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VLA/VLBA NEWSLETTER

RADIO ASTRONOMY OBSERVATORY
CHARLOTTESVILLE
JAN 13 2000

From the World's Premier Centimeter Wave Radio Synthesis Telescopes

AROUND THE VLA

Miller Goss, Dick Sramek, Peter Napier, Clint Janes and Paul Vanden Bout visited the VLA with AUI president Riccardo Giacconi on Tuesday, December 14. Ellen Ary served posole, which everyone, including our guests, enjoyed very much.

On Thursday, December 16, Miller, Dick, Peter, Paul and Jim Ulvestad visited the VLA with Bob Dickman, NSF Coordinator for the Radio Facilities Unit, and Jim Breckinridge the new NSF AST Program Officer for NRAO.

Several volunteers from the Electronics Division are training to be VLBA Systems Techs. Systems Techs accompany the ES Division VLBA maintenance visits and substitute for VLBA Site Techs. The training is being conducted like a scavenger hunt. Each volunteer was given a three page list of training to accomplish on his own initiative.

The Antenna Mechanics have purchased 2 interactive Training CD's; "Bearings: Rolling Contact" and "Gears: Overhauls". These CD's will be used for training by the Antenna Mechanical Group and then will be available for general use at the CB Training Video Library. Check 'em out.

CB CHILLER

Control Building Chiller #2 is back on line. Chiller #2 has undergone a major overhaul which included a new compressor. Precision alignment was required between the compressor and motor. Chiller #1 had been the only chiller in the Control Building for about two years and now Chiller #2 is on line. Buen Jale, Shane Baca for getting this going for us, another single point failure eliminated. Chiller #1 will be our backup and will undergo a minor overhaul. These chillers are old and if replaced with newer, more efficient chillers they would pay for themselves in about 3.5 years.

L. Serna

VLA TREES AND SHRUBBERY

The trees and shrubbery at the VLA Site are not faring well. As reported in a previous newsletter, Karyn DeBont recommended that the first step in saving the trees is to pull back the plastic and putting in mulch.

Our trees and shrubs are being stressed by the plastic because it does not allow the root system to receive oxygen. Diseases and bugs are a secondary effect of stressed trees since they cannot combat them well when stressed. The mulch is essential to protect the roots while still providing aeration.

The roots are much more shallow than normal, they are immediately below the plastic, because they have been deprived of oxygen. They are more susceptible to freeze damage for this reason. If they are uncovered now and the night temperatures drop, they can freeze. If they are uncovered and they are exposed to the sun, they can also be damaged. So the rock must be removed by hand, (bobcat-type machines will do more harm than good), and the plastic removed, one tree at a time. The rock should be replace by a mulch of wood chips or bark because it moderates the temperature at the surface of the soil--gravel gets to be very hot when the sun shines on it, which could also damage the surface roots.

Modifications to the watering system were also recommended; adapters will be added to the bubbler head with tubes going out to the absorbing roots.

It will be labor-intensive and difficult work with no short-cuts, and there are no guarantees that it will solve all our problems. We may still lose some of the more stressed-out trees, but it will certainly help the others that are in better shape. We hope to keep as many trees and shrubs alive until this summer when we get help from the SYEP student program.

L. Serna

SITE TRAVEL GUIDELINES

In general, VLA standard working hours are from 0830 to 1630 in the winter months and 0630 to 1630 in the summer months. An employee who travels from home before the regular workday and returns to his/her home at the end of the workday is engaged in ordinary home-to-work travel, which is not work time. Employees are not paid for travel time or costs between home and work, except for emergency call-in. Travel to the AOC and back to the site for NRAO business may be done on work time. Likewise, AOC-based employees do not get paid for travel between home and the AOC, but can travel to the site on work time. Two exceptions are the bus driver and the array operator, both of whom are required to perform certain errands and to prepare their vehicles for travel.

The bus is provided as a convenience to the site-based employee. No one except the driver is required to use it and travel time on it is not paid. However, if the bus is late arriving at the VLA, the employee is not penalized. If the bus is late departing for the AOC, then that delay time is considered part of the employee's normal travel from work to home and is not paid.

The VLA work day for those working a day shift is usually defined by the arrival and departure of the bus. If an employee is late getting to work because of weather, and the bus arrived on schedule, the absence is excused but not paid.

If the employee misses the bus going home, even if the reason is work-related and even if the employee drives an NRAO vehicle home, the travel time home is not paid time. The NRAO vehicle is provided for the employee's convenience. If the employee does not want to drive an NRAO

vehicle to and from work on his/her own time, then s/he should drive his personal vehicle to and from work.

The AD may approve a delayed departure of the bus from the AOC or an early departure from the VLA because of road conditions. Under such conditions employees not riding the bus may change their travel schedule to arrive by the time the bus arrives or leave when the bus leaves without penalty. Employees on the bus or on the same schedule as the bus are paid as if the bus arrived or departed the site at its regularly scheduled time. Any deviation from a defined schedule (e.g., arriving early, leaving late, working extra time, etc...) should have prior approval from the Supervisor. In general, employees are expected to keep the same schedule as the bus, unless a requirement is made by their supervisor.

The travel policy for Emergency Operating Status is covered in more detail elsewhere, but the same basic policy applies: NRAO does not pay travel to and from work except for emergency call-outs, bus drivers, and array operators.

L. Serna

DISASTERS OF 1999

It was a Saturday night in December, the VLA humming along, when suddenly the operator, Larry Brothers, noticed alarm messages on the printer. The messages showed that the correlator was no longer producing data; the array was down.

Looking back, 1999 was the Year of the Disaster. There were power line breaks and outages, one leading to 20 hours of lost observing time. The water line under the CB broke filling the utility room with water, the HVAC shutdown, and the observing equipment had to be shutdown to avoid overheating. Now the correlator was "patas arriba," or at least we thought it was the correlator.

Ray Ferraro was working on his computer at home when the failure occurred, so his line was busy, but a knock on the door in the wee hours brought Ray quickly to the site. When Ken Sowinski and Roy Ralph arrived later on Sunday morning, they confirmed Ray's diagnosis that the Array Processor had failed, but alas, the spare card needed didn't exist. Three and one-half days later after much consternation, late hours, lengthy tests, and various repairs, Mike Revnell and Fred Dunn identified the last bad chip on the failed circuit card and replaced it. It was the longest downtime from hardware failure in the history of the array.

The bright side was the teamwork between the Correlator Group, the Computer Division, and VLA Operations to identify and fix the problem. Spares for the Array Processor will be checked out in January and we plan to have the existing Processor replaced in 2000.

C. Janes

BACKING-UP GUIDELINES

Five hundred deaths and 1,500 injuries are caused every year by poor backing techniques. There were three incidents involving backing at the VLA in 1999. Training, precaution and forethought will prevent accidents. Some helpful guidelines when backing are:

- Plan ahead-don't back up if you can avoid it
- Preventive maintenance check (check taillights, brakes, brake lights and back-up alarms)
- Adjust your mirrors before starting
- Know your blind spots
- Park defensively
- Use a spotter
- Do a walk-around if a spotter is unavailable
- Every situation is different - Be alert
- Be aware of clearance
- Practice

G. Cole

WAVEGUIDE

A bent waveguide "spool piece" recovered from DN9 in November, 1999, raises some questions. The 20 mm spool piece, which connects the antenna to the underground waveguide communication system, is thought to have been bent by a cow that got into the fenced pad area. (Please, close the gates!) But of even greater concern, severe rusting of the coupling at the base of the spool piece raises concern about waveguide maintenance.

Should the cathodic protection system have protected the spool piece or was the problem caused by duct tape on the joint which absorbed and held water against the bare metal? If the spool piece is not protected by the cathodic protection system, where does protection kick in? Is the flex piece that connects the vertical and horizontal waveguide protected? Do we need to dig up more pads, flex pieces, and spool pieces to inspect for damage? Is waveguide maintenance receiving adequate attention?

The waveguide system is critically important to VLA operation and will remain so until the communication from antenna to Control Building is completely replaced by a fully functional fiber optic system. A new system will take many years to fund, design, install, and check out. Members of the ES and Electronics Division have been meeting and talking about waveguide maintenance and a plan of action is expected in January.

C. Janes

NMPRA NEWS

Congratulations to Richard Murillo who was elected to serve as a Director of the New Mexico PRA (Personnel Recreation Association) starting in January. The PRA operates the vending machines at the VLA site, sells souvenirs, and, most important, organizes the picnics and Christmas parties. In fact, this is a good time to let the PRA Directors know what you want for a Christmas party in 2000. Other Directors are newly elected Mary Ellen Chavez and Allen Lewis, and carry overs from 1999, Clint Janes, Ken Lakies, Linda Major, and Emma Rice. By the way, PRA earnings don't near pay for the parties; many thanks are due AUI for taking up the slack in funding the Christmas Party and picnics in 1999.

All of the PRA Constitution and Bylaws amendments passed in December's election, including one that permits recently discharged temporary workers to attend the Christmas party.

Late word on PRA: Richard Murillo was elected President of the PRA, Mary Ellen "Bedie" Chavez was elected Vice-President in an election January 5. Clint Janes will remain as Secretary, Emma Rice as Treasurer, and Linda Major as Head Teller. Ken Lakies will be the PRA Web Page Manager and Allen Lewis Assistant Treasurer. A picnic is being planned for June and the Christmas Party for December 16, 2000.

C. Janes

CHECK YOUR CHIMNEYS!

- To ensure proper venting to outdoors
- To prevent chimney fires
- To reduce or eliminate chimney odors
- To remove blockages that could cause carbon monoxide gases in the home
- To prevent deterioration of the chimney interior caused by acids in the deposits.