



AOC NEWS

Vol. 3 - Issue 3 / June, 2001

NEW FACES - WELCOME

Hollis Dinwiddie, ALMA; Jeff Kern, Basic Res., Pat Van Buskirk, Computer; Tim Young, Array Operations; with Electronics, Chris Langley, Nick Peereboom, Summer Temps, Gerad Montoya and Jacob Claussen; NM Tech Students, George Henckel, Brendon Lattimore, Chris Sramek, and NRAO Summer Students, Jason Adelstein, Aaron Boley, Katie Devine, Jennifer Donley, Michael Fine, Marjorie Frankel, Matthew Kunz, Daniel Perley, Laura Lindenmayer, Daniel Stark, James Anderson, Bhasker Moorthy, Cristina Murray, Stacy Teng, and Diane Wong.

CONGRATULATIONS recipients and parents of the 2000-2001 AUI Scholarship. This year's winners are: Lisa Glendenning, daughter of Brian and Marie Glendenning, Peter Sowinski, son of Ken and Linda Sowinski and Chris Sramek, son of Dick and Jan Sramek.

Our best wishes and congratulations to Peter Napier on his appointment as Manager for the EVLA Project, effective May 2, 2001.

SCIENCE IN THE NEWS

In May, was a good month for news coverage of the VLA and VLBA. The discovery by Jose Torrelles and his international colleagues of a young star possibly belching spheres of gas got the VLBA publicized extensively around the world. The story appeared in the May 17 *Albuquerque Journal*. The VLBA also was the instrument used by NRAO's Ed Fomalont and colleagues to make a dramatic "movie" of the jet of a microquasar in our own Milky Way Galaxy. On May 25, a paper by Debra Shepherd, Mark Claussen and Stan Kurtz (UNAM, Mexico) about their discovery of a disk around a massive young star was published in *Science* and a page-one article about this appeared in the *Albuquerque Journal*. The *Journal's* John Fleck wrote extensively about how their research, which used the VLA-Pie Town link, points up the benefits and need for the VLA expansion.

While not New Mexico news, the May announcement of the GBT's first scientific observations also got very wide coverage in the media. The GBT worked with Arecibo to make detailed radar images of Venus and of an asteroid that passed relatively near the Earth. All NRAO press releases can be found on our Web site, at:

<http://www.nrao.edu/pr>

Hardcopies of the press releases also are posted on the bulletin board next to the AOC auditorium.

Dave Finley

VISITOR CENTER UPDATE

The Visitor Center committee for the VLA is busy considering new display and exhibit designs. All of the exhibit suggestions are maintained on a web page at:

<http://www.aoc.nrao.edu/vla/html/vlhome/exhibits.html>

The list is not in priority order, nor is every suggestion being seriously

considered for implementation at this time. If you have new suggestions or ideas for construction of one already suggested, please let us know! The web page has contact information, or send e-mail to Robyn at rharriso@nrao.edu.

EDUCATION SNAPSHOT

Have you ever considered volunteering to give a tour of the VLA for more than just friends or family? On summer weekends our students give tours for the general public. Otherwise, we're limited to providing tours only for education and astronomy groups. Those requests, however, are on the increase, and I could use your help. What's in it for you? a) You won't be asked to give more than two or three a year, b) you may always say no if the timing is bad, c) before scheduling you for a particular tour, I'll work out the timing with you and your supervisor, d) it's a good way to take a break from your everyday tasks and do something a little different that is still considered work-related.

If you think you might like to volunteer, but feel you don't know enough about the VLA to give a tour, let me know. I will arrange for you to join a sample tour and also to receive a special copy of our "Tips for VLA Tour Guides." Such a deal!

Robyn Harrison

SPOTLIGHT ON ELECTRONICS AND STUDENT ACHIEVEMENTS

In May, twelve New Mexico Tech students were recognized in for their contributions with a "Rose Apodaca" pot luck.

Ed Szpindor, Herald Vahle, Lenny Noice, and Ryan Schmidt completed improvements to the Satellite Tracking System at the VLA. These improvements can now be used for RFI direction finding and for characterizing satellite transmissions. Ryan received an appointment as a microwave engineer with the Navy at China Lake, in part, the result of his experience at NRAO.

Anh Nguyen, Thu Nguyen, and Kerry Shores brought the RFI environmental monitoring system (EMS) up to a useable state with a new front end, lightning protection, software, and calibration. Raul Armendariz will use the EMS system to characterize the RFI environment at the VLA from 1 - 18 GHz. The data are important for planning the dynamic range of the WIDAR correlator. Anh and Thu graduated and received appointments at Boeing to continue their studies of lightning protection. Happily, Kerry is staying in the Correlator Group.

Francis Martinez, Steve Padilla, and Matthew Nuñez, built an error checking system for a circuit board in the playback tape drives used with the VLBA correlator. IBM mass storage facility in Tucson hired Steve after hearing of his work with error rates.

Finally, Diana Guzmán built a Web page and search engine for MSDS, and John Hughes built a software program for laptop testing of front ends. John also assisted Steve Durand in unraveling Mainsaver problems. John was also hired by the Navy at China Lake. We hope to

see Diana back in the fall.

Though we were sad to see so many of these energetic and productive students move on, we are proud and thankful for their accomplishments. The success of all speaks well of NRAO's participation in the educational process.

Clint Janes

EVLA PROJECT MOVES FORWARD

Paul Vanden Bout announced on April 27, 2001, that following discussions with the National Science Foundation, we are anticipating funding in the amount of \$3,000,000 for further planning, design, and development of the Very Large Array Expansion (EVLA) Project during 2001. Actual construction is planned to begin in 2002, pending approval of the Project by the National Science Board later this year.

EVLA AND ELECTRONICS

As a result of the new funding the current VLA K-band and Q-band receiver builds will be included in EVLA scheduling. Plans are being made to complete both builds by December 2002. The Electronics Division will also design, prototype, and test 6 receivers within 3 years to cover the bands from 1 GHz to 18 GHz and from 26.5 GHz to 38 GHz. We plan to add at least two engineers to assist with the receiver and feed systems design. Sri Srikanth of the CV office will design the feeds. An engineer is being recruited to design and plan the fiber optics communications system.

Clint Janes

EVLA PLANNING WORKSHOP: DEFINING THE SECOND PHASE

With the first phase of the VLA Expansion Project now approved for further planning, design and development, it's time to start thinking about what comes next. As a first stage in this process, NRAO will be hosting an open workshop in Socorro, from 23-25 August 2001. We hope to bring together about a hundred scientists and engineers, drawn from within NRAO and from the broader astronomical community, to address both what the second phase of the VLA expansion should be, and how we might go about building it. The heart of this second phase is a set of new stations spread across New Mexico, aimed at improving the resolution of the VLA by a factor of 10, and tying together the VLA and the continent-wide VLBA to make a new and even more powerful instrument. Notice the word "stations" rather than antennas --- one of the big questions is whether these should be single 25m dishes, like those comprising the current VLA and VLBA, or some more innovative design (e.g., groups of smaller antennas, or even banks of dipoles). Other possible enhancements include a new low-frequency system, to give good performance from (say) 300-1000 MHz, and a super-compact 'E' configuration, to give the best possible sensitivity to very large sources. More generally, we want to be sure that the EVLA both allows excellent new science in the near term, and points the way to future, even more impressive radio observatories. Obviously there's a lot to think about! You can find out more about this workshop, and about the VLA Expansion Project in general, at the EVLA Web site:

<http://www.aoc.nrao.edu/vla/EVLA/>

M. Rupen

VLA CANYONS RUN

The New Mexico Mountain Runners Series is a series of informal mountain runs put on across the state, mostly in Northern New Mexico. For many years, the only local run in this series was the South Baldy run, normally held in early October, a 19-mile affair that goes across North and South Baldy in the Magdalena Mountains. This year, we added a second run to the series, the VLA Canyons run, which was held in early April (actually, on April 1!). This run covered 24.5 miles, passing through many of the canyons that are located 10 miles south of

the VLA: Morine Canyon, Durfee Canyon, Point of Rocks Canyon, Ranch Supply Canyon, and Old Canyon were the main ones. This was a relatively easy run in the series, almost entirely on Forest Service roads, with no cross-country travel and no elevations above 8500 feet. With a decent winter of snow and rain, there were running streams, but all the mud and snow on the roads disappeared in the last week before the event. Nice views of the VLA to the north were available from various points. Out of eight human starters in the inaugural event, there were six finishers (as well as 1 dog out of 4 finishing), in times ranging from 3-1/2 hours to 6 hours.

The run was considered a success according to our usual criteria: no one was irretrievably lost or injured, and everyone enjoyed the scenery. Most people have never ventured into the canyons south of the VLA; I highly recommend them for exploration, particularly in the fall and spring.

Jim Ulvestad

PREVENTING UV RADIATION

Sunlight that causes damage to the skin and eyes is called ultraviolet or UV radiation. Ultraviolet light is most intense when it is reflected off surfaces such as concrete, snow, sand or water. Damage to the eyes caused by the sunlight is cumulative with either immediate or long term consequences.

Sunscreen and sunglasses should be used year round. Special caution should be used in the summer, near water, and on the ski slopes.

VLA EMS

DIRECT DEPOSIT ROADWAY

Payroll direct deposit is a form of electronic funds transfer, a process by which commercial payments are made electronically instead of by using paper instruments such as checks.

Electronic funds transfer uses "paperless entries", which are special sets of computer-generated records recorded on a magnetic tape or transmitted electronically, to transfer funds between bank accounts. A paperless entry, just as with a check, orders a financial institution to make payment of a specified dollar amount.

The direct deposit process begins when an employee authorizes the employer to credit his or her checking or savings account each pay period. To set up direct deposit, the employer must receive three pieces of information from the employee: (1) The financial institution's name and routing number, 2) the account type (either checking or savings) and, 3) the account number. The best way to ensure that the deposit will be processed properly is for the employee to give a voided check to the employer.

Two days prior to the payday ADP sends its direct deposit file to the financial institution maintaining NRAO's payroll account. This financial institution extracts any entries for accounts that employees maintain with it, and transmits the remainder to the regional "Automated clearing house" (ACH). During the second day, entries are processed across the ACH network to the employee's designated financial institution. If the employee's financial institution is located in a different region, the ACH may need to route the entry through a second ACH. By the third day (the payday) entries have arrived at employees' financial institutions and are posted to their accounts. On that day, instead of a paycheck, employees receive information statements that have the same information that would have appeared on the employees' paycheck "stubs". This information includes the gross amount of earnings, the amount of any authorized deductions, deductions for Federal, state and local tax withholding, and the amount of net pay deposited electronically in their account.

Don Welty