



NAAPO (North American AstroPhysical Observatory)

"Signals"
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NASA Group Visits Big Ear

Jill Tarter, NASA SETI program director, and assistants Dan Werkheimer [sic; "Werkheimer" should be "Wertheimer"], John Drayer and Earl Jackson visited the Radio Observatory from 17 Jan. through 20 Jan. to assess Big Ear's potential as a dedicated site for their targeted source SETI survey. During their visit the NASA team attached the SERENDIP II, a state-of-the-art 8 megachannel analyzer, to the output of the Big Ear receiver to check the RFI environment.

Earl Jackson had set up a discone antenna outside the office building a month earlier to monitor the general 1- 10 GHz RFI at the site. Cellular phone traffic at 800 - 900 MHz [sic; "GHz" should be "MHz"] just about melted the first amplifier stage even though it was outside the passband of interest. A sharp, low frequency cut-off filter was installed which opened up the low frequency end of the water hole window.

Highlight of the visit was the opportunity to watch SERENDIP II do its thing in multichannel analysis. Erasable optical disc technology, the storage medium selected for handling Gigabytes of information, is really the way to go.

Our biggest disappointment was in not being able to demonstrate our full capability with the OSU Mark II SETI program and the full range of motion for the flat and horn cart. Our SETI program shut down because the SERENDIP II could not tolerate the 79.6 Hz Dicke switch modulation.

Earl Jackson will return for a week in February to move his discone and recording equipment to the focal plane of the telescope. This will allow determination of how effectively the telescope shields the receiver horns from local RFI.

The NASA SETI Program hopes to turn on at all sites on 12 October, 1992, the 500th anniversary of Columbus' landing in the new world. What better place than the largest city in the U. S. named for the Italian Navigator.

Student Helpers Welcomed

Susan Snider brought a group of 9 students from her eighth grade classes to the December 2 Working Session at the RO. They expressed interest in the proposed tasks and suggested a few of their own. Those attending were: Andy Auseon, David Baas, Andrew Butler, Joel Davis, Jacob Huffman, John Liesenfeld, Colin Lohse, Scott McLean, and Jamie Stanton.

Since the start of the working session, leaves have disappeared from around the office building and the garage/shop. Pictures are being taken for the display areas and there is talk about the display board in the hallway of the office building.

We are always happy to see new faces with willing hands taking an interest in the operation of the best old radio telescope this side of the Mississippi.

ESL Installs New Horn Blinders

Big Ear has the first anti-diffraction edge fittings ever installed on a radio astronomy feed horn. Workers at the Electro-Sciences Laboratory at Ohio State University, designed and fabricated the formed wire edges for the horns during the month of December.

Installation was completed on 16 January. Full testing of the effectiveness has to await completion of the NASA measurements.

The curvature of the edge formation was calculated by a program developed at ESL. It generated a curve that was required not to be constant in the third derivative. This curve was cut into wooden templates which were then secured to the horn front. Wire mesh was then fastened to the templates and the horn edges were complete.

NAAPO plans to publish a short technical bulletin for distribution in the next few months.

Coordinator's Corner

The winter term has started here at NAAPO headquarters. I am surprised again — expecting 80 or 90 students and facing 125 at the start. I get into gear and change some of my ways; pare down on the time-consuming activities and still try to give everyone a fair chance at one-on-one learning.

We have seen great things at BIG EAR the past few months. A new crop of volunteers are cutting their teeth on a variety of tasks. Old volunteers line up and get all sorts of things to do. There are several things I can not let pass with perfunctory mention in a meeting report or short descriptive article on the pages of *Signals*.

MRS. SUSAN (LEACH) SNIDER'S class has taken on some long standing projects. We are seeing quick, tangible results in spite of a rumor that the RO shuts down every Thanksgiving to wait for the apples to bloom before returning to the balmy task of surveying the sky. Rest assured, the steady pursuit of astrophysical pay dirt is not halted by anything, save a mouse in the disc drive or failure on the Delaware two bit power grid.

Budding Michelangeloes from Jones Middle School painted everything BUT the ceiling in the RO conference room a few weeks ago. Rumor has it that they even required a half-gallon of pale puce paint to cover EARL PHILLIPS, sent there to keep them from painting glass in the windows. Student painters were HOFFMAN-J, BAAS-D, STANTON-J, and LIESENFELD-J.

Called out of retirement to reshape the 11/23 for operation was JIM BOLINGER. He gave up a weekend visit to his new in-laws to add his magic touch to the nagging problem at hand. It's great to see that there was enough thought put into the design and construction of the system that all contingencies are but small glitches to the designing mind. He made it easy by doing the work right several years ago.

STEVE BROWN is running around like a one-armed brain surgeon trying to keep ahead of the NASA rfi game and the ups and downs of RO crises. He is taking a refresher in junk identification to be able to aid the OSU garbage system engineers as they remove discarded pieces of obsolete hardware from the vicinity of the Observatory. It seems some of the material weighs over 30 lbs. and thus requires

employment of a back-hoe and crane to effectively move it out.

RUSS CHILDERS took a well deserved respite in Florida. His wizardry in fashioning outrigger wheels and cart drive mechanisms is nothing short of magic. We are fortunate to be able to tap this great resource.

Finally, JEFF GOINS is digging into the operation of the Macintosh to produce a newsletter with a touch that hopefully will approach that of JOHN AYOTTE who is on volunteer leave until his work load falls back in line with union guidelines. I am starting to update the mailing list which we have allowed to degenerate in the past 6 months. We received 8% of our last mailing back, two-thirds of which had new addresses attached by the post office.

It feels good to be back in circulation again, and we are in the process of reestablishing a regular production schedule for *Signals*. Any questions or comments should be directed to the NAAPO Headquarters to either myself or the editor.

Inventory Surplus to be sold

The Foster Inventory, donated last year to the Radio Observatory by George Foster as residual from a closed business in Florida has been completed. Large quantities of electronic components and miscellaneous hardware are now available for liquidation to the benefit of NAAPO and the RO. As we will be unable to utilize the whole collection in our ongoing work it now becomes necessary to sort out what we can use and sell the rest.

Starting with the next issue of *Signals* we will publish a list of some specific items that may be of interest to many who chance upon this newsletter. We will offer this material for sale under the following guidelines:

- 1) Send us your want list along with the lowest price quote you currently use and we will ship all we can to you for 1/2 that price. This will be a good way to lay in a supply of regularly purchased items.
- 2) Send us a design idea you would like to try that can help the RO with a parts list and we will send you all the parts available that you need for a prototype to be built by you or a student, FREE of charge.

3) Find someone who will buy any of the material at a price above the quotes we get from the surplus scavengers. They may get all that is left.

Address all requests and inquiries to Dr. Phillip E. Barnhart, NAAPO/Otterbein, Department of Physics and Astronomy, Otterbein College, Westerville, OH 43081 or call (614) 898-1516.

Working Session Notes

6-JAN-90

The meeting started at roughly 10 am. Those in attendance were: Barnhart, Dixon, Childers, Campanella, VanHorne, Backus, Mitchell, Janis, Ferryman, Brown, Phillips, and a small contingency from Jones Middle School: Dave Baas, Jamie Stanton and Dad, Jacob Hoffman, and John Liesenfeld.

Steve Brown reports that the 11/23 is still not working. He feels that this is possibly due to the wiring to the A/C power supply, although he is not sure. It was decided to call in Mr. Bolinger or Pat Speer to see if they could return it to a functional state a.s.a.p., even if it means paying for the help! Steve also reports that the OSU movers have been to the RO to inspect our outside storage area, to see if they can get rid of any of the stuff. It seems that they were not interested in helping out, as their general feeling seemed to be one of hopelessness. It should be pointed out that a large portion of the stuff there is not ours, and in fact was there even before we 'stored' stuff there. Steve Janis states that the surplus department of OSU will possibly be able to take care of the problem.

Dr. Dixon reports that Dr. Kraus stated he wants to host a reception for the NASA people when they arrive. Dixon further reports that our water pump is non-functional, and may need to be reprimed. There will be an attempt to do this after the meeting. (This was successful, and we now have running, albeit undrinkable, water once again!) Dresse lab has a large surplus of computing equipment; so much so in fact, the OSU's fire inspector has stated that it is close to becoming a hazard. A volunteer was called to inspect this equipment, to help determine what is usable, and what is not. Some is slated to help repair the 11/23 here at the site, and some of it will be scrapped.

Dr. Barnhart reports that the Foster inventory appraisers have arrived, and that it

will be a 6-8 week task for them to do their job. The big problem now is to liquidate as much of the equipment as possible. Dave Backus has expressed an interest in some of it, and Steve Brown has tagged some of it for the RO. See the accompanying article in this issue regarding this if you are interested in finding out what is included, and to arrange to inspect it, if interested.

The meeting adjourned at roughly 11 a.m., with some going to inspect the storage area, others to inspect the pump, and the rest getting set to paint the meeting room. Ever notice that the first four letters of the word "paint" spell "pain"?

20-JAN-90

Well, this will be an easy one, since we didn't actually have a meeting! The NASA contingency [sic; "contingent" is meant] and some of our technical people were at the focus room, busy with things there. At the RO office, we had 3 of the Jones school group there to help with further painting, along with 2 new members of the Junior Columbus Astronomical Society (JCAS). As a result, the hall got a new coat of paint in record time. Only 4 more rooms to go, so if anyone wants to help out, be at the next meeting! Many kudos to the Jones kids, as well as the JCAS.

As for the people actually there, somewhere, there was: Barnhart, Dixon, Phillips, Janis, Brown, Campanella, Hoover, Ferryman, Bohern, and Childers. Among the NASA group was Jill Tarter, Earl Jackson, Dave Werkheimer, [sic; The correct name is "Dan Wertheimer"] and John Drayer. The Jones kids were Jamie Stanton, and John and Phillip Liesenfeld. The JCAS members were Joe and Mark Myers. Once again, I want to really congratulate the Jones kids, they have been real hard workers. Thanks a lot!

3-FEB-90

The meeting started a 10 a.m. Dr. Dixon presided in the absence of Dr. Barnhart, who promises to return soon. Those in attendance were: Dixon, Phillips, Janis, VanHorne, Ferryman, Tucker, Selover, Serrat, and the Liesenfeld family.

Dixon reports that the NASA proposal to renew the annual grant is ready to be sent in. He is also currently working on the Argus proposal, which is in the information gathering stage. Dixon also reports that Shamim has the ICOM receiver, in an

attempt to repair it. Steve Brown is currently testing the bandpass filter, and Rodney Ferryman has had no progress on the software development, although he expects to get some work done on it today.

The trash removal has had some movement; there has been much loaded into the dumpster, and after some rearranging, more is to be loaded in. It remains to be seen how the dumpster will be taken out, since the field is rather soggy.

There is a buyer coming to look at the IBM equipment to see if they will take any of it. Pat Speer is trying to clean up Dreese, as there is a lot of stuff down there that needs to be taken out. There was discussion of bringing some of the stuff to the Dayton Hamfest in April, if there is a booth open. The intent is to sell what we can, and abandon the rest! Also, if anyone is interested, there is a complete word processing system for sale; anyone interested may contact either Dr. Dixon or Steve Janis.

Tom VanHorne reports that he is currently attempting to write a project Argus primer. Its function is to explain the purpose and expectations of the system. The meeting was adjourned at 11:30 a.m.

17-FEB-90

In attendance were: Barnhart, Phillips, Mitchell, VanHorne, Brown, Campanella and Childers. The meeting started at 10:15 a.m.

Dr. Barnhart announced that Dr. Dixon would not be at this meeting as he is in Detroit. Bob Stephens of the Algonquin site was to be here today, but did not make it in last night.

Barnhart stated that *Signals* has been late due to the erratic schedules of the volunteers, and he apologizes for delays. He has located another possible volunteer to help out, and she may also be able to help with the public relations brochure that is running way behind schedule; we will know more when the student herself knows what she's doing with her schedule. As of this publication, *Signals* will be published in the latter half of each month.

Steve Brown reports that he hasn't had much time lately to devote to the scope due

to school obligations, though he has downloaded some continuum data from the PDP to his home PC in an effort to boil down some of the data.

We will be setting up a PC with a printer and word processing software in the focus room, to boil down still more continuum data. The dumpster is still on the grounds, waiting for a bit of better weather. The plan is to rearrange what has already been deposited into it to make room for more junk. Also, there should be a company in next week to look at the old equipment here and at Dreese lab, and they should be buying and removing some of it.

Steve has also been working with Earl Jackson's RFI equipment and states that he has found a fairly high amount of cellular phone interference. Earl will be returning next week to move the RFI equipment to the focal point of the scope, to begin testing there.

Steve Janis reports that Pat Speer has been working hard to help clear Dreese lab of excess equipment, but there is much to be done yet. He also reports that the long-distance telephone bills from the RO have been getting a little high recently, and asks everyone to please limit themselves in their long distance phone calls. There is a log sheet next to the phone in the RO office building; please be sure to log each of your calls.

Tom VanHorne reports that he is seeing some nice sources of the digital data he is analyzing. He also reports that he wants to get out an Argus proposal to NASA as soon as possible. He then gave a chalkboard presentation of the projected timing of various stages of the astronomy end of the operation. The purpose was to set rough time frames in which various necessary tasks could be completed. The meeting broke up about noon.

[Mailing List Needs Update](#)

Now that *Signals* is up and running again, it has been discovered that there are a few incorrect addresses among those of you are currently on the mailing list. In order to be sure that *Signals* is getting out to everyone interested, and to cut down on postal costs, it is requested that everyone please update their mailing address either electronically on RADOBS E-Mail, addressed to Barnhart-P, or please mail any changes of address to: NAAPO/Otterbein, Dept. of Physics and Astronomy, Otterbein College, Westerville, Ohio 43081. Your cooperation in this matter will be greatly appreciated.

[Mailing List Needs Update](#)

Future Working Session Schedule

3 March
17 March
7 April
21 April
5 May
19 May

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Designed by Jerry Ehman

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