

AOC NEWS



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VLBA ARTICLE ALERT

The December 1999 issue of *Sky & Telescope* features the VLBA. It describes how radio interferometry is used to make images. It includes a sampling of science highlights and photos showing all VLBA sites, the Operations area and some science images. The article written by Jim Ulvestad and Miller Goss describes some interesting science results.

The AOC Library has a copy available for your in-house reading pleasure. The possibility of buying reprints for all NRAO-Socorro employees is being considered, although budget constraints may not allow this. It's hard to believe, but the cost of color reprints is twice the price of the magazine on the newsstand!

Jim Ulvestad

DATA ANALYSTS ON THE MOVE

It was a blue-bird morning on October 25th, when four members of the Data Analyst group drove out to the VLA site to observe two antennas being moved to their B configuration pads. The group consisted of Head Analyst Meri Stanley, past VLA Operator Ken Hartley, VSOP analyst Andy Hale, and Jason Wurnig. Calm winds, warm temperatures and high cirrus clouds topped off what was an inspiring tour as Gene Cole led the group down the north arm track to where two loaded transporters were marching along at three miles per hour.

Gene described some of the procedures for moving antennas including how long it typically took to pick up an antenna off of a pad and set it down again. He also discussed recent improvements to the tracks on each arm as antenna number three loomed overhead rolling towards the center of the array. Armed with hard hats and ear plugs, the thrilled visitors were allowed to hitch a ride on an antenna while it was being moved under the watchful eye of Ramon Molina. It was noticed that a small mouse scampering ahead of the transporter along one of the tracks was having a difficult



Meri Stanley and Ken Hartley

time out-pacing the antenna. The giant metallic elephant soon overtook the mouse which fled into nearby brush. As the antenna crossed U.S. 60, several amazed travelers pulled into the adjacent rest area and observed the several hundred ton Goliath pass in front of them.

When the transporter arrived at the designated pad, the analysts were off-loaded and given an opportunity to watch as the wheels of the transporter were turned ninety degrees. The antenna was moved and guided gently over onto its three concrete piers. Not only was the experience enjoyable, but everyone left with a better understanding of how the array functions.

Jason Wurnig

TEAMWORK

At the "All Employee meeting," we heard from Miller about the Electronics Division building new high frequency receivers. Certainly Everett Callan, Brent Willoughby, and Greg Chavez have been very busy assembling the receivers, the Machine Shop building the parts, and the CDL assembling the amplifiers; but here is the rest of the story.

Mark Krieger in the Data Acquisition Group fixed a spectrum analyzer for about \$3 and saved NRAO, \$5000 over the manufacturer's estimate to do the same job! The analyzer is used to fix the magnetic tape units that record and play back new receiver outputs.

Paul Harden during routine maintenance noticed that the error status indication had been inadvertently disabled on all the VLA L16

modules. The modules control synthesizers necessary for bringing the output of the new receivers down to a lower frequency that can be sent to the correlator. Paul is re-enabling the status indication and display.

"Beddie" Chavez wired up eight F14 assemblies used for controlling the new receivers. There are several thousand wraps per circuit card and Beddie's record is less than one error per board on average, a remarkable achievement.

Jolene Mares massaged AIPS to produce plots of RFI at eight of the VLBA sites for seven frequency bands. Reducing data from such an all-encompassing VLBA survey was a major undertaking for the Interference Protection Group. The plots are on the Web to help observers make the best use of new receivers.

Mack Stephenson corrected a problem with the VLBA subreflector rotational position accuracy through some cleverly written firmware for the motion controller. The subreflector positional accuracy must be better than 0.05 degrees for efficient use of the new receivers.

Ray Ferraro found and corrected a non-ASIC problem with the VLBA correlator hardware which is noteworthy because non-ASIC problems are so rare. In fact, this repair is only the second non-ASIC problem anyone can remember since the correlator was brought on-line seven years ago. The correlator is necessary to reduce the new receiver signals to useable data.

Tommy Montoya and Michael Zamora are learning to weld stainless steel tubing so they can replace and repair flexible lines used for bringing compressed helium to the new receiver dewars.

Mark Sullivan is preparing a 3-D model of a new "W" band receiver redesign to make sure everything will fit in the confined space available. The new design is intended to improve system temperature and reduce cyclical variations in the high frequency receiver bandpass.

Robert Hayward has completed an evaluation of all the new VLA Q band receivers and prepared a detailed report on the performance.

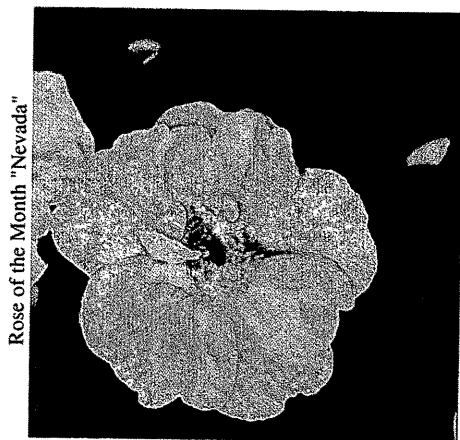
Bill Morris found a loose screw and fixed a low frequency receiver problem that had been plaguing VLBA Pie Town, for almost a year. The problem occurred only when the receiver was tuned upside down, as it is when mounted on the antenna. By fixing the problem with an existing receiver, he freed up others to continue new receiver construction, testing, and installation.

Successful implementation of the new receivers needs contributions from many areas, different divisions, and even other geographic locations. Yeah, team!

Clint Janes

LIFE IS ROSY

Mack Stephenson, of the Electronics Division, is a grower of champion roses! The "Nevada," grown by Mac has the distinct honor of being selected "Rose of the Month," by



the American Rose Society. The Society's web page is at <http://www.ars.org>. Click on "Rose of the Month," to discover more about Mac's world of roses. Our local Rosarian has been a member of the society for about 10 years. He has over 330 rose bushes growing in his New Mexico garden!

RACING THE CLOCK:

Jim Ulvestad completed the Vermont 50-Mile Trail Race in early October, finishing 24th out of 115 entrants, in a time of 8 hours, 35 minutes (and some odd seconds); the winning time was a bit longer than 7 hours. The race, held on the eastern side of the state just above the Connecticut River, was run concurrently with a mountain bike race that had more than 600 competitors. Fortunately, the mountain bikers started first, in several waves, so that they weren't riding over the top of the runners! The race followed a mix of dirt roads and gnarly single-track trails, with a few miles of pavement and lots of mud mixed in. Fall colors were at their peak in southern New England, and very dramatic when it was possible to take your eyes off the trail 6 feet (2 meters) in front of you.

Jim Ulvestad

AUI PRESIDENT TO VISIT

Riccardo Giacconi, President of Associated Universities Inc., and Paul Vanden Bout, are scheduled to visit, 13-15 December.

HOLIDAY PARTIES

Mark your DECEMBER calendar!

Adult's party on the 11th

Children's party on the 18th

Tickets for adult party are available with: Liz Cryer - AOC, Patty Lindsey or Jo Cason - VLA Site.

NEW FACES

Welcome aboard, Liz Cryer, Receptionist for NM/NRAO, and Jansky Postdocs, Tracy Clarke and David Thilker.

CONGRATULATIONS AND FAREWELL

Best wishes to Amy Mioduszewski and Ralph Marson. They were married on October 2, 1999 in Detroit, MI. They will temporarily relocate to Australia, in January 2000.

TRAVEL KNOW-HOWS

Q Do I need to purchase collision and liability insurance for my rental vehicle while on NRAO business? A Depends on where you are traveling. Travelers should decline all optional insurance coverage for collision and liability insurance for rented vehicles in the United States. This coverage is provided by AUI/NRAO. Such coverage should be accepted when renting

vehicles at foreign locations.

Q Can I get reimbursed for phone calls I make to my home while traveling? A Travelers are allowed one safe arrival call when they get to their destination.

Travelers on extended field duty (>20 consecutive days) may be reimbursed for personal phone calls up to \$25 per month. Bills from motels, telephone credit card charges, etc. must support such calls.

Specific travel reimbursement questions can be directed to Ginny Goret @ x-7448.

Don Welby

SHIPPING & RECEIVING TIDBITS

With the winter holidays approaching, employees may wonder if NRAO allows shipping or receiving of personal packages at the office. While it is not encouraged, employees may have special packages shipped here (such as a computer), but PLEASE inform our shipping and receiving staff IN ADVANCE. NRAO receives MANY packages every day so it helps our staff to know which ones are company related and which one are not! And sorry, but we don't ship out personal packages.

Skip Lagoyda

IN CASE YOU MISSED IT

The 1999 Jansky Lecture by Dr. Frank Drake drew an all-time record crowd of more than 500, including many out-of-towners, to Macey Center on October 30. Drake, President of the SETI Institute, gave a lively talk about the history and future of the search for extraterrestrial intelligence. His talk, and the NM Astronomy Symposium held at the AOC the same day, got news coverage on Channel 13 and in the Albuquerque Tribune. **The lecture was videotaped and is available for checkout, at the AOC Library.** If you missed the talk, you can hear the details of the SETI Institute's ongoing, high-tech effort to find signals sent by other civilizations and also why star travelers need "Immutabilium."

Dave Finley

