NRAO NEWSLETTER

1987 January 1 No. 30

In General

1987 BUDGET

The Observatory's budget for operations in 1987 is 16.830 M$, no change from 1986 after allowing for a small allocation for beginning operations of the Pie Town VLBA antenna. The consequences for NRAO users are a continuation of the economy measures put in place in 1986, delays in the availability of new and improved observing systems, and further erosion of the level of support for the telescopes and user services.

It will be essentially impossible to begin any new instrumentation projects and very difficult to maintain existing projects at their present level. Users should expect some delay in all top-priority projects, including the spectral processor for Green Bank, 327 MHz capability and K-band upgrade for the VLA, and telescope control and multi-feed receiver system for the 12-m telescope. Funds have been set aside to make the minimum repairs necessary to the VLA track so antennas can be moved into the A configuration scheduled for 1987. But in other areas maintenance must be cut. For example, K-band receivers that fail will be left unrepaired until they are eventually replaced by the new K-band receivers. Every area of the Observatory will have similar problems. Your patience and understanding will be appreciated.

P. A. Vanden Bout

SUPPORT FOR RESEARCH GROUPS

In the past half-dozen years or so the NRAO facilities, and in particular the VLA, have experienced a rather large influx of non-traditional radio astronomer users. This reflects the great versatility of the NRAO instruments as well as an increasing multi-wavelength, problem-orientation approach to modern astrophysics.

However, the NRAO is keenly aware that many university departments of physics and astronomy do not have faculty or staff with background and/or training in radio astronomy. Both for these staffs and their students the research potential of new, internationally accessible, radio facilities such as the VLA, Nobeyama 45 m, IRAM 30 m, and the future SEST 15 m and the VLBA is severely limited.

The NRAO would like to assist research groups in any way possible to familiarize them with existing facilities, to broaden their research horizons, and provide basic fluency in radio techniques.

In the past, two week-long courses on the use of the VLA have been extremely popular and have resulted in fundamental reference volumes for all VLA users, present and future. Beyond this sort of activity, however, there is a perceived need in the user community for additional modes of user assistance and training.

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As funding allows, the NRAO will be openly responsive to suggestions and requests for assistance. Potential interactions might involve:

- Site visits by groups of inexperienced users (or potential users).
- Colloquia, seminars, short-course visits by staff.
- Extended stays at the NRAO by graduate students involved in the reduction and analysis of radio data.
- Loan of equipment.
- Access to technical information.

If this type of interaction would be useful for you or your department or institution, please contact the Director's Office.

R. J. Havlen

VLBA

PROGRESS ON THE VLBA

The 1987 budget for VLBA construction is 11.4 M$, which allows the construction of two antennas (No. 5 and No. 6). Assuming modest budget increases are provided in 1988, and successive years, the last year of construction will be 1991. The antenna contract is being renegotiated for the construction of two rather than three antennas per year.

Site preparation activities are now switching from Pie Town (complete) to the Kitt Peak and Los Alamos sites. At both sites the antenna foundations are finished and utilities are in. Both control buildings and other site preparation work should be complete by the end of January, 1987. Installation of the surface panels on the Pie Town antenna has begun. The major remaining tasks are the alignment of the elevation gears and the setting of the precision surface panels.

The North Liberty (Iowa) site has been acquired and preliminary on-site work has begun. Budget restrictions, however, may make it necessary to defer construction of the control building. A contract for site preparation at Fort Davis is anticipated to be signed before March. Formal acquisition of an Owens Valley site is expected early in 1987.

At Pie Town, all feeds have been successfully tested except the L-band feed, which is in the final stages of fabrication. The first feed cone has been outfitted with feeds, receivers, and cabling in preparation for installation. The subreflector and its focusing and rotation mount will be ready by March. Before installation the subreflector surface will be checked by an independent group. An 18-week schedule for "outfitting" the completed antenna for operation has been developed.

Laboratory testing at the VLA of the Pie Town electronics equipment, including the station computer and the data acquisition rack, will continue until the February 1987 installation at the antenna. Electronics for the Kitt Peak antenna will be ready for shipment to the VLA and system tests by the end of April 1987. Contract work on the hydrogen masers at Sigma Tau Standards Corporation is on schedule.

Note this correction to the October 1 Newsletter statement concerning the delay in acquiring the first prototype electronics rack of the Data Acquisition System: The delay is partly due to considerations of how best to meet the VLBA specification for continuous recording time.

P. Sebring

12-Meter

PROPOSAL HANDLING AT THE 12 M

The new trimester proposal schedule, advertised in the last two Newsletters, has taken effect at the 12 m. Under this system, very high frequency proposals will be handled somewhat differently than lower frequency proposals. Since observing time is available for frequencies below 270 GHz in each of the trimesters, proposals for frequencies in this range will automatically compete for observing time for two consecutive trimesters. Proposals for frequencies above 270 GHz can be scheduled only during the winter trimester. Since these high frequency proposals would be well over a year old on their second consideration for time, they will receive consideration for scheduling only once. The contact authors will be notified of the disposition of their proposals each time a selection of proposals is made. As always, observers are free to resubmit any proposal that did not receive time, after either its first or second consideration. As a final reminder, the new proposal schedule is given below:

Period	Observing Season	Proposal Deadline
I	Mid-September to 31 December	1 July
II	1 January to 31 March	1 October
III	1 April to mid-July	1 January

P. R. Jewell

NEW DATA FORMAT FOR THE 12 M TELESCOPE

The VAX data analysis programs LINE and CONDAR were heavily modified during the 1986 summer shutdown. The most significant change was the reconfiguration of data files in support of the General Single Dish Data Format developed by IRAM, Mullard Observatory (Cambridge), Steward Observatory (University of Arizona), and NRAO. This format was developed to facilitate the interchange of data between different observatories and data reduction programs. TCUS (Telescope Control User Standards) Memo 23, by R. L. Brown and E. B. Stobie, describes this format in detail. Most of the changes are hidden from the observer except for the access of header variables. All header parameters are stored as either REAL*8 or CHARACTER*8, and must now be accessed by command verbs rather than directly through the TWH array. A description of these commands is contained in the memo "Access of Header Parameters at the 12-Meter Telescope" by M. A. Gordon and E. B. Stobie.

In addition to updating the analysis programs to the new format, the file names and directories have changed. Every observer is now given his own VAX subdirectory. His data files and LINE and CONDAR memory files are kept in this subdirectory, and the extension letters of the file names are the observer's initials. There are no more community data files to be shared by observers. Each raw data file has space for 2,048 spectral line scans (each filterbank is a scan) and can easily expand to include 4,096 scans. The spectral line individual record file holds 12,600 records. Each observer must monitor his own individual records file so that it does not fill up and begin writing over itself. The spectral line calibration scans ("GAINS" and "ZEROS") are now stored in a file for reference by the LINE program. The observer's KEEP and EDIT files have been merged with space for 100 SAVE areas. All of the observer's data files are archived on tape at the end of his observing run and stored in Tucson for one year. FITS tapes are written as requested by the observer from these archive tapes for data exportation. TCUS Memo 24, "Single Dish FITS Tape," by B. Stobie and L. Morgan describes the export tapes.

E. B. Stobie

SPECTRAL LINE BEAM-SWITCHING

A beam switching observing mode for spectral line observations is now available at the 12 m. The switching is done with the nutating subreflector, which can be set to switch at rates of 1.25, 2.5, or 5.0 Hz. The throw of the subreflector can be varied from 0 to 6 arcmin (in azimuth). The signal is not blanked during subreflector movement, so the data-taking efficiency is best for smaller throws and slower switch rates. The observing algorithm is very similar to that used for continuum ON/OFF's, i.e., the source is placed alternately in one beam position and then the other. The technique is thus a combination of beam-switching and position-switching and is referred to at the telescope as the "BS+PS" mode.

In several trial runs this past fall, the technique has given very flat spectral baselines. We recommend that observers of small angular diameter sources try this technique. It may have particular utility for observations of external galaxies and circumstellar envelopes.

P. R. Jewell

Green Bank

HOLOGRAPHIC MEASUREMENTS OF THE 140-FOOT TELESCOPE

The recently installed lateral focuser, as noted in the previous Newsletter, has substantially improved the high frequency performance of the telescope. In order to further improve the telescope, the problem of improperly set surface panels must be addressed. The last attempt at measuring the surface of the primary was by John Findlay in 1978, using mechanical means. We have recently turned to the holographic method of measuring the surface since it can be quicker and more accurate than mechanical methods, and can be performed at a zenith distance typical of astronomical observations.

The method used 12 GHz transponders on geostationary satellites for antenna illumination; both were at about 45 degrees elevation and within 15 degrees of the meridian. The satellites we used were Satcom K-2, operated by RCA, and SBS IV, owned by IBM and operated by MCI. We are indebted to these companies for their help in the experiment and for providing free of charge the strong, unmodulated signals necessary for its success. The prime focus receivers were assembled by H. Fulbright (Univ. of Rochester) and R. Norrod. The signal receiver points down at the dish and uses a feed horn designed by S. Srikanth, while the reference receiver points out the back of the receiver box directly toward the satellite and uses the standard Cassegrain feed horn. The baseband converters and digital correlator are the ones used for the Tucson experiment. B. Vance and R. Weimer oversaw the interfacing of the correlator with the telescope computers, and summer student N. Elias helped write the analysis software. H. Fulbright and E. Wollman (NRAO/Bates College) assisted with the observations.

Two successful maps of the surface were made, each taking eight hours to complete; each map has an rms noise level of 0.1 mm and a resolution of 0.4 m across the surface of the telescope (see figure). Although our experiment was run during less than ideal weather conditions (rain and heavy overcast), the two maps agree with each other to an rms difference per resolution element of 0.5 mm. The large areas we found to be bad are very similar to those that Findlay also found. We are confident, therefore, that our maps represent the surface errors at the time of the experiment. Resetting the surface panels could produce at least a 0.2 mm decrease in the rms surface errors of the telescope, resulting in a 50% increase in the 1.4 cm aperture efficiency. If these optimistic projections are realized, the observing time required for a given signal-to-noise ratio will be halved at that wavelength.

National Radio Astronomy Observatory
12-Meter Telescope/Arizona Operations
Observing Application
Cover Sheet

NRAO USE ONLY

Received:

SEND TO: Director, NRAO, Edgemont Road, Charlottesville, VA. 22903-2475
DEADLINES: 1st of Jan, July, Oct for the Spring, Fall, and Winter Periods, respectively.

1 Date:

2 Title of Proposal:

3 Authors	Institution	Who Will Observe?	Grad Student?	Observations for PhD Thesis?	Anticipated PhD Year

4 Contact Author for Scheduling

Name/Address

5 Telephones:

Office:

Home:

6 Scientific Category: ☐ atmospheric, ☐ planetary, ☐ solar, ☐ stellar, ☐ galactic, ☐ extragalactic

7 Mode: ☐ spectra, ☐ continuum, ☐ other (specify):

8 Receiver:

9 Ancillary Equipment:

10 Filters: ☐ Expander, ☐ 30-kHz, ☐ 100-kHz, ☐ 250-kHz, ☐ 500-kHz Units ☐☐ (1 2) 1-MHz Units ☐☐ (1 2) 2-MHz

11 Frequencies (include test lines):

12 Special Software? (describe on separate sheet)

13 Special Hardware? (describe on separate sheet)

14 Sessions/Days Requested:

15 LST Range:

16 Possible conflict with Sun? (time of year to avoid)

17 Abstract (do not write outside this space):

Please attach a summary (of less than 1000 words) which contains the following information:

1) Scientific justification; 2) Observing strategy; 3) **Source list with coordinates**

After your proposal is scheduled, the contents of this cover sheet become public information (supporting documents are for referees only).

For Internal Use Only:

Before adjusting panels, we plan to make more measurements at various hour angles so as to confirm our results and to measure the changing effects of gravity on the dish.

R. J. Maddalena

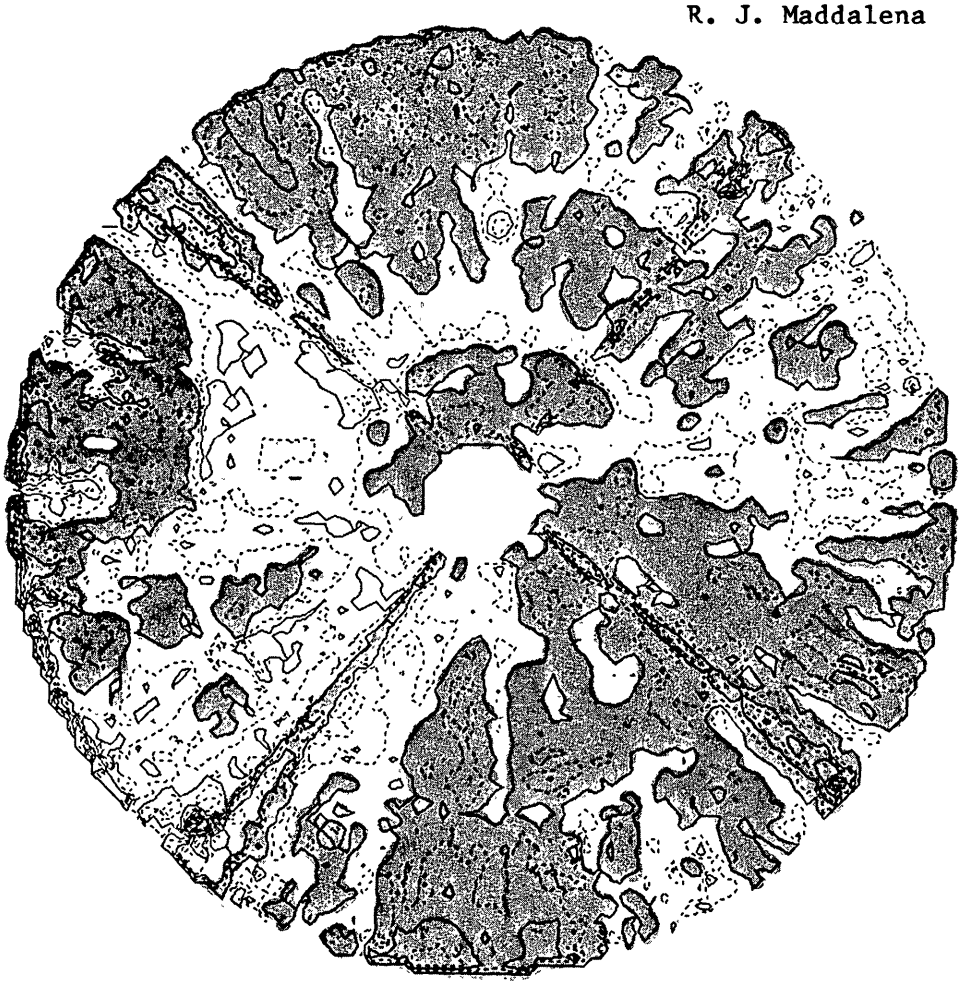


Figure Caption: Holographic measurements of the dish of the 140-foot telescope. Contour levels are 1 mm apart; every other level is dashed. The shaded regions indicate where the dish is below the average surface.

BEAM SPLITTER FOR 140-FOOT TELESCOPE

The Cassegrain dual receiver-beam splitting system has been tested at 8.0 GHz. Both the aperture efficiency and system noise temperature are as good as with direct feed illumination of the subreflector. Performance at K-band will be monitored this winter to determine temperature effects and alignment stability. Work remains to be done on the polarimeter and on the air handler for defrosting the "radome" over the splitter, but the system should be available for further measurements and some observing in late December.

The alignment of the two tertiary reflectors apparently changes with telescope position, producing a differential pointing offset between the two receivers. Right ascension and declination are each affected, and their ratio varies with telescope pointing direction. The total differential increases with zenith distance to about 20 arcseconds at 60 degrees zenith distance. This translates to a signal loss of about 1 dB at 22 GHz in one receiver if the opposing receiver is exactly pointed. The differential is 35 arcseconds at a zenith distance of 75 degrees. Work is proceeding to improve these differentials by at least a factor of four.

C. Brockway and R. Maddalena

LATERAL FOCUS AT 300-FOOT TELESCOPE

The lateral focus mechanism at the 300-foot has now been used successfully under computer control as part of an observing program. It is now available for use with a few caveats having to do with tracking and with pointing. The receiver box still occasionally runs into limit switches. When the receiver is kept near zero hour angle, the problem is seldom encountered, but beware when tracking in hour angle. At the moment structural members in the front-end cabin will not allow the receiver to be at the optimum north-south focus at the end of the east-west tracking limits.

Secondly, moving the feed north and south has a very large effect on the pointing. We have recently re-analyzed the way pointing corrections are implemented. Soon, this large pointing correction will be made automatically when you are using the lateral focus. Now, however, you must make changes to the pointing coefficients if you want to use the lateral focus. I can show you how to make these changes.

H. Payne

7-FEED, 5-GHz RECEIVER

Observations have just been completed for a 6-cm survey with the new 7-feed receiver on the 300-foot telescope. This program was the first to use the lateral focus mechanism on the telescope and the first to use the analog/digital converters that came with the new control system. This program posed the severest test to date of the new control system, since it produced data at a rate of about 25% the typical VLA continuum data rate. At this unprecedented (for Green Bank) data acquisition rate, the recently installed Masscomp computer was taxed to its limits. As a result, it was susceptible to crashes whenever additional demands were placed upon it.

The receiver itself proved to be quite stable, allowing total power observing. Post-detection beam switching really works--you can subtract the signals from six different feeds from the designated signal feed at the data reduction stage and achieve near-theoretical performance even under overcast or light rain conditions.

H. Payne and J. Condon

2-5 GHz RECEIVER RECENT UPGRADE

HEMT amplifiers with noise temperatures in the range of 8-13 K have recently been installed in the 4.5-5.0 GHz section of this receiver. The new HEMTs replace FET amplifiers which had noise temperatures of 14-20 K across the band. With the HEMT amplifiers in place, receiver noise temperature measured at the dewar waveguide flange is 11-16 K. Estimation of the system temperature on the 140-foot is 20-29 K across the band. A more detailed performance report for this receiver will be published in a future issue of the Newsletter.

R. F. Bradley

USER TAPES, GREEN BANK ANALYSIS SYSTEM

Routines have been added to the Green Bank analysis systems on the Modcomp computers to allow an observer to make user (KEEP) tapes from the data stored on the analysis disk. Line and/or continuum data can be copied to a labeled user tape with the catalogued procedures, LDUMP and CDUMP, respectively. Only one user per tape is allowed, but more than one dump is permissible. The scan range can also be set for the copy by the procedure. The standard verb, KEEP, and the routine to write the KEEP tape from the KEEP file still exist for reduced scans as before.

B. Vance

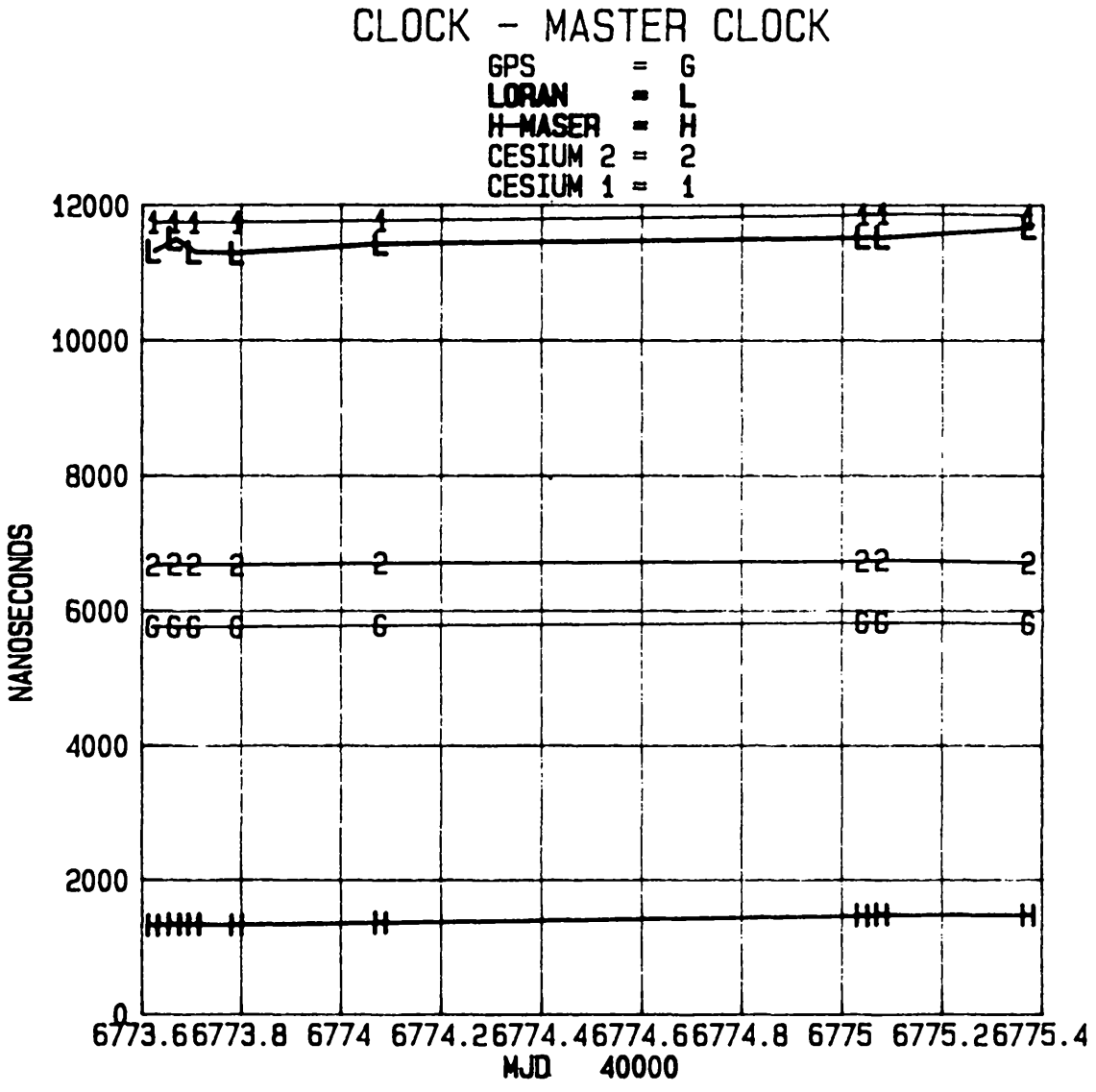
PRECISE TIME STATION AT GREEN BANK

The capabilities of a Precise Time Station (PTS) are currently being developed at Green Bank. The components of the PTS are: (1) a hydrogen maser located at the 140-foot telescope, (2) two cesium clocks located at the interferometer, (3) an Austron Loran C receiver (interferometer), and a Datum Global Positioning Satellite (GPS) receiver (interferometer). These are linked together and to the U.S. Naval Observatory Master Clock through an HP9915 computer, a VHF switch, and a modem.

The PTS can provide standard frequencies and time precision at the 10-100 nanosecond level. In addition, data obtained with the Green Bank and USNO GPS measurements can be combined in less than 12 hours to provide UTC at 10-100 nsec accuracies.

The accompanying plot made on MJD 46775 demonstrates: (1) the timeliness with which this information can be provided, (2) the stability of the clocks in Green Bank relative to the USNO Master Clock, and (3) the number of times each day that the Green Bank and USNO clocks are intercompared.

M. Schenewerk



WORKSHOPS AT NRAO-GREEN BANK

Two workshops were held in Green Bank during the last third of 1986. Bill Irvine and Pete Schloerb, U. Mass, organized a workshop on Cometary Radio Astronomy held on September 24-26. Thirty-one participants, representing 15 radio observatories in eight countries, attended the first conference dedicated to this specific topic. The inspiration behind the workshop was, of course, the return of Comet Halley. So many observations of it had been made that this gathering of the "black-belt" comet observers provided an ideal opportunity for the synthesis of both data and interpretation. The result should be a more coherent explanation of cometary behavior than would have resulted if every investigator had independently interpreted only his or her subset of the total data base. The workshop proceedings are in preparation. This workshop had a strong thread of continuity: guests attending with participants included Ray Newburn's father, who welcomed Comet Halley in both 1910 and 1986, and Imke de Pater's son, who should be well prepared to observe the 2061 reappearance.

A workshop on Radio Astronomy from Space was organized by Brian Dennison and Kurt Weiler, NRL, and Jack Burns, UNM. This workshop was attended by 69 participants during September 30-October 2. As is appropriate for such a topic, the international community was again well represented. Guests of honor included Jansky Lecturer, R. Hanbury-Brown and his wife. A proceedings is in preparation. Among meeting activities one action item stood out--the issuance of a telegram by the Conference Summary Committee and the Conference Organizing Committee to Dr. R. Z. Sagdeev and to Dr. W. R. Graham:

> "At the conclusion of an international scientific meeting on Radio Astronomy from Space held at Green Bank, West Virginia from 30 September to 2 October 1986, the members of the conference unanimously supported a resolution calling for U.S.-U.S.S.R cooperation in Space Very Long Baseline Interferometry. In particular, the proposed missions QUASAT and RADIOASTRON would both be greatly enhanced in scientific value if they were to be developed, launched, and operated cooperatively..."

Those wishing to organize workshops in 1987 should contact George Seielstad.

G. A. Seielstad

GREEN BANK TOUR PROGRAM

The 1986 tour program at Green Bank was one of the best ever. A total of 16,600 people enjoyed touring the Observatory this year. This number of visitors came from the regular summer tour program and special tour groups throughout the year. Some examples of the special tour groups were: senior citizens; West Virginia Governor's Honor Academy; middle school groups from private and public schools; National Youth Science Camp; scientific research societies, physics students from many colleges, several gifted student summer workshop groups; science teacher groups; Magnet School for the Gifted; several children's homes; and many more.

A new multi-image slide presentation has been completed this year and added to the tour program.

R. Flemimg

VLA

VLA CONFIGURATION SCHEDULE

I. 1987/88

Quarter	Configuration	Antennas Available			Proposal Deadline
		327 MHz	8.4 GHz	23 GHz*	
1987 Q2	D, D→A, A	19	10	6	December 15, 1986
1987 Q3	A	21	13	9	March 15, 1987
1987 Q4	A/B, B	22	15	12	June 15, 1987
1988 Q1	B, B/C	25	21	15	September 15, 1987

Maximum antenna separation for the four VLA configurations are: A-36 km, B-11 km, C-3 km, D-1 km. Further information is summarized in the "VLA Observational Status Report," which can be obtained from Alison Patrick, National Radio Astronomy Observatory, P. O. Box O, Socorro, New Mexico 87801, telephone: (505) 772-4240.

*All 27 antennas are equipped with 23 GHz receivers. The number given is the number of antennas with new receivers, approximately three times more sensitive than current ones.

II. APPROXIMATE LONG-TERM SCHEDULE

	Q1	Q2	Q3	Q4
1987	C	D	A	B
1988	B	C	D#	A
1989	A+	B	C*	D
1990	D	A	B	C

All antennas equipped for 327 MHz operation.
+ All antennas equipped for 8.4 GHz operation.
* Voyager-Neptune encounter.

R. Ekers

X-BAND

There are currently six VLA antennas outfitted with 8.4 GHz (X-band) receivers. Two more will be added by the end of January 1987. The proposed schedule has 27 antennas with operational 8.4 GHz receivers by early 1989. 8.4 GHz is now one of the standard VLA frequencies, and NRAO will now accept proposals to use this frequency.

R. C. Bignell

75 MHz ARRAY DEVELOPMENT

Three antennas now have 75 MHz cross dipole feeds and receivers. This system is undergoing test and evaluation. The feed mounted at the prime focus of the 25 meter dish provides an aperture efficiency of about 20%. Locally generated RFI caused by the coherent local oscillator system and the incoherent digital control and monitor system (DCS) became a significant problem. To minimize interference due to the coherent local oscillator system, RFI enclosures have been put on the vertex room mounted B-racks for two antennas, and RFI enclosures for the two B-racks on two more antennas are planned. Installation of the RFI enclosures along with filtering of DCS lines reduces the effect of locally generated RFI to a reasonable level where continuous testing can proceed. We plan to put the cross dipole feed on one more antenna, for a total of four antennas. Further work on reducing RFI and evaluating the feed and its effect on the performance of the 25 meter antennas at the other bands will continue.

D. Bagri

SUPERCOMPUTER WORKSHOPS

There will be twin workshops on supercomputing on January 20 and 21, 1987, in Socorro and the VLA site. They will be sponsored by the NRAO and held in cooperation with Cray Research and the National Science Foundation's Division of Astronomical Sciences and the Division of Advanced Scientific Computing. The workshops will address separate but related areas. Each will last one day. Attendance will be by invitation only.

The first workshop will be dedicated to attaching high performance output peripherals to supercomputers. We are interested in high performance imaging, for example, 4 k by 4 k images at subsecond display rates. We plan to have representation from all groups active in this area. Most groups will present a short paper describing their work. Cray personnel will give their views on this type of interfacing and describe their work on the BI and VME bus.

The second workshop will be dedicated to the support of the AIPS image processing and astronomical data reduction package on the various supercomputer facilities around the country. There are about eight centers (all Crays) that plan to support this package for routine use. Most centers are willing to provide some limited services to the community as a whole, and we plan to try to coordinate this. We expect to have a Cray representative at this workshop also, as Cray may help in this coordination.

B. Burns and G. Hunt

DEC 10 DISK SPACE

In an attempt to alleviate the disk space management problem on the DEC-10, an additional RP07 disk drive has been added to the system. The disk storage capacity for astronomical data bases has thereby been approximately doubled.

G. Hunt

RECENT VLA MEMORANDA

Recent additions to the growing library of numbered VLA Memoranda include the following: Technical Report No. 62: The Command Simulator Module Type M5 (D. Weber) September 1986.

Two more technical reports are currently underway and should become available within the next month or two. They are: Technical Report No. 63: The Serial Line Controller (D. Weber) and Technical Report No. 64: Synthesizer Control Module Type L16 (P. Harden).

If you would like a copy of the listings of VLA Memoranda, or a copy of any of the ones previously issued, contact Alison Patrick at the National Radio Astronomy Observatory, P. O. Box O, Socorro, New Mexico 87801, telephone: (505) 772-4240.

A. Patrick

CHOLLA

The Convex C1 computer (to be known as "Cholla") at the VLA is now installed and operational. To do this it was necessary to move the two VAXs and to reconfigure the AIPS cage (hereafter to be known as the "Concave"). As what we hope is a temporary measure, the IIS image display was removed from VAX 3 to provide a display for the Convex. In the interim VAX 3 will operate as an AIPS batch machine. All general purpose use of the VAX systems will be transferred from VAX 1 to VAX 3 to maximize the availability of VAX 1 resources for AIPS interactive use.

The Convex CPU includes a 128 word vector processor. Additional features are 64 Mbytes of main memory, 4 Gbytes of disk storage, 64 terminal lines, and 2 dual density (1600/6250 bpi) low speed (50 ips) tape drives. A QMS laser printer for this system has been ordered. It will initially have one image display device (above). The operating system is Unix; the text editors available include Emacs and Edt; both C and vectorizing Fortran compilers are fully supported.

Although the Convex has an Ethernet controller, it cannot be connected directly to the local area net at the VLA because it uses a different protocol (TCP/IP) from the VAX computers. Initially it will not be connected to the other NRAO computers.

G. Hunt

NRAO BUILDING IN SOCORRO

Design of the NRAO building in Socorro is continuing with meetings between New Mexico Tech, NRAO, and the architectural firm of Stevens, Mallory, Pearl, and Campbell, P.A. of Albuquerque. The conceptual design for the entire 55,000 square foot building is complete, and at this time we are about half way through with the detailing of Phase I of the building. This part of the building will have a 33,000 square foot floor area, and will be constructed using the 3 M$ made available by the State of New Mexico. If we stick to a rather rigorous schedule, New Mexico Tech should be ready to go out for construction bids by mid-March 1987.

R. Sramek

PIPELINE AT THE VLA

The Pipeline (SORTER and GRIDER) system for uvfits, mapping and cleaning has been running reliably in the last few months. The only serious recent hardware fault occurred in late November 1986, and was repaired within a few days. The usage for large spectral line projects has increased as the VLA has been in the C configuration. For the D array in early 1987, we anticipate an even heavier loading of the Pipeline. The OUTBAX Pipeline display system (PDSYS) works well for looking at the data (both maps and baseline-time) The Image Storage Unit (ISU) described in the 1986 July 1 Newsletter by A. Rots is very useful for looking at large data cubes. The movie mode can be easily used. To avoid conflicts in using the Pipeline during busy periods, we now informally schedule one major user (mapping or cleaning) at a time. Consult with M. Goss or R. Payne.

M. Goss

EDITOR NRAO NEWSLETTER
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