

VLA/VLBA NEWSLETTER

PROPERTY OF
THE U.S. GOVERNMENT

MAY 16 2001

NATIONAL RADIO ASTRONOMY OBSERVATORY
CHARLOTTESVILLE, VA

APRIL WEATHER STATS	
HIGH	LOW
	19.2 (13th)
Total Precipitation: 0.3"	
VLA Operations	

From the World's Premier Centimeter Wave Radio Synthesis Telescopes

AROUND THE VLA

NRAO celebrated milestone anniversaries of long time employees with a special dinner. This year, the dinner was held on April 28 at Rancher's Steakhouse in Socorro. Special guests included Director Paul Vanden Bout and Human Resources Manager Bob D'Angio from Charlottesville. Honorees were Charles Chavez, Tim Cornwell, James Gregg, Terry Romero, and Betty Trujillo celebrating their 20th anniversary. Nelson Atencio, Mary Ellen Chavez, Terry Cotter, Gene Dunn, Dail Frail, Tom Frost, Brian Glendenning, Ruth Milner, Bill Sahr, and Bob Sanderson celebrated 10 years with NRAO.

Lew Serna and Jon Thunborg recently completed "Advanced Management Certificate Program, a twelve week course at the Robert O. Anderson School of Management at UNM.

Richard Murrillo and Phillip Sanchez attended Mesa Technical College in Tucumcari March 19-23 to become American Welding Society certified.

Congratulations to David Alderman, who has been hired for the new Electrical Engineering position! He will be helping with refinements to the VLBA Servo system.

Farewell to Jo Helen Cason. After 10 years at the VLA, Jo will be leaving on May 23. She has been a valuable asset to the VLA, helping out wherever she was needed. Jo will be greatly missed!

ROCKY TIMES

Lately, you may have seen a lot of dump trucks on highway 60. They are in the process of delivering 18,000 tons of crushed stone (about the same weight as 78 VLA antennas) to the VLA. Approximately 25 dump loads will arrive every day for one month. The stone will be used as ballast on the VLA railroad.



Paul Savedra and the T-Rex
Rearrange the Ballast

The deliveries have recommenced after being temporarily suspended while NRAO negotiated with the vendor to optimize the shape and size of the stone delivered. Stone used for railroad ballast has to satisfy several criteria to ensure a stable railbed. The individual rocks can be passed through a sieve making sure that they are the correct size but there is not an efficient method to ensure they are of the proper shape.

The shapes of the individual stones in the aggregate play a major part in its functionality as railroad ballast. Ideally each stone should have sharp corners and cubicle fragments. The sharp corners allow the rocks to key together like a jigsaw puzzle thus providing a secure railbed. Rounded rocks roll off each other, allowing the rail to move under load. Flat and elongated stones are also undesirable, as they tend to break under load. Sand and dirt in the ballast does not allow it to drain properly causing the railbed to heave when trapped water in the ballast freezes.

J. Thunborg

SITE & WYE NEWS

The Track Crew have installed all the ties received to date (about 1200). They spiked them, added ballast and have started tamping. The ballast pile continues to grow, but the tie pile is totally used up due to a production problem with the vendor. The Crew has

begun to gather the old ties into piles for bundling. The new additions to the Track Crew are: Kenny Padilla, Michael Greenwood, Todd Dixon, Jay Apachito, Antonio Montoya, Ronnie Baca, a return employee, and Carl Oler, one of our part time janitor/guards. The Crew received a new 1845C Case skid steer loader this week. This machine, along with the ties and ballast, was purchased with NSF infrastructure funds.

The Grounds Crew has been busy planting new trees. Godin Otero went to Albuquerque and picked up six Austrian pine trees to replace the dead Ponderosas. Since the Lightning Protection System is complete, it will soon be time to start the long-line potential measurements over the wave guide. Also, they have been working with Socorro Electric in order for them to bore under our trackage to install casements. SEC will soon install new under-ground lines at five locations where they cross the track.

Charley Chavez has been painting and fixing up the VSQ's in preparation for occupancy by ALMA personnel. Later in the summer he will oversee the stucco repairs at the guest house in Socorro. He is also in the process of building new lids for wave guide manholes that are broken or rotted.

The pace for the Auto Shop personnel has really picked up. Dump trucks are being used and this means some repairs and A LOT OF FLATS. The Shop received a 1998 Volvo semi-tractor purchased with NSF infrastructure funds. They are in the process of outfitting the truck with safety (first aid kit, reflectors, etc.) and transport (chains, load binders, straps, etc.) equipment. A certification procedure has been established to insure that personnel who will operate the truck are properly trained. Paul Savedra is the trainer and certifier for this vehicle. He will also soon begin instruction for those who wish to acquire a Commercial Drivers License.

INTERESTING TIMES AT THE VLA

This year promises to be one of the busiest ever at the VLA. Additional NSF funding has afforded us the opportunity to paint more antennas, install more ties, upgrade building fire alarm systems, upgrade the radio communication system and replace azimuth bearings. With the additional funding, the ALMA project, and the upcoming EVLA project, we expect to be busy for a very long time.

NSF funding also freed up operational money for projects that have long been on the back burners due to lack of funds. Projects such as the Transporter Pump Upgrade which replaces worn and obsolete transporter hydraulic pumps with new, more efficient pumps are made possible. We replaced the bus engine, which was at the end of its service life, and a plan to overhaul the second bus engine is in the works. A new HAZMAT storage area for storing and containing hazardous or waste material will be built. The Cryo Shop will receive a new heating and air conditioning unit to replace an old substandard system that was built from original 1970's vintage antenna vertex room air conditioners.

Additionally, operational money is available to upgrade a troublesome 12 year old Drawing Plotter for drafting. A new multimedia projector for training and test equipment for the HVAC and Servo shops was purchased. New portable high pressure washers for washing down VLBA antennas and materials required to install all Antenna Fall Arrest systems will be acquired this year. Of course, with all this activity, our equipment maintenance and operation costs will increase accordingly.

The ALMA Test Interferometer has used our Carpentry, Grounds, Machine Shop and Electrical resources early this year with more demands expected throughout the remainder of the year. Added features such as three weather towers, and possible testing of the Japanese antenna in conjunction with the European and U.S. telescopes will likely bring more changes and more work.

With the EVLA improvements on the horizon, we will undoubtedly be keeping this pace up for years to come. These are interesting times and once again history is in the making at the Very Large Array.

L. Serna

MC-9 BUS

On March 27, Jim Rexrode, Richard Murillo and Tony Guerrero removed the engine from the blue MC-9 bus. The following two days, Rich and Tony removed items from the old engine that needed to remain with the new one and installed them. They also removed the radiators and took them to a shop in Socorro for repairs and cleaning (rodding). By the time the new engine was ready to be installed, the weather took a turn for the worse. On the 30th, Rich, Shane Baca, Johnny Gonzales, and Ed Gray "stabbed" the new engine and Rich began hooking up hoses, lines and wires.

The radiators were ready to be picked up and reinstalled the next week, and the bus returned to service April 9. BUEN JALE AUTO SHOP AND ANY GARCIAS (or is that GRACIAS) to all who helped. The bus is in service at this time and running well!

P. Lewis

MAY SKIES

With Saturn and Jupiter fading fast the stage is set for a solo performance by the red planet Mars. At the beginning of May, Mars will rise around midnight, daylight saving time, but by the end of the month will be visible by late twilight. Mars also brightens considerably reaching magnitude -2 by the end of the month.

Saturn and Jupiter are fast fading in the early evening skies. One interesting sight will be the appearance of Mercury. From the 5th through the 8th Mercury will be found just to the right and slightly above Saturn, and by the 14th will be just to the upper right of Jupiter. If you've never seen Mercury before here is the perfect opportunity using Saturn and Jupiter as your guides.

One of the treats of spring stargazing is the alignment of the bright stars Arcturus and Spica. Both are very easy to find. Follow the arc of the handle of the big dipper. As the saying goes, "arc to Arcturus and speed on to Spica." These brilliant stars are joined by the bright star Regulus in the constellation Leo the Lion in the southwestern sky.

With Spica high in the sky the constellation Virgo is nearby. Actually, Spica is part of the sheaf of wheat being held by Virgo the Virgin. For deep sky fuzzy hunters, Spica signals the opportunity to search for the myriad galaxies of the famous Virgo Cluster. Numerous galaxies are visible, even with small telescopes. On a good dark night, literally hundreds are visible through my 8

inch telescope as this galaxy cluster spans more than 10 degrees of sky.

Good hunting!

J. Spargo

ANTELOPE BABIES

It is the time of the year that we see pronghorn antelope playing under the VLA antennas with their babies. The baby antelope are all legs and eyeballs. They can run very soon after being born and with large eyes on the sides of their heads they can see predators sideways, backwards, and forward. After the first baby, nearly all female antelope have twins.

It is fortunate that antelope are so prolific as their average life span is very short (7 years) compared to other big game (deer 12-14 years and up to 30 years for elk). There were only 26,000 pronghorns in 1925 but by 1995 the total pronghorn population has grown to about 445,000. The pronghorn is found only in North America with almost 80% of their population living in Wyoming.

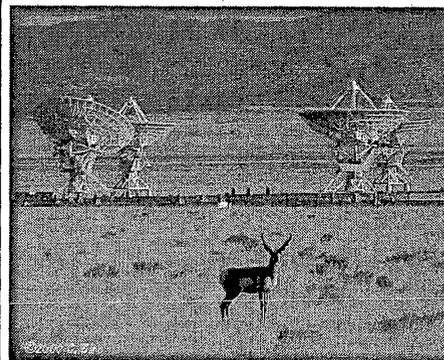


Photo by Colleen Gino

Pronghorns are perfectly suited to the dry New Mexico climate, as they need very little water to survive. In some cases, they can get all the water they need by eating cactus and other succulent plants. They can run at speeds of up to 60 miles per hour and are spectacular long jumpers. They can jump over arroyos of up to 27 feet across. Yet, they are not very good vertical jumpers. They can barely clear a 4 foot fence and will usually opt to go under it instead of over.

J. Thunborg

REMINDER: Because most deaths from fire are due to asphyxiation, not flames, working smoke detectors are a must. Also, most fires occur between midnight and morning. A good habit is to always change the batteries in smoke detectors when you change your clocks to or from daylight saving time.