANDS Leiden, THE NETHERLANDS NFRA, THE NETHERLANDS MPIR, FRG	Study of non-thermal/thermal relationship in active nuclei.	6 cm phased array MK III VLB	1	12

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv date	Sched hrs
VM-51	L. Molnar M. Reid J. Romney	CFA CFA MPIR, FRG	Polarizing synthetic objects of core-jet sources.	6 cm phased array MK III VLB	6,7	35 w/VP-46
VN-8	S.G. Neff T.W.B. Muxlow	NFRA, THE NETHERLANDS	Proper motions in 3C418.	6 1 antenna VLB	3	12 w/move, AM-107, VB-50, AG-138
VP-46	T.J. Pearson A.C.S. Readhead	Caltech Caltech	Observations of a complete sample. (Second epoch)	6 1 antenna VLB	3,6	31 w/move, AF-61, VM-51, AM-107, AS-80, VR-26
VR-26	D.H. Roberts J.F.C. Wardle R.I. Potash B.F. Burke A.E.E. Rogers	Brandeis Brandeis Brandeis MIT Haystack Obs.	Linear polarization measurements of strong extragalactic sources.	6 cm phased array MK III VLB	4	30
VS-33	R.S. Simon R.E. Spencer P.N. Wilkinson M.P. Chown A.C.S.Readhead	NRL Jodrell Bank, ENGLAND Jodrell Bank, ENGLAND Caltech Caltech	Compact extragalactic radio sources.	90 1 antenna VLB	8-12	96 w/VW24,AB213, AD94,AM74,AG117,tests, baselines,pointing,AW48, AG129,AF61,AK98, AG138,AK97,AR86,AG117,software
VW-24	J.M. Wrobel R.S. Simon	Caltech NRL	Compact radio sources in galaxy pairs - 0116+319.	90 1 antenna VLB	8-12	96 w/VS33,AB213, AD94,AM74,AG117,tests,baselines, pointing,AW48,AG129,AF61,AK98,AG138,AK97,AR86,AG117,software
	NRAO staff		Electronics, etc.			48.5
			Software			32.8
			Pointing, startup			60.2
			Move/operations			38.0
			General tests			41.5
			Shutdown			4.5
			Christmas			31.5

The average downtime for the month of December, 1983 was approximately 7.0 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 for 95.8 percent (712.5 hours) of the time: 71.9 percent (534.5 hours) to astronomical programs and the remaining 23.9 percent (178.0 hours) went to tests.

The following independent proposals shared simultaneous observing:

VB-50/VN-8	0.5	AG-117/VS-33/VW-24	6.0
AG-138/VN-8	2.0	Test/VS-33/VW-24	3.0
Move/VN-8	5.0	Baseline/VS-33/VW-24	5.0
AM-107/VN-8	4.6	Pointing/VS-33/VW-24	5.0
AM-107/VP-46	6.4	AW-48/VS-33/VW-24	11.0
Move/VP-46	11.5	AG-129/VS-33/VW-24	14.0
AS-80/VP-46	2.7	AF-61/VS-33/VW-24	10.0
VR-26/VP-46	0.2	AG-138/VS-33/VW-24	4.0
AF-61/VP-46	10.0	AK-97/VS-33/VW-24	6.0
VM-51/VP-46	0.3	AR-86/VS-33/VW-24	2.5
AB-213/VS-33/VW-24	10.5	Software/VS-33/VW-24	2.5
AD-94/VS-33/VW-24	3.5	AK-98/VS-33/VW-24	8.5
AM-74/VS-33/VW-24	4.5	AG-127/AG-128	7.5

Total 146.7

VLA UTILIZATION NOVEMBER 1983

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AB-129	B.F. Burke J.N. Hewitt D.H. Roberts	MIT MIT Brandeis U	Monitoring time variations in 0957+561.	6 w/VP-50	26	3
AB-182	J.O. Burns T.J. Balonek E. Hummel	New Mexico U of Williams College MPIR, FRG	Monitoring the cores of extended radio sources and spiral galaxies.	2, 6 and 20	29,30	5
AB-189	B.F. Burke D.H. Roberts J.N. Hewitt	MIT Brandeis U MIT	The lens galaxy and possible third QSO image in 0957+561.	6	1	15 w/AB263
AB-255	M. Begelman J.O. Burns F.N. Owen	Colorado U of New Mexico U of NRAO/VLA	Candidate magnetically-confined jets.	2 and 6	3,5,6,8	25
AB-259	W.A. Baan A.D. Haschick J. Schmelz	Penn State U Haystack Obs Penn State U	OH and HI absorption properties of NGC 3628.	18 and 21 line	10,12	4
AB-261	P. Biermann A.H. Bridle P.P. Kronberg	MPIR, FRG NRAO/CV Toronto U, CANADA	EO galaxy NGC 5846.	2, 6 and 20	5	2
AB-263	B.F. Burke D.H. Roberts J.N. Hewitt	MIT Brandeis U MIT	Double quasar 0957+561 - search for the third image.	2	1	15 w/AB189
AB-266	J. Bally N.D. Kylafis	Bell Labs IAS-Princeton	Magnetic fields in molecular clouds.	6	14,15	5.5
AC-80	M.J. Claussen K.-Y. Lo	Caltech Caltech	The central parsec of the Galaxy.	6	6	6
AC-81	M.J. Claussen K.-Y. Lo J. van Gorkom	Caltech Caltech NRAO/VLA	Monitoring of the flux of the compact source at the Galactic Center.	1.3, 2 and 6	3,30 w/VB-48	5.5
AC-84	B. Campbell	Arizona U of	Sources associated with high-velocity molecular outflows.	2 and 6	20	5
AC-89	M. Cohen J. Bieging	NASA-Ames Calif U of, Berkeley	Spectral index mapping of T Tauri stars.	2, 6 and 20	19,20,22	22
AC-90	B.G. Clark R.A. Perley A.H. Bridle	NRAO/VLA NRAO/VLA NRAO/CV	Small B3 sources.	2 and 6	8,17	8.5
AD-85	I. de Pater D.M. Hunten J. Caldwell J.R. Dickel T. Owen	Arizona U of Arizona U of SUNY, Stony Brook Illinois U of SUNY, Stony Brook	Planetary atmospheres: Jupiter and Saturn.	20	23	6
AD-119	N. Duric E.R. Seaquist P.C. Crane R.C. Bignell L.E. Davis	Toronto U, CANADA Toronto U, CANADA NRAO/VLA NRAO/VLA KPNO	The edge-on spiral galaxy NGC 3079.	6 and 20	4	12
AF-66	J.D. Fix S. Reynolds	Iowa U of NRAO/CV	Crablike supernova remnants in M33.	6 and 20	18	12
AF-72	E.B. Fomalont B.J. Geldzahler R.M. Hjellming C.M. Wade	NRAO/VLA NRL NRAO/VLA NRAO/VLA	Fourth epoch observations of Sco X-1.	2, 6 and 20	26,27	18
AF-73	E.B. Fomalont B.J. Geldzahler	NRAO/VLA NRL	The core of Fornax A.	2	15	5
AG-131	W.M. Goss	VLA/Groningen U, NETH	Four supernova remnants in M33.	20	14	12

VLA UTILIZATION NOVEMBER 1983 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AG-132	A.C. Gower J.B. Hutchings	Victoria U, CANADA D.A.O., CANADA	Structure and polarization of the quasar 0137+012.	6 and 20	27	8.5
AH-132	R.M. Hjellming	NRAO/VLA	Radio diameters of Betelgeuse and Antares.	1.3 and 2	9,16,18	23.5
AH-137	R.M. Hjellming	NRAO/VLA	Potential cavity nebulosities in cool stellar winds.	2 and 6	7	10 w/AH140
AH-139	R.M. Hjellming K.J. Johnston	NRAO/VLA NRL	SS433	2 and 6	4,20	6
AH-140	R.M. Hjellming	NRAO/VLA	Known cavity nebulosities in cool stellar winds.	1.3, 2, 6 and 20	7	10 w/AH137
AH-142	E. Hummel J.M. van der Hulst R.C. Kennicutt W.C. Keel	MPIR, FRG NFRA, NETHERLANDS Minnesota U of KPNO	Survey of a complete sample of interacting and multiple galaxies.	20	15,19	16
AH-145	D.E. Hogg	NRAO/CV	The structure of the wind of Gamma 2 Velorum.	2, 6 and 20	14,28	5
AH-146	E.K. Hummel P.C. Crane	MPIR, FRG NRAO/VLA	Extended emission near compact core sources in spiral galaxies: NGC5635 and NGC 6500.	6 and 20	8	4
AI-19	E.P. Israel J.M. van der Hulst	ESTEC/Leiden U, NETH NFRA, NETHERLANDS	Continuum observations of the HII regions in NGC 1569.	20	21	5
AJ-95	K.J. Johnston B.J. Geldzahler J. Spencer R. Hjellming	NRL NRL NRL NRAO/VLA	Evolution of a flare in Cyg X-3.	1.3, 2, 6 and 20	14	4
AJ-99	K.J. Johnston R. Sramek E. Fomalont D. McCarthy K. Hilldrup	NRL NRAO/VLA NRAO/VLA USNO NRAO/CV	Monitor of baseline parameters.	6 and 20	2,9,16 22	12
AJ-105	N. Jeske M. Davis M. Stevens	Calif U of, Berkeley Calif U of, Berkeley Calif U of , Berkeley	Ring galaxies.	20	17	17
AK-84	S. Kwok R.C. Bignell	Herzberg Inst., CANADA NRAO/VLA	Slow nova HM Sagittae.	1.3, 2, 6 and 20	10	5
AK-96	K. Kellermann R. Sramek D. Shaffer M. Schmidt	NRAO/CV NRAO/VLA Interferometrics, Inc. Caltech	Structure of optically selected quasars.	6	14,20, 21,23,27	34.5
AK-100	S. Kulkarni A. Purvis W.M. Goss J. van Gorkom	Calif U of, Berkeley Cambridge U, ENGLAND VLA/Groningen U, NETH NRAO/VLA	Search for potential fast pulsar candidates.	20	25	17
AL-70	H. Liszt W.B. Burton J.M. van der Hulst	NRAO/CV Leiden U, NETHERLANDS NFRA, NETHERLANDS	HI absorption toward Sgr A.	21 line	19	7
AM-65	T.K. Menon	BC U of, CANADA	Structure of small angular size Ooty sources.	2 and 6	7,10	9
AP-67	G.H. Pettengill B.D. Chapman	MIT MIT	Radio emissivity of the surface of Venus	20	12	10
AM-116	P. Myers	CFA	Maser outburst V1052 Cyg.	1.3 cm line	20	2.5
AP-72	R.A. Perley R.D. Ekers	NRAO/VLA NRAO/VLA	Superluminal motion in 3C273, 3C279 and 3C454.3?	2 and 6	6,11,18	12
AR-94	M. Reid P. Ho G. Garay	SAO Harvard U U. de Chile, CHILE	Compact HII regions associated with OH masers..	18	12	10

VLA UTILIZATION NOVEMBER 1983 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
AR-99	D.J. Rudy G.L. Berge D.O. Muhleman	Caltech Caltech Caltech	Mars: Latitude distribution of subsurface temperature and radial distribution of linear polarization.	2 and 6	5,7	16
AS-80	R.A. Sramek J.M. van der Hulst K.W. Weiler	NRAO/VLA NFRA, NETHERLANDS NSF	Monitoring supernovae SN1980k in NGC6946 and SN1979c in M100.	6 and 20	10,13	4.5
AS-133	P.O. Lindblad Aa. Sandqvist S. Jorsater	Stockholm Obs., SWEDEN Stockholm Obs., SWEDEN Stockholm Obs., SWEDEN	Weak radio galaxies: barred spirals NGC1365 and NGC6613, and cluster ellipticals NGC3309/11.	2, 6 and 20	5,6	13
AS-135	D.J. Saikia C.J. Salter T.J. Cornwell V.K. Kapahi	TIFR, INDIA NRAO/Tucson NRAO/VLA TIFR, INDIA	Possible asymmetric D2 type sources.	2 and 6	25	7.5
AS-175	P.R. Schwartz M.A. Frerking	NRL JPL	HI absorption against L1455.	21 line	26	12.5
AS-178	E.R. Seaquist M.B. Bell	Toronto U, CANADA NRC, CANADA	Recombination lines in Mkr 668 (=0Q208).	2 and 6	25	1.5
AT-43	B.E. Turner H.E. Matthews A. Winnberg	NRAO/CV Herzberg Inst., CANADA Onsala, SWEDEN	Shell structure in ultracompact HII regions.	2	11	14
AT-44	R.J. Tuffs P.E. Angerhofer M.T. Brown S.F. Gull R.A. Perley	MRAO, Cambridge, ENGLAND USNO MRAO, Cambridge, ENGLAND MRAO, Cambridge, ENGLAND NRAO/VLA	Structure and secular change within Cassiopeia A at high spatial and temporal resolutions.	6	3,4	18
AU-15	J.S. Ulvestad S.G. Neff A.G. de Bruyn	NRAO/CV NFRA, NETHERLANDS NFRA, NETHERLANDS	Compact cores in Seyfert galaxies.	1.3 and 2	13,15,21	8.5
AU-18	J.S. Ulvestad A.S. Wilson	NRAO/CV Maryland U of	Seyfert galaxy MCG 8-11-11.	2	12	6
AU-19	S. Unger A. Pedlar	Jodrell Bank, ENGLAND Jodrell Bank, ENGLAND	NGC 6500 and NGC 5506.	20	6,13	4.5
AV-84	W. van Breugel R. Strom J. Dickel	Arizona U of NFRA, NETHERLANDS Illinois U of	Radio polarimetry of Tycho's SNR.	20	13	8
AV-96	J.M. van der Hulst R.A. Sramek K.W. Weiler	NFRA, NETHERLANDS NRAO/VLA NSF	Monitoring radio supernova in NGC 4258.	6 and 20	14	2
AW-94	A.S. Wilson J.S. Ulvestad	Maryland U of NRAO/CV	The nuclear core of the Seyfert galaxy NGC 1068.	1.3	1,2	16
VB-48	L.B. Baath D. Graham J. Campbell	Onsala, SWEDEN MPIR, FRG Bonn U, FRG	Radio galaxies in the cluster Abell 2634	6 MK III 1 antenna VLB	30	9 w/tests, AC-81
VB-47	N. Bartel	CFA	SN1979c in M100.	6 MK III phased array VLB	30	2
VP-50	G. Pilbratt R. Booth L. Baath I. Browne R. Porcas G. Nicholson	Onsala, SWEDEN Onsala, SWEDEN Onsala, SWEDEN Jodrell Bank, ENGLAND MPIR, FRG Hartebeesthoek, S. AFRICA	Monitoring of 3C279	6 1 antenna VLB	29	12.0 w/AB182, operations, tests
VW-23	R. Walker J. Benson G. Seielstad S. Unwin	NRAO/CV NRAO/CV Caltech Caltech	Motions in 3C120.	6 1 antenna VLB	28	3 w/tests

VLA UTILIZATION NOVEMBER 1983 (Cont.)

Program	Observer	Affiliation	Program title	Bands (cm)	Obsv date	Sched hrs
	NRAO staff		Electronics, etc.			62.0
			Software			39.5
			Pointing, startup			40.2
			Move/operations			5.0
			General tests			24.8
			Thanksgiving			26.0

The average downtime for the month of November, 1983 was approximately 8.68 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 for 96.4 percent (694 hours) of the time: 74.5 percent (536.5 hours) to astronomical programs and the remaining 21.9 percent (157.5 hours) went to tests.

The following independent proposals shared simultaneous observing:

AH-137/AH-140	10.0
AB-263/AB-189	15.0
VW-23/tests	13.0
AB-182/VP-50	4.0
Tests/VP-50	6.0
Move/Operations/VP-50	2.0
AC-81/VB-48	2.0
Tests/VB-48	7.0

831205 PDH/ap

VLA UTILIZATION _BER 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AB-129	B. F. Burke J. Hewitt D. H. Roberts	MIT MIT Brandeis	Monitoring time variations in 0957+561.	2 and 6	8	3 w/VM-50
AB-239	D. S. Bagri S. Ananthakrishnan	TIFR, INDIA/VLA TIFR, INDIA	Nearby bright galaxies with compact nuclear components.	2, 6 and 20	30,31	4.5
AB-250	J. A. Garcia-Barreto P. Pismas	UNAM, MEXICO UNAM, MEXICO	A search for incipent, compact HII regions in the bars of SB galaxies.	6 and 20	13	6.5
AB-252	R. H. Becker R. L. White	VPI & SU STSI	Spatial resolution of massive stellar winds.	2	30,31	11
AB-257	J. O. Burns D. Clarke E. D. Feigelson E. J. Schrier	New Mexico U of New Mexico U of Penn State U STSI	The jet in Centaurus A.	2, 6 and 18	28,29, 30	12
AB-259	W. A. Baan A. D. Haschick J. Schmelz	Penn State U Haystack Obs Penn State U	OH and HI absorption properties of NGC 3628.	18 and 21 cm line	14,18	17
AB-265	A. H. Bridle G. G. Byrd E. B. Fomalont M. J. Valtonen	NRAO/CV Alabama U of NRAO/VLA Turku U, FINLAND	Fine structure of 3C288.	2	31	8
AC-81	M. J. Claussen K. Y. Lo J. H. van Gorkom	Caltech Caltech NRAO/VLA	Monitoring the compact source at the galactic center.	1.3, 2 and 6	14	2.5
AC-82	W. A. Coles B. J. Rickett J. W. Armstrong M. Kojima	Calif U of, SD Calif U of, SD JPL Calif U of, SD/Nagoya U, JAPAN	Solar wind structure and motion close to the sun.	2, 6 and 20	5-11	54 w/AG-130, AG-137, AG-138, AJ-103, AS-163, AL-71, AW-87, VM-47, VM-50, and AV-98
AC-92	T. V. Cawthorne P. A. G. Scheuer	Cambridge U, UK Cambridge U, UK	Sources of high radio luminosity.	2 and 6	17,18	3
AD-111	I. de Pater S. Gulkis T. Owen H. Smith	Arizona U of JPL SUNY, Stony Brook Texas U of	Uranus.	2, 6 and 20	22	7.5
AD-115	H. R. Dickel W. M. Goss	Illinois U of NRAO/VLA	Snapshots of W58 C1 and C2.	2 and 6	1	1
AE-26	R. D. Ekers J. H. van Gorkom W. M. Goss U. J. Schwarz	NRAO/VLA NRAO/VLA VLA/Groningen U, NETH Groningen U, NETH	SgrA West.	20	18	6.5 w/VH-9
AE-27	A. Eckart A. Witzel K. J. Johnston	MPIR, FRG MPIR, FRG NRL	Quasar 1928+73.	1.3, 2, 6 and 20	31	8
AE-28	V. Escalante P. T. P. Ho A. D. Haschick L. F. Rodriguez	CFA CFA Haystack Obs UNAM, MEXICO	Accurate positions of H2O masers associated with young objects.	1.3 cm line	20	4
AF-51	E. D. Feigelson G. W. Clark J. W. Dreher	Penn State U MIT MIT	Full synthesis of the counter jet of Hercules A.	6	24	7
AG-116	D. M. Gibson W. C. Priedhorsky	Colorado U of, JILA Los Alamos Nat'l Labs	Monitoring Cyg X-1.	2, 6 and 20	11,26	2
AG-124	Gopal Krishna	TIFR, INDIA	Six flat spectrum sources.	2, 6 and 20	22	6

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AG-130	D. E. Gary J. L. Linsky R. Willson D. Gibson C. Hayenga	Caltech Colorado U of, JILA Tufts U Colorado U of, JILA NMIMT	Coordinated microwave, optical and ultraviolet observations of UV Ceti-type flare stars. Monitoring.	2 and 6	3-7	42.5 w/AG-137 and AC-82
AG-137	D. M. Gibson J. L. Linsky F. M. Walter	Colorado U of, JILA Colorado U of, JILA Colorado U of, JILA	Simultaneous radio, optical and UV observations of eclipses in AR Lac.	2, 6 and 20	3-7	42.5 w/AG-130 and AC-82
AG-138	D. M. Gibson J. P. Cox	Colorado U of, JILA NMIMT	Survey of solar neighborhood flare stars.	2	11	7 w/AV-98&AC-82
AH-127	J. Herman H. J. Habing B. Baud	Leiden U, NETH Leiden U, NETH Groningen U, NETH	OH/IR stars - three dimensional structures and distances.	18 cm line	1,2	16
AH-129	E. Hummel C. G. Kotanyi	MPIR, FRG ESO, FRG	E-SO nuclei.	2, 6 and 20	1	13
AH-132	R. M. Hjellming	NRAO/VLA	Radio diameter of Antares.	1.3 and 2	17	8.5
AH-138	R. M. Hjellming R. C. Bignell B. Balick	NRAO/VLA NRAO/VLA Washington U of	An interacting wind shock front in IC 3568.	6	21	3
AH-139	R. M. Hjellming K. J. Johnston	NRAO/VLA NRL	SS433.	2 and 6	1	1.6
AH-141	P. T. P. Ho J. L. Turner	CFA Calif U of, Berkeley	Nonthermal emission from compact nuclear sources.	2	11	4
AH-143	E. Hummel J. M. van der Hulst R. A. Sramek	MPIR, FRG NFRA, NETH NRAO/VLA	Monitoring central radio sources to search for supernovae.	6	26	10.5
AJ-95	K. J. Johnston B. Geldzahler J. Spencer R. Hjellming	NRL NRL NRL NRAO/VLA	Evolution of a flare in Cyg X-3.	1.3, 2, 6 and 20	5,18, 29	15.5 w/VH-9
AJ-99	K. J. Johnston R. Sramek E. B. Fomalont D. McCarthy K. Hilldrup	NRL NRAO/VLA NRAO/VLA USNO NRAO/CV	Monitoring baseline parameters.	6 and 20	4,12, 20,23	12
AJ-103	K. Johnston P. Bowers J. Spencer A. Lane P. Diamond	NRL NRL NRL NRAO/CV Onsala, SWEDEN	Positions and spatial distribution of the emission from H2O masers in OH/IR stars.	1.3 cm line	6	23.5 w/AC-82 and VM-47
AK-90	P. Kronberg R. Sramek	Toronto U, CANADA NRAO/VLA	Monitoring variable sources in M82.	2, 6 and 20	30	6
AK-94	S. Kwok R. C. Bignell	Calgary U, CANADA NRAO/VLA	Core-halo structure of the proto-planetary nebula GL 618.	1.3 and 2	8	9.5
AK-95	P. Kronberg E. Zukowski	Toronto U, CANADA Toronto U, CANADA	Rotation measure maps of 3 extended, absorption line quasars.	6 and 20	29	6
AL-69	K. R. Lang R. F. Willson J. Bookbinder L. Golub M. S. Giampapa	Tufts U Tufts U CFA CFA Sacramento Peak Obs	The dM4.5e flare stars AD Leo and YZ CMi.	2, 6, 8 and 20	24	16
AL-71	J. F. Lestrade R. L. Mutel R. A. Preston D. J. Doiron	JPL/BL CNRS, FRANCE Iowa U of JPL Iowa U of	Southern RS CVn binaries: search for radio emission.	6 and 18	9	7.5
AL-73	R. A. Laing	RGO, UK	Luminous extragalactic radio sources.	2	21	21

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AM-105	P. Mauersberger T. Wilson K. Johnston A. Lane P. Bowers S. Knowles	MPIR, FRG MPIR, FRG NRL NRAO/CV NRL NRL	Spatial structure of the H2O outflows in GGD 5-6, GGD 25, GGD 27-28, Ceph OB3, and W49.	1.3 cm line	28,30	16.5
AP-67	G. H. Pettengill B. D. Chapman	MIT MIT	Radio emissivity of the surface of Venus.	20	3	11
AP-71	R. A. Perley J. W. Dreher	NRAO/VLA MIT	Cygnus A.	6	23	12
AP-73	A. Pedlar R. D. Davies R. A. Perley P. C. Crane	NRAL, UK NRAL, UK NRAO/VLA NRAO/VLA	The extended structure in NGC 1275.	20	7	10 w/VM-50
AR-69	A. P. Rao S. Ananthakrishnan	TIFR, INDIA TIFR, INDIA	Angular sizes of sources showing interstellar scattering.	1.3, 2 and 6	8,12, 16	20 w/VW-50
AS-79	S. R. Spangler W. D. Cotton S. Allendorf	Iowa U of NRAO/CV Iowa U of	Monitoring low frequency variables.	1.3, 2, 6 and 20	9,10	7.5 w/VP-44
AS-80	R. A. Sramek J. M. van der Hulst K. W. Weiler	NRAO/VLA NFRA, NETH NSF	Monitoring SN 1980k in NGC 6946 and 1979c in M100.	6 and 20	8,19	4 w/VM-50 and VH-9
AS-163	E. R. Seaquist A. R. Taylor	Toronto U of, CANADA Toronto U of, CANADA	Spectra of symbiotic stars.	6 and 20	8	6 w/VM-50&AC-82
AS-168	G. Sandell L. A. Nyman A. Winnberg A. Haschick	Helsinki U of, FINLAND Onsala, SWEDEN Onsala, SWEDEN Haystack Obs	Masers in NGC 2071.	1.3 & 18 cm line	19	10 w/VH-9
AS-172	A. A. Starke M. Vietri	Bell Labs/Princeton U Princeton U	A search for gravitational lenses: quasars with CII absorption.	1.3, 2 and 6	17	2.5
AT-26	Y. Terzian R. C. Bignell J. H. van Gorkom	NAIC NRAO/VLA NRAO/VLA	Angular exponents of planetary nebulae.	6	13	8.5
AT-42	J. L. Turner P. T. P. Ho	Calif U of, Berkeley CFA	Synchrotron emission in spiral nuclei.	20	2	6
AV-89	W. van Breugel C. Fanti R. Fanti R. Schilizzi G. Miley T. Heckman	Arizona U of Bologna U, ITALY Bologna U, ITALY NFRA, NETH Leiden U, NETH Maryland U of	Steep spectrum radio cores.	1.3, 2, 6 and 20	27	19
AV-97	J. M. van der Hulst E. Hummel R. C. Kennicutt W. C. Keel	NFRA, NETH MPIR, FRG Minnesota U of KPNO	Central radio sources of spiral galaxies.	20	19,23, 24	19
AV-98	N. Vandenberg D. Shaffer C. Knight T. Clark P. Liebrecht	Interferometrics Inc Interferometrics Inc Interferometrics Inc NASA/GSFC NASA/GSFC	Interferometric tracking of the Tracking and Data Relay Satellite.	2	10,11	30.5 w/AG-138, AW-87&AC-82
AW-87	G. de Waard G. K. Miley R. A. Perley	Leiden U, NETH Leiden U, NETH NRAO/VLA	Monitoring of IRAS active galaxies.	1.3, 2, 6 and 20	10	23.5 w/AV-98&AC-82
AW-92	R. C. Walker J. M. Benson	NRAO/CV NRAO/CV	The jet in 3C120.	2 and 6	1	12
AW-101	P. N. Wilkinson T. J. Cornwell	NRAL, UK NRAO/VLA	Peculiar radio structure in QSO 1828+48 (3C380).	1.3, 2, 6 and 18	29	4.5

VLA UTILIZATION OCTOBER 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
VAH-15	D. C. Backer	Calif U of, Berkeley	The binary pulsar.	18 cm phased array MK III VLB	16	1.5
VG-35	B. Geldzahler K. Johnston J. Spencer B. Waltman	NRL NRL NRL NRL	The rapid variable CTA 26.	18 cm phased array VLB	16	10
VH-9	M. W. Hodges S. E. Novotny R. B. Phillips	Iowa U of Mass U of Haystack Obs	"Corkscrew" source NRAO 150.	18 cm single antenna VLB	18	16 w/AJ-95, AS-168, AE-26&AS-80
VL-25	J. F. Lestrade R. L. Mutel R. A. Preston A. E. Neil D. J. Doiron R. B. Phillips	JPL Iowa U of JPL JPL Iowa U of Haystack Obs	RS CVn stars.	18 cm phased array MK III VLB	15	20.5
VM-47	R. L. Moore A. C. S. Readhead L. Baath	Caltech Caltech Onsala, SWEDEN	3C345.	1.3 cm 3 antenna VLB	6	13.5 w/AJ-103 & AC-82
VM-50	A. Marsher R. Booth B. Geldzahler D. Shaffer	Boston U Onsala, SWEDEN NRL Interferometrics Inc	Cores of 4C39.25 and 2134+004.	1.3 cm 3 antenna VLB	8	20.5 w/AP-73, AB-129, AR-69, AS-163, AC-82 & AS-80
VM-51	L. Molnar M. Reid J. Romney	CFA CFA MPIR, FRG	Polarization of core-jet sources.	18 cm phased array MK III VLB	14	24
VP-44	I. I. K. Pauliny-Toth R. Porkas W. S. Yin R. Zensus L. Baath K. Kellermann	MPIR, FRG MPIR, FRG MPIR, FRG MPIR, FRG Onsala, SWEDEN NRAO/GB	3C454.3.	1.3 cm 3 antenna VLB	9,10	19 w/AJ-95, AS-79, AC-82 & tests
	NRAO Staff		Electronics, etc.			50.2
			Software			35.0
			Pointing, baselines, delays, startups			48.6
			General tests			41.0

The average downtime for the month of October, 1983 was approximately 9.31 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 for 100 percent (744 hours) of the time: 76.5 percent (569.2 hours) to astronomical programs and the remaining 23.5 percent (174.8 hours) went to tests.

The following independent proposals shared simultaneous observing:

(see next page)

AG-130/AG-137	42.5
AG-130/AG-137/AC-82	15.0
AJ-103/AC-82/VM-47	8.5
AJ-103/VM-47	5.0
AP-73/VM-50	6.8
AB-129/VM-50	3.0
AC-82/VM-50	1.0
AR-69/VM-50	2.0
AS-163/AC-82/VM-50	2.0
AS-163/VM-50	6.0
AS-80/VM-50	2.0
AL-71/AC-82	7.5
AS-79/VP-44	4.0
Test/VP-44	7.5
AC-82/AV-98/AW-87	7.5
AV-98/AW-87	16.0
AC-82/AV-98/AG-138	7.0
AE-26/VH-9	1.8
AJ-95/VH-9	4.0
AS-168/VH-9	10.0
AS-80/VH-9	1.3
AJ-95/Test	7.5

831103 PDH/ap

VLA UTILIZATION SEPTEMBER 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AA-24	R. R. J. Antonucci	NRAO/CV	Search for free-free absorption in radio galaxy cores.	2, 6, 18 and 20	12,13, 18,19	26 w/AA-25
AA-25	R. R. J. Antonucci J. S. Ulvestad	NRAO/CV NRAO/CV	Extended structures around blazars.	20	12,13, 18,19	26 w/AA-24
AB-129	B. F. Burke J. Hewitt D. H. Roberts	MIT MIT Brandeis	Monitoring double quasar 0957+561.	6	6	2
AB-236	W. A. Baan J. Schmelz A. D. Haschick	NAIC, PR Penn State U Haystack Obs	OH and HI absorption in NGC 660 and NGC520.	18 and 21 cm line	10,12	16
AB-240	D. C. Backer W. M. Goss	Calif U of, Berkeley NRAO/VLA	Astrometry of the 1.5 millisecond pulsar.	6, 18 and 22	3	6
AB-244	R. L. Brown	NRAO/CV	The effect of free-free opacity on the continuum structure of 3C245.	2 and 6	25	12
AB-248	D. C. Backer R. A. Sramek	Calif U of, Berkeley NRAO/VLA	Astrometry of the compact source in Sgr A.	6	2,9, 16	24 w/AM-98
AC-76	J. J. Condon W. C. Keel	NRAO/CV KPNO	Giant HII regions in active spirals.	20	15,16	17
AC-79	M. J. Claussen G. M. Heiligman K. Y. Lo	Caltech Caltech Caltech	Water masers in external galaxies.	1.3 cm line	22	10
AC-81	M. J. Claussen K. Y. Lo J. H. van Gorkom	Caltech Caltech NRAO/VLA	Monitoring flux of Sgr A.	1.3, 2 and 6	23	2
AD-94	I. de Pater K. W. Weiler R. Fanti C. Fanti	Arizona U of NSF Bologna, ITALY Bologna, ITALY	Monitoring polarization in variable sources.	2, 6 and 18	17,27	5
AD-98	G. A. Dulk T. Bastian G. Hurford D. Gary	Colo U of Colo U of Caltech Caltech	Spike bursts on the sun.	20	24,27	25
AD-100	I. de Pater W. H. Ip	Arizona U of MPIA, FRG	Radio occultaions by comets: structures of sources in the paths of periodic comets.	6 and 20	19	6
AD-103	P. J. Diamond	Onsala, SWEDEN	Bipolar nebulae: continuum emission.	1.3, 2 and 6	12	18
AD-105	L. E. Davis E. R. Seaquist	KPNO Toronto U of, CANADA	OH mapping of bipolar nebula M1-92.	18 cm line	18	4
AF-56	M. Felli M. Simon	Arcetri, ITALY SUNY, Stony Brook	Structure of S106 IRS4 and CRL490.	1.3	22	14
AF-57	D. R. Florkowski	USNO	RY Scuti.	1.3, 2, 6 and 20	10	10 w/test
AF-68	J. D. Fix J. S. Neff	Iowa U of Iowa U of	Sizes and temperatures of asteriods.	2	8	13
AG-118	W. M. Goss E. B. Fomalont R. N. Manchester A. G. Lyne	NRAO/VLA NRAO/VLA CSIRO, AUSTRALIA Jodrell Bank, ENGLAND	Positions of 3 pulsars.	20	1,27	4.5
AG-121	S. Guilloteau M. Walmsley A. Baudry	Grenoble, FRANCE MPIR, FRG Obs Bordeaux, FRANCE	Quasithermal 6 cm OH in W3(OH).	6 cm line	23,24	21
AH-127	J. Herman H. J. Habing B. Baud	Leiden U, NETHERLANDS Leiden U, NETHERLANDS Groningen U, NETHERLANDS	OH/IR stars - 3d structures and distances.	18 cm line	25,27, 30	17
AH-139	R. M. Hjellming K. J. Johnston	NRAO/VLA NRL	SS433.	2 and 6	30	2.5

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AJ-81	W. Jaffe	STScI	High redshift clusters.	6 and 20	2	14
AJ-95	K. J. Johnston B. Geldzahler J. Spencer R. Hjellming	NRL NRL NRL NRAO/VLA	Evolution of a flare in Cyg X-3.	1.3,2, 6 and 20	14,21, 30	8
AJ-97	K. J. Johnston D. R. Florkowski C. M. Wade	NRL USNO NRAO/VLA	Astrometry of radio stars.	6	4	24
AJ-99	K. J. Johnston R. Sramek E. B. Fomalont D. McCarthy K. Hilldrup	NRL NRAO/VLA NRAO/VLA USNO NRAO/CV	Astrometry and earth rotation.	6 and 20	7,14, 20	10.5
AK-78	S. Kwok	NRC, CANADA	Compact planetary nebulae.	6	1	6
AK-84	S. Kwok R. C. Bignell	NRC, CANADA NRAO/VLA	Slow nova HM Sag.	1.3, 2, 6 and 20	13	16
AK-85	P. Katgert M. Oort R. Windhorst	Leiden U, NETHERLANDS Leiden U, NETHERLANDS Leiden U, NETHERLANDS	Morphology of weak sources.	20	29	24
AK-87	K. I. Kellermann P. C. Crane	NRAO/GB NRAO/VLA	3C147.	2	8	4
AL-52	R. A. Laing J. H. van Gorkom	RGO, ENGLAND NRAO/VLA	HI absorption in NGC 5363.	20 cm line	8	4
AL-60	C. R. Lawrence C. L. Bennett B. F. Burke E. L. Turner	MIT MIT MIT Princeton U	Snapshots of sources from the MIT survey.	6	5	24
AM-67	D. L. Meier M. H. Ulrich R. A. Preston A. E. Wehrle	JPL ESO, FRG JPL JPL	Central regions of extended radio galaxies.	6	3	10
AM-72	L. Molnar M. Reid R. C. Bignell	CFA CFA NRAO/VLA	Polarization monitoring of BL Lac objects.	2, 6 and 20	11	4 w/AS-79
AM-81	T. Montmerle L. Koch-Miramond E. D .Feigelson E. Falgarone	CEN, Saclay, FRANCE CEN, Saclay, FRANCE MIT Meudon, FRANCE	Non-thermal radio emission from X-ray detected stars in the Rho Oph dark cloud.	20	1	0.5
AM-89	I. McHardy A. Smith R. A. Perley	Leicester U of, ENGLAND Leicester U of, ENGLAND NRAO/VLA	Active galaxies and OVV's - instantaneous spectra.	1.3, 2, 6 and 20	4,6	5
AM-92	J. M. Moran G. Garay R. Genzel M. Reid	CFA CFA Calif U of, Berkeley CFA	The size of the BN radio source.	1.3	1,3	9
AM-98	L. Molnar M. Reid J. Grindlay	Harvard CFA Harvard	Low level emission from Cyg X-3.	1.3,2,6, 18 and 22	15,16	12 w/AB-248 & AS-162
AO-40	C. P. O'Dea F. N. Owen A. C. Gower	NRAO/VLA NRAO/VLA Victoria U of, CANADA	Narrow angle tail sources.	6 and 20	4	2
AP-46	R. A. Perley A. H. Bridle B. G. Clark R. D. Ekers J. O. Burns G. Grueff J. N. Douglas	NRAO/VLA NRAO/CV NRAO/VLA NRAO/VLA New Mexico U of Bologna U, ITALY Texas U of	Maps of B3 sources.	20	3,9, 10,15	24

VLA UTILIZATION SEPTEMBER 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AS-79	S. R. Spangler W. D. Cotton	Iowa U of NRAO/CV	Monitoring low frequency variables.	1.3, 2, 6 and 20	11	4 w/AM-72
AS-80	R. A. Sramek J. M. van der Hulst K. W. Weiler	NRAO/VLA NFRA, NETHERLANDS NSF	Monitoring SN 1980k in NGC 6946 and 1979c in M100.	2, 6 and 20	11,15	4.5
AS-162	E. R. Seaquist A. R. Taylor	Toronto U of, CANADA Toronto U of, CANADA	Possible jets in symbiotic stars.	2 and 6	17,18	10 w/AM-92
AS-164	D. J. Saikia J. H. van Gorkom C. Kotanyi	TIFR, INDIA NRAO/VLA NRAO/VLA	Sersic-Pastoriza galaxies.	6 and 20	11	13
AS-167	P. A. G. Scheuer R. A. Laing R. A. Perley	Cambridge U, ENGLAND RGO, ENGLAND NRAO/VLA	Cygnus A hot spots.	1.3 and 2	15	8
AS-170	P. Schwartz T. Simon B. Zuckerman M. Dyck	NRL Hawaii U of Calif U of, LA Hawaii U of	T Tauri.	2 and 6	17,18	14
AS-172	A. A. Starke M. Vietri	Bell Labs Princeton U	Search for gravitational lenses: quasars with CII absorption.	1.3, 2 and 6	26,27	9
AT-34	T. X. Thuan E. Hummel	Virginia U of MPIR, FRG	HI absorption in NGC 520.	21 cm line	25	7
AU-16	J. S. Ulvestad	NRAO/CV	Radio galaxy 3C459.	1.3, 2 and 6	7	10
AV-87	W. van Breugel T. Heckman G. Miley	Arizona U of Maryland U of Leiden U, NETHERLANDS	3C171, a distant strong radio galaxy with optical line emission.	1.3, 2, 6 and 20	6	6
AV-96	J. M. van der Hulst R. A. Sramek K. W. Weiler	NFRA, NETHERLANDS NRAO/VLA NSF	Radio supernova in NGC 4258.	6 and 20	17	2
AW-97	D. Walsh I. Browne D. Shone L. Rudnick	NRAL, ENGLAND NRAL, ENGLAND NRAL, ENGLAND Minnesota U of	A complete sample of QSOs mapped with Merlin.	6 and 18	19,23	21
	NRAO Staff		Electronics, etc. Software Pointing, baselines, delays, startups Standard field General tests			51.0 29.3 39.5 12.0 35.7

The average downtime for the month of September, 1983 was approximately 6.40 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 for 100 percent (720 hours) of the time: 77 percent (554.5 hours) to astronomical programs and the remaining 23 percent (165.5 hours) went to tests.

The following independent proposals shared simultaneous observing:

Tests/AF-57	2
AM-72/AS-79	4
AM-98/AB-248	4
AM-98/AS-162	2
AA-24/AA-25	26

831004
PDH/ap

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AB-129	B. F. Burke J. Hewitt D. H. Roberts	MIT MIT Brandeis	Monitoring double quasar 0957+561.	6	4	2
AB-167	R. C. Bignell E. A. Seaquist	NRAO/VLA Toronto U of	Monitoring SNR in NGC 4449.	6 and 20	25	1
AB-182	J. O. Burns T. J. Balonek D. Batuski E. Hummel	New Mexico U of Calif U of, Berkeley New Mexico U of MPIR, FRG	Monitoring the cores of extended radio sources and spiral galaxies.	2, 6 and 20	8	2.5
AB-228	R. White R. Becker	STScI VPI & State U	Multifrequency observations of early type stars.	2 and 20	24,27	16
AB-229	D. G. Banhatti S. Ananthakrishnan A. P. Rao	TIFR TIFR TIFR	Steep spectrum, few arcsecond sources.	2 and 6	29	5 w/AR-69
AB-237	P. D. Barthel G. K. Miley R. T. Schilizzi C. J. Lonsdale	Leiden U, NETHERLANDS Leiden U, NETHERLANDS NFRA, NETHERLANDS Jodrell Bank, ENGLAND	Morphology and spectral index of 50 high redshift quasars.	2 and 6	21	18
AB-249	G. F. Bignami P. A. Caraveo R. C. Lamb	IFC - CNR, ITALY IFC - CNR, ITALY Iowa State U	Gamma ray source 2CG195+04.	6 and 20	6	7
AC-42	E. B. Churchwell D. C. Abbott J. H. Bieging	Wisconsin U of Colorado U of/JILA Calif U of, Berkeley	Monitoring flux of OB supergiants.	2, 6 and 20	21	4
AC-63	C.-A. Chang A. M. Wolfe F. H. Briggs	Pittsburgh U of Pittsburgh U of Pittsburgh U of	Search for very small scale structure in HI absorption.	21 cm phased array VLB	8,9, 10	25
AC-81	M. J. Claussen K. Y. Lo J. H. van Gorkom	Caltech Caltech NRAO/VLA	Monitoring flux of galactic center source.	1.3, 2 and 6	31	2.5
AD-83	L. Davis	Arizona U of	Bright interacting galaxies.	20	21	9
AD-106	J. W. Dreher K. J. Johnston W. J. Welch	MIT NRL Calif U of, Berkeley	Ultra compact HII components of W49N.	1.3, 6 and 20	8	12
AF-65	A. C. Fabian S. Phinny J. J. Condon	Inst Astron, ENGLAND Inst Astron, ENGLAND NRAO/CV	Inner jet structure in NGC 4896.	6	28	3
AF-67	J. D. Fix R. L. Mutel	Iowa U of Iowa U of	Time variations in OH masers.	18 cm line	28	10
AF-70	K. Fricke P. Biermann A. Witzel K. J. Johnston	Gottingen U of, FRG MPIR, FRG MPIR, FRG NRL	Search for compact non thermal activity in barred spirals.	6	15	24
AG-112	B. Geldzahler	NRL	Central compact source in SNR 3C58.	2 and 6	20	4
AG-113	B. Geldzahler	NRL	Bright quasar 3C138.	1.3 and 2	29	4
AG-114	G. Garay J. Moran M. Reid	Chile U of, CHILE CFA CFA	Small scale structure in the Orion nebula.	6 and 20	28	11
AG-117	D. M. Gibson J. L. Linsky J. A. Warwick C. O. Havenga	NMIMT/Colorado U of Colorado U of/JILA Colorado U of NMIMT	dMe stars - quiescent emission.	2, 6 and 20	9,10, 11,24	23
AG-118	W. M. Goss E. B. Fomalont R. N. Manchester A. G. Lyne	NRAO/VLA NRAO/VLA CSIRO, AUSTRALIA Jodrell Bank, ENGLAND	Positions of 3 pulsars.	20	31	1.5

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AG-125	B. Geldzahler B. Rust	NRL NBS	High redshift quasars - possible cosmological complements.	2, 6 and 20	24	5
AH-99	R. M. Hjelming R. T. Newell	NRAO/VLA Scott Sci & Tech	Antares.	2, 6 and 20	29	7
AH-130	J. B. Hutchings A. C. Gower	DAO, CANADA Victoria U of, CANADA	Deep search for quasars selected by optical morphology.	6	6	24
AJ-97	K. J. Johnston D. R. Florkowski C. M. Wade	NRL USNO NRAO/VLA	Astrometry of stars.	6	17	22.5
AJ-98	K. J. Johnston C. M. Wade P. K. Seidelmann G. Kaplan W. Webster	NRL NRAO/VLA USNO USNO NASA/Goddard	Mapping Ceres.	2	20	9
AJ-99	K. J. Johnston R. Sramek E. B. Fomalont D. McCarthy K. Hilldrup	NRL NRAO/VLA NRAO/VLA USNO NRAO/CV	Quasar astrometry and earth's rotation.	6	14,18, 24,31	54.5
AK-76	P. P. Kronberg S. Button E. Zukowski K. Kim A. Boksenberg	Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA RGO, ENGLAND	New rotation measures.	2, 6, 18 and 21	1,20	9
AK-78	S. Kwok	Calgary U of, CANADA	Structure of compact planetary nebulae.	6	30	2.5
AK-90	P. P. Kronberg R. A. Sramek	Toronto U of, CANADA NRAO/VLA	Variable sources in M82.	2, 6 and 20	30	7
AK-91	M. R. Kundu E. Schmahl S. Shevgaonkar	Maryland U of Maryland U of Maryland U of	UV Ceti stars.	6 and 20	12,13	14
AK-92	M. L. Kutner K. Mead A. E. Rydgren	RPI RPI RPI	Search for radio emission from PMS K stars.	6	11	7
AK-93	H. Kuhr P. A. Strittmatter J. T. Stocke	Arizona U of Arizona U of Arizona U of	Search for gravitational lens around the most luminous quasar 0014+81.	2, 6 and 20	29	7
AL-55	K. R. Lang R. Pallavicini R. F. Willson	Tufts U Arcetri, ITALY Tufts U	Active main sequence stars of late spectral type.	6	5	19
AL-59	K. R. Lang R. F. Willson	Tufts U Tufts U	Solar active regions.	2, 6, 18 and 21	20	8
AL-61	R. Linfield R. A. Perley	JPL NRAO/VLA	3C390.3 - radio galaxy with a a VLB jet.	6 and 18	26	8
AL-66	J. Linsky S. A. Drake	Colorado U of/JILA Colorado U of/JILA	Late type giants and supergiants.	2 and 6	4,6	9.5
AM-72	L. Molnar M. Reid R. C. Bignell	CFA CFA NRAO/VLA	Polarization monitoring of BL Lac objects.	2, 6 and 20	3,8, 27	11 w/AS-79
AM-85	G. K. Miley G. de Waard J. van Gorkom T. M. Heckman B. Balick W. van Breugel	Leiden, NETHERLANDS Leiden, NETHERLANDS NRAO/VLA Maryland U of Washington U of Arizona U of	Search for redshifted CO in a high redshift quasar.	1.3 cm line	1	6

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AM-93	R. L. Mutel D. J. Doiron	Iowa U of Iowa U of	Flares in RS CVn stars.	2, 6 and 20	1,3, 8,9	7.5
AM-95	L. Maraschi R. D. Ekers J. H. van Gorkom	IFC-CNR, ITALY NRAO/VLA NRAO/VLA	Search for HI in BL Lac object 2155-304.	21 cm line	3,4	8
AO-40	C. P. O'Dea F. N. Owen A. C. Gower	NRAO/VLA NRAO/VLA Victoria U of, CANADA	Narrow angle tails.	6 and 20	21	2
AP-46	R. A. Perley A. H. Bridle B. G. Clark R. D. Ekers J. O. Burns G. Grueff J. N. Douglas	NRAO/VLA NRAO/CV NRAO/VLA NRAO/VLA New Mexico U of Bologna U, ITALY Texas U of	Survey of B3 objects.	20	29	4
AP-69	J. Pedelty L. Rudnick T. W. Jones	Minnesota U of Minnesota U of Minnesota U of	Depolarization in compact sources.	2, 6, 18 and 20	1	3.6
AR-69	A. P. Rao S. Ananthakrishnan	TIFR, INDIA TIFR, INDIA	Low latitude, small size objects.	1.3, 2 and 6	29	5 w/AB-229
AR-92	V. Radhakrishnan C. J. Salter K. J. Johnston R. D. Ekers J. van Gorkom	Raman Inst, INDIA TIFR, INDIA NRL NRAO/VLA NRAO/VLA	HI absorption in compact objects in SNR.	20 cm line	5	8
AR-95	M. Reid R. Genzel M. Silber J. Carlstrom J. Moran	CFA Calif U of, Berkeley Calif U of, Berkeley Calif U of, Berkeley CFA	Water masers in Orion.	1.3 cm line	25	5
AR-98	L. Rudnick T. W. Jones J. Pedelty D. Walsh I. Browne D. Shone	Minnesota U of Minnesota U of Minnesota U of Jodrell Bank, ENGLAND Jodrell Bank, ENGLAND Jodrell Bank, ENGLAND	Spectra of weak nuclear cores.	2, 6 and 20	12,13	24
AS-79	S. R. Spangler S. Allendorf W. D. Cotton	Iowa U of Iowa U of NRAO/CV	Monitoring of low frequency variables.	1.3, 2, 6 and 20	3,8, 27	11 w/AM-72
AS-80	R. A. Sramek J. M. van der Hulst K. W. Weiler	NRAO/VLA NFRA, NETHERLANDS NSF	Monitoring SN 1980k in NGC 6946 and 1979c in M100.	2, 6 and 20	11,12, 14	9.5
AS-136	W. L. Sanders	New Mexico State	Search for emission from Hyades stars.	6	1,2	16 w/VL-24
AT-35	A. R. Taylor P. C. Gregory T. Stevenson E. R. Seaquist	BC U of, CANADA BC U of, CANADA BC U of, CANADA Totonto U of, CANADA	"Short term" galactic variable sources.	6 and 20	7	6
AV-76	J. M. van der Hulst P. C. Crane D. G. Lawrie H. C. Ford	NFRA, NETHERLANDS NRAO/VLA Ohio State STScI	SNR candidate in M51.	6 and 20	26	6
AV-90	W. van Breugel R. T. Schilizzi	Arizona U of NFRA, NETHERLANDS	Curved jet in MK 501.	1.3, 2, 6 and 20	30	3.5

Program	Observer	Affiliation	Program Title	(cm)	Date	Hrs
AW-48	C. M. Wade P. K. Seidelmann K. J. Johnston G. H. Kaplan	NRAO/VLA USNO NRL USNO	Asteroid astrometry.	2 and 6	23,25	20
AW-78	J. F. C. Wardle R. A. Laing	Brandeis U RGO, ENGLAND	Monitoring central components of extended radio sources.	2 and 6	2	4.5
AW-93	A. S. Wilson A. Lawrence S. Unger M. Elvis	Minnesota U of RGO, ENGLAND Jodrell Bank, ENGLAND CFA	An X-ray selected sample of galaxies.	6 and 20	26,27	14
VL-24	R. Linfield	JPL	4C49.22	6 cm 3 antenna VLB	1	14 w/AS-136, AK-76, AM-85
	NRAO Staff		Electronics, etc. Software Pointing, baselines, delays, startups General tests			63.5 32.5 61.9 40.5

The average downtime for the month of August, 1983 was approximately 8.42 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 for 100 percent (744 hours) of the time: 74.9 percent (557.1 hours) to astronomical programs and the remaining 25.1 percent (186.9 hours) went to tests.

The following independent proposals shared simultaneous observing:

AM-93/Baseline	3.0
AS-136/VL-24	6.5
AK-76/VL-24	5.0
AM-85/VL-24	0.5
AM-72/AS-79	11.0
AL-66/Baselines	5.5
AJ-99/Tests	3.0

830908 PDH/ap

VLA UTILIZATION JULY 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AB-182	J. O. Burns T. J. Balonek E. Hummel	New Mexico U of Calif U of, Berkeley MPIR, FRG	Monitoring the cores of extended radio sources and spiral galaxies.	2, 6 and 20	31	4
AB-225	J. O. Burns T. J. Balonek C. J. MacCallum S. Gregory	New Mexico U of Calif U of, Berkeley Sandia Labs Bowling Green S U	The wide-angle tailed galaxy 1919+479.	6 and 20	6	12
AB-234	R. H. Becker D. Helfand	VPI & State U Columbia U	A distance determination for the SNR G29.7-0.3.	21 cm line	25	8 w/VF-7
AB-238	R. Beck E. Hummel R. Wielebinski	MPIR, FRG MPIR, FRG MPIR, FRG	Linearly polarized emission from nearby spiral galaxies.	6 and 20	15	21.5
AB-242	J. Bookbinder L. Golub	Harvard U CFA	A stars.	6	7,8	2.5
AC-69	R. M. Crutcher J. Bieging	Colorado U of/JILA Calif U of, Berkeley	OH absorption towards Orion B.	18 cm line	26,27 w/VF-7/VC-27	10.5
AC-75	J. J. Condon C. G. Kotanyi J. H. van Gorkom	NRAO/CV NRAO/VLA NRAO/VLA	HI maps of active spiral galaxies.	21 cm line	3	18
AC-77	B. G. Clark R. A. Perley A. H. Bridle	NRAO/VLA NRAO/VLA NRAO/CV	Survey of B3 sources.	20	10,21	8
AD-79	E. E. Salpeter J. M. Dickey	Cornell U Minnesota U of	A rich cluster of galaxies.	21 cm line	1	15.1
AD-104	S. A. Drake J. L. Linsky	Colorado U of/JILA Colorado U of/JILA	Long period RS Can. Ven. binaries.	6	30 w/VAH-14/VC-27	19.5
AD-108	N. Duric E. R. Seaquist P. C. Crane L. E. Davis	Toronto U of, CANADA Totonto U of, CANADA NRAO/VLA KPNO	The active spiral galaxy NGC 3310.	2	9	12
AE-21	R. D. Ekers R. A. Laing	NRAO/VLA RGO, UK	Microwave decrement in the direction of the galaxy cluster 0016+16.	2 and 20	1,2	12
AE-22	R. Edelson	Caltech	CFA Seyfert galaxies.	6 and 20	4	16
AE-24	B. K. Edgar L. Rudnick	Minnesota U of Minnesota U of	The jet-piece in 3C33.1.	18 and 20	11	2
AE-25	R. D. Ekers J. H. van Gorkom W. M. Goss U. J. Schwarz	NRAO/VLA NRAO/VLA Groningen U, NETHERLANDS Groningen U, NETHERLANDS	Sgr A East.	2	5	7.8
AF-63	S. M. Faber E. Raimond G. R. Knapp J. S. Gallagher J. H. van Gorkom	Calif U of, Berkeley NFRA, NETHERLANDS Princeton U Illinois U of NRAO/VLA	HI distribution in the elliptical galaxy NGC 1052.	21 cm line	16,17	18
AF-71	M. Fich D. van Buren	Calif U of, Berkeley Calif U of, Berkeley	HI shells around HII regions.	21 cm line	22	10
AG-101	B. Geldzahler B. Rust	NRL NBS	Search for cosmological compliments to quasars.	20	26,27 w/VC-27/VF-7	2
AG-111	R. Giovanelli M. P. Haynes	NAIC NRAO/GB	HI in the system of UGC 11964 - UGC 11968 = NGC 7241.	21 cm line	17	12
AH-100	T. Heckman B. Balick W. van Breugel G. K. Miley J. Dickey	Maryland U of Washington U of KPNO Leiden, NETHERLANDS Minnesota U of	HI in absorption and emission in NGC 3801 = 4C14.52.	21 cm line	8	10.5

VLA UTILIZATION June 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AH-124	G. Helou J. Dickey	Cornell U-CRSR Minnesota U of	HI in face-on spiral galaxies.	21 cm line	11,12	12.5
AH-131	P. T. P. Ho T. Rengarajan	CFA CFA/TIFR, INDIA	Ammonia observations of infrared protostars with deep 10 m silicate absorptions.	1.3 cm line	2	7
AJ-92	D. T. Jaffe P. T. P. Ho R. Genzel D. Downes	Calif U of, Berkeley CFA Calif U of, Berkeley IRAM, FRANCE	Ammonia observations of warm molecular condensations around "protostars".	1.3 cm line	16,18	14.5
AK-76	P. P. Kronberg S. Button E. Zukowski K. Kim A. Boksenberg	Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA RGO, ENGLAND	Rotation measure survey.	2,6,17 19 and 22	28	5
AK-77	K. I. Kellermann W. Altenhof	NRAO/GB MPIR, FRG	Pluto.	6	14,15, 16	22.5
AK-89	C. Kotanyi C. Balkowski J. van Gorkom	NRAO/VLA Meudon, FRANCE NRAO/VLA	HI survey of the Virgo cluster.	21 cm line	2,7, 11,17	28
AL-67	R. A. Laing G. G. Pooley J. M. Riley	RGO, ENGLAND Cambridge U of, ENGLAND Cambridge U of, ENGLAND	Spectral curvature in the radio galaxy 3C452.	2	7	12
AM-72	L. Molnar M. Reid R. C. Bignell	CFA CFA NRAO/VLA	Polarization monitoring of BL Lac objects.	2, 6 and 20	1,24	7.5 w/AS-79
AM-85	G. K. Miley G. de Waard J. van Gorkom T. M. Heckman B. Balick W. van Breugel	Leiden, NETHERLANDS Leiden, NETHERLANDS NRAO/VLA Maryland U of Washington U of Arizona U of	Search for redshifted CO absorption.	1.3 cm line	27	6 w/VC-27
AM-94	P. C. Myers M. J. Reid J. Keene	CFA CFA Caltech	Dark cloud condensations with embedded stars: NH3 observations.	1.3 cm line	23	10
AM-97	R. Mutel J. F. Lestrade	Iowa U of JPL/Paris Obs, FRANCE	A search for VLBI calibrator sources near HR 1099.	6 and 20	7,18	2.5
AO-42	M. P. Ondrechen J. M. van der Hulst	Minnesota U of NFRA, NETHERLANDS	HI observation of M83.	20 cm line	24	10.5 w/VC-27
AP-69	J. Pedelty L. Rudnick T. W. Jones	Minnesota U of Minnesota U of Minnesota U of	Depolarization in compact extra-galactic sources.	2, 6, 18 and 20	31	4
AR-85	L. F. Rodriguez P. Persi M. Ferrari-Toniolo	UNA of MEXICO Inst. Astp. Spaz., ITALY Inst. Astp. Spaz., ITALY	Stars with IR excesses.	2 and 6	30	18
AR-86	N. Rao V. R. Venugopal	TIFR, INDIA TIFR, INDIA	Extreme hydrogen deficient stars.	2 and 6	29	3
AR-87	M. J. Reid P. C. Myers G. Garay	CFA CFA CFA	Ammonia emission from compact HII regions.	1.3 cm line	4	16
AR-90	P. R. Roelfsema W. M. Goss D. S. Retallack R. C. Bignell	Groningen U, NETHERLANDS Groningen U, NETHERLANDS NRAO/VLA NRAO/VLA	Recombination lines in NGC 7027: H76 .	2 cm line	15	5.5

VLA UTILIZATION JULY 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AR-91	P. R. Roelfsema W. M. Goss D. S. Retallack R. Rubin	Groningen U, NETHERLANDS Groningen U, NETHERLANDS NRAO/VLA NASA/Ames	Recombination line observations of HII regions.	2 cm line	23	20
AS-79	S. R. Spangler W. D. Cotton	Iowa U of NRAO/CV	Monitoring of low frequency variables.	1.4,5,15 and 20	1,24	7.5 w/AM-72
AS-80	R. A. Sramek J. M. van der Hulst K. W. Weiler	NRAO/VLA NFRA, NETHERLANDS NSF	Supernovae SN 1980k in NGC 6946 and SN 1979c in M100.	6 and 20	16,25	4.5
AS-149	S. M. Simkin H. J. Su J. H. van Gorkom	Wisconsin U of Purple Mt. Obs, CHINA NRAO/VLA	HI observations of Seyferts of different morphological type.	21 cm line	18	10
AS-154	P. R. Schwartz M. A. Frerking	NRL JPL	Spectra of L1529 and L1455.	1.3, 2 and 20	28	3
AS-159	M. Sitko G. D. Schmidt R. L. Moore L. Rudnick	Minnesota U of Arizona U of Aerospace Corp. Minnesota U of	The eruptive QSO 0846+513.	2, 6 and 20	27	0.5
AS-171	S. R. Spangler R. A. Laing	Iowa U of RGO, ENGLAND	Spectral curvature in the radio galaxy 3C192.	2	10	12.
AT-33	J. Turner P. T. P. Ho	Calif U of, Berkeley CFA	Massive star formation in the nuclear regions of M31 and M33.	2	11,21	15
AT-38	K. Turner Y. Terzian	Arecibo Obs, PR Cornell U	Four bright cometary nebulae.	2 and 6	2,14	7
AU-17	S. Unger A. Pedlar	Jodrell Bank, ENGLAND Jodrell Bank, ENGLAND	SO galaxy NGC 1218 (3C78).	6	1	1.5
AV-92	J. van Gorkom U. J. Schwarz J. D. Bregman	NRAO/VLA Groningen, NETHERLANDS NFRA, NETHERLANDS	H76 mapping of the galactic center.	2 cm line	20,21	13
AV-93	S. Vogel R. Genzel	Calif U of, Berkeley Calif U of, Berkeley	Hot molecular gas in Sgr B2.	1.3 cm line	9,10, 12	24
AW-78	J. F. C. Wardle R. A. Laing	Brandeis U RGO, ENGLAND	Variability of the central components of extended radio sources.	2 and 6	28	4
AW-90	T. Wilson K. J. Johnston C. M. Walmsley W. Batrla	MPIR, FRG NRL MPIR, FRG MPIR, FRG	The structure of 2 cm H2CO in DR21.	2 cm line	13	12
AW-96	T. Wilson C. M. Walmsley W. Batrla J. Bieging	MPIR, FRG MPIR, FRG MPIR, FRG Calif U of, Berkeley	Two ammonia clouds with large optical depths.	1.3 cm line	8	9
AZ-23	X. W. Zheng M. Schneps	CFA CFA	Recombination line emission toward ON1.	1.3 and 2 cm line	11	2
VAH-13	N. L. Cohen	CFA	3C305.	6 cm 3 antenna VLB	27	3 w/AC-69
VAH-14	M. Roberts	NRAO/CV	Polarization of BL Lac.	6 cm 3 antenna VLB	29	12.8
VC-27	M. H. Cohen J. A. Biretta D. L. Jones K. R. Lind R. L. Moore G. A. Seielstad S. C. Unwin	Caltech Caltech Caltech Caltech Caltech Caltech Caltech	Superluminal sources: 3C273, 3C279, 3C345.	6 cm 3 antenna VLB	27,28, 30	42 w/AD-104, AC-69, AO-42, AG-101, AM-85, AR-85, AM-78, tests, pointing
VF-7	T. Foley	Leiden, NETHERLANDS	Low frequency variables.	6 cm 3 antenna VLB	25,26	14 w/AB-234, AC-69, AG-101

VLA UTILIZATION Ju[illegible] 1983 (Cont.)

Program	Observer	Affiliation	Program Title	(cm)	Date	Hrs
VG-30	B. Geldzahler K. Johnston J. Spencer B. Waltman	NRL NRL NRL NRL	OJ 287.	6 cm 3 antenna VLB	31	18 w/AR-85, AB-182, test
VG-32	M. V. Gorenstein R. J. Bonometti N. L. Cohen E. E. Falco I. I. Shapiro	CFA CFA CFA CFA CFA	Double quasar 0957+561.	6 cm phased array MK III VLB	22	10 w/VP-43
VL-25	J. F. Lestrade R. L. Mutel R. A. Preston A. E. Niell D. J. Doiron R. B. Phillips	JPL/Paris Obs, FRANCE Iowa U of JPL JPL Iowa U of Haystack Obs	RS CVn stars.	6 cm phased array MK III VLB	26	16
VP-43	R. Porcas D. Graham R. S. Booth P. N. Wilkinson	MPIR, FRG MPIR, FRG Onsala, SWEDEN Jodrell Bank, ENGLAND	Double quasar 0957+561	6 cm phased array MK III VLB	22	10 w/VG-32
VW-23	R. C. Walker J. M. Benson G. A. Seielstad S. C. Unwin	NRAO/CV NRAO/CV Caltech Caltech	Motions in 3C120.	6 cm phased array MK III VLB	24	15.5
	NRAO Staff		Electronics, etc. Software Pointing, baselines, delays, General tests			55.4 34.8 36 29.4
	Students					2.5

The average downtime for the month of July, 1983 was approximately 6.65 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 for 100 percent (744 hours) of the time: 79.1 percent (588.4 hours) to astronomical programs and the remaining 20.9 percent (155.6 hours) went to tests.

The following independent proposals shared simultaneous observing:

AM-72/AS-79	7.5	VG-32/VP-43	10
AB-234/VF-7	6	AG-101/VF-7	7
AC-69/VF-7	7	AC-69/VAH-13	2.6
AC-69/VC-27	0.9	Test/VC-27	6
AG-101/VC-27	4	AM-85/VC-27	1.2
AW-78/VC-27	2.8	AO-42/VC-27	5.5
Pointing/VC-27	0.8	AR-86/VAH-14	3
AD-104/VAH-14	9.8	AD-104/VC-27	9.6
AR-85/VC-27	8.3	AR-85/VG-30	7.6
Test/VG-30	2.5	AB-182/VG-30	4
AP-69/VG-30	4		

830826 PH/ap

VLA UTILIZATIO_UNE 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AA-22	H. Andernach L. Feretti G. Giovannini U. Klein	MPIR, FRG Bologna U, Italy Bologna U, Italy MPIR, FRG	The extended source near Coma A.	6 and 20	5,25	6
AB-206	J. Bally D. Matsakis R. Snell R. Predmore	Bell Labs USNO Massachusetts U of Massachusetts U of	H2CO and NH3 in the disk associated with the bipolar HII region in S106.	1.3 and 6 cm line	13	11
AB-216	M. Birkinshaw S. F. Gull	Cambridge U of, UK Cambridge U of, UK	The Sunyaev-Zel'dovich effect in Abell 2218.	6	23,24	25
AB-230	R. H. Becker D. Helfand	VPI & State U Columbia U	Spectral index and polarization distribution over three small diameter SNR.	6	12,13	12
AC-71	J. J. Condon K. J. Mitchell	NRAO/CV VPI & State U	Spectral index distributions of faint sources and QSOs.	6	16,17	13.5
AD-79	E. E. Salpeter J. M. Dickey	Cornell U Minnesota U of	HI synthesis of a rich cluster of galaxies.	21 cm line	27,30	21
AD-84	G. A. Dulk T. Bastain	Colorado U of Colorado U of	The solar transition region and corona, and major solar flares.	6	25,27	22
AD-94	I. de Pater K. W. Weiler R. Fanti C. Fanti	Arizona U of NSF Bologna U of, Italy Bologna U of, Italy	Polarization characteristics in variable radio sources.	2, 6 and 20	8,14, 15	7.5
AD-97	R. D. Davies A. N. Lasenby	Manchester U of, UK Manchester U of, UK	Search for the Sunyaev-Zel'dovich decrement in A576.	6	10,12, 13,14	45.5
AE-21	R. D. Ekers R. A. Laing	NRAO/VLA RGO, UK	Microwave decrement in the direction of the galaxy cluster 0016+16.	2 and 20	24	3
AG-110	S. T. Gottesman J. R. Ball J. H. Hunter J. M. Huntley	Florida U of Florida U of Florida U of Bell Labs	HI in barred spirals NGC 1073 and NGC 3359.	21 cm line	21	16
AH-122	D. Hunter J. H. van Gorkom	KPNO NRAO/VLA	HI observations of non-interacting irregular galaxies.	21 cm line	15,24	4
AH-123	D. Hunter J. H. van Gorkom	KPNO NRAO/VLA	Non-interacting irregulars.	6	14	3
AJ-82	D. W. Johnson S. T. Gottesman	Battelle Obs. Florida U of	Formaldehyde observations of M31 and M33.	6 cm line	26	14
AJ-89	N. Jeske M. Davis M. Stevens	Calif., U of, Berkeley Calif., U of, Berkeley Calif., U of, Berkeley	HI velocity mapping of dwarf irregular galaxies: DDO 125.	21 cm line	26	8
AK-82	M. L. Kutner K. N. Mead N. J. Evans	RPI RPI Texas U of	Search for HII in outer galaxy molecular clouds.	6	10	11
AL-62	H. Liszt	NRAO/CV	HI synthesis of three Seyfert galaxies.	21 cm line	18	16
AM-72	L. Molnar M. Reid R. C. Bignell	CFA CFA NRAO/VLA	Polarization monitoring of BL Lac objects.	2, 6 and 20	19,20	8 w/AS-79
AM-81	T. Montmerle L. Koch-Miramond E. D. Feigelson E. Falgarone	CEN, Saclay, France CEN, Saclay, France MIT Meudon, France	Non-thermal radio emission from X-ray detected stars in the Rho Oph dark cloud.	20	17,18	4
AM-83	N. Mandolesi B. Partridge R. Perley	TESR-CNR, Bologna, Italy Haverford College NRAO/VLA	Search for the Sunyaev-Zel'dovich effect in Abell 2218.	6	9	18

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
VK-13	K. I. Kellermann J. Romney I. I. K. Pauliny-Toth J. Benson R. C. Walker	NRAO/GB MPIR, FRG MPIR, FRG NRAO/CV NRAO/CV	3C273.	1.3 cm single antenna VLB	21	13.5 w/AG-110, tests
VL-26	K. Y. Lo K. I. Kellermann D. C. Backer M. H. Cohen R. D. Ekers J. M. Moran	Caltech NRAO/GB Calif., U of, Berkeley Caltech NRAO/VLA CFA	Galactic center source.	1.3 cm phased array MK III VLB	22	10
VP-42	R. B. Phillips R. L. Mutel M. W. Hodges	Haystack Obs. Iowa U of Iowa U of	BL Lac	6 cm single antenna VLB	12	10 w/AB-230
VP-43	R. Porcas D. Graham R. S. Booth P. N. Wilkinson	MPIR, FRG MPIR, FRG Onsala, Sweden Jodrell Bank, England	Double quasar 0957+561	6 cm phased array MK III VLB	13	12 w/VG-32
VR-24	R. E. Rusk E. R. Seaquist J. L. Yen R. A. Perley	Toronto U of, Canada Toronto U of, Canada Toronto U of, Canada NRAO/VLA	Compact, highly polarized radio sources.	6 cm single antenna VLB	14	36 w/AD-97,AD-94, pointing,tests
VS-30	R. T. Schilizzi R. W. Hunstead H. S. Murdoch T. J. Cornwell	NFRA, Netherlands Sydney U of, Australia Sydney U of, Australia NRAO/VLA	0215+015, a BL Lac object with variable absorption lines.	1.3 cm single antenna VLB	22	10 w/AR-73, tests
	NRAO Staff		Electronics, etc. Software Pointing, baselines, delays, startup Calibration, standard field observation General tests			71.5 38.5 60 37 52

The average downtime for the month of June, 1983 was approximately 6.24 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 for 100 percent (720 hours) of the time: 64.0 percent (461 hours) to astronomical programs and the remaining 36.0 percent (259 hours) went to tests.

The following independent proposals shared simultaneous observing:

AM-72/AS-79	8
VB-43/(AD-97,AK-82,AB-230,tests)	34
VG-30/AD-97	12
VG-32/VP-43	12
VK-13/(AG-110,tests)	13.5
VP-42/AB-230	10
VR-24/(AD-97,AD-94,pointing,tests)	36
VS-30/AR-73	10

830707 RCB/ap

VLA UTILIZATION MAY 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AA-20	J. S. Albinson H. van Woerden	NFRA, Netherlands Groningen U of, Neth	HI in dwarf irregular galaxies in the local group: NGC 6822.	21 cm line	26	8
AA-23	M. D. Andrews J. P. Basart	Iowa State Iowa State	Hydrogen recombination line emission from the center of W28.	2 cm line	23,24	12
AB-129	B. F. Burke J. N. Hewitt D. H. Roberts	MIT MIT Brandeis U	Monitoring double quasar 0957+561.	6	4	2
AB-209	F. H. Briggs P. H. Coleman	Pittsburgh U of Pittsburgh U of	Radio properties of an optically selected sample of QSOs.	6 and 20	7	16
AB-231	G. L. Berge D. O. Muhleman A. Niell	Caltech Caltech JPL	Astrometric and physical observations of the Galilean satellites.	2 and 6	1	6.6
AC-42	D. C. Abbott J. H. Bieging E. B. Churchwell R. C. Bignell	Colorado U of Calif., U of, Berkeley Wisconsin U of NRAO/VLA	Monitor variability of flux densities of OB stars.	2, 6 and 20	9	6
AC-67	P. H. Coleman D. A. Turnshek F. H. Briggs	Pittsburgh U of Pittsburgh U of Pittsburgh U of	Broad absorption line QSOs.	2, 6 and 20	30,31	21
AD-91	A. J. B. Downes J. A. Peacock	Cambridge U of, UK Royal Obs, Edinburgh, UK	Diffuse structure in faint high frequency extragalactic radio sources.	6 and 20	9	26.5
AD-92	H. R. Dickel A. F. Lubenow W. M. Goss A. H. Rots	Illinois U of Illinois U of Groningen U of, Netherlands NRAO/VLA	H2CO absorption toward DR21.	2 cm line	14,15	24
AD-96	J. Danziger W. M. Goss R. D. Ekers	ESO, FRG Groningen U of, Neth. NRAO/VLA	PKS 0521-26, a BL Lac object with optical jets.	2	27,28	6
AD-102	J. W. Dreher D. H. Roberts	MIT Brandeis U	Does OJ287 vary with a period of 15 minutes?	1.3, 2 and 6	21,23	15
AE-17	K. Ebneter B. Balick	Washington U of Washington U of	HI in active, dusty elliptical galaxies: Fornax A.	21 cm line	27,29	9
AE-20	R. D. Ekers C. Fanti R. Fanti P. Parma	NRAO/VLA Bologna U of, Italy Bologna U of, Italy Bologna U of, Italy	Peculiar low luminosity radio galaxy B2 1637+29.	6 and 20	2,4	16.5
AF-64	D. R. Florkowski K. J. Johnston	USNO NRL	Search for radio emission from massive early-type stars.	6	16,20	24
AG-106	S. T. Gottesman J. R. Ball J. H. Hunter J. M. Huntley	Florida U of Florida U of Florida U of Bell Labs	Barred spiral galaxy: NGC 1073.	21 cm line	8	10
AH-115	P. T. P. Ho A. H. Barrett T. Armstrong J. Jackson	CFA MIT MIT MIT	Continuum observations of the Sgr A molecular cloud.	2 and 6	12	7
AI-17	C. D. Impey	Hawaii U of	Survey of a quasar supercluster.	6 and 20	21,22	8
AJ-87	D. W. Johnson S. T. Gottesman	Battelle Obs Florida U of	HI in NGC 205.	21 cm line	6	13
AK-76	P. P. Kronberg S. Button E. Zukowski K. Kim A. Boksenberg	Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA Royal Greenwich Obs, UK	Rotation measure survey.	2, 6, 17, 19 and 22	2,14, 19,29	20
AK-79	K. I. Kellermann R. A. Sramek D. B. Shaffer	NRAO/GB NRAO/VLA Interferometrics Inc.	Deep search for Palomar quasars.	6	22-24, 27,28	43

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AK-80	G. A. Kriss C. R. Canizares R. A. Sramek	Michigan U of MIT NRAO/VLA	Survey of X-ray and optically selected quasars.	20	7,9	4
AK-81	M. R. Kundu R. Shevgaonkar E. J. Schmahl	Maryland U of Maryland U of Maryland U of	Solar flares and active regions.	6 and 2	1,2	24
AK-83	C. Kotanyi C. Balkowski J. van Gorkom	NRAO/VLA Meudon, FRANCE NRAO/VLA	HI survey of the Virgo cluster.	21 cm line	8	8
AL-43	R. A. Laing	RGO, England	Hot spots in luminous extragalactic radio sources.	2	5,6	24
AL-47	R. A. Laing G. G. Pooley J. M. Riley	RGO, England Cambridge U of, UK Cambridge U of, UK	Rotation measure variations in the radio galaxy 3C452.	6, 17 and 22	3	2.5
AL-57	J. F. Linsky S. A. Drake	Colorado U of Colorado U of	Mass loss rates from late-type giant and supergiant stars.	2 and 6	19,20	9
AL-63	L. T. Little G. J. White	Kent U of, UK Queen Mary College, UK	Continuum emission from the molecular cloud G35.2-0.74.	6	4	2
AL-64	J. F. Lestrade R. L. Mutel D. J. Doiron	Paris Obs/JPL Iowa U of Iowa U of	RS CVn binary systems.	6 and 20	15	8
AM-72	L. Molnar M. Reid R. C. Bignell	CFA CFA NRAO/VLA	Polarization monitoring of BL Lac objects.	2, 6 and 20	25,26	7.5 w/AS-79
AM-83	N. Mandolesi B. Partridge R. Perley	TESR-CNR, Bologna, Italy Haverford College NRAO/VLA	The Sunyaev-Sel'Dovich effect: point sources.	6	6	7
AM-86	M. Morris F. Y.-Zadeh D. Chance	Columbia U/UCLA Columbia U Columbia U	The continuum arc in the galactic center region.	6 and 20	26	7
AN-18	L. Noreau P. P. Kronberg F. Bertola G. Galetta D. Bettoni	Toronto U of, Canada Toronto U of, Canada Padova, Italy Padova, Italy Padova, Italy	Arp 205 and 206.	17 and 22	10	8
AP-66	R. A. Perley A. H. Bridle	NRAO/VLA NRAO/CV	Low-brightness features of NGC 6251.	6 and 20	11	10
AQ-2	P. J. Quinn K. Y. Lo D. Carter	Caltech Caltech ANU, Australia	Shell elliptical NGC 2865.	21 cm line	29	8.5
AR-81	A. H. Rots W. van Driel H. van Woerden	NRAO/VLA Groningen U of, Neth. Groningen U of, Neth.	HI in SO galaxies: NGC 1291.	21 cm line	21, 23	13.5
AR-84	G. G. Fazio M. J. Reid	CFA CFA	Compact far-infrared sources.	6	22	2
AR-88	S. P. Reynolds	NRAO/CV	The remnant of SN 1006.	18 and 20	20,21	8
AS-79	S. R. Spangler W. D. Cotton	Iowa U of NRAO/CV	Monitoring of low frequency variables.	1.4,5,15 and 21	25,26	7.5 w/AM-72
AS-80	R. A. Sramek J. M. van der Hulst K. W. Weiler	NRAO/VLA NFRA, NETHERLANDS NSF	Monitoring supernovae SN 1980k in NGC 6946 and SN 1979c in M100.	6 and 20	4,5, 26	8.5
AS-134	O. B. Slee R. A. Perley	CSIRO, Australia NRAO/VLA	Steep spectrum sources in clusters of galaxies.	20	14,15	6
AS-140	E. Skillman	Washington U of	The refractory period and cell size in irregular galaxies: NGC 6872 and IC1613.	21 cm line	28,30, 31	16

VLA UTILIZATION May 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AS-152	D. A. Schwartz H. V. Bradt E. D. Feigelson	CFA MIT Penn State U	Search for radio emission from unidentified, bright X-ray sources.	20	12,14	16.5
AS-157	R. S. Simon J. H. Spencer K. J. Johnston	NRC/NRL NRL NRL	Large scale structure in compact radio sources.	20	13,15	23
AV-86	W. van Breugel T. Heckman G. Miley M.-H. Ulrich	Arizona U of Maryland U of Leiden U, NETHERLANDS ESO, FRG	Optical line emission along the radio axes of two classical doubles; PKS 0349-278 and 3C445.	6 and 20	24	4
AW-78	J. F. C. Wardle R. A. Laing	Brandeis U RGO, UK	Variability of the central components of extended radio sources.	2 and 6	15,17, 19	13.5
AW-83	J. B. Whiteoak F. F. Gardner	CSIRO, Australia CSIRO, Australia	H2CO observations of Sgr A West.	2 cm line	29	8
AW-87	G. de Waard G. K. Miley R. A. Perley	Leiden U, NETHERLANDS Leiden U, NETHERLANDS NRAO/VLA	Monitoring of IRAS active galaxies.	1.3, 2, 6 and 20	1	12
Comet Tests	I. de Pater C. Wade R. Hjellming B. Clark	Arizona U of NRAO/VLA NRAO/VLA NRAO/VLA	Comet IRAS-Araki-Alcott.	2 and 6	7,8, 12	11
	NRAO Staff		Electronics, etc. Software Pointing, baselines, delays, startup General tests			48 48.9 58.4 26.3

The average downtime for the month of May, 1983 was approximately 4.64 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 for 100 percent (744 hours) of the time: 73.6 percent (547.8 hours) to astronomical programs and the remaining 26.4 percent (196.2 hours) went to tests.

The following independent proposals shared simultaneous observing:

AM-72/AS-79	7.5

830613 PH/ap

VLA UTILIZATION APRIL 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AB-129	B. F. Burke J. N. Hewitt D. H. Roberts	MIT MIT Brandeis U	Monitoring double quasar 0957+561.	6	2	3 w/VS-21
AB-182	J. O. Burns T. J. Balonek E. Hummel	New Mexico U of New Mexico U of MPIR, FRG	Monitoring the cores of extended radio sources and spiral galaxies.	2, 6 and 20	4	4 w/VS-28
AB-188	R. Becker	VPI & SU	Distribution and polarization of two Crab-like SNR.	6	1	8 w/VW-21
AB-205	J. Bally R. Snell	Bell Labs Massachusetts U of	Ionized gas associated with molecular jets and OH objects.	2, 6 and 20	22	11.5
AB-224	J. P. Brodie J. T. Clarke S. Bowyer	Calif U of, Berkeley Calif U of, Berkeley Calif U of, Berkeley	Search for Southern hemisphere jets.	20	13	14
AB-231	G. L. Berge D. O. Muhleman A. Niell	Caltech Caltech JPL	Observations of the Galilean satellites.	2 and 6	26	6.5
AB-232	B. Balick R. Hjellming C. Bignell	Washington U of NRAO/VLA NRAO/VLA	Planetary nebulae NGC 40, NGC 6543 and IC 3568.	6 and 20	3,30	9
AC-70	M. J. Claussen K. Y. Lo	Caltech Caltech	HI in molecular cloud cores.	21 cm line	23-25	29.5
AC-72	J. Cordes S. Beckwith J. Simonetti I. Wasserman	Cornell U Cornell U Cornell U Cornell U	Pilot observations of extragalactic sources behind molecular clouds.	20	28,29	7.5
AC-73	W. D. Cotton F. N. Owen	NRAO/CV NRAO/VLA	Very steep spectrum sources.	6	14	8
AC-74	D. Chernoff M. Stevens D. Hollenbach C. McKee C. Heiles	Calif U of, Berkeley Calif U of, Berkeley Calif U of, Berkeley Calif U of, Berkeley Calif U of, Berkeley	High velocity HI and magnetic fields in Orion A.	21 cm line	9,10	15
AD-85	I. de Pater D. M. Hunten J. Caldwell J. R. Dickel T. Owen	Arizona U of Arizona U of SUNY, Stony Brook Illinois U of SUNY, Stony Brook	Planetary atmospheres: Jupiter.	1.3, 2 and 6	14,16	12
AD-94	I. de Pater K. W. Weiler R. Fanti C. Fanti	Arizona U of NSF Bologna U, ITALY Bologna U, ITALY	Polarization characteristics in variable radio sources.	2, 6 and 20	4,6,8	5 w/VG-26 & VS-21
AD-97	R. D. Davies A. N. Lasenby	Manchester U of, UK Manchester U of, UK	Search for the Sunyaev-Zeldovich decrement in A 576: Point source mapping.	20	3	6
AD-101	A. K. Dupree B. F. Burke	CFA MIT	Search for radio emission from Vela-X.	6	28,29	8
AH-117	D. J. Helfand R. H. Becker T. Hamilton	Columbia U VPI & SU Columbia U	A search for millisecond pulsar candidates in globular clusters.	6 and 20	5	8.5 w/VS-28
AH-118	D. E. Hogg	NRAO/CV	Wolf-Rayet stars.	1.3, 2 and 6	11	12
AH-121	M. D. Haynes R. Giovanelli	NRAO/GB NAIC	HI in NGC 4388.	21 cm line	26,27	17.5 with AK-83
AJ-90	K. J. Johnston P. K. Seidelmann C. M. Wade G. H. Kaplan	NRL USNO NRAO/VLA USNO	Minor planet 10 Hygiea.	6	12	9

VLA UTILIZATION APRIL 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AJ-91	N. Jeske M. Davis M. Stevens	Calif U of, Berkeley Calif U of, Berkeley Calif U of, Berkeley	Ring galaxies.	6	30	2
AJ-92	D. T. Jaffe P. T. P. Ho R. Genzel D. Downes	Calif U of, Berkeley CFA Calif U of, Berkeley IRAM, FRANCE & FRG	Ammonia observations of warm molecular condensations around "protostars".	1.3 cm line	29,30	20
AK-76	P. P. Kronberg S. Button E. Zukowski K. Kim A. Boksenberg	Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA Royal Greenwich Obs, UK	Rotation measure survey.	2, 6, 17, 19 and 22	9,24	8.5
AK-83	C. Kotanyi C. Balkowski J. van Gorkom	NRAO/VLA Meudon, FRANCE NRAO/VLA	HI survey of the Virgo cluster.	21 cm line	7,8, 26,27	32.5 w/AH-121
AL-25	R. Landau E. Epstein L. Rudnick T. W. Jones	Minnesota U of Aerospace Corp. Minnesota U of Minnesota U of	Spectra of extragalactic variable sources.	1.3,2,6 and 20	9	11 w/tests
AL-65	G. Lake R. A. Schommer J. van Gorkom	Bell Labs Rutgers U NRAO/VLA	HI observations of faint elliptical galaxies.	21 cm line	22-24	27
AM-72	L. Molnar M. Reid R. C. Bignell	CFA CFA NRAO/VLA	Polarization monitoring of BL Lac objects.	2, 6 and 20	9,30	7.5 w/AS-79
AM-76	D. O. Muhleman G. L. Berge	Caltech Caltech	Saturn's rings: scattering phase functions and polarization.	2 and 6	20,21	17.5
AM-81	T. Montmerle E. D. Feigelson E. Falgarone L. Koch-Miramond	CEN Saclay, FRANCE MIT Meudon, FRANCE CEN Saclay, FRANCE	Non-thermal radio emission from X-ray detected stars in the Rho Oph dark cloud.	20	13	1
AM-83	N. Mandolesi B. Partridge R. Perley	TESR-CNR, Bologna, Italy Haverford College NRAO/VLA	The Sunyaev-Sel'Dovich effect: point sources.	6	1	1 w/VW-18
AM-84	T. K. Menon	BC U of, CANADA	Radio sources in compact groups of galaxies.	6 and 20	1,8	16 w/VW-18
AO-35	F. N. Owen J. A. Biretta P. Hardee	NRAO/VLA Caltech Alabama U of	M87.	2 and 6	13,28, 29	9.5
AO-37	F. N. Owen C. P. O'Dea M. Inoue J. Eilek J. O. Burns	NRAO/VLA NRAO-VLA Tokyo Ast. Obs., JAPAN NMIMT New Mexico U of	3C75 and 3C465.	20	21	5.5
AP-64	J. A. Peacock R. M. Prestage J. V. Wall	Royal Obs, SCOTLAND Edinburgh U of, SCOTLAND Royal Greenwich Obs, UK	The structure and environment of bright radio sources.	6 and 20	12	2
AS-79	S. R. Spangler W. D. Cotton	Iowa U of NRAO/CV	Monitoring of low frequency variables.	1.4,5,15 and 20	9,30	7.5 w/AM-72
AS-80	R. A. Sramek J. M. van der Hulst K. W. Weiler	NRAO/VLA NFRA, NETHERLANDS NSF	Monitoring supernovae SN 1980 in NGC 6946 and SN 1979c in M100.	6 and 20	2	4.5
AS-148	S. R. Spangler J. Pogge	Iowa U of Iowa U of	Double sources with extended lobes or bridges.	2 and 6	18,23	18

VLA UTILIZATION April 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AS-159	M. Sitko G. D. Schmidt R. L. Moore L. Rudnick	Minnesota U of Arizona U of Aerospace Corp. Minnesota U of	The eruptive QSO 0846+513.	2, 6 and 20	21	1.5
AT-25	J. Turner P. T. P. Ho	Calif U of, Berkeley CFA	Star formation regions in nearby spiral nuclei.	2	16,17	23.5
AT-26	Y. Terzian C. Bignell J. van Gorkom	Cornell U NRAO/VLA NRAO/VLA	Angular expansion of planetary nebulae.	6	25	8
AT-33	J. Turner P. T. P. Ho	Calif U of, Berkeley CFA	Star formation in the nuclear regions of M31 and M33.	6	26,28	11
AT-38	K. Turner Y. Terzian	Arecibo Obs, PR Cornell U	Four bright cometary nebulae.	20	15	10
AT-39	A. R. Taylor E. R. Seaquist P. C. Gregory	Toronto U of, CANADA Toronto U of, CANADA BC U of, CANADA	New radio stars.	6	4	5 w/VS-21 & VS-28
AV-80	T. Velusamy	TIFR, India	Search for a Crab nebula shell.	20	2,4	5.3
AV-84	W. van Breugel R. Strom J. Dickel	Arizona U of NFRA, NETHERLANDS Illinois U of	Polarimetry of Tycho A.	6, 18 and 20	17,18	24
AV-86	W. van Breugel T. Heckman G. Miley M.-H. Ulrich	Arizona U of Maryland U of Leiden U, NETHERLANDS ESO, FRG	Optical line emission along the radio axes of two classical doubles.	6 and 20	10	6
AW-48	C. M. Wade P. K. Seidelman G. H. Kaplan K. J. Johnston	NRAO/VLA USNO USNO NRL	Astrometric observations of minor planets.	2 and 6	11	10
AW-86	G. Wynn-Williams E. Becklin	Hawaii U of Hawaii U of	Dwarf HII region galaxies.	6 and 20	6,22	4 w/VG-26
AW-87	G. de Waard G. K. Miley R. A. Perley	Leiden U, NETHERLANDS Leiden U, NETHERLANDS NRAO/VLA	Monitoring of IRAS active galaxies.	1.3, 2, 6 and 20	16	11.5
AW-89	D. C. Wells	NRAO/CV	HI in NGC 6503.	21 cm line	11	4
AZ-22	H. Zirin G. J. Hurford	Caltech Caltech	Solar spicules: The limb brightness profile.	1.3, 2 and 6	2	13
VB-40	P. D. Barthel G. K. Miley R. T. Schilizzi E. Preuss T. Cornwell	Leiden U, NETHERLANDS Leiden U, NETHERLANDS NFRA, NETHERLANDS MPIR, FRG NRAO/VLA	Search for superluminal motion in extended quasars.	6-phased array VLB	5,6	33.2
VG-26	D. Graham	MPIR, FRG	Steep spectrum quasar 3C298.	6-three antenna VLB	6	3 w/AD-94 & AW-86
VL-19	R. P. Linfield A. C. S. Readhead	Calif U of, Berkeley Caltech	Cygnus A.	6-phased array MK III VLB	3	13.6
VP-38	R. B. Phillips R. L. Mutel	Haystack Obs Iowa U of	Compact doubles: 1518+047.	6-phased array MK III VLB	1,4	10.8
VS-21	D. Shaffer J. Marcaide J. D. Romney K. I. Kellermann	Interferometrics Inc. MIT MPIR, FRG NRAO/GB	4C39.25	6-three antenna VLB	4	3.7 w/AT-39, AB-129 & AD-94

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
VS-28	J. Spencer K. J. Johnston A. Witzel A. Eckart H. Hirabayashi M. Inoue	NRL NRL MPIR, FRG MPIR, FRG Tokyo U of, JAPAN Tokyo Obs, JAPAN	Compact doubles: 3C395.	6-three antenna VLB	4,5	14 w/AB-182, AH-117 & AT-39
VW-18	R. C. Walker J. M. Benson G. A. Seilestad S. C. Unwin	NRAO/CV NRAO/CV Caltech Caltech	3C120.	6-three antenna VLB	1	7 w/AM-84, & AM-83
VW-21	D. Weistrop P. Hintzen D. Shaffer	NASA/Goddard NASA/Goddard Interferometrics Inc.	BL Lac object 1400+162.	6-three antenna VLB	1	9.9 w/AB-188 & gen. tests
	NRAO Staff		Electronics, etc. Software Pointing, baselines, delays, startup General tests			50.9 36.9 34.1 47

The average downtime for the month of April, 1983 was approximately 6.11 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 for 100 percent (720 hours) of the time: 78.5 percent (565.1 hours) to astronomical programs and the remaining 21.5 percent (154.9 hours) went to tests.

The following independent proposals shared simultaneous observing:

VW-21/Test/Bignell	3.0
AB-188/VW-21	3.2
AB-188/VW-18	1.6
AM-83/VW-18	1.0
AM-84/VW-18	8.5
AD-94/VS-21	0.8
AB-129/VS-21	1.0
AT-39/VS-21	1.0
AT-39/VS-28	1.3
AB-182/VS-28	4.0
AH-117/VS-28	8.5
AD-94/VG-26	2.0
AW-86/VG-26	0.8
AL-25/Test/Napier	11.0
AM-72/AS-79	7.5
AH-121/AK-83	8.0
	65.9

830511
RKH/ap

VLA ASTRONOMICAL UTILIZATION MARCH 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AB-129	B. F. Burke P. E. Greenfield D. H. Roberts	MIT MIT Brandeis U	Monitoring double quasar 0957+561.	6	14	2
AB-205	J. Bally R. Snell	Bell Labs Massachusettes U of	Ionized gas associated with molecular jets and OH objects.	2, 6 and 20	5,8	19.5
AB-214	T. de Jong P. F. Bowers	Amsterdam U of, NETH NRL	Luminosity function of OH maser stars.	18 cm line	4	10
AB-215	M. Birkinshaw R. L. Davies	Cambridge U, ENGLAND KPNO	Radio galaxies with known stellar dynamics.	6	24,25	13
AB-217	J. Bally A. A. Stark	Bell Labs Bell Labs	High velocity HI in NGC 2071.	21 cm line	3,4, 10	27.5
AB-226	W. A. Baan I. F. Mirabel J. van Gorkom A. D. Haschick	Penn State U Puerto Rico U of NRAO/VLA Haystack Obs	HI emission in IC 4553.	21 cm line	16	8
AC-65	J. J. Condon J. Machalski	NRAO/CV Jagiellonian U, POLAND	Extended sources in GB/GB2 1400 MHz samples.	20	9	10
AC-66	P. Coleman C. Hazard J. J. Condon	Pittsburgh U of Cambridge U, ENGLAND NRAO/CV	A region of high optical QSO density.	20	27,30	12
AD-83	L. Davis	KPNO	Bright interacting galaxies.	6	17,18	10
AD-84	G. A. Dulk T. Bastian	Colorado U of Colorado U of	The solar transition region and corona, and major solar flares.	2	26,27	20
AD-89	G. A. Dulk T. Bastian G. Chanmugam	Colorado U of Colorado U of Louisiana State	AM Herculis-type binary stars.	2 and 6	18,20	34
AD-94	I. de Pater R. Fanti C. Fanti	Arizona U of Bologna U, ITALY Bologna U, ITALY	Polarization characteristics in variable radio sources.	2, 6 and 20	7,10, 11	7
AD-102	J. W. Dreher D. H. Roberts	MIT Brandeis U	Does OJ278 vary with a period of 15 minutes?	1.3 and 2	14,16	6
AH-102	E. Hummel C. G. Kotanyi J. van Gorkom M. Phillips A. Turtle	MPIR, FRG NRAO/VLA NRAO/VLA CTIO, CHILE Sydney U of, AUSTRALIA	Peculiar radio structure in the spiral galaxies N2992 and N4388.	6	3	4
AI-15	R. Isaacman H. Habing I. Gatley	Leiden U, NETHERLANDS Leiden U, NETHERLANDS UK Infrared Telescope	A radio survey of compact planetary nebulae.	6	15,17	17
AK-69	M. R. Kundu D. McConnell E. J. Schmahl	Maryland U of Maryland U of Maryland U of	Active solar regions and flares.	2 and 6	6,7	20
AK-76	P. P. Kronberg S. Button E. Zukowski K. Kim A. Boksenberg	Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA Toronto U of, CANADA Royal Greenwich Obs, ENGLAND	Rotation measure survey.	2, 6, 17, 19 and 22	10,30	10
AL-54	T. Landecker S. Pineault D. Routledge F. Vaneldik	DRAO, CANADA DRAO, CANADA Alberta U of, CANADA Alberta U of, CANADA	Search for an active stellar remnant in the SNR VRO 42.05.01.	6 and 20	12,13	28
AL-58	K. Y. Lo K. Young W. Sargent	Caltech Caltech Caltech	HI mapping of nearby faint dwarf galaxies.	21 cm line	1	1.5
AM-72	L. Molnar M. Reid R. C. Bignell	Harvard CFA NRAO/VLA	Polarization monitoring of BL Lac objects.	2, 6 and 20	7,8	8 with AS-79

VLA ASTRONOMICAL UTILIZATION MARCH 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AM-78	F. Marshall R. A. White F. N. Owen	NASA/Goddard NASA/Goddard NRAO/VLA	X-ray sources from the North Ecliptic Pole IPC survey.	6	13	10
AN-14	S. G. Neff	NFRA, NETHERLANDS	Quasars with very large, bent jets.	6 and 20	1	3
AN-17	L. Noreau P. P. Kronberg F. Bertola G. Galetta D. Bettoni	Toronto U of, CANADA Toronto U of, CANADA Padova, ITALY Padova, ITALY Padova, ITALY	Arp 205 and 206: 21 cm line study.	21 cm line	7	8
AN-18	L. Noreau P. P. Kronberg F. Bertola G. Galetta D. Bettoni	Toronto U of, CANADA Toronto U of, CANADA Padova, ITALY Padova, ITALY Padova, ITALY	A continuum study of Arp 205 and 206.	17 and 22	4,5	17
AN-19	R. T. Newell R. M. Hjellming	Scott Sci. & Tech NRAO/VLA	HII regions in the winds of late-type supergiants.	6	1,11	19.5
AN-21	E. R. Nelson J. O. Burns R. A. White F. N. Owen	New Mexico U of New Mexico U of NASA/Goddard NRAO/VLA	Poor clusters of galaxies: a statistical sample.	20	15	9.5
AO-34	F. N. Owen R. A. White J. O. Burns C. P. O'Dea	NRAO/VLA NASA/Goddard New Mexico U of Massachusettes/NRAO-VLA	Abell clusters of galaxies.	20	1,11, 20	24
AO-35	F. N. Owen J. A. Biretta P. Hardee	NRAO/VLA Caltech Alabama U of	M87	2 and 6	21	8
AO-36	F. N. Owen C. P. O'Dea M. Inoue H. Tabara M. Ishiguro	NRAO/VLA Massachusettes/NRAO-VLA Tokyo Ast. Obs., JAPAN Tokyo Ast. Obs., JAPAN Tokyo Ast. Obs., JAPAN	3C75	6 and 20	14	9
AP-46	R. A. Perley B. G. Clark A. H. Bridle J. O. Burns G. Grueff J. N. Douglas R. D. Ekers	NRAO/VLA NRAO/VLA NRAO/CV New Mexico U of Bologna U of, ITALY Texas U of NRAO/VLA	A large unbiased source sample from the B3 survey.	20	21	2.5
AP-62	S. H. Pravdo K. Sellgren R. L. White R. H. Becker	JPL Caltech Calif. U of, LA VPI & SU	Radio emission near HH1 and HH2.	20	24	3
AP-64	J. A. Peacock R. M. Prestage J. V. Wall	Royal Obs, SCOTLAND Edinburgh U of, SCOTLAND Royal Greenwich Obs, UK	The structure and environment of bright radio sources.	6 and 20	19	24
AR-77	A. Rots R. D. Davies P. N. Appleton T. D. Kinman	NRAO/VLA Manchester U of, UK Manchester U of, UK KPNO	HI distribution and dynamics of the dwarf galaxy K191.	21 cm line	2	12
AS-79	S. R. Spangler W. D. Cotton	Iowa U of NRAO/CV	Monitoring of low frequency variables.	1.4,5,15 and 21	7,8	8 with AM-72
AS-80	R. A. Sramek J. M. van der Hulst	NRAO/VLA NFRA, NETHERLANDS	Monitoring supernovae SN 1980 in NGC 6946 and SN 1979c in M100.	6 and 20	14,15, 18	10

VLA ASTRONOMICAL UTILIZATION MARCH 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AS-128	E. R. Seaquist N. Duric P. C. Crane R. C. Bignell L. E. Davis	Toronto U of, CANADA Toronto U of, CANADA NRAO/VLA NRAO/VLA KPNO	NGC 3079.	6 and 20	6	12
AS-145	S. Strom K. Strom J. van Gorkom	KPNO KPNO NRAO/VLA	Thermal continuum of low brightness spirals.	6	28	12.5 w/VAH-12
AT-30	A. J. Turtle M. R. Calabretta M. M. Phillips	Sydney U of, AUSTRALIA Sydney U of, AUSTRALIA CTIO, CHILE	Seyfert 2 galaxy M4-1.	6	24	3
AV-77	J. van Gorkom D. Hunter	NRAO/VLA KPNO	Non-interacting irregular galaxies.	6	25,27	11
AV-80	T. Velusamy	TIFR, INDIA	Search for a Crab nebula shell.	20	31	9.4 with VW-21/ VAH-11/ tests-Bignell
AV-81	J. P. Vallee A. F. J. Moffat	NRC, CANADA Montreal U of, CANADA	Mass loss from nebulae off the galactic plane.	2, 6 and 20	17,18	6
AV-85	J. H. van Gorkom J. M. van der Hulst A. D. Haschick A. D. Tubbs	NRAO/VLA NFRA, NETHERLANDS Haystack Obs Bell Labs	HI observations of Centaurus A.	21 cm line	2	5
AW-48	C. M. Wade P. K. Seidelman K. J. Johnston	NRAO/VLA USNO NRL	Astrometric observations of minor planets.	2 and 6	25	10
AW-66	B. Wills D. Wills	Texas U of Texas U of	Radio structure of objects with broad emission lines.	6 and 20	3	.75
AW-80	T. L. Wilson C. M. Walmsley W. Hermsen C. Henkel J. H. Bieging	MPIR, FRG MPIR, FRG MPIR, FRG Calif. U of, Berkeley Calif. U of, Berkeley	A protostar in Orion-KL?	1.3 cm line	21	8
AW-88	W. J. Webster P. D. Lowman R. W. Hobbs	NASA/Goddard NASA/Goddard Computer Technology	Asteroids.	2	26	12 w/VJ-26
VAH-11	N. Cohen	Cornell U	3C196.	6 3 antenna MK III VLB	31	3.9 w/AV-80/ software
VAH-12	L. Molnar	Harvard	3C274 polarization.	18 3 antenna MK III VLB	28	8 w/AS-145/ startup

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
VJ-24	D. L. Jones	Caltech	High dynamic range mapping of NGC 6251.	18-phased array VLB	29	28
	A.C.S. Readhead	Caltech				
	S. Unwin	Caltech				
	M. H. Cohen	Caltech				
	T. Pearson	Caltech				
	M. S. Ewing	Caltech				
	I. I. K. Pauliny-Toth	MPIR, FRG				
	A. Witzel	MPIR, FRG				
	J. Romney	MPIR, FRG				
	R. Linfield	Calif. U of, Berkeley				
	R. C. Walker	NRAO/CV				
	R. S. Simon	Caltech				
	P. Wilkinson	Manchester U of, ENGLAND				
	R. T. Schilizzi	NFRA, NETHERLANDS				
	L. Baath	Chalmers, SWEDEN				
	R. B. Phillips	Haystack Obs				
	D. Fort	NRC, CANADA				
	J. A. Galt	DRAO, CANADA				
VJ-26	K. Johnston	NRL	Survey of steep spectrum sources.	18	27	14.0 w/AW-88/ test-Perley
	J. Spencer	NRL				
	B. Geldzahler	NRL				
	R. Perley	NRAO/VLA				
	R. Mutel	Iowa U of				
	R. Phillips	Haystack Obs				
VW-21	D. Weistrop	NASA/Goddard	BL Lac object 1400+162.	6-three antenna VLB	31	3.5 with AV-80/ tests-Bignell
	P. Hintzen	NASA/Goddard				
	D. Shaffer	NASA/Goddard				
	NRAO Staff		Electronics, etc.			54.5
			Software			54.3
			Pointing, baselines, delays, startup			44.9
			Calibration			12.0
			General tests			33.6

The average downtime for the month of March, 1982 was approximately 5.71 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 for 100 percent (744 hours) of the time: 73.2 percent (544.7 hours) to astronomical programs and the remaining 26.8 percent (199.3 hours) went to tests.

The following independent proposals shared simultaneous observing:

AM-72/AS-79	8.0
Test-Perley/VJ-26	2.0
AW-88/VJ-26	12.0
Startup/VAH-12	3.3
AS-145/VAH-12	4.7
Software/VAH-11	0.1
VAH-11/AV-80	3.8
VW-21/AV-80	3.5
VW-21/Test-Bignell	0.1

PDH/ap
830407

VLA ASTRONOMICAL UTILIZATION FEBRUARY 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AB-129	B. F. Burke P. E. Greenfield D. H. Roberts	MIT MIT Brandeis U	Monitoring double quasar 0957+561.	6	15	2
AB-204	T. J. Balonek J. O. Burns M. Zeilik P. Smith J. J. Puschell R. Barvainis J. Kenny C. D. Impey	New Mexico U of New Mexico U of New Mexico U of New Mexico U of Calif., San Diego Mass U of Mass U of Hawaii U of	Simultaneous radio/optical polarimetry of quasi-stellar objects.	2, 6 and 20	20,21, 23	8
AB-219	R. C. Bignell	NRAO/VLA	A possible planetary nebula in giobular cluster M5.	6 and 20	16	2.5
AB-221	R. C. Bignell	NRAO/VLA	The Dumbell Nebula.	20	7	7
AC-64	J. J. Condon K. J. Mitchell	NRAO/CV VPI & SU	Deep survey.	20	18,19, 20,21	48.5
AF-50	E. B. Fomalont E. D. Feigelson G. K. Miley C. R. Canizares	NRAO/VLA Penn State U Leiden U, Netherlands MIT	Steep spectrum radio galaxy 3C318.1.	6	8	5
AF-57	D. R. Florkowski	USNO	Mass loss from RY Scuti.	2, 6 and 20	19	8
AG-95	A. C. Gower	British Columbia U of, Canada	Halo of quasar 4C18.68.	6 and 20	19	4
AH-99	R. M. Hjellming R. T. Newell	NRAO/VLA Scott Sci & Tech	Alpha Sco radio sources.	2 and 6	24	7
AH-105	R. M. Hjellming M. S. Hjellming	NRAO/VLA Illinois U of	M31 central source.	20	1	15.5
AH-114	H. L. Helfer J. L. Pipher C. Woodward	Rochester U of Rochester U of Rochester U of	Star formation regions.	2 and 6	6	5
AJ-86	C. Jones D. Harris W. Forman F. Owen	CFA CFA CFA NRAO/VLA	Central dominant cluster galaxies.	6 and 20	25	16
AJ-90	K. J. Johnston P. K. Seidelman C. M. Wade G. H. Kaplan	NRL USNO NRAO/VLA USNO	Minor planet 10 Hygiea.	6	26	10
AK-47	S. Kwok R. C. Bignell	NRC, Canada NRAO/VLA	AFGL 618, a nacent planetary nebula?	2, 6 and 20	9	2
AK-76	P. P. Kronberg S. Button E. Zukowski K. Kim A. Boksenberg	Toronto U of, Canada Toronto U of, Canada Toronto U of, Canada Toronto U of, Canada Royal Greenwich Obs, UK	Rotation measure survey.	6	5,11	12.5
AL-47	R. A. Laing G. G. Pooley J. M. Riley	NRAO/CV Cambridge U of, England Cambridge U of, England	Radio galaxy 3C452.	6 and 20	14	8.5 w/VJ-26
AL-52	R. A. Laing J. H. van Gorkom	NRAO/CV NRAO/VLA	HI in NGC 5363.	20 cm line	10	9
AL-56	J. L. Linsky D. E. Gary	Colorado U of Caltech	UV Ceti-type flare stars.	6	1,2,3, 4,5,6	49.5 w/VS-25
AL-58	K. Y. Lo K. Young W. Sargent	Caltech Caltech Caltech	HI in nearby faint dwarf galaxies.	20 cm line	28	18.7

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AM-72	L. Molnar M. Reid R. C. Bignell	Harvard CFA NRAO/VLA	Polarization monitoring of BL Lac objects.	2, 6 and 20	8,12 with AS-79	7.5
AM-80	J. M. Moran G. Garay M. Reid	Calif., Berkeley CFA CFA	Orion Nebula.	1.3	17	10.5
AM-81	T. Montmerle E. D. Feigelson E. Falgarone L. Koch-Miremond	Saclay, France Pennsylvania U of Meudon, France Saclay, France	X-ray detected pre-main sequence stars in the Rho Ophiuchi dark cloud.	20	17,18	12
AN-20	J. S. Neff	Iowa U of	Spectral indices in planetary nebulae.	6 and 20	15	8
AO-33	M. P. Ondrechen J. M. van der Hulst	Minnesota U of NFRA, Netherlands	Barred spirals NGC 1097 and NGC 5236 (M83).	6	1,6, 10,11	25.5
AO-34	F. Owen R. A. White J. Burns C. O'Dea	NRAO/VLA NASA, Goddard New Mexico U of NRAO/VLA	Abell clusters.	20	8	1
AO-37	F. Owen J. Eilek C. O'Dea J. Burns M. Inoue	NRAO/VLA NMIMT NRAO/VLA New Mexico U of Tokyo U, Japan	3C75 and 3C465 - short spacings.	6 and 20	18	5
AP-46	R. A. Perley A. H. Bridle B. G. Clark R. D. Ekers J. O. Burns G. Grueff J. N. Douglas	NRAO/VLA NRAO/CV NRAO/VLA NRAO/VLA New Mexico U of Bologna U, Italy Texas U of	A large sample from the B3 survey.	20	4,5, 12,15	15
AP-59	G. G. Pooley J. P. Leahy J. M. Riley	Cambridge U of, England Cambridge U of, England Cambridge U of, England	Fine structure in the galactic Faraday medium.	20	12,14	9.5
AR-83	M. Reid P. Myers J. Bieging	CFA CFA Calif., Berkeley	Ammonia absorption toward W3(OH).	1.3 cm line	25,26, 27	37
AS-79	S. R. Spangler W. D. Cotton	Iowa U of NRAO/CV	Monitoring low frequency variables.	1.3,2,6 and 20	8,12 with AM-72	7.5
AS-80	R. A. Sramek J. M. van der Hulst	NRAO/VLA NFRA, NETHERLANDS	Supernovae SN 1980 in NGC 6946 and SN 1979c in M100.	6 and 20	18	5
AS-149	S. M. Simkin H. J. Su J. H. van Gorkom	Wisconsin U of Purple Mt.Obs, China/MSU NRAO/VLA	HI in Seyferts of different morphological type.	20 cm line	6,7, 8	27
AS-153	P. R. Schwartz M. F. Campbell	NRL Colby College	Cygnus-X	6 and 20	20	10
AT-34	T. X. Thuan E. Hummel	Virginia U of MPIR, FRG	HI in active galaxy NGC 520.	20 cm line	1	1
AV-52	J. M. van der Hulst R. A. Sramek	NFRA, Netherlands NRAO/VLA	Supernova in NGC 4536.	6	16	5
AV-79	J. M. van der Hulst P. C. Crane R. C. Kennicutt R. J. Allen	NFRA, Netherlands NRAO/VLA Minnesota U of Groningen U, Netherlands	M51 and NGC 6946.	20	13	6.5
AV-83	J. M. van der Hulst E. Hummel J. S. Young	NFRA, Netherlands MPIR, FRG Massachusetts U of	Search for thick continuum disks in edge-on galaxies.	20	24	17

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AW-66	B. J. Wills D. Wills	Texas U of Texas U of	Radio structure of objects with broad emission lines.	6 and 20	15,24	2
AW-72	B. Williams R. Becker	NRAO/CV VPI & SU	HI in a pair of galaxies.	20 cm line	27	8
AW-77	J. Wall E. B. Fomalont K. I. Kellermann	Royal Greenwich Obs, UK NRAO/VLA NRAO/GB	Structure of sources from 6 cm deep survey.	20	12	10
AW-84	H. D. Aller M. F. Aller B. J. Wills D. Wills M. Breger	Michigan U of Michigan U of Texas U of Texas U of Texas U of	Simultaneous radio/optical polarimetry of short timescale variations in BL Lac objects.	6 and 20	10-17	18
VJ-26	K. J. Johnston J. Spencer B. Geldzahler R. A. Perley R. L. Mutel R. Phillips	NRL NRL NRL NRAO/VLA Iowa U of Haystack Obs	Survey of steep spectrum sources.	18 Three antenna VLB	12,14 with/AW-77, AL-47, Test/ Crane	21.1
VM-39	R. L. Mutel H. Aller	Iowa U of Michigan U of	The red QSO 1413+135.	1.3 cm Phased array VLB	3	6.5
VM-40	R. L. Mutel R. B. Phillips	Iowa U of Haystack Obs	Search for compact doubles.	18 cm Phased array VLB	13	16.4
VM-42	R. L. Moore A. C. S. Readhead L. Baath	Caltech Caltech Chalmers, Sweden	3C345.	1.3 cm Three antenna VLB	2 with/AL-56, tests/Perley	12.5
VS-25	S. Spangler R. L. Mutel	Iowa U of Iowa U of	0552+398.	1.3 cm Three antenna VLB	1 with/AH-105, AL-56	12.5
VS-26	E. R. Seaquist R. C. Bignell R. Rust	Toronto U of, Canada NRAO/VLA Toronto U of, Canada	SNR in NGC 4449.	18 cm Phased array MK III VLB	13	4.2
	NRAO staff		Electronics, etc. Software Pointing, baselines, delays, startup General tests			53.6 34.3 42.6 35.2

The average downtime for the month of February, 1983 was approximately 8.74 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 for 100 percent (672 hours) of the time: 75.3 percent (506.3 hours) to astronomical programs and the remaining 24.7 percent (165.7 hours) went to tests.

The following independent proposals shared simultaneous observing:

AH-105/VS-25	11.4	AM-72/AS-79/VJ-26	.7
AL-56/VS-25	1.1	AW-77/VJ-26	8.5
AL-56/VM-42	6.9	Test-Crane/VJ-26	2.4
Test-Perley/VM-42	5.7	AL-47/VJ-26	8.0
AM-72/AS-79	7.5		

830318 PDH/ap

VLA ASTRONOMICAL OBSERVING UTILIZATION JANUARY 1983

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AA-21	M. D. Andrews J. P. Basart	Iowa State U Iowa State U	Rho Ophiuchi dark cloud.	6 and 20 line	17	5
AB-129	B. F. Burke P. E. Greenfield D. H. Roberts	MIT MIT Brandeis U	Monitoring double quasar 0957+561.	6	20	2
AB-182	J. O. Burns T. J. Balonek E. Hummel	New Mexico U of UNM MPIR, FRG	Monitoring the cores of extended radio sources and spiral galaxies.	2, 6 and 20	19,20	7.5
AB-186	J. P. Basart M. D. Andrews R. C. Lamb	Iowa State U Iowa State U Iowa State U	Center of W28.	6	28	5.5
AB-197	A. H. Barrett J. T. Armstrong J. M. Jackson P. T. P. Ho	MIT MIT MIT CFA	NH3 condensations in the Sgr A cloud.	1.3 line	14,15	14
AB-198	F. Bash M. Kaufman	Texas U of Ohio State	Giant HII regions, spiral structure, and supernova remnants in M81.	6 and 20	25,27, 29	23.5
AB-200	A. H. Barrett J. T. Armstrong J. M. Jackson P. T. P. Ho	MIT MIT MIT CFA	NH3 absorption against Sgr A West.	1.3 line	16	7
AB-201	B. Balick B. Margon	Washington U of Washington U of	Search for an HI halo round NGC 1300.	21 line	8,9, 10	21.5
AB-204	T. J. Balonek J. O. Burns M. Zeilik P. Smith J. J. Puschell R. Barvainis J. Kenny C. D. Impey	New Mexico U of New Mexico U of New Mexico U of New Mexico U of Calif., San Diego Mass U of Mass U of Hawaii U of	Simultaneous radio, infrafed, and optical polarimetry of quasi-stellar objects.	2, 6 and 20	2,4	8
AB-206	J. Bally D. Matsakis R. Snell R. Predmore	Bell Labs USNO Mass U of Mass U of	Mapping of H2CO and NH3 in the disk associated with the bipolar HII region S106.	6 line	4	12.5
AB-212	B. F. Burke J. H. Mahoney J. M. van der Hulst	MIT MIT NFRA, Netherlands	Neutral hydrogen in NGC 4038/39.	20 line	4	6
AB-222	A. Bosma E. Athanassoula	Leiden U of, Netherlands Besancon Obs, France	The oval disk galaxy NGC 210.	20 line	28	8.5
AC-69	R. M. Crutcher J. H. Bieging	Colorado U of Calif., Berkeley	OH absorption line synthesis: Cas A.	18 line	3	6
AD-85	I. de Pater D. M. Hunten J. Caldwell J. R. Dickel T. Owen	Arizona U of Arizona U of SUNY, Stony Brook Illinois U of SUNY, Stony Brook	Planetary atmospheres: Jupiter.	1.3, 2 and 6	2,3,5, 22,23	23
AF-55	J. D. Fix R. L. Mutel E. B. Churchwell	Iowa U of Iowa U of Wisconsin U of	Search for extragalactic type II OH masers.	18 line	2	7
AF-58	J. D. Fix R. L. Mutel R. A. Gaume	Iowa U of Iowa U of Iowa U of	Ammonia emission from G351.8-0.5.	18 line	8,9	8
AG-101	B. Geldzahler B. Rust	NRL NBS	Search for complimentary quasars as a test of a closed universe.	20	6,10	4

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AG-103	S. T. Gottesman J. R. Ball J. H. Hunter J. M. Huntley	Florida U of Florida U of Florida U of Bell Labs	HI in barred spirals: NGC 3992, NGC 4731.	21 line	3,5	16
AG-104	B. Geldzahler	NRL	Some proposed galactic compact radio sources.	18	6	2
AG-106	S. T. Gottesman J. R. Ball J. H. Hunter J. M. Huntley	Florida U of Florida U of Florida U of Bell Labs	HI observations of the barred spiral galaxy NGC 3359.	21 line	26	12
AG-107	S. T. Gottesman T. G. Hawarden	Florida U of Royal Obs, Scotland	HI observations of the peculiar southern galaxy NGC 5084.	21 line	10	8.5
AG-109	B. Geldzahler K. J. Johnston	NRL NRL	Flaring X-ray source 0323+022.	1.3, 2, 6 and 20	17	6
AH-112	E. Hummel J. M. van der Hulst	MPIR, FRG NFRA, Netherlands	Spectral index distribution in NGC 253.	18 and 21	16	8
AJ-84	D. W. Johnson	Battelle Obs	HI observations of the Fornax dwarf galaxies.	21 line	13,14, 15	16.5
AJ-89	N. Jeske M. Davis M. Stevens	Calif., Berkeley Calif., Berkeley Calif., Berkeley	HI velocity mapping of dwarf irregular galaxy DDO43.	21 line	1	9.5
AK-71	K. I. Kellermann D. B. Shaffer R. A. Sramek	NRAO/GB Phoenix Corp NRAO/VLA	Deep search for Palomar bright quasars.	6	2,14	8
AK-76	P. P. Kronberg S. Button E. Zukowski K. Kim A. Boksenberg	Toronto U of, Canada Toronto U of, Canada Toronto U of, Canada Toronto U of, Canada Royal Greenwich Obs, UK	Rotation measure survey.	2, 6, 17, 19 and 22	14,15	21
AL-47	R. A. Laing G. G. Pooley J. M. Riley	NRAO/CV Cambridge U of, UK Cambridge U of, UK	Rotation measure variations in 3C452.	2 and 6	5	2
AL-57	J. L. Linsky S. A. Drake	Colorado U of Colorado U of	Mass loss rates from late-type giant and supergiant stars.	2 and 6	20	24
AM-54	B. J. McLean V. A. Hughes	Queen's U, Canada Queen's U, Canada	W UMa stars.	6	5,12	12
AM-68	P. C. Myers M. J. Reid P. J. Benson	CFA CFA MIT	Ammonia emission study of star-forming regions.	1.3 line	2,3	11.5
AM-72	L. Molnar M. Reid R. C. Bignell	Harvard CFA NRAO/VLA	Polarization monitoring of BL Lac objects.	2, 6 and 20	11,19 with AS-79	8
AM-79	I. McHardy A. Smith	Leicester U, UK Leicester U, UK	Low surface brightness structure of cluster sources.	20	29	24
AP-46	R. A. Perley B. G. Clark A. H. Bridle J. O. Burns G. Grueff J. N. Douglas R. D. Ekers	NRAO/VLA NRAO/VLA NRAO/CV New Mexico U of Bologna U of, Italy Texas U of NRAO/VLA	A large unbiased source sample from the B3 survey.	20	23	8
AR-76	L. F. Rodriguez J. M. Moran J. Canto J. A. Garcia-Barretto	Mexico U of, Mexico CFA Mexico U of, Mexico Mexico U of, Mexico	HI absorption in planetary nebulae.	21 line	28,29	12
AR-81	A. H. Rots W. van Driel H. van Woerden	NRAO/VLA Groningen U of, Neth. Groningen U of, Neth.	HI in SO galaxies.	21 line	8,9, 11,13	25.5

VLA ASTRONOMICAL OBSERVING/UTILIZATION JANUARY 1983 (Cont.)

Program	Observer	Affiliation	Program Title	Bands (cm)	Obsv Date	Sched Hrs
AS-79	S. R. Spangler W. D. Cotton	Iowa U of NRAO/CV	Monitoring low frequency variables.	1.3,2,6 and 20	11,19 with AM-72	8
AS-80	R. A. Sramek J. M. van der Hulst	NRAO/VLA NFRA, NETHERLANDS	Supernovae SN 1980 in NGC 6946 and SN 1979c in M100.	6 and 20	17,20	6.5
AS-146	P. R. Schwartz H. A. Smith K. Shivanandan	NRL NRL NRL	FIR 0407+51 and FIR 0359+51.	6 and 20	11	4.5
AS-147	E. J. Schmahl D. M. McConnell R. Shevgaonkar M. R. Kundu	Maryland U of Maryland U of Maryland U of Maryland U of	Solar active regions.	6	24	8
AT-31	N. Thonnard F. Schweizer	DTM DTM	HI in the SO galaxy NGC 5102.	21 line	8,9	12
AT-34	T. X. Thuan E. Hummel	Virginia U of MPIR, FRG	HI in the active galaxy NGC 520.	21 line	31	12.5
AV-84	W. van Breugel R. Strom J. R. Dickel	Arizona U of NRFA, Netherlands Illinois U of	Radio polarimetry of Tycho A.	6, 18 and 20	22,23	25
AW-78	J. F. C. Wardle R. A. Laing	Brandeis U NRAO/CV	Monitoring central components of extended sources.	2 and 6	24,25	9
AW-86	G. Wynn-Williams W. Becklin	Hawaii U of Hawaii U of	Dwarf HII region galaxies.	6 and 20	23	5
AW-87	G. de Waard G. K. Miley R. A. Perley	Leiden U of, Netherlands Leiden U of, Netherlands NRAO/VLA	Monitoring of IRAS active galaxies.	1.3, 2, 6 and 20	30	24
	NRAO Staff		Electronics, etc. Software Pointing, baselines General tests			74.8 28.5 71.9 41.0

The average downtime for the month of January, 1983 was approximately 10.56 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 for 97.6 percent (726.2 hours) of the time: 68.6 percent (510.0 hours) to astronomical programs and the remaining 29.1 percent (216.2 hours) went to tests.

The following independent proposals shared simultaneous observing:

AM-72/AS-79 8

830208
PDH/ap