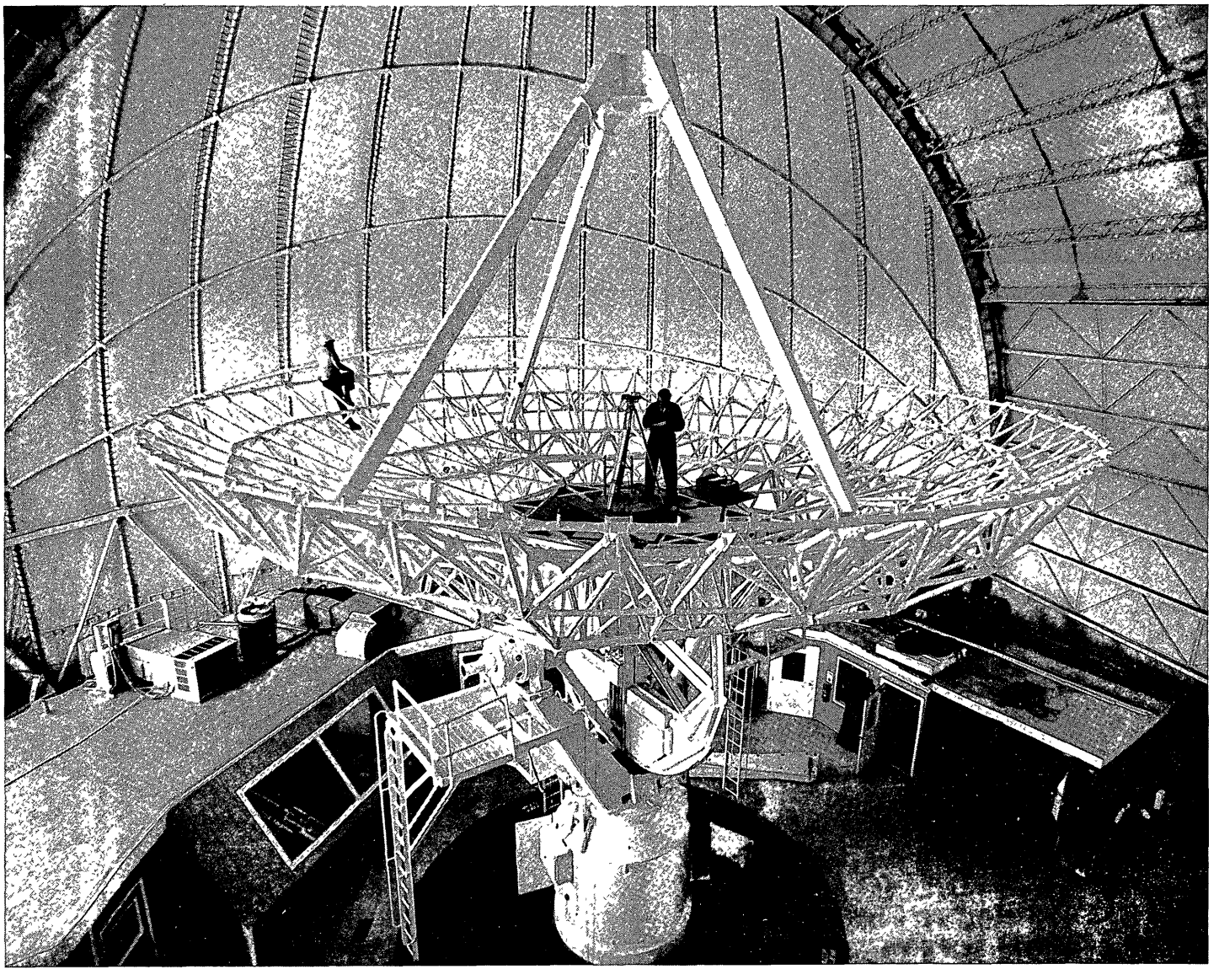
NRAO NEWSLETTER

1982 October 1 No. 8

12-Meter

12-METER TELESCOPE STATUS

The picture below shows the status as of September 16, 1982. The back-structure and quadrupod are in place. John Findlay and Sidney Smith are setting the edge-supports for the surface template. Note the new windows (lower left) for the control room, which had to be cut away to give clearance for the larger-diameter telescope.



Mark Gordon

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NEW NRAO HEADQUARTERS IN TUCSON

In January 1984, NRAO's Arizona Operations will move to a new location. The University of Arizona is adding an extra floor to a new astronomy building just for us. The new building will be an addition to the Steward Observatory, located across a street from the headquarters of Kitt Peak National Observatory. This new location should promote better interaction between NRAO and the other Tucson astronomy groups.

Mark Gordon

VLA

INSTALLATION OF COOLED FET AMPLIFIERS FOR THE 18-21 cm AND 2 cm BANDS ON THE VLA

In the 18-21 cm band the FET amplifiers will replace the present upconverters and will result in a small decrease in noise temperature from approximately 60 K to 50 K. They will also eliminate the spurious response by which an interferring signal at frequency 3200 MHz-f appears as if received at frequency f. In the 2 cm band the FET amplifiers will be placed ahead of the present mixers and will reduce the system temperature from approximately 300 K to 125-150 K.

Amplifiers have now been installed on two antennas, and installation is proceeding at an average rate of three antennas per month. Current plans call for completion of 10 antennas by October 31; 15 by December 31; 23 by March 31, 1983; and all 28 by May 30.

Dick Thompson

USE OF REMOVABLE DISK PACKS ON THE VAXES

Removable disk packs may now be used on the CENTURY drives on the two VLA VAXes, VAX #1 and VAX #3. The use of such disks is encouraged only for users requiring a large amount of disk space (i.e., comparable to the size of a disk: 450,000 blocks). One drive on each machine will be dedicated to this use and will, by default, hold a scratch disk which may be used temporarily by any user. However, any files stored on that disk will become unavailable when the disk is removed and no priority will be given to requests to remount the disk. Any user with his or her own disk-can should reserve the use of the designated drive by indicating on the signup sheet that a private disk will be used. Required use of the scratch disk should also be indicated on the signup sheet. Changing a disk will require that both AIPS users stop work temporarily. After completion of an AIPS session using a private disk, it is the responsibility of the owner of the disk to dismount it and remount the system disk.

Disks may be changed only by someone who has demonstrated his competence to do so to Ina Cole or Fred Dunn. Only then will the necessary instructions be revealed. New disks may be allocated temporarily to visitors by Ina, in which case the disk will be initialized and labelled by her with the user's name. As soon as a visitor leaves the VLA his or her disk will be considered free for use by someone else. Certain in-house AIPS users will have allocated disk packs semi-permanently.

Requests for private disks should be directed to Ina Cole. Users should bear in mind that for most continuum projects use of a private disk is probably unnecessary and will probably result in wasted effort.

Tim Cornwell

VLA MAGNETIC TAPE USAGE

Magnetic tape usage at the VLA is rapidly becoming alarmingly high. When B and D IF's and spectral line observing are fully implemented, we project that our purchases of new tapes will cost over $75,000 annually and that tape storage space requirements will greatly exceed what is presently available.

We have therefore found it necessary to change the methods of assigning magnetic tapes to users for performing backups of their databases. Let me emphasize that the following applies only to database backup tapes (V-series tapes). On-line (ModComp) tapes and all source code tapes will continue to be retained indefinitely.

Effective immediately, all tapes assigned to users will be automatically recycled on their due date unless written justification for their retention in our tape library is received before the due date. VLA observers with tapes assigned for their use will have to take action or else their assigned tape will be put back into the pool of "free" tapes. Previously, tapes were automatically renewed unless action was taken by the user; this did not result in a sufficient quantity of returned tapes.

The new system obviously has dangers for "precious" data; therefore users have the option of requesting renewal of the tape assigned to them (by sending written justification). Also, we have added another option for users who want to keep their tapes beyond the due date: users may request the physical tape. Only the tape number will be recycled. The tape will then be sent to the user along with a bill for the cost of the tape plus mailing charges. The user then has the responsibility for keeping the tape--it becomes his property.

To make the bookkeeping easier for users as well as for us, all tapes will have due dates of January 1. Tapes assigned any time during 1982 will become due on January 1, 1984; tapes assigned during 1983 will become due on January 1, 1985, etc. All tapes assigned before December 31, 1981, will become due on January 1, 1983. Users will be sent notices of due tapes in July preceding the due date and, if no reply is received, in September. If necessary, a final notice will be sent in December. If no reply is received by December 31, the tape will be recycled. Users will thus receive at least one list every year of all their assigned tapes. The list will include "not due" tapes as well as "due" tapes and will have identifying captions.

All users with assigned tapes will receive a list of tapes assigned to them (included with this letter). Please note the tapes which will be due on January 1, 1983, and reply to us before December 31, 1982 or these tapes will be recycled.

Users are strongly encouraged to return tapes to the VLA tape system voluntarily. This includes both numbered tapes and unnumbered tapes used to transport data or maps away from the VLA site. If an insufficient number of tapes is returned, we may be forced to institute a charge for data tapes removed from the VLA. Any user with numbered V-series tapes in his/her possession must also return these tapes; numbered tapes are not to be removed from the VLA site.

D. S. Retallack

K and U BAND DEVELOPMENTS

Since July 21 of this year, on-line system temperature corrections have been applied to K and U band amplitudes. Previously, such corrections had not been made, requiring use of the off-line program GTTSYS. Data recorded prior to July 21 still require use of GTTSYS.

Prospective K band observers should note that it is now possible to correct amplitudes for atmospheric attenuation. Procedures and software for doing this are described in the VLA Scientific Memorandum entitled "Corrections of VLA K Band Amplitudes for Atmospheric Attenuation", by the author. Copies of this memorandum may be obtained at the VLA site or by writing Carl Bignell.

Steve Spangler

VLA "REMOTE" OBSERVING PROGRAM

The VLA remote observing program began last year as an experimental attempt at providing a service to VLA observers to carry out their observations and reduce their data. The program is fairly successful, with about 20 percent of the VLA data typically processed remotely (one or more of: observing file preparation, editing and calibration of data, preparation of export tapes, etc.). Since some evolution has occurred within the program over the last year, we restate the services offered and the procedure for making use of them.

Services:

(1) "Absentee" observing:

a. The observing file can be prepared for standard VLA observing programs. The observer is required to specify the detailed sources, sequences and observing options at least two weeks in advance. The observing files for any very complicated or spectral line programs generally must be completed by the observer himself.

b. Observers may be absent during the observations. For standard VLA continuum or spectral-line programs and all standard Mark II VLBI programs which need very little operator interaction, the observer is generally not required to be present at the VLA site. However, for all Mark III VLBI programs or for observing programs which require more or less continuous attention of the operator beyond his normal duties, an on-site observer is required and the observer will have to carry out most of the extra tasks related to his programs. The VLA will supply help to relieve the observer in long (> 18 hours continuous) programs of this type; however the observer MUST request this service WELL (> 2 weeks) in advance of the observing run.

(2) Editing and calibration of VLA data and related tasks.

a. Any standard VLA continuum observing program can be edited and calibrated. Complicated calibration of continuum data or calibration of spectral line data may be possible but must be checked out well in advance.

b. Export tapes, backup tapes and copies of archive tapes can be prepared.

c. In general maps will not be produced. In occasional cases an exception may be made but the possibility must be checked out well in advance.

(3) On-site help.

The data analysts (DA) who normally carry out the above tasks will be available to observers on-site for direct assistance in matters related to the Remote Observing program, observing or data reduction. Since the DA works a shift schedule, one should check with R. Hill or on-duty operator about the schedule of the DA.

How to make use of the services:

(1) Check the appropriate box on the observing cover sheet that is sent to you.

(2) Contact either R. Perley or R. Hill and pass on the details well in advance (> 2 weeks). The advance notice is requested to enable us to schedule all the requests efficiently (only one person is dedicated to these duties).

(3) For VLBI observations contact P. Crane at least two weeks before the start of the VLBI Network session. Complicated observing files must be prepared by the observer.

(4) It is inappropriate to contact the telescope operator directly concerning matters of remote observing unless the observing program is current or immediately pending or unless R. Hill, R. Perley or P. Crane are unavailable.

A reminder: The dial-up telephone number for the DEC10 is 505-772-4346. Technical information: 1200 baud, 8 bits, no parity and Racal-Vadic compatible modem.

Carl Bignell

VLA REMOTE OBSERVING FOR FALL OF 1982

The turn-around of data to be edited and calibrated by the Remote Observing program may slow down over the next few months. With the departure of Peggy Perley to take up motherhood duties, we will be short-handed for some months. During this period we will give priority to OBSERV file preparation plus absentee observing, and we will carry out all requests for data reduction that we can. We anticipate being able to carry out all request as we have in the past, with the worst impact on the program being a delay in data processing. (We will of course attempt to avoid any delays.)

Carl Bignell

Green Bank

INTERFEROMETER BASELINE ADDITION

The addition of a second long baseline to the Green Bank interferometer is continuing on schedule, except for a considerable delay in delivery of the azimuth bearing for the 14.2 meter antenna. Since the bulk of the antenna-dependent work at Green Bank does not begin until the spring of 1983, the bearing delay has not yet affected the project completion date. Site preparation, including the concrete antenna pedestal at Monterville, is essentially complete, the electronics in the front end to be moved to the new antenna have been modified, and the new Green Bank relay reflector site has been prepared for installation of the reflector in a few weeks.

R. Fisher

6 GHz RFI

Spectral line observers should be aware of RFI near 6035 MHz. On several occasions this year spectral line features with widths up to 500 kHz have appeared for durations of minutes to an hour or so. On one occasion the system temperature also increased nearly 50%, which suggests a weak narrow spectral emission on top of a very broad and strong spectral emission. The source is not known, but could be either (or both) telephone microwave link(s) or reflected satellite up-links. A 6034.2 MHz carrier, 30 MHz bandwidth telephone link is located about 65 miles from Green Bank. Occasional tropospheric ducting could cause high signal levels at the 140-foot. The 5925 to 7030 MHz range contains many microwave systems within 80 miles of Green Bank. The COMSAT station at Etam, WV, transmits to fixed-satellites in the 5925-6425 MHz band. Aircraft near the transmitter beams could reflect signals into the 140-foot.

William D. Brundage

300-FOOT TELESCOPE TESTS

I recently assisted Rick Fisher in a fundamental test of the performance of the 300-foot. We looked for a north-south displacement of the focal point as the antenna is moved in declination by measuring the aperture efficiency versus declination with different north-south feed offsets. The observations were made at $\lambda 6$ cm. We found that the feed position corresponding to optimum efficiency moves north as the telescope is pointed south. Provisions for moving the receivers in the north-south direction could improve aperture efficiency by a factor of 1.3 to 2 in the -10° to 20° and 60° to 90° declination ranges. The peak efficiency at large zenith distances was still less than that near zenith due to astigmatism, which showed up in our measurements as a difference between the focal lengths giving the best east-west and north-south beam shapes. Some of this loss of efficiency could be recovered by using an astigmatic lens or feed. We are currently investigating ways of realizing these potential gains in aperture efficiency.

Harry Payne

GREEN BANK DATA COMMUNICATIONS

The NRAO Data Communications system has been set up between Green Bank and Charlottesville. The Remote Job Entry station (consisting of line printer, card reader and card punch), four Pandora terminals to the IBM 4341, and a VAX terminal are presently attached to this system.

The following changes were necessary to accommodate the equipment in the Jansky Lab:

(1) Room 233 now contains the Pandora and VAX terminals

(2) Room 234 now contains the RJE stations and the ModComp computer.

(3) Room 210 will be shared by the current observers of the 300 foot and 140 foot telescopes

(4) Room 232 will be used by visitors not scheduled on the telescopes requiring an office.

Bob Vance

In General

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Peggy Weems

MORRISON RECEIVES JANSKY AWARD

The NRAO is pleased to announce the award of the Seventeenth Karl G. Jansky Lectureship to Professor Philip Morrison of MIT. Distinguished as a theoretical physicist with outstanding contributions to the fields of nuclear physics and astrophysics, Professor Morrison is a widely known and respected scholar-philosopher and premier advocate for the public awareness of science. Professor Morrison will deliver the 1982 Jansky Lecture in Charlottesville on November 16, 1982. The lecture, entitled "The New Waves; 50 Years of Radio Astronomy", will be delivered at 8:30 P.M. in Gilmer Hall on the Grounds of the University of Virginia. Under the auspices of Associated Universities, Inc., the Jansky Lectureship annually recognizes outstanding achievement in astronomy or a related field.

R. J. Havlen

"FREEBIES"

A limited number of notes are still available from the following recent Green Bank workshops:

"The Phases of the Interstellar Medium", ed. J. Dickey, May 1981.

"Extragalactic Molecules", ed. L. Blitz and M. Kutner, November 1981.

Also available are several copies of the following data compilations that have not been published elsewhere:

Spectra of Galaxies in "Neutral Hydrogen Observations of a Large Sample of Galaxies" by J. R. Fisher and R. B. Tully (Ap. J. Suppl. 47, 139, 1981).

An Atlas of 21 cm HI Line Profiles of 61 Galaxies of Large Angular Size by A. H. Rots, 1979.

Requests for any of these documents will be filled on a first come-first served basis. Please contact the NRAO library in Green Bank.

R. J. Havlen

EDITOR NRAO NEWSLETTER
NATIONAL RADIO ASTRONOMY OBSERVATORY
EDGEMONT ROAD
CHARLOTTESVILLE, VA 22903-2475 USA

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