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# VLA/VLBA NEWSLETTER

WEATHER STATS		
	HIGH	LOW
December	62° (1st)	-2° (23rd)
January	68° (15th & 16th)	-2° (4th)

From the World's Premier Centimeter Wave Radio Synthesis Telescopes

## AROUND THE VLA

Farewell to Chester Moeller, whose last day was January 28. As a memento of his time at the VLA, Chester was presented with an engraved "key ring" made out of a 6" piece of rail.

Congratulations to Chad Jones for completing 32 hours of training and achieving the highest possible scores on Dump Truck/Loader Operation. Chad attended The New Mexico Tech Equipment Training program on January 24-28, 2000.

Steve Aragon, Charley Chavez, Ramon Gutierrez, Ramon Molina, Godin Otero, and Paul Savedra have enrolled in a class investing their own time to sharpen their computer skills. The class is "Introduction to Computer Applications" offered in Magdalena and Socorro by UNM-Valencia Campus. There will be hands-on instruction in word processing, electronic spreadsheeting, database, desktop publishing and communications programs.

The Auto Shop (aka-design, remodel, modify shop) was asked to modify an existing trailer so that it could be used to haul items between Albuquerque and the surrounding area and the site. Jim Rexrode, Richard Murillo, and Tony Guerrero chopped, ground, cut, welded, and painted for the better part of a week. The result is a real snappy, yet heavy duty 14 ft. trailer. If you want a look, it is outside the Auto Shop (BRIGHT RED). Buen jale, guys.

NMPRA minutes from 1999 are now available in the CB Library.

## MAGDALENA SCIENCE FAIR

Tom Frost, Allen Lewis, Pat Lewis, Jim Ruff, Lew Serna, Guy Stanzione, and Jon Thunborg represented NRAO, as judges, at

the Magdalena Science Fair. There were many outstanding projects this year. The NRAO group and one other person were the only volunteers to judge the fair. In addition to judging the fair, the NRAO group selected two outstanding projects to receive the customary NRAO awards.

A \$75 Savings Bond was awarded to an excellent Senior High Computer Science project called "Lotto Luck" prepared by CV Harris. CV wrote a C+ program which showed that the random number generator in his PC would repeat itself. He then used a supercomputer at Los Alamos to run his program, and it never repeated itself, proving that his PC's random number generator would not truly produce random numbers.

A \$50 Savings Bond was awarded to an excellent Junior High Botany project called "Shut Your Trap" prepared by Gordon Harris (CV's brother - WOW! no one knew!). After carefully weighing live crickets, Gordon fed them to Venus Fly Trap plants. He then measured how long it took the plants to snap shut and recorded pH levels in the leaves as the crickets were digested. Question: How do you weigh a live cricket?.

The NRAO group then sat down to enjoy their reward, a public school Cafeteria Lunch! The Magdalena Schools were very appreciative and have invited us back next year.

L. Serna

## TRANSPORTER #1 CYLINDER MODIFICATION

When heavily loaded transporters enter the intersections, the short sections of track at the ends of the antenna pad spurs rise over time. When the rail gets too high, the transporter wheel hits the track as the truck is rotated. In order to get the truck wheel to swing over the

track, the transporter jacks are repositioned and 1" blocks (shims) are placed between the wheel and the track. Transporter personnel were concerned about the shims slipping out.

Recently, two hydraulic cylinders on Transporter #1 were modified. The purpose of the modification was to allow the rear axle to retract an additional 3/4" allowing the truck to swing across high spurs without shims.

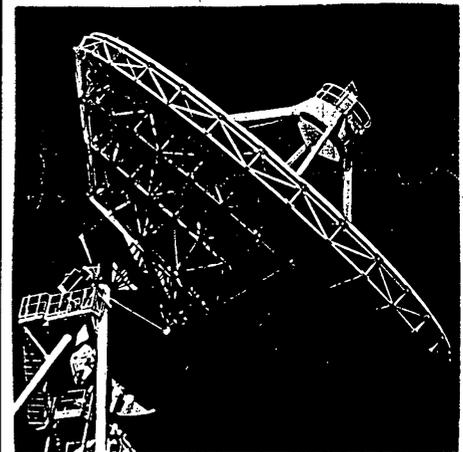
The machinists trimmed 5/8" off the piston, and a little was trimmed from several other pieces to gain the other 1/8." The transporter crew reassembled the cylinders, and the modification worked, allowing Truck #2 to retract an additional 3/4" and to rotate freely over the short section of track.

G. Stanzione

## VLBA APEX HANDRAILS

The first apex handrail was installed at St. Croix in January. The other VLBA antennas will get handrails on their next Tiger Team visits. We are still awaiting the "go ahead" for VLA apex handrails.

Jim Ruff



St. Croix VLBA antenna with apex handrails.

## VLBA AAB NEWS

First and most important, Chester Moeller has left us to work at the Double H Ranch (the ranch the north arm is located on). He had worked with NRAO for about six years. Before that he had worked for the Double H Ranch for close to 20 years. Once ranching gets in your blood, you're hooked forever. We wish Chester luck wherever he goes.

Antenna 20 has been overhauled and taken out of the barn. Antenna 26 was brought in. A feed cone was built in the Weld Shop and sent to the Paint Shop. Also, a motor from St. Croix and one feed cone were painted and repaired. Work has started on the VLBA Elevation platform extensions.

R. Molina

## COMPUTER ERGONOMICS

While ergonomics covers a wide range of job activities, we recently narrowed our focus to deal with the subject as it is applied to computer workstations. On January 28th, Don Vangsnes, from Liberty Mutual Insurance Co. gave an interesting presentation at the VLA on ways to set up our computer workstations to provide for both comfort and productivity.

Loosely interpreted, computer ergonomics is the art of adapting a machine to a person as opposed to adapting the person to the machine. Two sessions, one for supervisors and one for general users were given at the AOC and video taped. The tapes are available from Jon Spargo for checkout.

J. Spargo

## NEW TIMING BOARD

The new Pulsar Timing System saw "first light" on the VLA in January. This part of a larger system that will allow very high time resolution of pulsars, which are rapidly rotating, highly magnetized neutron stars that emit a lighthouse beam which we detect as a pulse every time the rotating beam sweeps past us.

The new Timing System will replace the Dartmouth/Princeton Timing System which has been at the VLA since 1990, and has not been upgraded for Y2K compliance. A key component of the new Timing System is a VME daughter card designed by Wayne

Koski which produces extremely precisely timed logic signals which are used to sample the received pulsar signal synchronously with its rotation, and then produce other logic signals to gate the VLA correlator and the future high time resolution system synchronously with the pulsar. The system is being developed jointly by the VLA and New Mexico Tech Professor Tim Hankins, his graduate student Jeff Kern, and an undergraduate, Kurt Ferreira.

C. Janes

## BACK TO AMERICA'S PARADISE (Working Version)

A maintenance team consisting of T. Frost, R. Gutierrez, R. Molina, J. Rodriguez, P. Sanchez and J. Thunborg went to St. Croix on January 15-20 to change an azimuth drive wheel. During a previous maintenance visit it was discovered that the wheel was popping and had pitted bearing races in both the inside and outside bearings. The details of this wheel change are recorded in VLBA Antenna Memo Series #24.

Vivek Dhawan's pointing tests demonstrated that the subreflector was not correctly positioned. The maintenance team repositioned the subreflector according to Vivek's guidance. This Repositioning improved the antenna performance somewhat but it has still not recovered to its pre 1995 status. Current theory is that there may be something loose in the FRM. This will be checked on the next maintenance visit to St. Croix.

A 6 by 10-inch dent/gash was found on the edge of the subreflector. Bondo was used to repair the subreflector. However, a reflective surface was not installed over the Bondo. The systems engineers who understand these sorts of things should consider the effect of this repair on antenna performance. The cause of the gash is not currently known.

A visual inspection of the paint on the antenna showed that the painters are beginning to get ahead of the corrosion problem at St. Croix. The painters have been concentrating on the backup structure and major structural members. These areas showed very little rust. However, additional painting is needed on the remaining rusted areas of the structure like the undersides of the elevation platforms.

J. Thunborg

## BACK TO AMERICA'S PARADISE II (Tourist Version)

Some people refer to St Croix as "America's Paradise"; others call it "Little Juarez by the Sea." We worked from sun up to sundown each day, so had no chance to visit the tourist shops because they closed at 5:00. Along the beaches and where the antenna is located was pretty and green, but the closest town needs a lot of work. Christiansted still hasn't recovered from the recent hurricanes. The streets are narrow and driving is on the left side of the road. It's like being in a different world. Everything is very expensive. A hamburger, potato salad and drink at a stand near our hotel was about \$10. There were not too many things for a tourist to do there except eat, swim, and lay on the beach. It was a 17 hour trip back and we were exhausted by the time we got home. It was no picnic!

R. Molina

## FEBRUARY SKIES

Having started the new year in spectacular fashion with a great lunar eclipse, February will seem a bit dull. Nevertheless, for the dedicated skywatcher, there will be plenty of action.

Jupiter and Saturn will continue their nightly show. Both are high in the sky (nearly overhead) with bright Jupiter seemingly leading Saturn across the night sky. Binoculars or a small telescope will reveal Jupiter's cloud bands and some or all of its four large moons.

A real treat will begin on Feb. 6 as the new crescent moon can be seen just above the western horizon (about 6 p.m.) right next to the planet Mercury. Elusive Mercury will continue to be visible for several days with the best views from the 10th through the 20th, when it will be above the horizon for almost an hour. The waxing moon will then pass near Mars on the 8th, Jupiter on the 10th and Saturn on the 11th.

On Friday, February 4th, the New Mexico Tech Astronomy Club will host a star party at Tech's Etscorn Campus Observatory beginning at 7 P.M.. Several telescopes will be in operation to allow viewing of a host of deep sky objects in addition to some great close up views of Jupiter and Saturn. All are invited! To reach the Observatory, take Canyon Road past the golf course, turn right on Buck Wolfe Drive and follow the signs.

J. Spargo