



Around the Site

Vol.1, No. 1

Hi Everyone. This is the first edition of a Green Bank newsletter that hopefully, will keep you one step ahead of the rest of the world. At least, we'll try to keep you ahead of the Pocahontas Times!

Take a look. If you want to see other features in the newsletter, please give me your ideas. And I'll be around to ask you what's going on for future issues! Your first assignment is to think about the name for this newsletter. I was kind of hesitant to use the name Observer, and so settled on the title you see above. It could be better!

Sue Ann

Alternate Operations Center Construction

submitted by: Richard Fleming

This construction project, as recently modified by Navy officials by cancelling the clock system, is for a 19,335 sq. ft. Alternate Operations Center Building. This building will be an addition to the west end of the existing Jansky Lab.

This building will provide much needed space for normal Green Bank operations. It will also provide operations and equipment space for GBT, OVLBI*, USNO**, USNO VLBI and possibly some future 140 Foot operations.

At this point 100% of the Design Drawings and Specifications have been completed and approved by NRAO and USNO. Bids from contractors to build the Center were to be opened

April 27. However, the bid due date has been put on hold for 2 weeks. If the hold is released a contractor could be on site by mid-May 1993. Construction will continue for approximately 14 months.

If the construction of the Operations Center is approved there will be considerable disruption to the normal routine in and around the Jansky Lab. We have begun to formulate a plan to accommodate employee and visitor parking and to minimize other disruptions during construction.

* OVLBI= Orbiting Very Long Baseline Interferometry

**USNO= United States Naval Observatory

Green Bank Telescope Update

Have you been to the construction site lately? There is actually more to see than a ring in the ground. Some of the progress that has been made over the winter include the following.

- The track is finished complete with grout. I have never seen such a thing as the grouting procedure. The grout looked and felt like slightly moist dirt. It had to be packed under the track by hand until it became harder than cement! Construction workers pounded sledge hammers against "double sided hoes" to pack the grout in. It was awesome. The track and foundation will be supporting 14 million pounds of finished GBT.
- The support structure for the dish, called the Alidade is being erected. We are on the second level of steel above ground - about 40 feet up. Sid Smith, GBT site engineer says we have less than 1% up right now. Virtually no construction was possible during February and most of March due to bad weather. Now that the snow has melted, construction is proceeding more quickly.
- Some of the 52 inch wheels have arrived. We will be setting one corner of the alidade on

wheels in the next day or two.

The construction so far hasn't been completely without problems. One of the biggest set backs we have suffered has been a problem with our actuators - the motors that will be used to control the surface of the GBT. They are defective! Engineers have been testing actuators from the beginning and had settled on one. We bought 2000 or so of them. It turns out that the manufacturer changed the design in between our initial tests and their shipments to us.

Thanks to continued diligent testing by NRAO staff, the problem was detected. All of the actuators we have so far received have been sent back to the company to be refitted according to the promised specifications. But that means a considerable delay.

We are unsure as to how much time that, and other problems will cost us - nobody yet has admitted that the completion year (1995) has slipped. Dave Seaman, NRAO mechanical engineer, says the delays are a blessing in disguise - now we have more time to monitor the construction.

Director Trivia

Here are some things you might not know about our Director, Jay Lockman:

- Jay Lockman first worked at NRAO in the 1960s as a co-op student.
- Since joining NRAO permanently, Jay has worked and lived in Charlottesville, VA. Much

of his research is concerned with neutral Hydrogen in our Galaxy.

- Jay is an accomplished old-time banjo player. West Virginia has been his musical stomping ground for a long time.
- Jay has two children: Janny, 3 years old and Martin, 6 months old. His wife is named Elizabeth.

Recreation Association News

NRAO Hobby Groups To Be Created Ron Maddalena

A while back, the NRAOERA distributed a survey asking you to list your recreational interests. The results of that survey are now in, and a list of new activities was compiled.

In order to determine which of these have enough interest to be sponsored by the ERA, we will be holding organizational meetings. The meetings are for any employee and anyone from the employee's immediate family who are members of the ERA. All meetings will be held at 7:30 pm in the Basement conference room at the Jankys Lab.

The activities ranked favorably in the survey, the dates for the organizational meetings, and the names of contact persons for each activity follow:

Amateur Astronomy, May 11, Ron Maddalena
Square Dancing, May 7 (tentative), Lisa Wayne
Softball, April 26, Bill Shillue
Ham Radio, April 22, Dave Gordon
Sewing/Knitting, April 28, Shirley Curry
Woodworking, April 29, Tim Weadon
Photography, May 4, Ron Maddalena

Please join us and help make these activities a success. If you cannot attend a meeting but are interested in one of these activities, call the contact person before the meeting date.

Party for Grownups In The Works

Why should the kids have all the fun??

The Rec Association is going to try to resurrect Adult Dances. We are in the process of finding a good band and setting a date now. We anticipate that the dance will be held in May. So, be on the lookout for a flyer, and turn out!! Let's have some fun!

MAGPIE CONCERT **next week!!!**

Join us For an Evening of
Great Music for the
Whole Family

The Magpie Singing
Duo

will perform a selection
of songs to celebrate

.. Earth Day ..

Tuesday April 27

7:00

Tour Center

At Our Other Telescopes:

Interferometry

Frank Ghigo, our friend of the Interferometer had some news to report. The US Naval Observatory (USNO) plans to begin construction of a new antenna for its VLB network. The new antenna, 66 feet in diameter, will replace the 85-3 telescope currently in use by the USNO. I asked Frank why the Navy was interested in using the smaller instrument.

It has the advantages of faster slew speed and the ability to "see" down to the horizon. The 85-3, because of its equatorial mount, can't point that low. These capabilities will enable the new antenna to work with other antennas in the VLB network for longer periods of time.

Construction should start sometime this spring or summer; the new antenna will be built across the street from the Tatel telescope.

Navy VLBI will continue to measure wobbles in the Earth's pole, deviations in the rotation of the Earth, and plate tectonics.

In addition, the network could be used to measure proper motions in quasars (the distant radio objects used as reference points in their current work). Frank says that proper motions will only be discernable if the "closed universe": cosmology is correct. Proper motions of around 10 arc seconds would be detectable over a several year observation period.

Orbiting VLBI....

Larry D'Addario heads the OVLBI (sounds like Ovaltine) project. Larry and his team are working hard to design and build a tracking station here at Green Bank. The 45 foot telescope (first one on the left after you pass through the gate) is being outfitted for this purpose.

To refresh your memory, OVLBI is a joint venture between several countries to place a radio telescope into orbit around the earth and use it as one of the pair of telescopes needed to make an Interferometer. The other member of the pair would be one of several telescopes on the ground. Such a large spacing between telescopes in the pair will result in unprecedented detail in maps or images of radio sources. Russia and Japan are separately building radio telescopes for launch into Earth orbit.

The 45 Foot telescope at Green Bank will be one of 6 tracking stations on the ground. The tracking stations will have 2 functions: a) to store data collected by an orbiting radio telescope, and b) to transmit a time signal up to an orbiting telescope.

For the data storage, we will be using the same equipment used at the VLA and VLBA telescopes.

The telescope will transmit the timing signals in the form of microwaves. I asked Larry if he worried about the possibility of Interference from these transmissions. He said that the signals would be fairly weak and have a narrow bandwidth. But the jury's still out on that one folks.

The 45 foot will be ready by mid 1994, well in advance of both Japanese and Russian launch dates. That will give the team time to test their system, and Wes time to test for RFI!

What is Interferometry?

If you use two telescopes simultaneously to observe the same object in space, and correlate the data from each antenna together, you can achieve the same resolution as if you had one telescope with a diameter equal to the distance between the pair. Wow! Think of the effect we achieve when one of the pair is in space!

NRAO Fire And Rescue News

submitted by Richard Fleming

The Pocahontas County Commission (PCC) requested and NRAO agreed to donate NRAO's ambulance and two fire trucks. In turn, the PCC and area fire and rescue departments will provide these services to NRAO. BFD is establishing a sub station building across the road from NRAO and will provide fire and rescue services to NRAO and the surrounding area.

The equipment being donated by NRAO will go directly to the PCC and will be distributed to several area fire and rescue departments. The manner in which the equipment will be

distributed will be determined by advisory groups of the PCC, namely the Emergency Service Board and the Fire Service Board. These groups are made up of the rescue chief and the fire chief of each county rescue/fire department.

Details of the transfer of equipment and assumption of responsibility for coverage of NRAO are being worked out now. NRAO Fire and Rescue squads will continue to function until the new substation building is complete and equipped. The change over will probably occur in mid-summer.

Making NRAO Grounds More Secure

Richard Fleming

NRAO is working on an Agreement with the PCC and the county sheriff to establish a more visible presence in the Green Bank/Arbovale area in general and around NRAO in particular. County law enforcement officers will be able to utilize the NRAO Guard House as a field office in the northern part of the county.

County sheriff, WV state police and Department of Natural Resources (hunting and fishing) officers will be able to use the guard house whenever necessary to provide some kinds of services now only available in Marlinton. The officers will be able to be in the northern end of the county more than in the past and will use the guard house as a place to complete reports, conduct limited official business, etc., instead of having to drive to Marlinton.

An additional benefit will be the added presence of law enforcement officers in and around the area.

A new state police officer is moving into Cass and there are some hopes for an additional sheriff deputy in the northern end of the county this year. This additional availability will hopefully satisfy concerns for property protection and other related concerns.