

VLA/VLBA NEWSLETTER

From the World's Premier Centimeter Wave Radio Synthesis Telescopes

WEATHER STATS

	HIGH	LOW
Nov.	65.2° (6th)	8.2° (28th)
Dec.	55.7° (15th)	-7° (26th)
Total Precipitation: .92"/.89"		

AROUND THE VLA



Santa arrives at the children's Christmas Party!

Everyone had fun at the annual NMPRA holiday parties. The children's Christmas party was held December 7 in the AOC auditorium. A cake walk was held, along with lots of games, face painting, snacks and a special visit from Serna Claus. The adult Christmas party was held on December 14 at the Garcia Opera House. Around 230 NRAO employees and special guests attended. Thanks to our hard working and talented NMPRA board members who put so much effort into making these functions such a success!

Congratulations to Lonnie Guin! He has passed his EMT-B state exam.

NOTES FROM THE A.D.

I'd like to start by congratulating all the employees who won awards for their performance in 2002. Particular congratulations go to Barry Clark and Pat Lewis for their well-deserved Distinguished Performance Awards. To all those who were singled out for STAR awards in 2002, and to those who didn't win any awards but kept the Observatory running effectively, I offer many thanks on behalf of all our users. Personally, I also would like to thank you all for keeping the telescopes operating and for moving the EVLA forward, so that I didn't look too bad in my first year as Assistant Director!

The next year is going to be a real challenge to us all. For the EVLA, huge activities will be in laying in the fiber at the VLA site, getting the test antenna (the lucky number 13!) completely instrumented with prototypes, and actually performing the required tests on the prototype systems. It is very important to keep this on schedule in order to be able to make a case for the funding rate needed to finish the first phase of the EVLA project in a timely way, and for eventual approval of phase 2 of the EVLA. The balancing act between EVLA and operations will be even tougher in 2003 than it was in 2002. This will require everyone to stay focused on the highest priority activities necessary for both telescope operations and EVLA development to be successful at the same time.

In December, Mark McKinnon and I accompanied Ted Miller and a consultant on a day-long visit to White Sands Test Facility, where we learned how they have successfully implemented formal tools of project management in their ongoing operations. You may recall that we created an NRAO-wide Work Breakdown Structure over the last two years, but you also may have noticed that we don't apply this in any formal way in our ongoing operations. Over the next year, we probably will be running some trials of more specific project management techniques in planning one or two of our operations tasks. These trials would be part of an ongoing effort to see if we can make any efficiency improvements that help us continue our history of operational reliability, while also making significant local efforts in new projects such as ALMA, EVLA, and Data Management.

J. Ulvestad

STAR AWARDS

Star Awards were presented to six employees of the Electronics and Engineering Services

Divisions during the no-host lunch at the VLA site on December 11, 2002.

Nelson Atencio, Eric Carlowe, and Ken Lakies received Star Awards for their initiative and resourcefulness in repairing longstanding problems with the antenna control unit (ACU) on the Brewster VLBA antenna. Nelson found that the ACU's erratic behavior was due to broken electrical traces in the ACU motherboard. Nelson repaired the board, and new ACU motherboards are being designed and fabricated for the other VLBA antennas. Ken and Eric developed a viable replacement for the old ACU power supply, which not only caused overheating in the ACU but was also very expensive to replace. The teamwork displayed by Nelson, Eric, and Ken in solving these longstanding problems is commendable.



Pat Madigan, Tom Frost, Garry Morris, Eric Carlowe, Ken Lakies, and Nelson Atencio with their Star Awards.

Tom Frost received a Star Award for his volunteer efforts in supporting the Visitor Center at the VLA site. Tom has voluntarily maintained the VLBA computer in the Visitor Center, fixed pointing errors on the small radio telescope, and repaired the new visitor video for consistent, reliable operation. Tom's efforts are valuable contributions to the Observatory's Education and Public Outreach programs

because the Visitors Center is our primary point of contact for the general public, who ultimately provides the funding for our operations.

Pat Madigan and Garry Morris received Star Awards to recognize their volunteer contributions to the VLA site emergency medical services (EMS) program. For many years, NRAO-NM has relied upon Pat and Garry to provide first aid and to train personnel on how to render it. By maintaining an active and healthy EMS program at the site, Pat and Garry have managed to secure \$5,000 per year in New Mexico state funds for providing EMS at the site and surrounding communities. We should all thank Pat and Garry for their personal commitment to emergency services at the VLA site.

M. McKinnon

WINTER EDUCATION AND PUBLIC OUTREACH OPPORTUNITIES

Our winter quarter program of guided tours for the general public is scheduled for Saturday, February 1. If you would like to volunteer as a tour guide, please let Robyn know.

Also in February we have two opportunities for you to participate in our local schools as a science fair judge. The Sarracino Middle School Science Fair will be held Thursday, February 6. Magdalena's combined middle school and high school fair is set for Wednesday, February 12. If you have ever been to middle school (or junior high, for those of us who came before middle schools were invented), if you have taken a science class, and if you now work at NRAO, you could be a successful judge! The Science Fairs usually involve a full morning (snacks included), and the more judges we can contribute, the more fun it will be for all of us. The schools would like us to supply between 10 and 20 judges per Fair. Contact Robyn at 7243 (or rharriso@nrao.edu) if you have questions, and/or to volunteer!

R. Harrison

ACER MILL

NRAO received notification that Cornell University was going to surplus a computer controlled milling machine that was in almost new condition. In order to save money, we had the mill shipped to Greenbank where it was stored until we picked it up with our truck when we were getting some other equipment.

When the milling machine arrived, the site electricians, Jaime Montero and Ed Gray, rewired the mill for 208 volt power which is

available in the machine shop. Ken Lakies from the VLA servo shop went to work troubleshooting the entire mill. Ken repaired a few cold solder joints and broken wires that may have been damaged during shipping. Ken also found that the servo controller in the machine was not programmed correctly. Bob Broilo reprogrammed the servo controller and now the milling machine is completely operational. It is valued at approximately \$25,000.

J. Thunborg

EVLA OPTICAL FIBER CABLE

As many of you know, the installation of the EVLA optical fiber cable was halted due to a manufacturer's defect in the cable. The cable basically consists of bundles of loose fibers placed in nylon tubes surrounded by two concentric, semi-rigid, metal sleeves (armor) with a protective, plastic material (sheath) between and around the armor. During the installation of one of the cables in a direct burial splice enclosure, we discovered that the inner armor had cut the inner sheath along the cable's length.

The primary purpose of the armor is to protect the fibers from damage during installation and operation, including the damage caused by rodents, such as gophers and mice, who tend to chew on our cables at the site.

Samples from our entire inventory of cable were sent to the manufacturer for rigorous testing. The strength of the sheath in our cable samples was tested by twisting a one meter section of cable about its length 720 degrees, or two full turns! Our cable samples passed this test as Adrian Rascon, who witnessed the tests, can attest. Also, a detailed inspection of the defective cable indicated that the inner sheath was split for only a few feet.

Essentially all of our cable is in good shape, and the one defective cable probably has enough armor to prevent the gophers from chewing all the way through to the fibers!

NRAO negotiated a settlement with the cable manufacturer under the warranty coverage to provide an additional 51,000 feet of cable, which is 10 percent of our original cable order. The additional cable, valued at \$36,000, was provided to NRAO at no cost. The additional cable can be used for restoration needs or for the compact E-array configuration of EVLA phase 2.

M. McKinnon, S. Durand, S. Lagoyda

JANUARY SKIES

This month I will begin with an invitation to a star party because of a very rare event. On the night of January 4-5, the ringed planet Saturn will transit across the famous Crab Nebula. For this event you'll need a telescope. To help you see this transit, we will have a star party at the Etscom Campus Observatory beginning at 7 p.m. on Saturday, January 4th.

The Crab Nebula is the debris left over from a star that died in a fiery explosion, called a supernova, in the year 1054. Since then the debris, mostly made up of hot gas, has expanded to the point where the nebula is now very diffuse and dim. When it exploded, it briefly outshined all of the other stars in our Galaxy combined and was even visible during the day here on Earth!

Chinese astronomers recorded it and referred to it as a "Guest Star." The Anasazi Indians of Chaco Canyon are thought to have recorded the event in a pictograph found on one of the Chaco canyon walls.

The "Crab" has been a popular target for both professional and amateur astronomers but because of its dimness is often hard for amateurs to find. As Saturn transits across the nebula it will outshine the nebula by about 250,000 times! This makes the nebula even more difficult to see without the right equipment. Fortunately, one of the telescopes at Etscom is equipped with a sensitive CCD camera and we will be attempting to capture an image of this rare event. We invite you to come and watch while we try!

Jupiter is well above the horizon by mid-evening and will also be a good telescopic target. The Moon will be just past being new so we should have good dark skies.

Speaking of the Moon, it will be new on the 2nd, first quarter on the 10th, full on the 18th and last quarter on the 25th. Venus and Mars will continue to keep company in the early morning hours and Mercury can be spotted just above the horizon in the west-southwest for the first few days of the month. By the last week in the month it will have raced around to become visible low in the southeastern sky, below and to the left of Venus in the early morning hours.

If you are interested in astronomical animations and movies, try <http://graffiti.u-bordeaux.fr/MAPBX/roussel/astro.html>.

I. Spargo