

Program	Program Title	S	VLA UTILIZATION Observer	ORT	DECEMBER 1981	Institution	Bands	Scheduled
AB-129	Baseline Pointing Monitoring double quasar 0957+561.	V	B. F. Burke			MIT	All	581.63
AB-141	HII region emission measure distribution.	V	D. H. Roberts			Brandeis	6	.58
AB-151	Recombination lines of young, compact HII regions.	R	P. E. Greenfield			MIT	6	
AB-158	Dark cloud Rho Ophiuchi.	R	R. L. Brown			NRAO/CV	2 cm line	15
AB-159/ AH-76	Galaxies with dust lanes.	R	F. J. Lockman			NRAO/CV	6	23
AB-162	Ionized gas associated with high velocity outflow in molecular clouds.	R	R. L. Brown			NRAO/CV	6 and 20	6
AC-34	Deep survey of background sources.	V	J. P. Basart			Iowa State	6 and 20	6
AC-36	Spiral galaxies with high disk brightness temperature.	R	M. D. Andrews			Iowa State	6 and 20	6.5
AD-30	Class II double sources.	R	R. C. Lamb			Padua, ITALY	6 and 20	6.5
AD-56	Hydra A.	R	F. Bertola			NRAO/CV	6 and 20	6.5
AD-57	Spectrum of hot spots in extragalactic sources.	R	R. A. Laing			NRAO/CV	6 and 20	6.5
AF-41	"Middle" NE radio lobe of Centaurus A.	R	R. D. Ekers			NRAO/VLA	6 and 20	6.5
AG-79	HII in ring galaxy NGC 2793.	V	E. Hummel			U of MA	6 and 20	6.5
AG-81	HII in galaxies NGC 1512/10 and NGC 5291.	V	C. G. Kotanyi			Groningen, NETHERLANDS	6 and 20	6.5
AG-83	HII in blue compact galaxies.	V	J. Bailey			Bell Labs	1.3, 2 and	12
AH-63	Spiral arms in NGC 1961 and NGC 4414.	V	R. Snell			U of MA	6	6
AJ-72	"Weather" on Venus.	V	R. Predmore			U of MA	6	6
AJ-74	Radio brightness of Ceres and Pallas.	V	J. J. Condon			NRAO/CV	20	13
AK-47	AFGL 618 - nascent planetary nebula?	V	M. A. Condon			Penn State	20	18
AL-25	Spectra of compact sources.	V	K. Mitchell			NRAO/CV	20	18
AM-39	Monitoring polarization of BL Lac objects.	V	J. J. Condon			NRAO/CV	20	18
		V	J. W. Dreher			MIT	2	8
		V	J. W. Dreher			NRAO/CV	2	8
		V	R. D. Ekers			MIT	6	7
		V	P. Kronberg			NRAO/VLA	6	7
		V	S. M. Simkin			U of Toronto, CANADA	6	7
		V	J. W. Dreher			MSU	2	8
		V	R. A. Laing			NRAO/CV	2	8
		V	E. D. Feigelson			MIT	20	6
		V	G. W. Clark			MIT	20	6
		V	F. D. Ghigo			U of MN	21 cm line	12
		V	J. M. van der Hulst			U of MN	21 cm line	12
		V	B. Hine			U of FL	21 cm line	14
		V	S. T. Gottesman			RO, SCOTLAND	21 cm line	14
		V	T. G. Hawarden			Sys. & Appl. Sci. Corp.	20 cm line	12
		V	S. T. Gottesman			U of FL	6 and 20	4.5
		V	E. Hummel			UNM	6 and 20	4.5
		V	J. M. van der Hulst			UNM	6 and 20	4.5
		V	G. S. Snotsok			Groningen, NETHERLANDS	6 and 20	4.5
		V	M. A. Janssen			JPL	1.3 and 2	18
		V	D. O. Muhleman			Caltech	1.3 and 2	18
		V	G. L. Berg			Caltech	1.3 and 2	18
		V	M. J. Klein			JPL	1.3 and 2	18
		V	K. J. Johnston			NRL	2 and 6	16
		V	P. K. Seidelman			USNO	2 and 6	16
		V	C. M. Wade			NRAO/VLA	2 and 6	16
		V	M. F. A'Hearn			U of MD	2 and 6	16
		V	S. Kwok			NRC, CANADA	1.3, 2, 6	3
		V	R. C. Bignell			NRAO/VLA	1.3, 2, 6	3
		V	R. Landau			U of MN	1.3, 2, 6	3
		V	E. Epstein			Aerospace Corp.	1.3, 2, 6	4.5
		V	T. W. Jones			U of MN	1.3, 2, 6	4.5
		V	J. J. Puschell			UCSD	1.3, 2, 6	4.5
		V	J. D. G. Rathner			BDM Corp.	1.3, 2, 6	4.5
		V	L. Molnar			CFA	2 and 6	6
		V	M. Reid			CFA	2 and 6	6
		V	R. C. Bignell			NRAO/VLA	2 and 6	6

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Program	Program title	S	Observer	Institution	Bands	Scheduled
AN-10	Alpha Orionis.	R	R. J. Newell	NRAO/VLA	1.3, 2, 6	6
		R	R. M. Hiellming	NRAO/VLA	and 20	
AO-27	Abell clusters - the large sources.	R	F. N. Owen	NRAO/VLA	20	24
		R	C. E. O'Dea	NRAO/VLA		
		V	R. A. White	NASA/GSFC		
		V	J. O. Burns	UMN		
AP-48	Search for plasma instability in emission from clusters of galaxies.	V	G. Cavallio	Bologna, ITALY	1.3, 2 and 6	21
		V	N. Mandolosi	Bologna, ITALY		
		V	B. Partridge	Haverford Coll.		
AR-43	Young SNR's: Kepler, Tycho, SNI006.	V	S. P. Reynolds	U VA	6 and 20	17.5
		V	R. A. Chevalier	U VA		
		R	S. G. Noff	NRAO/CV		
AR-54	Neutral H in a super-thin galaxy, NGC 7321.	R	A. H. Rots	NRAO/VLA	20 cm line	12
		V	J. W. Goad	KPNO		
		P	M. S. Roberts	NRAO/CV		
AS-79	Multifrequency monitoring of low-frequency variables.	R	S. R. Spangler	NRAO/VLA	1.3, 2, 6 and 20 monitoring	6
		R	W. D. Cotton	NRAO/CV		
AS-80	Supernova in M100 and NGC 6946.	R	R. A. Sramek	NRAO/VLA	2, 6 and 20 cm monitoring	4
		V	J. M. van der Hulst	U of MN		
		V	K. W. Weiler	NSF		
AS-102	Spectral index maps of 3C192.	R	S. R. Spangler	NRAO/VLA	6	9.5
		R	R. A. Laing	NRAO/CV		
AV-43	Interacting galaxies - non-central components.	V	J. M. van der Hulst	UMN	6 and 20	9
		V	E. Hummel	UMN		
		R	J. H. van Gorkom	NRAO/VLA		
		V	C. G. Kotanyi	Groningen, NETHERLANDS		
		V	W. Golisch	UMN		
AV-52	The next four supernovae.	V	J. M. van der Hulst	UMN	2, 6 and 20	3
		R	R. A. Sramek	NRAO/VLA		
		V	K. W. Weiler	NSF		
AV-58	HI emission from Centaurus A.	V	J. M. van der Hulst	UMN	20 cm line	6
		V	A. D. Haschick	Haystack Obs		
		R	A. D. Tubbs	NRAO/CV		
		R	J. H. van Gorkom	NRAO/VLA		
AM-56	Optically flaring quasar 1156+295.	P	C. M. Wade	NRAO/VLA	1, 3, 2, 6 and 20 monitoring	1
		R	R. A. Perley	NRAO/VLA		
AM-58	Deep survey of optical and X-ray selected areas.	V	R. A. Windhorst	Leiden, NETHERLANDS	6 and 20 cm line	13.8
		R	F. K. Miley	Leiden, NETHERLANDS		
		V	N. Owen	NRAO/VLA		
		V	T. X. Thuan	U VA		
AZ-16	Solar flares and active regions.	V	H. Zirin	Caltech	2 and 6	9
		V	K. A. Marsh	Caltech		
		V	G. J. Hurford	Caltech		
		V	K. P. Topka	Caltech		
AZ-17	Nearby O, F and dM stars.	V	H. Zirin	Caltech	6 and 20	27
		V	K. P. Topka	Caltech		
		V	K. A. Marsh	Caltech		
VB-24	Fine structure in BL Lac type objects.	V	L. D. Baath	Onsala, SWEDEN	1.3 single antenna VLB	53.5
		V	W. D. Cotton	NRAO/CV		
		R	G. Seielstad	Caltech		
		V	D. Graham	MPIFR, WEST GERMANY		
VG-19	G127.11+0.54.	V	B. J. Geldzahler	MIT	6 cm Phased Array MK III VLB	12
		V	D. B. Shaffer	MIT		
		V	I. I. K. Pauliny-Toth	MPIFR, WEST GERMANY		
VJ-16	NGC 1052.	V	D. Jones	Caltech	6 cm Phased Array VLB	8.5
		R	J. Wrobel	NRAO/CV		
		V	D. B. Shaffer	Phoenix Corp.		
VL-11	Galactic center.	V	K. Y. Lo	Caltech	1.3 cm Single Antenna MK III VLB	6
		V	J. M. Moran	CFA		
		V	D. C. Backer	U of CA, Berkeley		

VLA UTILIZATION REPORT DECEMBER 1981 (cont.)

<u>Program</u>	<u>Program Title</u>	<u>S</u>	<u>Observer</u>	<u>Institution</u>	<u>Bands</u>	<u>Scheduled</u>
VM-13	Proper motion of water masers.	V	J. Moran	CFA	1.3 cm line,	29.5
		V	D. Downes	IRAM, FRANCE	single antenna	
		V	R. Genzel	U of CA, Berkeley	VLB.	
		V	A. Haschick	MIT		
		V	M. Reid	CFA		
		V	B. Ronnang	Onsala, SWEDEN		
		V	M. Scheeps	CFA		
VM-23	3C84 and 3C345.	V	R. L. Moore	Caltech	1.3 cm single	18.5
		V	A. C. S. Readhead	Caltech	antenna VLB	
		V	A. T. Moffet	Caltech		
VM-2	Cores of objects with "S" distortions.	R	S. G. Nerf	NRAO/CV	6 cm single	23.5
		R	J. M. Benson	NRAO/CV	antenna VLB	
		R	R. L. Brown	NRAO/CV		
VR-16	Polarization measurements of extragalactic sources.	V	D. H. Roberts	Brandeis	6 cm Phased	22
		V	J. F. C. Wardle	Brandeis	Array MK III	VLB
		V	R. I. Potash	Brandeis		
		V	B. F. Burke	MIT		
		V	E. E. Rogers	Haystack Obs		
VM-14	3C120. Superluminal motion.	R	A. E. E. Rogers	Haystack Obs		
		R	R. C. Walker	NRAO/CV	6 cm Phased	15.25
		V	G. Seielstad	Caltech	Array VLB	
		V	S. Unwin	Caltech		
		R	J. M. Benson	NRAO/CV		
VM-15	NGC 3894.	R	J. M. Wrobel	NRAO/CV	6 cm Phased	11
		V	D. L. Jones	Caltech	Array MK III	VLB
		V	D. B. Shafer	Phoenix Corp.		

The average downtime for the month of December, 1981 was approximately 5.61 percent.

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

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

The array was scheduled for 95.2 percent (710.0 hours) of the time: 64.7 percent (459.63 hours) to astronomical programs and the remaining 35.3 percent (250.37 hours) went to tests.

The observatory was closed in December for 35.6 hours during the Christmas and New Year's holidays.

The following independent proposals shared simultaneous observing:

VM-13/AH-63	4.5
VM-13/AB-159/AH-76	6.5
VM-13/AJ-72	9
VM-13/Tests	3.5
VM-13/AN-10	6
VL-11/AF-41	6
VM-23/AJ-72	9
VM-23/AS-102	9.5
VN-2/Tests	23.5
VB-24/AD-57	8
VB-24/AZ-16	9
VB-24/AZ-17	27
VB-24/AL-25	1.5
VB-24/Tests	3
VB-24/AW-56	1
VB-24/AR-43	4
AM-39/AS-79	6
Total	<u>137.00</u> hours

Program	Program Title	Observer	Institution	Bands	Scheduled
AA-12	Baseline Pointing Calibration Test Wide-angle tail source 3C40.	H. Andernach R. T. Schilizzi J. V. Wall	MPI, WEST GERMANY Dwingello, NETHERLANDS RGO, ENGLAND	All 6 and 20	515.00 13
AB-129	Monitoring double quasar 0957+561.	B. F. Burke D. H. Roberts P. E. Greenfield	MIT Brandeis U	6	2.5
AB-133	Crab-like SNR - 3C58 and Vela X.	R. H. Becker D. Helfand A. Szymkowitz	Columbia U Columbia U NASA/Goddard	2 and 6	11
AB-159/ AH-76	Galaxies with dust lanes.	F. Bertola R. A. Laing R. D. Ekers E. Hummel C. G. Kotanyi	Padua, ITALY NRAO/CV NRAO/VLA UNM Groningen, NETHERLANDS	6 and 20	4
AB-161	X-ray sources detected in deep Einstein exposure on 3C295.	S. Bowyer P. Henry J. Clarke	Groningen, NETHERLANDS U of CA, Berkeley CFA U of CA, Berkeley	6 and 20	12
AC-37	Large-scale bridge and lobe structure of 3C293.	T. J. Cornwell A. H. Bridle E. B. Fomalont	NRAO/VLA Queen's University, CANADA NRAO/CV	6 and 20	8
AC-41	HI distribution in cluster galaxies.	G. L. Chincarini R. Giovanelli M. P. Haynes	U of OK Arecibo, PR NRAO/GB	21 cm line	20
AD-52	HI-HII interface surrounding Lk H alpha 101.	P. E. Dewdney R. S. Roger	DRAO, CANADA DRAO, CANADA	21 cm line	13
AD-54	Particle acceleration in solar flares.	G. A. Duik	U of CO	2 and 6	17.5
AE-11	Sagittarius A.	R. D. Ekers W. M. Goss U. J. Schwarz	NRAO/VLA Groningen, NETHERLANDS Groningen, NETHERLANDS	6	6
AE-14	Southern jet radio galaxies: IC 4296.	R. D. Ekers G. Bicknell N. Killeen	NRAO/VLA Mt Stromlo Obs, AUSTRALIA Mt Stromlo Obs, AUSTRALIA	2, 6 and 21	10.5
AG-74	Ammonia inversion lines in the Orion-KL region.	R. Genzel P. T. P. Ho D. Downes	U of CA, Berkeley U of CA, Berkeley IRAM, Grenoble, FRANCE	1.3 cm line	24.5
AH-50	3C305 - a spiral radio galaxy.	T. M. Heckman W. J. M. van Breugel G. K. Miley B. Balick	U of AZ KPNO Leiden, NETHERLANDS U of WA	2	8
AH-59	Mass outflow in the W51-IRS2 region.	R. Genzel P. T. P. Ho	U of CA, Berkeley U of CA, Berkeley	1.3 cm line	12
AH-63	Spiral galaxy NGC 1961.	E. Hummel J. M. van der Hulst G. S. Shostak	UNM Groningen, NETHERLANDS Groningen, NETHERLANDS	6	1.5
AH-66	Structure of Zeeman splitting in the Orion A absorption line.	C. Heiles T. Troland M. Goss R. Forster	U of CA, Berkeley U of KY Westerbork, NETHERLANDS Westerbork, NETHERLANDS	21 cm line	11
AH-75	Recombination lines in compact HII structures in G10.6-0.4.	P. T. P. Ho A. D. Haschick J. van Gorkom	U of CA, Berkeley Haystack Obs NRAO/VLA	2 and 6	14
AH-78	Disk component of S0 galaxies.	E. Hummel C. G. Kotanyi	UNM Groningen, NETHERLANDS	20	8
AH-80	Selected area in M31.	E. Hummel M. Zeilik	UNM UNM	6	5
AK-51	Solar active regions and flares.	M. R. Kundu E. J. Schmahl M. Bobrovsky	U of MD U of MD U of MD	1.3, 2, 6 and 20	18

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VLA ASTRONOMICAL OBSERVING NOVEMBER 1981 (cont.)

Program	Program Title	S	Observer	Institution	Bands	Scheduled
AL-39	H I in four faint dwarf galaxies.	V	K. Y. Lo	Caltech	21 cm line	16
		V	W. L. W. Sargent	Caltech		
		V	K. Young	Caltech		
AL-40	Outer lobes of M84.	R	R. A. Laing	NRAO/CV	6	8
		R	A. H. Bridle	Queen's Univ., CANADA		
AL-41	3C20.	R	R. A. Laing	NRAO/CV	2	13
AM-30	Coma A.	V	G. K. Miley	Leiden, NETHERLANDS	2	8
		V	W. Van Breugel	KPNO		
		V	H. Butcher	KPNO		
		P	E. B. Fomalont	NRAO/CV		
		V	T. Heckman	U of AZ		
AM-33	3C310.	V	G. K. Miley	Leiden, NETHERLANDS	6 and 20	8
		V	W. J. M. van Breugel	KPNO		
		V	H. R. Butcher	KPNO		
		V	T. Heckman	U of AZ		
		P	E. B. Fomalont	NRAO/CV		
AM-37	OH emission of bipolar nebulae.	V	M. Morris	Columbia U	18 cm line.	3
		V	P. Bowers	NRL		
		R	B. W. Turner	NRAO/CV		
		V	B. Zuckerman	U of MD		
AM-39	Monitoring polarization of BL Lac objects.	V	L. Molnar	CFA	2 and 6	3.5
		V	M. Reid	CFA		
		P	R. C. Bignell	NRAO/VLA		
AM-43	Faint extragalactic X-ray sources.	V	T. Maccacaro	CFA	6	24
		V	I. M. Gioia	CFA		
		V	E. D. Feigelson	MIT		
		V	J. Kiss	MIT		
AO-16	NGC 1265.	R	C. E. O'Dea	NRAO/VLA	2	12.5
		R	F. N. Owen	NRAO/VLA		
		V	J. O. Burns	UNM		
AO-28	NGC 1265.	R	C. E. O'Dea	NRAO/VLA	6 and 20	3
		P	F. N. Owen	NRAO/VLA		
		V	J. O. Burns	UNM		
AP-41	Ammonia in Orion and DR 21.	V	P. Palmer	U of Chicago	1.3 cm line	9.5
		V	D. Matsakis	NRL		
		V	C. H. Townes	U of CA, Berkeley		
		V	S. Subramanian	U of CA, Berkeley		
		V	A. Hjaltmarsson	Onsala Obs, SWEDEN		
		V	A. C. Cheung	U of CA, Davis		
AP-46	Large sample from the B3 survey.	R	R. A. Perley	NRAO/VLA	20	12
		V	A. H. Bridle	queen's U, CANADA		
		P	B. G. Clark	NRAO/VLA		
		P	R. D. Ekers	NRAO/VLA		
		V	J. O. Burns	UNM		
		V	G. Gruett	Bologna, ITALY		
		V	J. N. Douglas	U of TX		
AS-76	Peculiar spiral galaxy NGC 3310.	V	E. R. Seaquist	U of Toronto, CANADA	6 and 20	8.5
		V	N. Durrig	U of Toronto, CANADA		
		R	P. C. Crane	NRAO/CV		
		V	J. Auman	U of BC, CANADA		
		V	B. Campbell	CFH telescope, Hawaii		
AS-79	Multi-frequency monitoring of low-frequency variables.	R	S. R. Spangler	NRAO/VLA	1.3, 2, 6 and 20	6.5
		R	W. D. Cotton	NRAO/CV		
AS-80	Supernova in M100 and NGC 6946.	R	R. A. Sramek	NRAO/VLA	2, 6 and 20	6
		V	J. M. van der Hulst	U of MN		
		V	K. W. Weiler	NSF		
AS-96	Dumbbell galaxies.	V	L. L. Smarr	U of IL	20	8
		P	R. D. Ekers	NRAO/VLA		
		V	W. Van Breugel	KPNO		
93	Isolated "heat-tail" radio galaxy candidates.	V	J. T. Stocke	U of AZ	6 and 20	8

VLA UTILIZATION REPORT NOVEMBER 1981 (cont.)

Program	Program Title	Observer	Institution	Bands	Scheduled
AT-21	Massive star formation in nearby spiral nuclei.	J. Turner	U of CA, Berkeley	1.3, 2 and 6	14
AV-52	The next four supernovae.	P. T. P. Ho	U of CA, Berkeley	2, 6 and 20	7
AV-53	Central source in M31.	J. M. van der Hulst	UMN		
		R. A. Sramek	NRAO/VLA		
		K. W. Weiler	NSF		
		J. M. van der Hulst	UMN	6	12
		P. C. Crane	NRAO/CV		
		R. L. Brown	NRAO/GB		
		M. P. Ondrechen	UMN		
AV-59	Disks of spiral galaxies NGC 5194 and NGC 6946.	J. M. van der Hulst	UMN	6	12
		P. C. Crane	NRAO/GB		
		R. Kennicutt	UMN		
		R. J. Allen	Groningen, NETHERLANDS		
AV-62	Peculiar barred spiral NGC 1097.	J. H. van Gorkom	NRAO/VLA	21 cm line	16
		J. M. van der Hulst	UMN		
		E. Hummel	UMN		
		M. P. Ondrechen	UMN		
AV-66	Compact HII region K3-50.	S. N. Vogel	U of CA, Berkeley	1.3, 2 and 6	9
		W. J. Welch	U of CA, Berkeley		
AW-56	Monitoring flaring quasar 1156+295.	C. M. Wade	NRAO/VLA	1.3, 2, 6 and 20	1.5
		R. A. Perley	NRAO/VLA		
AW-61	Hot spots in NGC 2903.	G. C. Wynn-Williams	IFA, Hawaii		7
AW-63	Search for a masering transition of ammonia.	T. C. Wilson	MPIR, FRG	1.3 cm line	12
		R. N. Martin	MPIR, FRG		
		T. A. Pauls	Koeln, FRG		
		S. Guilloteau	IRAM, FRANCE		
AZ-15	Radio spectrum and extended structure of R Aquarii.	C. Kahane	IRAM, FRANCE		
		B. Zuckerman	U of MD	1.3, 2, 6 and 20	4.5
		R. Soppa	U of MD		
		A. Michalisticanos	NASA/Goddard		
		R. Hobbs	NASA/Goddard		
		M. Kafatos	George Mason Univ		
VM-13	Proper motion of H2O masers.	J. Moran	CFA	1.3 cm line, single antenna	42.5
		D. Downes	IRAM, FRANCE		
		R. Genzel	U of CA, Berkeley		
		A. Haschick	MIT		
		M. Reid	CFA		
		B. Ronnang	Onsala, SWEDEN		
		M. Scheps	CFA		

The average downtime for the month of November, 1981 was approximately 3.97 percent.

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

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

The array was scheduled for 96.4 percent (696 hours) of the time: 66.8 percent (465 hours) to astronomical programs and the remaining 33.2 percent (231 hours) went to tests. The observatory was closed for 26 hours during the Thanksgiving holiday.

The following independent proposals shared simultaneous observing:

AM-37/AS-79	3	hours
AT-21/Tests	1	hour
AM-39/AS-79	3.5	hours
VM-13/AH-50	8	hours
VM-13/AM-43	18	hours
VM-13/AM-33	8	hours
VM-13/AB-159	3.5	hours
VM-13/AH-76	3.5	hours
VM-13/AH-63	1.5	hours
Total	50.00	hours

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VLA UTILIZATION REPORT OCTOBER 1981

Progr.	Program Title	S	Observer	Institution	Bands	Scheduled
AA-14	Baseline Pointing Calibration Test	V	H. Andernach	MPI, WEST GERMANY	All	596.75
AA-14	Large head-tail source NGC 7385.	V	H. Andernach	MPI, WEST GERMANY	20	8
AB-60	Supernova remnant in NGC 4449.	P	R. C. Bignelli	NRAO/VLA	2, 6 and 21	1
AB-129	Monitoring double quasar 0957+561.	R	E. R. Seagquist	NRAO/VLA	6	1
AB-134	HI extent in highly inclined late type galaxies.	V	B. F. Burke	MIT	21 cm line	46.5
AB-145	Barred spiral NGC 1389.	V	D. H. Roberts	Brandeis U	21 cm line	15.5
AB-150	HI in circumstellar envelopes.	V	P. F. Greenfield	MIT	21 cm line	26
AC-42	Variations of flux and spectral index in P Cyg, 9 Sgr, VI Cyg Nos. 9 and 12.	V	G. Bothum	U of WA	2 and 6	4
AD-50	Extended sources in SO galaxies.	V	B. Balick	U of WA	2 and 6	1
AD-53	AM Herculis binary stars.	P	A. Bosma	Columbia U	21 cm line	8
AE-14	Southern jet radio galaxies: IC 4296.	V	B. F. Bowers	NRL	2 and 6	12
AF-32	Mass loss from Zeta Puppis.	V	G. R. Knapp	Princeton U	2 and 6	5
AF-36	Jet in Centaurus A.	V	E. B. Churchwell	Washburn Obs	2 and 6	5
AF-39	W Ursae Majoris stars.	V	D. C. Abbott	JILA	2 and 6	12
AF-41	Middle NE radio lobe of Centaurus A.	V	J. H. Bieging	U of CA, Berkeley	2 and 6	12
AG-48	SNR G109.1 - 1.0	V	R. C. Bignelli	NRAO/VLA	2 and 6	5
AG-78	Stellar coronal radio sources.	V	G. A. Dulc	U of CO	6	8
AH-68	Crab Nebula.	V	G. Chamugam	LSU	2, 6 and 21	12
AH-72	Radio spectral index of WR stars.	V	R. D. Ekers	NASA/Goddard	20	1
		V	J. O. Burns	NRAO/VLA	6	8
		V	E. J. Schrier	SAO	6	12
		V	D. R. Florkowski	USNO	6	12
		V	E. D. Feigelson	MIT	6	5
		V	J. D. Ekers	MIT	6 and 20	5
		V	G. W. Clark	MIT	6 and 20	5
		V	P. C. Gregory	UBC, CANADA	20	8
		V	D. E. Gary	U of CO/JILA	6 and 21	13.5
		V	J. L. Linsky	U of CO/JILA	2, 6 and 20	9.5
		P	D. E. Hogg	NRAO/CV	2, 6 and 20	9.5
		V	A. S. Wilson	U of MD	1.3, 2, 6	17.5
		P	D. E. Hogg	NRAO/CV	1.3, 2, 6	17.5

## VIA UTILIZATION OCTOBER 1981 (cont.)

<u>Program</u>	<u>Program Title</u>	<u>S</u>	<u>Observer</u>	<u>Institution</u>	<u>Bands</u>	<u>Scheduled</u>
AJ-68	Formaldehyde in molecular clouds.	V	K. J. Johnston	NRL	6 cm line	3
		V	T. Wilson	MPI, WEST GERMANY		
		V	C. Henkel	MPI, WEST GERMANY		
		V	J. Martin	MPI, WEST GERMANY		
		V	J. H. Bieging	U of CA, Berkeley		
AJ-73	Nearby spiral galaxies.	V	D. T. Jaffe	U of Chicago	6	8
		V	D. A. Harper	Yerkes Obs		
		V	C. M. Telesco	IFA, Hawaii		
AJ-75	Rapidly variable stellar sources.	V	K. J. Johnston	NRL	2, 6 and 20	89
		V	P. E. Angerhofer	USNO		
		P	R. M. Hjellming	NRAO/VLA		
AK-50	Circumstellar envelopes about late-type stars.	V	S. Kwok	NRC, CANADA	1.3 cm line	15
		V	H. E. Matthews	NRC, CANADA		
AK-52	Envelopes of Red Giant stars.	V	G. R. Knapp	Princeton	6	21
		V	D. Spergel	Princeton		
AM-39	Monitoring polarization of BL Lac objects.	V	L. Molnar	CFA	2 and 6	3.5
		V	M. Reid	CFA		
		P	R. C. Bignelli	NRAO/VLA		
AM-42	Radio sources associated with detected CO outflows.	V	J. M. Moran	CFA	1.3, 2, 6 and 20	12
		V	L. Rodriguez	U of Mexico, MEXICO		
		V	J. Cantó	U of Mexico, MEXICO		
AO-28	NGC 1265.	R	C. E. O'Dea	NRAO/VLA	6 and 20	3
		P	F. N. Owen	NRAO/VLA		
		V	J. O. Burns	UNM		
AP-41	Ammonia in Orion and DR 21.	V	P. Palmer	U of Chicago	1.3 cm line	12.5
		V	D. Matsakis	NRL		
		V	C. H. Townes	U of CA, Berkeley		
		V	S. Subramanian	U of CA, Berkeley		
		V	A. Hjalmarsen	Onsala Obs, SWEDEN		
		V	A. C. Cheung	U of CA, Davis		
AS-79	Multifrequency monitoring of low-frequency variables.	R	S. R. Spangler	NRAO/VLA	1.3, 2, 6 and 20	3.5
		R	W. D. Cotton	NRAO/CV		
AS-80	Supernova in M100 and NGC 6946.	R	R. A. Sramek	NRAO/VLA	2, 6 and 20	4
		V	J. M. van der Hulst	U of MN		
		V	K. W. Weiler	NSF		
AS-105	Halo of edge-on spiral NGC 4631.	V	R. Sancisi	Kapteyn Lab, NETHERLANDS	6 and 21	21
		P	R. D. Ekers	NRAO/VLA		
		V	M. Shapiro	NRL		
AU-7	Possible SNR associated with X-ray/radio complex.	V	M. P. Ulmer	Northwestern U	6 and 20	7
		P	R. L. Brown	NRAO/CV		
		V	R. G. Craddock	NRL		
AU-9	Survey of Binary and Trinary X-ray emitting rich clusters of galaxies.	V	M. P. Ulmer	Northwestern U	20	12
		V	R. Hanisch	U of MD		

VLA UTILIZATION . . . RT OCTOBER 1981 (cont.)

<u>Progr</u>	<u>Program Title</u>	<u>S</u>	<u>Observer</u>	<u>Institution</u>	<u>Bands</u>	<u>Scheduled</u>
AV-60	Halo of NGC 253.	V	J. M. van der Hulst	UMN	6 and 20	6.5
		V	E. Hummel	UNM		
		V	M. P. Ondrechen	UMN		
AV-64	Radio galaxies 4C26.42 and 4C29.30 with optical emission lines in lobes.	V	W. van Breugel	KPNO	2	24
		V	T. Heckman	U of AZ		
		V	G. K. Miley	Leiden Obs, NETHERLANDS		
		V	H. Butcher	KPNO		
AV-65	Fine structure in 3C310.	V	W. van Breugel	KPNO	6	3
		V	G. K. Miley	Leiden Obs, NETHERLANDS		
		V	T. Heckman	U of AZ		
		V	H. Butcher	KPNO		
AW-51	Deep survey.	V	J. Wall	RGO, ENGLAND	6	12
		P	E. B. Fomalont	NRAO/CV		
		P	K. I. Kellerman	NRAO/GB		
AW-56	Monitoring flaring quasar 1156+295.	P	C. M. Wade	NRAO/VLA	1,3, 2, 6 and 20	1
		R	R. A. Perley	NRAO/VLA		
VG-21	Polarized OH maser emission.	V	G. Garay	CFA	18 cm line	38
		V	J. M. Moran	CFA	MK III VLB.	
		V	M. Reid	CFA		
		V	M. Schneps	CFA		
		V	A. Garcia	MIT		
		V	B. F. Burke	MIT		
VH-3	Polarization of compact extragalactic sources.	V	M. W. Hodges	U of Iowa	18 cm VLB.	24
		V	R. L. Mutel	U of Iowa		
		V	D. C. Backer	U of CA, Berkeley		
VJ-13	Maps of 18 compact extra-galactic objects.	V	K. J. Johnston	NRL	18 cm VLB.	65
		V	J. Spencer	NRL		
		P	E. B. Fomalont	NRAO/CV		
		P	R. A. Perley	NRAO/VLA		
		R	W. D. Cotton	NRAO/CV		
		V	A. Witzel	MPI, WEST GERMANY		
VW-12	Absorption line source A0235+164.	V	A. Wolfe	U of Pitt.	18 cm VLB.	10.25
		V	F. Briggs	U of Pitt.		
		V	K. J. Johnston	NRL		

The average downtime for the month of October, 1981 was approximately 4.08 percent.

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

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

The array was scheduled for 100.0 percent (747 hours) of the time: 69.8 percent (521.50 hours) to astronomical programs and the remaining 30.2 percent (225.50 hours) went to tests.

The following independent proposals shared simultaneous observing:

VJ-13/AJ-75	48 hours
VJ-13/AE-14	12 hours
VJ-13/AF-36	5 hours
AJ-75/VW-12	<u>10.25 hours</u>
Total	75.25 hours

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Progr.

Program Title  
Baseline Pointing  
Calibration Test

S Observer

VLA UTILIZATION REPORT SEPTEMBER 1981

Institution

Bands

Scheduled

Progr.	Program Title	S	Observer	Institution	Bands	Scheduled
AA-14	Large head-tail source NGC 7385.	V	H. Andernach	MPI, WEST GERMANY	A11 20	214.33 0
AB-129	Monitoring double quasar 0957+561.	V	B. F. Burke D. H. Roberts P. E. Greenfield	MIT Brandeis MIT	6	1
AB-140	Dumbbell nebula (NGC 6853).	P	R. C. Bignell	NRAO/VLA	6 and 20	10
AB-143	Source survey in support of 140 ft background fluctuation measurement.	V	B. F. Burke C. Bennett	MIT MIT	6 and 20	24
AB-144	Interacting galaxies NGC 4038-39.	V	B. F. Burke J. M. van der Hulst	MIT UMN	21	10
AD-46	EUV rocket flight and search for cyclotron lines in the sun.	V	G. A. Dulk	U of CO	1.3, 2, 6 and 20	36
AD-49	Total power and polarization of SNR's.	V	A. J. B. Downes J. van Gorkom G. C. Hunt C. J. Salter	Mullard RAL, ENGLAND NRAO/VLA NRAO/VLA Bologna, ITALY	20	16
AF-38	Bipolar nebula M1-19 = S106.	V	M. Felli M. Massi H. J. Staudte	Arcturi, ITALY Arcturi, ITALY MPI, WEST GERMANY	1.3 and 2	20.5
AG-67	HD44179, the Red Rectangle.	V	B. J. Geldzahler N. I. Cohen	MIT MIT	20	4
AG-68	Recombination lines from compact HII regions with masers.	V	G. Garay J. M. Moran M. Reid	CFA CFA CFA	1.3	24
AH-65	Small diameter SNR.	V	D. J. Helfand R. H. Becker K. S. Long	Columbia U Columbia U Columbia U	2 and 6	21.0
AH-67	Ammonia in spiral galaxy IC342.	V	P. T. P. Ho R. N. Martin	U of CA, Berkeley MPI, WEST GERMANY	1.3 cm line	43.5
AH-70	High frequency radio emission from a sample of spirals.	V	E. Hummel J. M. van der Hulst W. F. Golisch	UMN UMN UMN	2 and 6	20
AJ-67	HI in NGC 185 and NGC 205.	V	D. W. Johnson S. T. Gottesman	Battelle Obs U of FL	21 cm line	26.5
AJ-68	Formaldehyde in molecular clouds.	V	K. J. Johnston T. Wilson C. Henkel J. Martin J. H. Bieging	NRL MPI, WEST GERMANY MPI, WEST GERMANY MPI, WEST GERMANY U of CA, Berkeley	6 cm line	24



VIA UTILIZATION 17 SEPTEMBER 1981 (cont.)

Progr.	Program Title	S	Observer	Institution	Bands	Scheduled
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AV-59	Disks of spiral galaxies M51 and MGC 6946.	V R V V	J. M. van der Hulst P. C. Crane R. Kennicutt R. J. Allen	U of MN NRAO/CV U of MN U of Groningen, NETHERLANDS	2, 6 and 20	13
AV-60	Halo of NGC 253.	V V V V	J. M. van der Hulst E. Hummel M. P. Ondrechen	UMN UMN UMN	6 and 20	11.5
AW-51	Deep survey.	V P P	J. Wall E. B. Fomalont K. I. Kellerman	RCO, ENGLAND NRAO/CV NRAO/GB	6	36
AW-56	Monitoring flaring quasar 1156+295.	P R	C. M. Wade R. A. Perley	NRAO/VLA NRAO/VLA	1, 3, 2, 6 and 20	2
AZ-14	Large-sclae structures of solar flares.	V V V	H. Zirin K. A. Marsh G. J. Hurford	Caltech Caltech Caltech	2 and 6	23

The average downtime for the month of September, 1981 was approximately 4.41 percent.

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

operational antennas 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 100.0 percent (722 hours) of the time: 70.3 percent (507.67 hours) to astronomical programs and the remaining 29.7 percent (214.33 hours) went to tests.

(NOTE: ALL times listed above are in LST.)

Progr.	Program Title Baseline Pointing Calibration Test	S	VIA UTILIZATI Observer	REPORT AUGUST 1981	Institution	Bands	Scheduled
AA-11	Mass loss from OB associations.	V	D. C. Abbott	JILA	U of CA, Berkeley	6	12.5
		V	J. H. Bieging		Washburn Obs		
		V	E. B. Churchwell				
AB-129	Monitoring double quasar 0957+561.	V	B. F. Burke	MIT	Brandeis	6	1
		V	D. H. Roberts				
		V	P. E. Greenfield	MIT			
AB-136	Central part of M81.	V	F. N. Bash	U of TX	Ohio State Univ	6 and 20	25
		V	M. Kaufman				
AB-137	Ammonia in Sgr A.	V	A. H. Barrett	MIT		1.3 cm line	19.5
		V	T. Armstrong	MIT			
		V	P. T. P. Ho	U of CA, Berkeley			
		V	S. Vogel	U of CA, Berkeley			
AC-32	HI toward Verschuur's Cloud A.	V	J. Crovisier	Meudon, FRANCE		21 cm line	15
		R	J. M. Dickey	NRAO/CV			
		V	I. Kazes	Meudon, FRANCE			
AD-43	Saturn	V	I. de Pater	LPL		1.3, 2, 6 and 20	12
		V	J. Dinkel	U of IL			
		V	T. Owen	SUNY, Stony Brook			
		V	D. M. Hunten	LPL			
		V	B. A. Smith	LPL			
AD-51	Low-latitude 21 cm absorption.	P	J. M. Dickey	NRAO/CV		21 cm line	40
		R	J. H. van Gorkom	NRAO/VLA			
		V	S. R. Kulkarni	U of CA, Berkeley			
		V	C. Heiles	U of CA, Berkeley			
AF-36	The jet in Centaurus A.	V	E. D. Feigelson	MIT		6	5
		V	J. O. Burns	UNM			
		V	E. J. Schrier	SAO			
AF-37	Positions for unidentified OH sources.	V	J. D. Fix	U of Iowa		18 cm line	8.5
AG-72	Confirmation of radio stars found with 300 ft. telescope.	V	D. M. Gibson	NMIMT		6	24
		V	P. L. Fisher	NMIMT			
		V	D. J. Helfand	Columbia U			
AJ-71	Continuum and water masers in W49 N.	V	K. J. Johnston	NRL		1.3 cm line and 6 cm cont.	2
		V	H. Mark	NRL			
		R	J. W. Dreher	NRAO/VLA			
		R	R. C. Walker	NRAO/CV			
		V	J. Welch	U of CA, Berkeley			
AK-47	AFGL 618 - nascent planetary nebula?	V	S. Kwok	NRC, CANADA		1.3, 2, 6 and 20	1.5
		P	R. C. Bignell	NRAO/VLA			
AK-51/ AS-90	Solar active regions and flares.	V	M. R. Kundu	U of MD		1.3, 2, 6 and 20	42.5
		V	E. J. Schmahl	U of MD			
		V	M. Bobrowsky	U of MD			
		V	F. T. Erskine	U of MD			



Program Title	Observer	Institution	Bands	Scheduled
AL-37 Coronae of late-type stars.	V J. L. Linsky V D. E. Gary	JILA JILA	6 and 20	37
AL-42 Formaldehyde absorption toward Sgr A (west).	R H. S. Liszt P R. D. Ekers V J. M. van der Huls V W. B. Burton	NRAO/CV NRAO/VLA U of MN U of MN	6	6.5
AM-40 Compact HII regions in the Orion molecular cloud.	V J. M. Moran V G. Garay V M. Reid V R. Genzel	CFA CFA CFA CFA	2 and 6	10
AM-44 VLB survey of Scintars.	V R. L. Mutel V S. Kulkarni R J. Dickey	U of Iowa U of CA, Berkeley NRAO/CV	18	6
AO-20 Search for central component in 3C61.1.	R F. N. Owen R J. J. Puschell	NRAO/VLA NRAO/CV	2	4
AO-26 Normal high-redshift galaxies.	V J. P. Ostriker V E. L. Turner R J. J. Condon	Princeton Univ Princeton Univ NRAO/CV	6	20.5
AP-37 Formaldehyde absorption against Sgr A and Sgr B2.	V V. Pankonin V F. F. Gardner V J. B. Whiteoak	NSF CSIRO, AUSTRALIA CSIRO, AUSTRALIA	6 cm line	7
AP-49 Hydrogen absorption in clusters with cooling cores.	V P. Palmer	U of Chicago	21 cm line	3
AR-44 Molecular disks in the nuclei of late-type galaxies.	V L. J. Rickard V T. M. Bania R B. E. Turner	Howard Univ Univ of VA NRAO/CV	18 cm line	15
AR-52 Sources from the Molonglo catalog.	V J. G. Robertson V R. W. Hunstead	AAO, AUSTRALIA U of Sydney, AUSTRALIA	20	24.5
AS-75/ AW-50 Reference sources for VLBI astrometry.	V D. B. Shafer V T. A. Clark V N. R. Vandenberg P R. C. Walker	NASA/Goddard NASA/Goddard NASA/Goddard NRAO/CV	6 and 20	26
AS-79 Multifrequency monitoring of low-frequency variables.	R S. R. Spangler R W. D. Cotton	NRAO/VLA NRAO/CV	1.3, 2, 6 and 20	6
AS-80 Supernova in M100 and NGC 6946.	R R. A. Sramek V J. M. van der Huls V K. W. Weiler	NRAO/VLA U of MN NSF	2, 6 and 20	4
AS-97 Luminosity function of contact elliptical galaxies.	V L. Smarr V D. Sumi P R. D. Ekers	U of IL U of IL NRAO/VLA	20	5.5
AS-99 Steep-spectrum sources in galaxy clusters.	V O. B. Slee	CSIRO, AUSTRALIA	20	4

Progr.	Program Title	S	Observer	Institution	Bands	Scheduled
AS-107	OH absorption in galactic nuclei.	V	M. Stevens	U of CA, Berkeley	18 cm line	62.5
		V	C. Heiles	U of CA, Berkeley		
		V	S. Kulkarni	U of CA, Berkeley		
		V	J. H. Beiging	U of CA, Berkeley		
		R	J. M. Dickey	NRAO/CV		
AT-20	Ammonia in Sgr B2.	V	C. H. Townes	U of CA, Berkeley	1.3 cm line	15
		V	R. Genzel	U of CA, Berkeley		
		V	S. Vogel	U of CA, Berkeley		
		V	P. T. P. Ho	U of CA, Berkeley		
		V	D. Matsakis	USNO		
		V	P. Palmer	U of Chicago		
AV-52	Monitoring extragalactic supernovae.	V	J. M. van der Hulst	U of MN	2, 6 and 20	4
		R	R. A. Sramek	NRAO/VLA		
		V	K. W. Weiler	NSF		
AV-53	Central source in M31.	V	J. M. van der Hulst	U of MN	20	12
		R	P. C. Crane	NRAO/CV		
		R	R. I. Brown	NRAO/CV		
		V	M. Ondrechen	U of MN		
AV-59	Disks of spiral galaxies M51 and MGC 6946.	V	J. M. van der Hulst	U of MN	2, 6 and 20	12
		R	P. C. Crane	NRAO/CV		
		V	R. Kennicutt	U of MN		
		V	R. J. Allen	U of Groningen, NETHERLANDS		
AW-56	Monitoring flaring quasar 1156+295.	P	C. M. Wade	NRAO/VLA	1, 3, 2, 6 and 20	2
		R	R. A. Perley	NRAO/VLA		
AZ-13	Solar flares and active regions.	V	H. Zirrin	Caltech	1.3, 2, 6 and 20	12
		V	K. A. Marsh	Caltech		
		V	G. J. Hurford	Caltech		
VG-13	CTB 80.	V	B. J. Geldzahler	MIT	6 cm Mark III VLB.	8.5
		V	D. B. Shaffer	NASA/Goddard		
		V	N. I. Cohen	Cornell		
VG-16	Sco X-1.	V	B. J. Geldzahler	MIT	6 cm Mark III VLB.	8.5
		P	E. B. Fomalont	NRAO/CV		
VS-17	Spectral component spatial isolation.	R	S. R. Spangler	NRAO/VLA	6 cm VLB	17
		V	R. Mutel	U of Iowa		
		V	T. Jones	U of MN		
VW-12	A0235+164.	V	A. Wolfe	U of Pittsburgh	6 cm VLB	13
		V	F. Briggs	U of Pittsburgh		
		V	K. J. Johnston	NRL		
VW-14	3C120 Superluminal motion.	R	R. C. Walker	NRAO/CV	6 cm VLB	15.5
		V	G. Seidistad	Caltech		
		V	S. Unwin	Caltech		
		R	J. Benson	NRAO/CV		

The average downtime for the month of August, 1981 was approximately 3.14 percent.

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

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 100.0 percent (746 hours) of the time: 76.3 percent (569.5 hours) to astronomical programs and the remaining 23.7 percent (176.5 hours) went to tests.

(NOTE: All times listed above are in IST.)

VLA UTILIZATION REPORT JULY 1981

Institution

Bands

Scheduled

Prog	Program Title Baseline Pointing Calibration Test	S	Observer	Institution	Bands	Scheduled
AA-9	Evolution of small-scale structure in Cas A and Tycho supernova remnants.	V	P. E. Angerhoffer	USNO	6	244.5
		V	B. Balick	U of WA		10.5
		V	D. Milne	CSIRO		
		P	R. A. Perley	NRAO/VLA		
AB-120	Bubble nebulae: NGC 2359, 6302, 6826, 6888 and 7635.	V	B. Balick	U of WA	2, 6 and 20	18
		V	G. Boeshaar	U of WA		
AB-126	Masers in compact HII regions.	R	J. M. Benson	NRAO/CV	1.3 and 20 h	15.5
		V	K. J. Johnston	NRL	(includes 3 h line)	
AB-129	Monitoring double QSO 0957+561.	V	B. F. Burke	MIT	6	1
		V	D. H. Roberts	Brandeis Univ		
		V	P. E. Greenfield	MIT		
AB-147	"Jumbo" HII regions in NGC 2366 and NGC 3310.	V	B. Balick	U of WA	21 line	19
		V	E. Skillman	U of WA		
AC-33	OH absorption toward Cas A and NGC 2024.	V	R. Crutcher	U of CA, Berkeley	18 line	29
		V	J. Bieling	U of CA, Berkeley		
AD-45	Hot spots in galaxies.	R	J. W. Dreher	NRAO/VLA	6	18
		P	R. D. Ekers	NRAO/VLA		
		V	S. M. Simkin	MSU		
AD-50	Extended sources in S0 galaxies.	V	L. I. Dressel	NASA/Goddard	20	8
		P	R. D. Ekers	NRAO/VLA		
AD-51	Low-latitude 21 cm absorption.	R	J. M. Dickey	NRAO/CV	21 line	114
		R	J. H. van Gorkom	NRAO/VLA		
		V	S. R. Kulkarni	U of CA, Berkeley		
		V	C. Heiles	U of CA, Berkeley		
AF-36	The jet in Centaurus A.	V	E. D. Feigelson	MIT	6	5
		V	J. O. Burns	UNM		
		V	E. J. Schrier	SAO		
AG-63	Central region of SNR 3C58.	V	B. J. Geldzahler	MIT	20	4
AG-65	Objects resembling Sco X-1.	V	B. J. Geldzahler	MIT	6 and 20	8
AG-71	IC 310.	V	A. C. Gower	U of Victoria, CANADA	2, 6 and 20	8
AH-60	Cep OB-3 star formation region.	V	V. A. Hughes	Queen's Univ, CANADA	6	12
		V	J. G. A. Wouterloot	Leiden, NETHERLANDS		
AH-69	Barred spiral NGC 1097.	V	E. Hummel	UNM	6 and 20	4
		V	J. M. van der Hulst	UNM		
AH-71	Seven suspected SNR's.	P	G. C. Hunt	NRAO/VLA	21	10.5
		V	C. J. Salter	Bologna, ITALY		
		R	J. H. van Gorkom	NRAO/VLA		
AJ-65	The S5 sample.	V	K. J. Johnston	NRL	2, 6 and 20	15
		V	H. Kuhr	U of AZ		
		V	P. Strittmatter	U of AZ		

Program	Program Title	S	Observer	Institution	Bands	Scheduled
AJ-71	Continuum and water masers in W49 N.	V	K. J. Johnston	NRL	1.3 line and 6 cont.	15.5
		V	H. Mark	NRL		
		R	J. W. Dreher	NRAO/VLA		
		R	C. Walker	NRAO/CV		
		V	J. Welch	U of CA, Berkeley		
AK-48	SNR in M33.	V	C. K. Kumar	Howard Univ	6 and 20	10
		V	I. J. Rickard	Howard Univ		
AL-36	Prolate jet galaxy NGC 3801.	R	R. A. Laing	NRAO/CV	6 and 20	3
		V	C. R. Jenkins	Cambridge, ENGLAND		
AP-49	Hydrogen absorption in clusters with cooling cores.	V	P. Palmer	U of Chicago	21 line	3
AS-79	Multifrequency monitoring of low-frequency variables.	V	S. R. Spangler	U of IA	1.3, 2, 6 and 20.	7
		P	W. Cotton	NRAO/CV		
AS-80	Supernovae in M100 and NGC 6946.	P	R. A. Sramek	NRAO/VLA	2, 6 and 20.	4
		V	J. M. van der Hulst	U of MN		
		V	K. W. Weiler	NSF		
AS-85	Quasars 4C25.01 and 4C28.59.	V	J. T. Stocke	U of AZ	20	8
		V	W. Christiansen	U of NC		
		V	J. O. Burns	U of NM		
AS-91	H 110 $\alpha$ recombination line maser in the nucleus of M82.	V	E. R. Seaquist	U of Toronto, CANADA	6 line	12
		V	M. B. Bell	Herzberg Inst., CANADA		
		P	R. C. Bignelli	NRAO/VLA		
AS-92	Distorted source 4C59.08.	V	R. G. Strom	Dwingeloo, NETHERLANDS	6	10
		V	W. van Breugel	KPNO		
		V	J. G. Robertson	Anglo-Aust. Obs., AUSTRALIA		
AS-100	HI absorption in radio galaxies.	V	G. S. Shostak	U of Groningen, NETHERLANDS	21 line	20.5
		V	R. H. Sanders	U of Groningen, NETHERLANDS		
		P	R. D. Ekers	NRAO/VLA		
		R	J. H. van Gorkom	NRAO/VLA		
AS-101	HI absorption in Halo of our galaxy.	V	G. S. Shostak	U of Groningen, NETHERLANDS	21 line	9
		V	E. Hummel	U of NM		
AS-102	Radio galaxy 3C192.	R	S. R. Spangler	NRAO/VLA	20	4
		R	R. A. Laing	NRAO/CV		
AT-21	Massive star formation in nearby spiral nuclei.	V	J. Turner	U of CA, Berkeley	1.3, 2 and 6	12
		V	P. T. P. Ho	U of CA, Berkeley		
AV-55	OH absorption in Sgr B2.	V	S. Vogel	U of CA, Berkeley	18 line	9
		V	P. T. P. Ho	U of CA, Berkeley		
		V	R. Genzel	U of CA, Berkeley		
		V	D. Watson	U of CA, Berkeley		
AV-57	4C26.42 and 4C29.30: Radio galaxies with optical emission lines in the lobes.	V	W. van Breugel	KPNO	6 and 20	25
		V	T. Heckman	U of AZ		
		V	G. K. Miley	Leiden, NETHERLANDS		
		V	H. Butcher	KPNO		

VLA UTILIZATION REPORT JULY (Cont.)

AW-53	HI and OH absorption in M82.	V	L. N. Weliachew	Grenoble, FRANCE	18 and 21 line.	12
		P	E. B. Fomalont	NRAO/CV		
		R	E. W. Greisen	NRAO/CV		
AW-56	Optically flaring quasar 1156+295.	P	C. M. Wade	NRAO/VIA	1.3, 2, 6 and 20	2
		R	R. A. Perley	NRAO/VIA		
AZ-13	Solar flares and active regions.	V	H. Zirin	Caltch	1.3, 2, 6 and 20.	36
		V	K. A. Marsh	Caltch		
		S	K. Topka	Caltch		
		V	G. J. Hurford	Caltch		

The average downtime for the month of July, 1981 was approximately 5.8 percent.

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

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 100.0 percent (746 hours) of the time: 67.2 percent (501.5 hours) to astronomical programs and the remaining 32.8 percent (244.5 hours) went to tests.

NOTE: All times listed above are in IST.

Progr.	Program Title	S	Observer	Institution	Bands	Scheduled
AB-100	Baseline Pointing Calibration Test				All	272.5
AB-100	Spectrum and polarization of jet in NGC 315.	R	A. H. Bridle	UNM/NRAO/VLA	6	12
		P	E. B. Fomalont	NRAO/CV		
		V	J. J. Palimaka	Queen's U, CANADA		
		V	R. N. Henriksen	Stanford U		
AB-112	4C sources in Zwicky clusters.	V	J. O. Burns	UNM	20	12
		V	S. A. Gregory	Bowling Green State U		
AB-129	Monitoring double quasar 0957+561.	V	B. F. Burke	MIT	6	1
		V	D. H. Roberts	Brandeis		
		V	P. E. Greenfield	MIT		
AC-30	3C433 - high latitude circular source.	P	T. J. Cornwell	NRAO/VLA	2 and 6	2
		V	D. A. Graham	MPI, FRG		
		P	G. C. Hunt	NRAO/VLA		
		V	C. J. Salter	Bologna, ITALY		
AC-35	Broad observation features in NGC 1275.	P	P. C. Crane	NRAO/CV	21 cm line.	2
		V	A. D. Haschick	Haystack Obs.		
		V	J. M. van der Hulst	U of MN		
AD-30	Class II extragalactic sources.	R	J. W. Dreher	NRAO/VLA	21	8
AD-40	Spectra of hot spots in extragalactic sources.	R	J. W. Dreher	NRAO/VLA	2 and 6	8
		P	R. A. Laing	NRAO/CV		
AD-42	Solar flare patrol.	V	G. A. Dulk	U of CO	6 and 20	12.5
		S	P. Bormann	U of CO		
AD-51	Low-latitude 21 cm absorption.	P	J. M. Dickey	NRAO/CV	21 cm line	20
		R	J. H. van Gorkom	NRAO/VLA		
		V	S. R. Kulkarni	U of CA, Berkeley		
		V	C. Heiles	U of CA, Berkeley		
AE-11	Spectral index distribution in Sgr A.	P	R. D. Ekers	NRAO/VLA	21	6
		V	W. M. Goss	Groningen, NETHERLANDS		
		V	U. J. Schwartz	Groningen, NETHERLANDS		
AH-48	Planetary nebulae near the Galactic center.	V	H. J. Habing	Leiden, NETHERLANDS	6	14
		V	R. Issacman	Leiden, NETHERLANDS		
AH-53	Radio counterparts of transient gamma-ray sources.	P	R. M. Hjellming	NRAO/VLA	6	3
		S	S. P. Ewald	NMIMT/NRAO/VLA		
		V	T. Cline	NASA/GSFC		
AJ-53	Position measurements of GPS satellites.	V	K. J. Johnston	NRL	18	8.5
		V	W. B. Waltman	NRL		
		P	A. R. Thompson	NRAO/VLA		
AK-41	Solar active regions and flares.	V	M. R. Kundu	U of MD	1.3, 2, 6 and 20.	20
		V	T. Velusamy	U of MD		
		V	D. McConnell	U of MD		
		V	F. T. Erskine	U of MD		
		V	E. J. Schmahl	U of MD		
		V	M. Bobrowsky	U of MD		

## VIA UTILIZATION '81 JUNE 1981 (cont.)

Program	Program Title	S	Observer	Institution	Bands	Scheduled
AL-29	Late type stars with large X-ray fluxes.	V	J. L. Linsky	JILA	2 and 20	12
		V	D. Gary	JILA		
AL-30	Solar flares and active regions.	V	K. R. Lang	Arcetri, ITALY	2 and 6	48.5
		V	F. C. Drago	Arcetri, ITALY		
		V	R. F. Willson	Tufts Univ		
AL-31	Weak jets and outer lobes in M84.	P	R. A. Laing	NRAO/CV	6 and 20	8
		R	A. H. Bridle	UNM/NRAO/VIA		
AL-32	3C20 - double source with luminous hot spots.	P	R. A. Laing	NRAO/CV	2 and 6	8
AM-30	Coma A.	V	G. K. Miley	Leiden, NETHERLANDS	6	1.5
		V	W. van Breugel	KPNO		
		V	H. Butcher	KPNO		
		V	T. Heckman	Steward Obs		
		P	E. B. Fomalont	NRAO/CV		
AM-33	3C310 - relaxed wide double with complex features.	V	G. K. Miley	Leiden, NETHERLANDS	6	8.5
		V	W. van Breugel	KPNO		
		V	H. Butcher	KPNO		
		V	T. Heckman	Steward Obs		
		P	E. B. Fomalont	NRAO/CV		
AM-38	Stellar OH Masers.	V	R. L. Mutel	Univ of Iowa	18 cm line.	8.5
		V	J. D. Fix	Univ of Iowa		
AN-9	Compact thermal sources made by evolved stars.	R	R. T. Newell	NRAO/VIA	1.3 and 2	12
		P	R. M. Hjellming	NRAO/VIA		
AO-16	NGC 1265.	R	F. N. Owen	NRAO/VIA	6	8
		S	E. Schwendeman	UNM		
		S	C. E. O'Dea	NRAO/VIA		
		V	J. O. Burns	UNM		
AO-23	Nearby Abell clusters.	R	F. N. Owen	NRAO/VIA	20	24
		V	R. White	NASA/Goddard		
		V	J. O. Burns	UNM		
AP-34	Comparing extragalactic objects.	R	R. A. Perley	NRAO/VIA	6	1
		V	A. C. Readhead	Caltech		
		V	T. Pearson	Caltech		
AS-74	Luminous jet galaxies 3C166 and 3C327.1.	R	S. R. Spangler	NRAO/VIA	2, 6 and 20	8
AS-75/ AM-50	VIBI reference sources.	V	D. B. Shaffer	NASA/Goddard	6 and 20	24
		V	T. A. Clark	NASA/Goddard		
		V	N. R. Vandenberg	NASA/Goddard		
		P	R. C. Walker	NRAO/CV		
		R	J. Wrobel	NRAO/CV		



VIA UTILIZATION 1981 (cont.)

Progr.	Program Title	S	Observer	Institution	Bands	Scheduled
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AS-76	Peculiar spiral galaxy NGC 3310.	V	E. R. Seagquist	U of Toronto, CANADA	6 and 20	8
		V	N. Duric	U of Toronto, CANADA		
		P	P. C. Crane	NRAO/GB		
		V	J. Auman	U of BC, CANADA		
		V	B. Campbell	CFH, Hawaii		
AS-79	Multifrequency monitoring of low-frequency variables.	R	S. R. Spangler	NRAO/VLA	1.3, 2, 6	24
		P	W. Cotton	NRAO/CV	and 20	
AS-80	Supernovae in M100 and NGC 6946.	R	R. A. Sramek	NRAO/VLA	2, 6 and 20	4
		V	J. M. van der Hulst	Univ of MN		
		V	K. W. Weiler	NSF		
AS-92	Distorted source 4C59.08.	V	R. G. Strom	Dwingeloo, NETHERLANDS	6	1.5
		V	W. van Breugel	KPNO		
		V	J. G. Robertson	Anglo-Aust. Obs, AUSTRALIA		
AV-52	Monitoring extragalactic supernovae.	V	J. M. van der Hulst	Univ of MN	2, 6 and 20	1
		R	R. A. Sramek	NRAO/VLA		
		V	K. W. Weiler	NSF		
AW-35	Positions of sources in 5C12 survey.	V	J. V. Wall	Royal Greenwich Obs, ENGLAND	20	36
		V	C. R. Benn	Royal Greenwich Obs, ENGLAND		
		V	G. Gruett	Bologna, ITALY		
		V	M. Vigotti	Bologna, ITALY		
AW-55	Recombination lines from OQ 208.	P	R. C. Walker	NRAO/CV	18 cm line	7
		P	J. M. Wrobel	NRAO/CV		
		R	J. H. van Gorkom	NRAO/VLA		
AW-56	Optically flaring quasar 1156+295.	P	C. M. Wade	NRAO/VLA	1.3, 2, 6	10.5
		R	R. A. Perley	NRAO/VLA	and 20	
AY-1	An ultra-deep survey.	V	P. Young	Caltch	6 and 20	25
		V	J. E. Gunn	Caltch		
		V	J. Kristian	Hale Obs		
AZ-13	Solar flares and active regions.	V	H. Zirin	Caltch	1.3, 2, 6	31.5
		V	K. A. Marsh	Caltch	and 20	
		S	K. Topka	Caltch		
		V	G. J. Hurford	Caltch		

The average downtime for the month of June, 1981 was approximately 6.7 percent.

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

The array was scheduled for 100.0 percent (722 hours) of the time: 62.3 percent (449.5 hours) to astronomical programs and the remaining 37.7 percent (272.5 hours) went to tests.

(NOTE: Time given is in IST.)  
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Program	Program Title	S	Observer	Institution	Bands	Included
AA-10	Baseline Pointing Calibration Test				All	288.5
AA-10	Polarization of radio cores of galaxies.	V	R. Antonucci	Lick Obs	6 and 20	24
AA-11	Mass loss from association - interstellar bubbles?	V	E. B. Fomalont	NRAO/CV		
AA-11		V	D. C. Abbott	JILA	6	12
AA-11		V	J. H. Bieging	U of CA, Berkeley		
AA-11		V	E. B. Churchwell	U of WI		
AB-125	Positions of Type II OH masers.	V	B. Baud	U of CA, Berkeley	18 cm line.	7
AB-125		V	A. I. Sargent	Caltech		
AB-125		S	S. Kulkarni	U of CA, Berkeley		
AB-125		V	H. J. Habing	Leiden, NETHERLANDS		
AB-129	Monitoring double QSO 0957+561.	V	B. F. Burke	MIT	6	2
AB-129		V	D. H. Roberts	Brandeis Univ		
AB-129		V	P. E. Greenfield	MIT		
AB-130	Snapshots of Arecibo and Green Bank survey sources.	V	B. F. Burke	MIT	6	24
AB-130		V	C. Lawrence	MIT		
AB-130		V	P. E. Greenfield	MIT		
AD-34	Atmosphere and magnetosphere of Jupiter.	V	I. de Pater	LPL	6 and 18	24
AD-34		V	J. Caldwell	SUNY, Stony Brook		
AD-34		P	W. Jaffe	NRAO/CV		
AD-34		V	T. Owen	SUNY, Stony Brook		
AD-38	H <sub>2</sub> CO absorption toward DR 21.	V	H. R. Dickel	U of IL	6 cm line	12
AD-38		S	A. Lubnow	U of IL		
AD-38		V	W. M. Goss	Kapteyn Lab, NETHERLANDS		
AD-38		P	A. H. Rots	NRAO/VLA		
AD-38		V	J. R. Forster	NRA, NETHERLANDS		
AD-42	Solar flare patrol.	V	G. A. Dulk	U of CO	6 and 20	47.5
AD-42		S	R. Stewart	U of CO		
AF-12	Complete sample of radio galaxies.	P	R. D. Ekers	NRAO/VLA	21	3.5
AF-12		V	P. A. Shaver	Kapteyn Lab, NETHERLANDS		
AF-12		V	W. M. Goss	Kapteyn Lab, NETHERLANDS		
AF-12		V	R. Fosbury	ESO, SWITZERLAND		
AF-12		V	J. Danziger	ESO, SWITZERLAND		
AF-12		V	J. Wall	Mullard Obs, ENGLAND		
AF-12		V	D. Malin	Anglo/Austl Obs, AUSTRALIA		
AG-60	Ooty occultation sources.	V	Gopal-Krishna	MPI, FRG	6 and 20	3.5
AG-60		P	R. A. Sramek	NRAO/VLA		
AH-55	X-Ray selected active galaxy nuclei.	V	D. J. Helfand	Columbia U	6 and 21	18
AH-55		V	G. A. Chanan	Columbia U		
AH-55		V	B. Margon	U of WA		
AH-62	X-ray source 3A 0004+726 in SNR CTA 1.	P	G. C. Hunt	NRAO/VLA	2, 6 and 20	4
AH-62		V	I. McHardy	U of Leicester, ENGLAND		
AH-62		V	C. J. Salter	Bologna, ITALY		
AH-62		V	D. A. Schwartz	CFA		

Progr	Program Title	S	VIA UTILIZATI	Observer	SPORT MAY (Cont.)	Institution	Bands	Scheduled
AH-63	NGC 1961 - spiral arm component.	V		E. Hummel		U of MN	21	6
		V		J. M. van der Hulst		U of MN		
		V		G. S. Shostak		Kapteyn Lab, NETHERLANDS		
AJ-60	SS433.	V		K. J. Johnston		NRL	1.3, 2, 6	3
		P		R. M. Hjellming		NRAO/VLA	and 20	
AK-41	Solar active regions and flares.	V		M. R. Kundu		U of MD	1.3, 2, 6	31
		V		T. Velusamy		U of MD	and 20.	
		V		E. J. Schmahl		U of MD		
		V		M. Bobrowsky		U of MD		
		S		D. McConnell		U of MD		
AK-47	AFGL 618 - nascent planetary nebula?	V		S. Kwok		NRC, CANADA	1.3, 2, 6	1.5
		P		R. C. Bignell		NRAO/VLA	and 20.	
AM-30	Coma A.	V		G. K. Wley		Leiden, NETHERLANDS	6 and 20	6.5
		V		W. J. M. van Breugel		KPNO		
		V		H. R. Butcher		KPNO		
		P		E. B. Fomalont		NRAO/CV		
		V		T. M. Heckman		U of AZ		
AM-33	3C310.	V		G. K. Wley		Leiden, NETHERLANDS	6	8.5
		V		W. J. M. van Breugel		KPNO		
		V		H. Butcher		KPNO		
		V		T. Heckman		Steward Obs		
		P		E. B. Fomalont		NRAO/CV		
AP-43	Planetary nebulae near Galactic center.	V		S. Pattasch		Groningen, NETHERLANDS	6	17
		R		J. van Gorkom		NRAO/VLA		
		V		W. M. Goss		Kapteyn Lab, NETHERLANDS		
		V		R. Gathier		Kapteyn Lab, NETHERLANDS		
AR-42	Polarization angles in compact extragalactic	V		L. Rudnick		U of MN	2, 6 and 20.	24
		V		T. Jones		U of MN		
		V		R. Fiedler		U of MN		
		V		W. Golisch		U of MN		
AR-46	Compact objects at centers of SNR.	V		V. Radhakrishnan		Raman Inst, INDIA	6 and 20	8
		P		R. D. Ekers		NRAO/VLA		
		R		J. van Gorkom		NRAO/VLA		
		V		K. J. Johnston		NRL		
		V		C. J. Salter		Bologna, ITALY		
AR-48	Radio quiet BL Lac objects?	V		L. Rudnick		U of MN	2 and 6	3
AS-69	Search for weak central components in non-variable sources.	V		S. R. Spangler		U of IA	6 and 20	8
		P		W. Cotton		NRAO/CV		
AS-79	Monitoring of low-frequency variables.	V		S. R. Spangler		U of IA	1.3, 2, 6	15.5
		P		W. Cotton		NRAO/CV	and 20.	
AS-80	Supernovae in M100 and MGC 6946.	P		R. A. Stramek		NRAO/VLA	2, 6 and 20.	4
		V		J. M. van der Hulst		U of MN		
		V		K. W. Weiler		NSF		

VIA UTILIZATION (cont.) JRT MAY 1981

Program	Program Title	S	Observer	Institution	Bands	Scheduled
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AV-41	21 cm HI absorption toward the galactic center.	V	J. M. van der Hulst	U of MN	21	8
		V	W. B. Burton	U of MN		
		V	M. P. Ondrechen	U of MN		
		P	H. S. Liszt	NRAO/CV		
AV-43	Interacting galaxies.	V	J. M. van der Hulst	U of MN	6 and 20	8
		V	E. Hummel	U of MN		
		R	J. H. van Gorkon	NRAO/VLA		
		V	C. G. Kotanyi	Kapteyn Lab, NETHERLANDS		
		V	W. Golisch	U of MN		
AV-52	Extragalactic supernovae.	V	J. M. van der Hulst	U of MN	2, 6 and 20	3.5
		P	R. A. Sramek	NRAO/VLA		
		V	K. W. Weiler	NSF		
AW-37	Quasars with jets.	V	J. F. C. Wardle	Brandeis U	6	24.5
		V	D. H. Roberts	Brandeis U		
AW-48	Astrometric observations of minor planets.	P	C. M. Wade	NRAO/VLA	1.3 and 2	22
		V	P. K. Seidelmann	USNO		
		V	K. J. Johnston	NRL		
AZ-13	Solar flares and active regions.	V	H. Zirin	Caltech	1.3, 2, 6 and 20.	36.5
		V	K. A. Marsh	Caltech		
		S	K. Topka	Caltech		
		V	G. J. Hurford	Caltech		

The average downtime for the month of May, 1981 was approximately 5.36 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 100.0 percent (746 hours) of the time: 61.3 percent (457.5 hours) to astronomical programs and the remaining 38.7 percent (288.5 hours) went to tests.

Program	Program Title	S	VLA UTILIZATION	Observer	REPORT	APRIL 1981	Institution	Bands	Scheduled
AB-119	Search for young extra-galactic SNR's.	V		D. Branch	Univ of OK		Univ of OK	20	All 269.5
AB-129	Monitoring double quasar 0957+561.	V		B. F. Burke	MIT		MIT	6	1
AB-132	Search for gravitationally lensed images of quasars 3C268.4 and PKS 1311-270.	V		P. E. Greenfield	MIT		Meudon Obs, FRANCE	2 and 6	3
AC-26	Compact sources with steep spectra.	P		J. Schneider	NRAO/VLA		Meudon Obs, FRANCE	2, 6 and 20	8
AC-28	Intense variable OH maser G351.8-0.5 and its continuum.	V		T. Cornwell	NRAO/CV		U of Iowa	2, 6 and 20	8
AD-28	Low latitude Hydrogen absorption.	R		W. D. Cotton	NRAO/CV		U of Iowa	2, 6 and 20	8
AG-57	Periodic radio star ISI +61°303.	V		S. R. Spangler	NRAO/CV		U of Iowa	2, 6 and 18 cm line.	6
AG-58	Quasars with optical structure.	V		M. J. Clausen	U of Iowa		U of Iowa	2, 6 and 18 cm line.	6
AH-53	Radio counterparts of transient gamma-ray sources.	P		R. I. Mutel	U of Iowa		U of Iowa	2, 6 and 18 cm line.	6
AH-58	Search for distorted QSO's.	V		R. A. Gaume	U of Iowa		U of Iowa	2, 6 and 18 cm line.	6
AH-64	Stellar wind of P Cygni.	V		J. D. Fix	U of Iowa		U of Iowa	2, 6 and 18 cm line.	6
AJ-60	SS433.	V		J. M. Dickey	NRAO/CV		NRAO/CV	21 cm line.	4
AK-41	Solar active regions and flares.	V		J. M. Benson	CFA		U of Pitts	21 cm line.	4
AK-45	Radio galaxy 3C303.	V		F. H. Briggs	U of Pitts		U of BC, CANADA	21 cm line.	4
		V		P. C. Gregory	U of BC, CANADA		U of BC, CANADA	21 cm line.	4
		V		A. R. Taylor	U of BC, CANADA		U of BC, CANADA	21 cm line.	4
		V		A. C. Gower	U of Victoria, CANADA		U of Victoria, CANADA	21 cm line.	4
		V		A. C. Gower	U of Victoria, CANADA		U of Victoria, CANADA	21 cm line.	4
		V		D. Crampton	Dominion Astrophys Obs, CANADA		Dominion Astrophys Obs, CANADA	21 cm line.	4
		V		J. B. Hutchings	Dominion Astrophys Obs, CANADA		Dominion Astrophys Obs, CANADA	21 cm line.	4
		P		R. M. Hjellming	NRAO/VLA		NRAO/VLA	21 cm line.	4
		S		S. P. Ewald	NMINT/NRAO/VLA		NMINT/NRAO/VLA	21 cm line.	4
		V		T. Cline	NASA/GSFC		NASA/GSFC	21 cm line.	4
		V		P. Hintzen	NASA/GSFC		NASA/GSFC	21 cm line.	4
		P		F. N. Owen	NRAO/VLA		NRAO/VLA	21 cm line.	4
		V		J. Scott	U of AZ		U of AZ	21 cm line.	4
		V		D. J. Helfand	Columbia Univ		Columbia Univ	21 cm line.	4
		V		R. I. White	Columbia Univ		Columbia Univ	21 cm line.	4
		V		I. B. Lucy	Columbia Univ		Columbia Univ	21 cm line.	4
		V		R. Becker	Columbia Univ		Columbia Univ	21 cm line.	4
		V		K. J. Johnston	NRL		NRL	21 cm line.	4
		P		R. M. Hjellming	NRAO/VLA		NRAO/VLA	21 cm line.	4
		V		M. R. Kundu	U of MD		U of MD	21 cm line.	4
		V		T. Velusamy	U of MD		U of MD	21 cm line.	4
		V		F. T. Erskine	U of MD		U of MD	21 cm line.	4
		V		E. J. Schmahl	U of MD		U of MD	21 cm line.	4
		V		M. Bobrowsky	U of MD		U of MD	21 cm line.	4
		V		P. P. Kronberg	U of Toronto, CANADA		U of Toronto, CANADA	2, 6 and 20.	12
		V		L. Noreau	U of Toronto, CANADA		U of Toronto, CANADA	2, 6 and 20.	12

Progr.	Program Title	S	Observer	Institution	Bands	Scheduled
AK-46	Monitoring of HM Sge.	V	S. Kowk	NRC, CANADA	1.3, 2, 6 and 20.	5
		V	H. E. Matthews	NRC, CANADA		
		V	C. R. Purton	NRC, CANADA		
		V	T. A. Th. Spoelstra	NRC, CANADA		
		P	R. C. Bignell	NRAO/VLA		
AL-33	Center of SNR W28.	V	R. C. Lamb	Univ of Iowa	2, 6 and 20	3
		R	J. P. Basart	NRAO/VLA		
		V	T. H. Markert	MIT		
AM-35	Central cavities in ultra-compact HII regions.	V	H. E. Matthews	Herzberg Inst, CANADA	1.3 and 2	12
		V	S. Kwok	Herzberg Inst, CANADA		
		R	B. E. Turner	NRAO/CV		
		V	A. Winberg	MPI, WEST GERMANY		
AM-36	Recombination lines and ammonia in W3(OH).	V	H. E. Matthews	Herzberg Inst, CANADA	1.3 and 2 cm line.	11.5
		R	J. H. van Gorkom	NRAO/VLA		
		P	A. H. Rots	NRAO/VLA		
AM-37	OH emission of bipolar nebulae.	V	M. Morris	Columbia Univ	18 cm line	16
		V	P. Bowers	NRL		
		R	B. E. Turner	NRAO/CV		
		V	B. Zuckerman	U of MD		
AM-38	Stellar OH Masers.	V	R. L. Mutel	Univ of Iowa	18 cm line.	12
		V	J. D. Fix	Univ of Iowa		
AP-36	Morphology of quasars compared to absorption line systems.	V	B. M. Peterson	Ohio State Univ	6 and 20	12
		V	L. Rudnick	U of MN		
		V	J. Fohlmeister	U of MN		
AP-40	Accurate ground and excited state positions for OH masers in W3 and W49.	V	P. Palmer	Univ of Chicago	6 and 18 cm line.	8
		V	K. J. Johnston	NRL		
AP-42	Jet quasar 4C32.69.	V	R. I. Potash	Brandeis Univ	6	12
		V	J. F. C. Wardle	Brandeis Univ		
AR-45	Optical-radio lobe coincidence in 3C33.	V	P. Crane	ESO, SWEDEN	2 and 6	8.5
		R	J. W. Dreher	NRAO/VLA		
		V	L. Rudnick	Univ of MN		
		V	W. C. Saslaw	Univ of VA		
		V	S. M. Simkin	MSU		
		V	J. A. Tyson	Bell Labs		
AR-49	Jet widths in 3C129.	V	L. Rudnick	Univ of MN	6	12
		V	J. O. Burns	Univ of NM		
		V	W. Golisch	Univ of MN		
		V	M. Ondrechen	Univ of MN		

Progr.	Program Title	S	Observer	Institution	Bands	Scheduled
AR-53	HI absorption line observations of M82.	P	A. H. Rots	NRAO/VLA	21 cm line.	10
		V	J. M. van der Hulst	Univ of MN		
		V	P. P. Kronberg	Univ of Toronto, CANADA		
AS-76	Morphology of peculiar spiral NGC 3310.	V	E. R. Seaquist	Univ of Toronto, CANADA	6 and 20	8
		V	N. Duric	Univ of Toronto, CANADA		
		P	P. C. Crane	NRAO/CV		
		V	J. Auman	Univ of BC, CANADA		
		V	B. Campbell	CFH, Hawaii		
AS-79	Monitoring of low-frequency variables.	V	S. R. Spangler	Univ of Iowa	1.3, 2, 6 and 20.	7.5
		P	W. D. Cotton	NRAO/CV		
AS-80	Monitoring supernovae in MGC 6946 and M100.	P	R. A. Sramek	NRAO/VLA	2, 6 and 20	4.5
		V	J. M. van der Hulst	Univ of MN		
		V	K. W. Weiler	NSF		
AT-15	OH in DR 21.	V	C. H. Townes	Univ of CA, Berkeley	18 cm line	12
		V	D. N. Matsakis	USNO		
		V	S. Subramanian	Univ of CA, Berkeley		
		V	A. Hjalmarrson	Onsala Space Obs, SWEDEN		
		V	P. Palmer	Univ of Chicago		
		V	A. C. Cheung	Univ of CA, Davis		
AT-16	21 cm absorption of quasar 0241+011 by galaxy NGC1073.	V	A. D. Tubbs	NRAO/CV	21 cm line	12
		V	F. H. Briggs	Univ of Pitt		
		R	J. Dickey	NRAO/CV		
AT-17	Continuum and masers in ON-1.	V	J. Turner	Univ of CA, Berkeley	1.3, 2, 6 and 20 cm line and continuum.	12
		R	J. W. Dreher	NRAO/VLA		
		V	B. Baud	Univ of CA, Berkeley		
AW-43	Nuclei of Seyfert and emission line galaxies.	V	A. S. Wilson	Univ of MD	2, 6 and 20	12.5
		V	J. S. Ulvestad	Univ of MD		
AW-47	Galaxies with multiple nuclear condensations.	V	C. G. Wynn-Williams	IFA, Hawaii	2, 6 and 20	13
		V	E. E. Becklin	IFA, Hawaii		
AZ-13	Solar flares and active regions.	V	H. Zirin	Catech	1.3, 2, 6 and 20	14
		V	K. A. Marsh	Catech		
		V	G. J. Hurford	Catech		
EVN80-6	VLBI observations of the core of 3C236.	V	R. T. Schilizzi	Leiden, NETHERLANDS	6 cm VLBI	18
		V	G. K. Miley	Leiden, NETHERLANDS		
		P	T. J. Cornwell	NRAO/VLA		
VM-13	VLBI observations.	V	J. M. Moran	CFA	1.3	32
VR-14	VLBI observations.	V	A. C. S. Readhead	Catech	1.3	24
		R	R. C. Walker	NRAO/CV		
Astrometry		P	E. B. Fomalont et al. (?)	NRAO/CV	6	47.5

VIA UTILIZATION REPORT APRIL 1981 (cont.)

The average downtime for the month of April, 1981 was approximately 5.4 percent.

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

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

The array was scheduled for 100.0 percent (720 hours) of the time: 62.6 percent (450.5 hours) to astronomical programs and the remaining 37.4 percent (296.5 hours) went to tests.

810508/ap  
U1-4



VLA UTILIZATION REPORT MARCH 1981

Prog.	Program Title Baseline Pointing Calibration Test	S	Observer	Institution	Bands	Scheduled
AB-89	Search for variations in the double quasar 0957+561.	V	B. F. Burke	MIT	6	2.5
		V	D. H. Roberts	MIT		
		V	P. F. Greenfield	MIT		
AB-91/ AS-60	T Tauri stars.	V	J. H. Bieging	U of CA, Berkeley	6	20
		V	M. Cohen	NASA/Ames		
		V	P. R. Schwartz	NRL		
AB-117	Proper motion of compact source in Sgr A.	V	D. C. Backer	U of CA, Berkeley	6	16
		P	R. A. Sramek	NRAO/VLA		
AC-26	Compact sources with steep spectra.	P	W. D. Cotton	NRAO/CV	2, 6 and 20	8
		V	S. R. Spangler	U of Iowa		
AD-30	Class II extragalactic sources.	R	J. W. Dreher	NRAO/VLA	21	8
AE-9	X-ray/IR burster MXB1730-33.	P	R. D. Ekers	NRAO/VLA	2 and 6	2
		V	V. Radhakrishnan	Caltech		
AF-28	Extended radio core in 3C236.	P	E. B. Fomalont	NRAO/CV	1.3 and 2	8
		R	A. H. Bridle	U of NM/NRAO/VLA		
		V	G. K. Miley	Leiden, NETHERLANDS		
AH-48	Planetary nebulae near the galactic center.	V	H. J. Habing	Leiden, NETHERLANDS	6	6.5
		V	R. Isaacman	Leiden, NETHERLANDS		
AH-50	Mapping of 3C305.	V	T. M. Heckman	U of AZ	21	8
		V	W. J. M. van Breugel	KPNO		
		V	G. K. Miley	Leiden, NETHERLANDS		
		V	B. Balick	U of WA		
AH-52	Search for jets in radio-emitting X-ray stars.	P	R. M. Hjellming	NRAO/VLA	2 and 6	8
		V	K. J. Johnston	NRL		
AH-54	Clumpy irregular galaxies.	P	D. S. Heeschen	NRAO/CV	21	12
		P	Q-F. Yin	NRAO/CV		
		V	J. Heidmann	Meudon, FRANCE		
AJ-59	Parallaxes, proper motions, and positions of radio binary stars.	V	K. J. Johnston	NRL	2 and 6	13
		P	C. M. Wade	NRAO/VLA		
		V	D. M. Gibson	NMIMT		
AJ-60	SS433.	V	K. J. Johnston	NRL	1.3, 2, 6 and 20	2
		P	R. M. Hjellming	NRAO/VLA		
AJ-63	Uranus.	P	W. Jaffe	NRAO/CV	6	8
		V	J. J. Caldwell	Stony Brook		
		V	T. C. Owen	Stony Brook		
		V	G. L. Berg	Caltech		
AK-43	Double sources with unusually steep spectra: 0015+064, 2105+233, and 2302-025.	V	P. P. Kronberg	U of Toronto, CANADA	2, 6 and 20	8.5
		V	Gopal-Krishna	MPI, WEST GERMANY		
		V	H. Steppe	MPI, WEST GERMANY		

VLA UTILIZATION REPORT MARCH (Cont.)

<u>Progr.</u>	<u>Program Title</u>	<u>S</u>	<u>Observer</u>	<u>Institution</u>	<u>Bands</u>	<u>Scheduled</u>
AM-30	Coma A.	V	G. K. Miley	Leiden, NETHERLANDS	21	8
		V	W. J. M. van Breugel	KPNO		
		V	H. R. Butcher	KPNO		
		P	E. B. Fomalont	NRAO/CV		
		V	T. M. Heckman	U of AZ		
AP-35	OH in the nucleus of NGC253.	V	P. Palmer	U of Chicago	18 cm line	8
AS-63	Supernova in M100 and NGC 6946.	P	R. A. Sramek	NRAO/VLA	1.3, 2, 6 and 20	6.5
		V	K. W. Weiler	NSF		
		V	J. M. van der Hulst	U of MN		
AS-65/ AS-66	Hot spots and radio lobes in QSO's.	V	G. Swarup	U of MD	2 and 6	24
		V	R. P. Sinha	Sys & Appl Sci Corp.		
		V	M. Beltrametti	MPI, WEST GERMANY		
AS-67	Quasars 3C270.1 and 3C275.1.	V	J. T. Stocke	U of AZ	20	12
		V	W. A. Christiansen	U of NC		
		V	J. O. Burns	U of NM		
AS-71	Centaurus A.	V	E. J. Schrier	SAO	20	5
		V	J. O. Burns	U of NM		
		V	E. Feigelson	MIT		
AS-72	Long optical jets in edge-on galaxy MCG 5-29-86.	V	Y. Sofue	Nagoya U, JAPAN	6 and 20	7
		V	Y. Fukui	Nagoya U, JAPAN		
		V	M. Fujimoto	Nagoya U, JAPAN		
		V	K. Wakamatsu	Gifu Inst Tech, JAPAN		
		V	S. Deguchi	Five Coll RAO		
AV-43	Interacting galaxies.	V	J. M. van der Hulst	U of MN	6 and 21	12
		V	E. Hummel	U of NM		
		R	J. H. van Gorkon	NRAO/VLA		
		V	C. G. Kotanyi	Kapteyn Lab, NETHERLANDS		
		V	W. Golisch	U of MN		
AV-44/ AD-25	Central sources in spiral galaxies.	V	J. M. van der Hulst	U of MN	2, 6 and 20	16
		V	E. Hummel	U of NM		
		V	R. M. Price	U of NM		
		V	W. F. Golisch	U of MN		
		P	J. M. Dickey	NRAO/CV		
AZ-12	Solar flares.	V	H. Zirin	Caltech	2 and 6	33
		V	K. A. Marsh	Caltech		
		V	G. J. Hurford	Caltech		
VM-13	Proper motions of H <sub>2</sub> O maser sources.	V	J. Moran	CFA	1.3 VLBI	34

The average downtime for the month of March, 1981 was approximately 9.4 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 60.1 percent (447.5 hours) of the time: 39.8 percent (296 hours) to astronomical programs and the remaining 20.4 percent (151.5 hours) went to tests.

810403/ap  
U4-6

Program	Program Title	S	Observer	Institution	Bands	Scheduled
	Baseline Pointing Calibration Test				All	142.25
AB-89	Search for variations in the double quasar 0957+561.	V	B. F. Burke D. H. Roberts P. E. Greenfield	MIT MIT MIT	6	2
AB-106	Observations of the Galactic Center.	R	R. L. Brown K. J. Johnston K. Y. Lo K. Young	NRAO/CV NRL Caltech Caltech	1.3 and 2	7
AB-114	Jet source 3C341.	V	A. H. Bridle E. B. Fomalont J. J. Palimaka R. A. Perley	UM-NRAO/VIA NRAO/CV Queen's Univ, TORONTO NRAO/VIA	20	2
AB-116	IR sources, Biconical and Compact HII regions.	V	J. Bally C. R. Predmore	Bell Labs Five Coll Obs U of MA	6	12
AD-27	Io.	V	I. de Pater R. A. Brown	Lunar & Planetary Lab, U of AZ Lunar & Planetary Lab, U of AZ	AZ 21	10
AD-28	Low latitude Hydrogen absorption.	R	J. M. Dickey J. M. Benson F. Briggs	NRAO/CV NRAO/CV U of Pitt.	21 cm line.	4.5
AD-31	Spectral curvature of hot spots in extragalactic radio sources.	R	J. Dreher R. A. Laing	NRAO/VIA NRAO/CV	6 and 20	8
AD-32	Structure of galactic HI absorption in front of 3C123.	R	J. M. Dickey H. S. Liszt E. W. Greisen	NRAO/CV NRAO/CV NRAO/CV	21 cm line	6
AD-35	Solar flares and magnetic fields in coronal active regions.	V	G. A. Dulk P. Bornmann	U of CO U of CO	2 and 6	27.5
AF-33	Fornax A.	P	E. B. Fomalont B. J. Geldzahler	NRAO/CV MIT	2, 6, and 20	11
AG-52	Objects resembling Sco X-1.	V	B. J. Geldzahler	MIT	6 and 20	13
AG-53/ AH-51	Sco X-1.	V	B. J. Geldzahler E. B. Fomalont R. M. Hjellming C. M. Wade	MIT NRAO/CV NRAO/VIA NRAO/VIA	6 and 20	9
AJ-60	Variations and structure in SS433.	P	K. J. Johnston R. M. Hjellming	NRL NRAO/VIA	1.3, 2, 6, and 20.	8
AJ-62	Elliptical and SO galaxies.	V	C. R. Jenkins R. A. Laing	Camdenish Lab, Cambridge, UK NRAO/CV	6 and 20	12
AK-41	Solar active regions and flares.	V	M. R. Kundu T. Velusamy E. J. Schmahl M. Bobrowsky	U of MD U of MD U of MD U of MD	1.3, 2, 6 and 20.	45.25

<u>Program</u>	<u>Program Title</u>	<u>S</u>	<u>VIA UTILIZATION</u>	<u>Observer</u>	<u>RT</u>	<u>Institution</u>	<u>Bands</u>	<u>Scheduled</u>
AK-44	M82.	V		P. Kronberg		U of Toronto, CANADA	2 and 6	8
		V		P. Biermann		MPI, WEST GERMANY		
AL-19	Kepler's supernova remnant.	V		K. S. Long		Columbia Astrophys Lab	6 and 20	7
		V		J. R. Dickel		U of IL		
		R		E. W. Greisen		NRAO/CV		
AL-26	Multiple hot-spots in extra-galactic sources.	R		R. A. Iaing		NRAO/CV	2, 6, and 20.	7
AL-27	3C296, jet radio galaxy.	R		R. A. Iaing		NRAO/CV	6, 18 and 21.	8
AM-32	A high-brightness source in NGC 6334.	V		J. M. Moran		Center for Astrophys	1, 3, 2 and 6.	6
		V		L. F. Rodriguez		Nat U of Mexico		
AO-18	Jodrell Bank quasars.	P		F. N. Owen		NRAO/VLA	6	12
		R		J. J. Puschell		NRAO/CV		
AO-20	Search for a central component in 3C61.1.	P		F. N. Owen		NRAO/VLA	2 cm	4
		R		J. J. Puschell		NRAO/CV		
AO-22	Distant 3CR radio galaxies.	P		F. N. Owen		NRAO/VLA	6 cm.	12.5
		R		R. A. Iaing		NRAO/CV		
		R		J. J. Puschell		NRAO/CV		
AP-34	Compact extragalactic objects.	R		R. A. Perley		NRAO/VLA	6 and 20	2
		V		A. C. S. Readhead		Caltech		
		V		T. J. Pearson		Caltech		
AS-63	Supernova in M100 and NGC 6946.	R		R. A. Sramek		NRAO/VLA	1, 3, 2, 6 and 20	6
		V		K. W. Weiler		NSF		
		V		J. M. van der Hulst		U of MN		
AV-41	HI absorption toward the Galactic Center.	V		J. M. van der Hulst		U of MN	21 cm line.	8
		V		W. B. Burton		U of MN		
		S		M. P. Ondrechen		U of MN		
		R		H. S. Liszt		NRAO/CV		
AV-47	Nuclear region of giant radio galaxy DA 240.	V		W. van Breugel		KPNO	2 and 6	8
		V		A. G. Willis		NFRA, NETHERLANDS		
		V		R. G. Strom		NFRA, NETHERLANDS		
AW-40/ AH-49	Crab nebula.	V		A. S. Wilson		U of MD	2, 6 and 20	12
		P		D. E. Hogg		NRAO/CV		
AZ-11	R Aquarii and other symbiotic and infrared stars.	V		B. Zuckerman		U of MD	1, 3, 2, and 6	9
		V		R. Sopka		U of MD		
		V		E. Dwek		U of MD		
		V		R. W. Hobbs		NASA/GSFC		
		V		A. G. Michalistianos		NASA/GSFC		
		V		M. Kafatos		Geo. Mason U		
VC-23	"Optically Quiet QSO" 2147+145.	R		W. D. Cotton		NRAO/CV	18 (VLBI)	20
		V		B. J. Geldzahler		MIT		
		P		F. N. Owen		NRAO/VLA		
		V		J. Romney		MPI, WEST GERMANY		
		V		K. J. Johnston		NRL		
		V		L. Baath		Onsala, SWEDEN		

<u>Program</u>	<u>Program Title</u>	<u>S</u>	<u>VIA UTILIZATION</u>	<u>Observer</u>	<u>IRT</u>	<u>FEBRUARY (cont.)</u>	<u>Institution</u>	<u>Bands</u>	<u>Scheduled</u>
VF-4	Main Line OH Emission from Stellar Sources.	V		J. D. Fix			U of Iowa	18 (VLBI)	26
		V		R. I. Mutel			U of Iowa		
		V		M. J. Claussen			U of Iowa		
		R		J. M. Benson			NRAO/CV		
VJ-10	Quasars 3C279 and 3C446.	V		K. J. Johnston			NRL	18 (VLBI)	21
		V		J. Spencer			NRL		
		R		C. Walker			NRAO/CV		
		P		R. I. Brown			NRAO/CV		

The average downtime for the month of February, 1981 was approximately 10.21 percent.

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

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

The array was scheduled for 73.8 percent (496 hours) of the time: 52.6 percent (353.75 hours) to astronomical programs and the remaining 21.2 percent (142.25 hours) went to tests.

Progr.

Program Title  
Baseline Pointing  
Calibration Test

S Observer

VLA UTILIZATION REPORT JANUARY 1981

Institution

Bands

Scheduled

Progr.	Program Title	S	Observer	Institution	Bands	Scheduled
AA-9	Cas A and Tycho Supernova remnants.	V	P. E. Angerhofer	US Naval Obs.	20	12
		V	B. Balick	Univ of Wash		
		V	D. Milne	CSIRO		
		R	R. A. Perley	NRAO/VLA		
AB-89	Search for variations in the Double quasar 0957+561.	V	B. F. Burke	MIT	6	1
		V	D. H. Roberts	MIT		
		V	P. E. Greenfield	MIT		
AB-96	Search for gravitationally lensed quasars.	V	B. F. Burke	MIT	6	24
		V	D. H. Roberts	MIT		
		V	E. I. Turner	Princeton U		
		V	J. R. Gott	Princeton U		
AB-98	Search for radio emission from triple quasar 1115+08.	V	B. F. Burke	MIT	6	10.5
		V	D. H. Roberts	MIT		
		V	P. E. Greenfield	MIT		
AB-109	Supernova remnant G 27.4+0.	V	B. F. Burke	MIT	20	4
		V	C. R. Canizares	MIT		
		V	G. A. Kriss	MIT		
		V	P. F. Winkler	MIT		
AB-113	Collimation and polarization of high-luminosity radio jet in 3C219.	V	A. H. Bridle	UNM-NRAO/VLA	6	8
		R	R. A. Perley	NRAO/VLA		
		V	R. N. Henriksen	Stanford		
AB-114	3C sources with jets.	V	A. H. Bridle	UNM-NRAO/VLA	20	2
		P	E. B. Fomalont	NRAO/CV		
		V	J. J. Palimaka	Queen's Univ, TORONTO		
		R	R. A. Perley	NRAO/VLA		
AD-26	Structures of low-flux density sources.	V	A. J. B. Downes	Cambridge U, ENGLAND	20	24
		V	M. S. Longair	Cambridge U, ENGLAND		
		V	M. A. C. Perryman	ESTEC, NETHERLANDS		
		V	J. Fielden	Cambridge U, ENGLAND		
		V	C. Benn	Cambridge U, ENGLAND		
AE-8	Spiral galaxy 0400-181.	P	R. D. Ekers	NRAO/VLA	6 and 21	6
		V	P. Shaver	ESO, SWITZERLAND		
		V	W. M. Goss	Groningen U, NETHERLANDS		
		V	J. Danziger	ESO, SWITZERLAND		
		V	R. Fosbury	Royal Greenwich Obs, ENGLAND		
		V	J. Wall	Cambridge U, ENGLAND		
AE-9	X-ray/IR burster MXB 1730-33.	P	R. D. Ekers	NRAO/VLA	2 and 6	2
		V	V. Radhakrishnan	Caltech		
AF-29	Accurate radio positions of pulsars.	P	E. B. Fomalont	NRAO/CV	20	36
		V	W. M. Goss	Kapteyn Labs, NETHERLANDS		
		V	A. G. Lyne	Jodrell Bank, ENGLAND		
		V	R. N. Manchester	CSIRO, AUSTRALIA		

AG-56	X-ray source G 109.1-1.0.	V	P. C. Gregory	U of BC, CANADA	6 and 20	6
AH-46	Wolf-Rayet stars.	P	D. E. Hogg	NRAO/CV	1.3, 6 and 20	12
AJ-55	Far infrared sources containing newly formed B stars.	V	D. T. Jaffe	CFA	1.3, 2 and 6	8
		V	J. M. Moran	CFA		
		V	R. Genzel	CFA		
AJ-60	Variations in SS433.	V	K. J. Johnston	NRL	1.3, 2, 6 and 20	2
		P	R. M. Hjellming	NRAO/VLA		
AP-34	Compact extragalactic objects.	R	R. A. Perley	NRAO/VLA	6 and 20	4
		V	A. C. S. Readhead	Caltech		
		V	T. J. Pearson	Caltech		
AS-63	Supernova in M100.	R	R. A. Sramek	NRAO/VLA	1.3, 2, 6 and 21	5
		V	K. W. Weiler	NSF		
		V	J. M. van der Hulst	U of MN		
AS-68	Mapping OH and H <sub>2</sub> O maser emission associated with late type stars.	V	P. F. Bowers	NRL	1.3 and 18 cm line	24
		V	J. H. Spencer	NRL		
		V	K. J. Johnston	NRL		
AW-44	KR Aurigae, a possible black hole.	P	C. M. Wade	NRAO/VLA	1.3, 2, 6 and 20	16

The average downtime for the month of January, 1981 was approximately 3.6 percent.

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

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 43.0 percent (320 hours) of the time: 27.8 percent (206.5 hours) to astronomical programs and the remaining 15.4 percent (113.5 hours) went to tests.