



NAAPO (North American AstroPhysical Observatory)

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NAAPO Coordinator -- Philip E. Barnhart,
Department of Physics/Astronomy
Editorial Intern -- Beth Helwig; Otterbein
College, Westerville, Ohio 43081

IMPORTANT RESOURCE AVAILABLE FOR CONSORTIUM MEMBERS

A new affiliate of NAAPO has joined during the past month. Bob Sickness, Journal Editor for the Society of Amateur Radio Astronomers (SARA), sent a packet of information to the NAAPO Coordinator which offers many useful services to those working on a limited budget. [Sound familiar?]

We will certainly reprint material from the SARA Journal in NAAPOnews. SARA has a world-wide membership of about 250 and provides a means of distribution for very useful components and instruments to its members.

NAAPO Members Should Join - - -

A membership in SARA brings a number of benefits that will be of great use to our institutional members. Not only do you get a very useful journal presenting ideas

and plans that can be realized by talented beginners, but the group stands as a good source of help when it comes to making experiments work (they have done them). There are also opportunities to obtain inexpensive, high quality equipment and hard-to-get components.

At the very least each college library or physics department should have a copy of Bob Sickels' book, "Radio Astronomy Handbook". Interested students may find the book useful as well.

Reports to NAAPOnews of any projects that you start out of this new affiliation will be welcomed and printed.

COORDINATOR'S CORNER

"THE ROAD TO HADES IS PAVED WITH GOOD INTENTIONS." Well, at least it is paved. The month of December was the time I was supposed to get caught up. All those things I had put off with the view toward doing them in the interterm break . . . HA! The month went by filled with other obligations I had conveniently plugged into the 'available' time. The lot of the volunteer is a busy one.

In compiling the contributions to NAAPO this past year, I ask[ed] some of the volunteers to give an accounting of un-re-imbursed time donated to the project. Totals are not complete, but I have an order of magnitude estimate. There is certainly more than 4000 hours of donated time we can document. I am certain there is more that I have not swept up. Furthermore, there is no way to attach an accurate value to this donated time. Assume \$15/hour for a professional and \$8/hour for a preprofessional and a total weighted value can be calculated. We were the recipients of over \$53,000 in volunteer labor during 1986! To yield this amount by investment at 7% interest would require over \$750,000. NAAPO, by virtue of its Volunteer Brigade, is worth at the start three quarters of a million dollars! This is no small operation.

Another opportunity that has been developing over the past several months is the possibility of material donations from business and industry. We are beginning to explore companies that have excess inventory or no longer needed stocks of components or instruments. Donations to NAAPO can serve two benefits for such companies. They no longer have to carry excess inventory and they can write off such inventory as contribution to an educational and research organization. Our

advantages are also multiple. We gain access to quantities of materials and instruments unavailable to us in any other way, and we can use such material in construction or development of instruments usable at the radio observatory or in the labs feeding the radobs.

One further advantage NAAPO provides is the possible clearing house for the distribution of quantities of useful materials to member institutions for application in experimental or design projects in educational settings. I note that SARA makes use of quantities of such material donated through their organization. We can certainly cooperate with them in the spread of such surplus material.

In connection with the cooperation with SARA I have indicated to Bob Sickels that I will be willing to highlight in NAAPOnews appropriate offers made in the Journal of the Society of Amateur Radio Astronomers. In the January issue he makes a generous offer to SARA members of a kit for the construction of an NRAO style low noise D.C. amplifier using a CA 3140 op amp. For further information contact NAAPO headquarters or Bob Sickels, SARALAB, 7605 Deland Ave, Ft. Pierce, Fla. 33451, (305) 464 2118.

I seem to find myself in a rut. For years I have fought to operate a small college physics department on very modest budgets with the only bright spots the occasional sharp student who can build instruments and overcome the barriers set by insufficient funds to keep our inventory at the state of the art level. Now that we are beginning to draw together enough volunteers to begin doing the jobs needed I suddenly find myself running and jumping to keep up with what needs to be done to get them rolling. For self defense I am forced to delegate responsibility. During the past few months three loads have been delegated and we are beginning to see results roll in from them. We now have as directors of these new areas: Horn motion control/monitoring, Carol Abbott; Proposal preparation and editing, Jill Rugare; and educational director, Dick Helwig. Any delays in getting output from these people have been entirely due to my slowness in implementing the setting up of each directorate. If you have any input to any of these people, you may direct it through me or directly to them, when you get the new NAAPO roster soon to be published.

I am thinking of delegating one other task and would like some input from the potential 'directors'. I am finding it harder and harder to do the planning necessary for a Consortium meeting this winter. There are a number of issues we need to

address in a common meeting, but my classroom obligations have prevented me from doing the planning necessary. I would like to have a volunteer committee of two or three liaison persons from the member institutions to get together some weekend before long in order to lay out a two day session to which we can bring as many representatives, faculty and students, and friends of the radio observatory as possible to provide help and encouragement for participation in the consortium. I will welcome any volunteers to this task and be glad to set up: the organizational meeting as soon as we have a committee. Write or call your nearest NAAPO Coordinator!

WRFD READY TO MOVE IN ON BIG EAR

Application is being made by radio station WRFD (880 kHz, 5000 Watts) to move its transmitter location from Powell Road and Rte. 23 (Approx. 7 miles south of Big Ear) to Cheshire Rd. and Old State Route (Approx. 2.5 miles due east of Big Ear). Plans also call for increasing transmitter power to 50 kW. Radio Observatory personnel are seriously concerned that such a combination of moves will drastically increase the noise background in the immediate vicinity of the telescope. The direct radiated power would not be a serious problem, but the noise could be generated in any metal junctions in the vicinity of the radio telescope.

Letters of intention to testify before the Berlin Township and Liberty Township zoning boards as well as the Delaware County Commissioners are being prepared by Bob Dixon on behalf of the Radio Observatory. Bob will also send a letter of objection to the FCC in Washington. It is important that we pursue this matter vigorously. It seems the owners of WRFD are firmly intent on making the moves as soon as they can obtain permission.

In addition, Bob has invited the management of WRFD to visit Big Ear. Hopefully we can gain some sympathy from them if they see the kind of problem they are in a position to create.

DON RAY COMPLETES FIRST PHASE OF INTERFACE FABRICATION

At the December 20 working session, student intern Don Ray from DeVry delivered the beautiful wiring diagrams for the synthesizer interface. With these accurate drawings the next phase of the project becomes possible. The wiring diagrams will be transformed into circuit board layouts and production of the ten circuit boards will be possible.

It is hard to estimate how valuable the production of such high quality drawings is to the overall project. We all extend our gratitude to Don and hope that there will be many more opportunities to put this great talent to use.

HELWIG TAKES OVER NEW ARM OF NAAPO

Prior to the 3 January working session, Dick Helwig discussed with the NAAPO Coordinator the possible contributions he can provide as a volunteer to the Consortium. Dick brings with him a number of talents that should prove useful to our efforts. He has earth science experience working with NASA and teaching experience at a variety of levels. He has a particular interest in enrichment programs for school children and scout groups. A talent for public speaking makes him a good choice for the service club circuit.

By mutual agreement Dick has agreed to take on the public education task for the Consortium and Big Ear. This will involve field trips to the radio observatory and the organization of work sessions at the site in exchange for educational tours or merit badge assignments for scout groups. Creation of this new post will free the NAAPO Coordinator of a sizable chunk of time. This is a welcome relief in the crowded calendar.

WELCOME ABOARD, DICK!

SKIP LEWIS SUPPORT FOR NAAPO GRATIFYING

Toward the close of the 1986 calendar year I received a brief note from John Kraus, NAAPO Secretary and guiding light for the Big Ear project. It reads:

"Gifts from Dr. Lewis this year top \$11,000, giving the consortium of colleges and universities a big boost.

Thank you 'Skip'!!!"

It is indeed gratifying that such dedication to the cause of science can be manifested in such a direct, meaningful way. Research funds through the university are in jeopardy because of the 45% overhead charged by the University so that \$1 donated directly to NAAPO is in effect worth \$1.82 obtained from a government grant through the university.

In addition to Skip Lewis' donations, we have been operating on about \$2700 donated to the NAAPO operation. In addition, about \$10,000 worth of equipment has come our way. We are putting a good bit of it to use directly.

Furthermore, counting up the volunteer time of a large number of faithful workers indicates a tremendous endowment that is not available at any price. Dedicated volunteers are making the project go. It is of course the purpose of the consortium to enhance the ability on the part of many more volunteers to join in this aspect of the operation of the radio observatory.

DISPLAY ARTISTS WANTED

Attention is called to the fact that the two display bulletin boards on the OSU campus that present the accomplishments of Big Ear are sadly neglected and out of date. Our image can only be a negative one for those that see these display boards. If any one would like to take on the task of designing and executing a revision of these boards, contact Barnhart-P (898-1516), Dixon-R (292-4843) or Bolinger-J (292-6789). There are ideas and offers of help at these phone numbers.

(This sounds like a good opportunity for a public school class project.)

ASTERISK BRIGADE

During the past month the following people have put their money where their convictions are and have been awarded the Order of the Asterisk. It is gratifying to know that the news we spread has meaning to these people. We appreciate the support and will try to bring much good news their way in the coming year.

Dr. Ron Ghosh

Ms. Amy Bouska

Dr. Thomas P. O'Hearn

Mr. Robert Sickels (SARA)

For those not seeing a string of asterisks on your mailing label, beware. In the next few issues, those mailing labels will cease to be printed. Remember, for a mere donation in excess of \$9.99 (that is less than 2.8 cents per day over the next year) you can be assured of receiving the next 24 issues of NAAPOnews. Keep in mind, the news for the next year is on the way up to better and better news. We need your interest!

IMPORTANT LESSON STRESSED BY KRAUS

It was recently noted by John Kraus that the Ohio Survey source OG451 had no counterpart on the NRAO 1420 MHz survey published early last year. Some extensive digging into the archives revealed that OG451 does not appear in the original survey data. It is most likely an artifact of the reduction routine that mistook a level change on one scan and interference signals on another for a relatively prominent source.

The lesson to learn, Kraus points out is that the presence of a source on a given survey is considerably less reliable than the absence of a source. In the Ohio Survey there are more likely to be sources showing up that do not belong than there will be sources above the cut-off limit which do not appear in the source list. We must be vigilant and view the list of sources with care. This is one of the biggest reasons for compering the Ohio Survey (1964 - 1974) with other surveys being completed.

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Designed by Jerry Ehman

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