



NRAO NM NEWS

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NOTES FROM THE AD

I'd like to congratulate Mark McKinnon on his selection as permanent EVLA Project Manager, replacing Peter Napier. Mark has performed ably as deputy for VLA/VI.BA Operations since 2001, and as Deputy and Interim Project Manager for EVLA in the last year. In his first few months on the job, Mark has undergone trial-by-fire with two major EVLA reviews, and is rapidly addressing issues relating to engineering, project schedule, and the budget for the last five years of the project. Please give Mark your cooperation in his new role over the months ahead.

By the end of the summer, the EVLA Project is scheduled to move into full production mode on the antenna mechanical structures and electronics; this also means that we will need a comprehensive set of software to operate and monitor the EVLA antennas. We aim to complete the retrofit of the 6th EVLA antenna this summer, and then plan to have a total of 12 antennas completed by the end of September 2007. This transition from prototyping to production is critical for the project to remain within its allocated budget and to recover some lost schedule, so I urge every employee to treat this transition as an extremely high priority over the next few months.

Since April, NRAO-New Mexico has been inundated by meetings that have had a number of us locked up in rooms for many days on end. These meetings have included the NRAO Jansky postdoctoral symposium, EVLA Advisory Committee meeting, NSF mid-project review of the EVLA, NRAO Legacy Projects Workshop, NRAO Users Committee Meeting, and the "SINS" scientific meeting. This all culminated in the 10th Synthesis Imaging Summer School, to be held at the University of New Mexico and NRAO from June 13 through June 20. Thanks to all those who have participated in these meetings by organizing the logistics, making presentations (often after grueling practice sessions), and supporting both our internal staff and our many visitors. We're looking forward to a change in focus over the summer!

Jim Ulvestad

WELCOME

Randall Bone, ALMA; Ran Wang, DSAA; Rebekah Claussen, EPO; Justin Markland, Chad Perkins, Robert Simpson, Eng. Services; David Harland, EVLA; Connie Williams, Fiscal; Heidi Gerhardt, Array Operations; and the following NRAO Summer Students and Interns:

Student	Home Institution	Advisor
Wendy Bennett	Drake University	Craig Walker
Malynda Chizek	University of Iowa	Bryan Butler
Abhirup Datta	New Mexico Tech	Sanjay Bhatnagar
Robert Edmonds	UNM	Lorant Sjouwerman
Adam Ginsburg	Rice University	David Meier
Elisabeth Mills	Indiana University	James Aguirre
David Sevilla	UTEP	Walter Brisken
Rosa Torres	UNAM	Amy Mioduszewski
Timothy Weinzirl	Drake University	Wes Young
Catherine Whiting	University of Iowa	Michael Rupen and Amy Mioduszewski
Kyle Willett	Colorado	Chris Carilli
Laura Zschaechner	Univ. of Montana	Vincent Fish

20 years: Everett Callan, Ray Ferraro, Miller Goss, Ken Hartley and Lisa Hertz.

10 years: Brent Avery, James Brown, Marie Glendenning and Jon Thunborg.

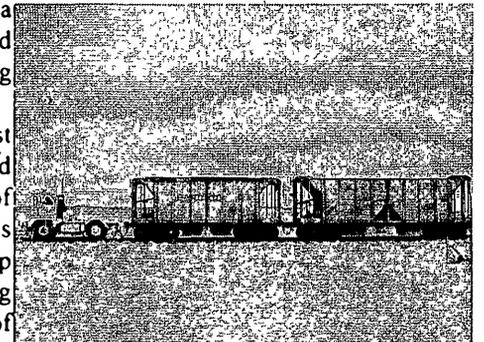
Allen Lewis

Best wishes and congratulations to recipients and parents of the 2006-2007 AUI Scholarship. This year's winners are: Michael Carilli, son of Chris and Adrianna Carilli; Diego Montoya, son of Manuel and Linda Montoya; Natalie Sylvester, daughter of Tony and Michelle Sylvester.

VLA SITE

The Track Crew has procured two new ballast cars and a trackmobile. These cars along with the trackmobile will eliminate the use of dump trucks to haul ballast for the VLA Array main line track work and greatly improves the efficiency of track ballast handling. Driving the surplus dump trucks along the arms to deliver ballast was always a high maintenance and time consuming operation.

The two ballast cars combined can hold over 140 tons of ballast. This is equivalent to 20 dump truck loads. Using these cars instead of



CONGRATULATIONS

The 2006 annual Service Award Banquet honoring NM employees was held on May 3, 2006, at the Rancher's Steak House. The normal "flavored" mix of roasting and sentiment was enjoyed and appreciated by Honorees celebrating the service awards included the following; 30 years: Ken Sowinski, Phil Dooley (retired), Rudy Latasa and Rey Serna.



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dump trucks will result in savings on time, fuel and vehicle maintenance.

Lew Sema

EVLA ANTENNA PHASE COHERENCE EVALUATION

The Socorro Electronics Division has recently completed an evaluation of the phase coherence of the typical EVLA antenna. The results of this work were presented by Jim Jackson at the SPIE Astronomical Telescopes and Instrumentation conference held in Orlando Florida, May 24-31, 2006.

The phase coherence of the typical EVLA antenna was estimated by calculating the phase jitter contribution of each of the major sub-systems. Since the specification is divided into three time periods: short term deviation, peak-to-peak phase deviation, and long term phase drift slope, the calculated results were also divided into three periods.

The short term deviation period result is the RMS value of the three synthesizer sub-systems. The specification states that the short term deviation shall be less than 7.2" RMS at 40 GHz from the LO chain. The calculated result is about 8.1" RMS. This result is close enough and probably will not affect the telescope performance.

The peak to peak phase deviation performance is dominated by the fiber optic LO distribution, the round trip phase measurement system and the downconverters; it specified to be less than +/- 0.7 ps about a linear slope calibration. The calculated result is about +/- 1.22 ps about a linear slope or about twice the specification. The impact of missing this specification will cause a few percent of closure error and may require the observer to calibrate more often than once per 30 minutes.

The long term phase drift slope specification requires that the absolute change of the uncompensated error not change faster than 6.0 ps over any 30 minute period. This behavior is controlled by two parameters, the maser characteristics and the fiber stability. The calculated result is less than three ps over 30 minutes, easily meeting the specification.

This evaluation indicates that the EVLA LO system is probably well designed and may meet the required coherence and phase stability specifications for the project.

Steven Durand

ALMA AND NEW MEXICO TECH STUDENTS

Congratulations to the eight NM Tech students working for NRAO who graduated in May: Joe Craig, Nick Targhetta, Adam Barker, Phil Velasquez, Maxwell Sandford, Jared Simon, Bryan Horvat, and Hector Malagon. Bill Brundage initiated the NM Tech undergraduate employment program in 1993, with the hire of one student. Since then, the interaction has grown to about two dozen students. The program works because NRAO gets real work done with the students at a modest cost, and the students gain valid experience. In so doing, the program supports NSF's education goals while providing valuable support to NRAO projects.

Please join me in congratulating ALMA BE Electronics Division student worker Joe Craig for winning the IEEE Southwest Region Student Paper Contest. At the contest in Las Vegas a few weeks ago, Joe's paper, "Airborne Visible, Infrared, and Thermal Imaging System", was selected over papers from UNM, ASU, UNLV, and San Diego State. Joe is now slated to compete in the IEEE Regional Student Paper Contest in September; the Regional contest includes 12 western states.

Joe graduated in EE from NM Tech in May, and has accepted an offer from Transcore in Albuquerque. He has been providing engineering assistance to the BE IPT for nearly three years.

Here is the Abstract for the paper:

Agricultural technology for monitoring vegetation has taken a new form in the last decade, imaging. Using reflectance information from different wavelengths of light, the 'health' of a plant may be determined. Observing a target in many spectral bands is commonly known as hyperspectral imaging. This paper describes a hyperspectral imaging system with a touch panel interface, which is mounted on a helicopter and

flown over a crop to obtain images from the visible into the near-infrared and infrared (thermal) wavelengths. Image capturing, electronic filter switching, and video playback have been implemented in LabVIEW for a seamless, real-time hyperspectral imaging system.

Clini Janes

SAFETY CORNER: STEPSTOOLS FOR EMPLOYEE USE

For those of you trying to maximize the vertical space in your office but stymied because you can't quite manage to reach as far up as you'd like, an alternative to balancing on wobbly chairs is now available at the AOC and AOC West. Stepstools have been purchased (thanks, Skip) for employees to use at work to help reach those high up places safely. They can be found in Rm 218 (Cliff Sema's office) at the AOC and in the file room at the AOC West. These are for employees to use at work and not to take home, please.

Peggy Peiley for the Safety Committee

PERSONAL PACKAGES AND FREIGHT AT AOC

In the past, NRAO occasionally accepted a personal shipment addressed to our business location. However, things have become more congested at the loading dock over time with freight for maintenance, operations, and the projects. All inbound and outbound freight requires sorting, distributing, and documenting its receipt. It's a fine dance to keep ahead of the game with the limited space on our dock.

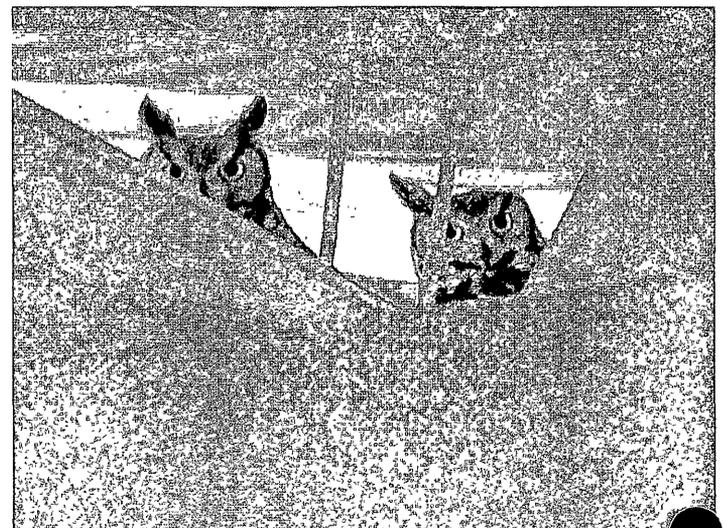
The additional space and effort needed to handle personal shipments isn't available any more. There is also the additional liability placed on the receiving staff to be responsible for the personal items, accepting it from the freight carrier, dealing with possible damage caused in shipment, opening packages in error, etc.

Therefore, please do not have personal items shipped to NRAO in the future. The additional burden and responsibility to care for your items is something NRAO can no longer accept here at Socorro. Thanks for your understanding and cooperation.

Skip Lagoyda

RESIDENTS OF VLA SITE

On 25 February, 2006, Peter Napier toured a group of six visitors from the Jet Propulsion Lab and Los Alamos National Labs around the VLA. The group was given a rare treat when they climbed Antenna 14 and found a pair of great horned owls sitting on



the antenna structure, right beside the door to the receiver cabin. The owls were not bothered by our presence and happily sat around for several minutes while the visitors took their picture. The visitors were most impressed and they also found the VLA very interesting.

Peter Napier