



## **NAAPO (North American AstroPhysical Observatory)**

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### **NAAPO GOES INTERNATIONAL**

In a letter received on 23 July, Bill Lonc of the Department of Physics at ST. MARY'S UNIVERSITY, Halifax, Nova Scotia eagerly accepted our invitation to join NAAPO. He is already grooming a student to come to Big Ear next summer. We heartily welcome our Canadian neighbors to this rapidly growing organization!

## **FALL SEMINAR SCHEDULE OPENS**

This fall I am looking forward to getting out to as many departments as possible to speak to undergraduate students potentially interested in experience at Big Ear. I would appreciate it if requests for speaking times to clubs or collections of departments be made as far ahead as possible. My fall term schedule is somewhat looser than either winter or spring.

The presentation is illustrated and will deal with the history of Big Ear, its crisis and NAAPO. I will review the experiences this summer and the nature of the Consortium. As usual I will emphasize the student involvement and the benefits that accrue to affiliate institutions.

I would prefer a Friday date if possible, but can arrange any appropriate date. Transportation and food assistance at the host institution would be appreciated, but not required. Any support will become a donation to NAAPO.

If you wish to make a request for a presentation this fall write or call the Consortium Headquarters office as soon as possible.

P. Barnhart

## **PROBLEMS ARISE IN PAINTING BIG EAR**

When Gene Mikesell began painting, it became evident that the single spray gun method would require more than the estimated 5 days to complete. Three full days resulted in about one tenth of the surface being painted.

Painting on a flat surface would have required 75 gallons of paint. Since most of the surface is empty, about 75% of the paint falls onto the superstructure or the ground. It seems the job will require about 250 gallons.

To speed up the application, a 12-foot paint wand has been ordered. Mikesell is constructing a metal sled to carry the wand (while spraying) up and down the ladder. Great hopes for the technique are aimed toward the time the wand arrives. A 5-day painting period may materialize, and the cost may still come in under \$5K.

## COORDINATOR'S CORNER

We are nearing the end of our first summer of becoming an operating consortium. Three affiliate institutions struggled to organize before the summer began. Two student interns jumped in and we can see already the potential that lies in the concept upon which we are building. Several times this summer I have found myself commenting upon how it will feel to have six times as many able, enthusiastic and talented workers as the two Marks we have worked with this summer.

As new affiliates come to the fore, I can see lingering doubts. I continually get questions amounting to: "What does it cost us?" "Is my institution going to be left holding the bag for preserving Big Ear?" The modern college or university is not used to engaging in operations that do not require large expenditures of money.

NAAPO is operating with the understanding that one of the most important forms of capital that can be invested is that of human talent. NAAPO asks only the investment of time and commitment of good, partially trained (but experienced) college students to engage in performance of tasks typically carried out by contract employees, union labor, paid graduate students or college faculty members working on top of their regular teaching load. In return, NAAPO pays off in something mere money can never buy, and indeed nothing can buy in many undergraduate college environments; the experience of total immersion in an ongoing research program. Student interns will become a part of a team effort directed toward shared goals, some of which they will have a part in establishing. This kind of experience is often more valuable than any salary or economic reward.

This summer we have shared a number of disappointments. The latest has come at finding the painting of the flat reflector is taking two weeks longer than hoped. This delays the eagerly awaited look at the declination of the galactic center to check out the "odd, spiked sources." As long as the paint must drip slowly to the underside of the mesh, the flat has to rest at a more northerly declination. We must wait till the paint is all dry before we look back at 29 degrees south declination. In science we develop patience.

To speed up the painting a scheme is evolving to pump and spray paint faster. This needs another worker at the telescope to mix paint. Our solution — plug in an

intern. If the addition of another worker does not quadruple the painting rate, the two week delay will drag on to a month. Our hopes are up.

## **NAAPO HEADQUARTERS**

Please address your comments and questions (and material for the Newsletter) to:  
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## **ZELENCHUK COMPARISON YIELDS INFORMATION**

After completing one eighth of the comparison between the Zelenchuk survey at 2.97 GHz with the 1.42 GHz Ohio Survey we are beginning to see some results.

It is becoming evident that sources plotted on the Ohio maps with distorted contours are generally the result of blends of distinctly separate sources. In other words, when the Ohio Survey was not able to specify and label the individual members of a blend the presence of blended sources is rendered on the maps. In this sense the contents of the Ohio Survey is even more reliable than previously estimated.

There is also evidence for a number of centimeter enhanced sources that appear from a comparison of the two surveys.

It is a bit unfortunate that the comparisons were started in an area of the Zelenchuk survey that remains incomplete because the sun was close by at the time the measurements were made.

Work continues as the interns can get to it between "crisis" tasks.

## **INSTRUMENT HOUSING TAKES SHAPE**

A sturdy, environmentally impervious, vandal resistant housing for the horn outputs and low noise amplifiers is nearing completion in the shop at Otterbein. After installation of neoprene gaskets and a thorough coating with epoxy paint the housing will be mounted on the horns. The estimated completion date is 12 August.

The housing will have two removable access doors and a removable bottom cover to facilitate dismantling the nitrogen dewar. Total weight will be about 200 pounds and cost (excluding some donated materials) will run about ninety dollars. This project was largely carried out by the student interns, Mark Eickhoff and Mark Johnston.

## **WORKING SESSION**

**AUGUST 2, 1986**

**at Big Ear**

In attendance: Barnhart, Eickhoff, Mikesell, Mitchell, Bolinger, Sandy Yorke (Denison), Huck, Abel, Dwight Beery (Manchester), Flynn.

Agenda:

### 1. Intro of Guests

Drs. Yorke and Beery were welcomed to their first working session. They represent the latest Consortium member additions.

### 2. New Consortium Member

NAAPO now welcomes an international affiliate — St. Mary's University, Halifax Nova Scotia.

### 3. Security System

Barnhart directed that the security system must be working in order to be effective and stressed that it be armed whenever the observatory is vacant. Whoever calls in a service crew or contract worker or visiting group will be responsible to see to it that the system is properly disarmed upon arrival and rearmed on leaving. There will be no exceptions!

### 4. Progress reports

Mikesell reported that the painting of the flat reflector continues and that he is working on building a new painting unit to speed up the process. He also reported that progress on the security fence is slow.

Bolinger reported the following:

Synthesizer Interface: The design is now complete and building will require about 3 months.

Preamps: The preamps are back from California fully repaired.

Air Conditioner installation: The A/C installers found additional problems.

Questions arose on whether or not the thermostat needs replacement. It appears that maybe 2 or 3 heating elements might have burned out.

Suggestions for rewiring an auxiliary heating thermostat, and ordering a motor replacement were discussed.

11/23 progress: 11/23 expansion hardware is in, and we now have a color monitor.

#### Progress report - Abel

The Integer Square Root Programming is now complete and runs about 2/3 millisecond.

The three station intercom is to be purchased and installed at RADOBS.

#### Progress Report - Eickhoff

Comparison by Johnston of maps of Zelenchuk and Ohio Surveys continues.

The wood instrument housing is nearing completion.

#### 5. Announcements

Huck reported that the receiver has been interfaced.

Mitchell reported that shipping charges for the Speedomax should be paid.

Progress on the ESL project is slow.

General discussion of lost source list, priorities list, computer mail.

New concerns were also brought to our attention: PDP 11/23 is overloading and eventually will be only accessible and not programmable, and what should be done with the 11/44?

A tour for the new members immediately followed the working session.

## Par for radioastronomy

[Note. Click on photo below for a larger version.]



The radiotelescope in Delaware, Ohio, that was threatened with destruction by the expansion of a golf course (SN: 2/12/83, p. 101) has now definitely been saved, Phillip E. Barnhart of Otterbein College in Westerville, Ohio, reported at the meeting of the American Astronomical Society in Ames, Iowa, last week. Four institutions have formed the North American AstroPhysical Observatory to operate the telescope and have negotiated a 10-year renewable ground lease with the owners of the golf course. Built by Ohio State University at Columbus and Ohio Wesleyan University in Delaware, Ohio, the instrument was threatened when Ohio Wesleyan sold the ground on which it stands to the owners of the golf course.

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Designed by Jerry Ehman

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