



NAAPO (North American AstroPhysical Observatory)

"Signals"
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The NAAPO Newsletter
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Working Session Notes

19 Nov 1988

Present: **Barnhart, Dixon, Mitchell, Huck, Koch, Helwig-R, Helwig-D, Steva, Mallett-B, Mallett-D, Zimmer, Burgess, Green**

Announcements:

The presence of visitors from Jones Jr. Hi. was acknowledged. **Ms. Burgess** and **Ms. Mallett** served as designated drivers to get the Jones Jr. Hi. volunteers, **Zimmer, Mallett and Steva** to the meeting. **Pasco Green** from Bradenton Florida was introduced as a guest of **Walt Mitchell**.

Carol Abbott asked to have her terminal removed and will go on to the inactive volunteer list for the time being. She is building a house and landscaping a large yard in addition to her full time job at Fluidtronics in Lancaster.

It is noted that **Bob Stephens** is now employed at Algonquin Radio Observatory.

Some regret was expressed at the news that the 300-foot dish at Green Bank collapsed earlier in the week.

Software Group (Dixon)

1. in response to our plea for FORTRAN programmers, the SETI Club has provided the names of at least 3 who are willing and able to take on the task.
2. We may be getting 4(!!!!) PDP 11/23 computers from OSU Computer Science people. These had been used in their networking projects and are now falling into disuse. We will definitely be able to put these to use.

Electronics Group (Bolinger)

1. **Jim Bolinger** has taken a job at Newark Air Force Base. He will maintain ties to the radio observatory in times of crisis. We expect to see much of **Jim** in the future.

2. **Jim** has begun the documenting of the electronics status of the RO. This will constitute a full section of the facilities manual now under production.

Mechanical Group (Huck)

1. **Ron Huck** reports the completion of the video documentation of the flat move procedure. He also clarified the use of "UP" and "DOWN" when referring to flat moves. The "UP" designation refers to the angle the flat forms with the horizontal NOT the declination!!!

Publications Group (Ayotte)

A number of items are to be transmitted to **Ayotte** regarding the production of letterheads, preprints and other items. **Ayotte** requested the IAU TODAY boxes on Nomenclature produced by **Helene Dickel** for reprinting in the subsequent issues of SIGNALS. **Walt Mitchell** agreed to get copies of these for him.

Headquarters (Barnhart)

1. The financial wizards at Otterbein have delayed paying Dixon for his Toronto trip because they did not know what to do with his Canadian expenses. They were listed in Canadian Dollars and need to be paid in US funds. **Barnhart** refigured the voucher and sent it on its way.

2. Further delays have been encountered in the transfer of donated equipment. The continuing saga will be recounted at future meetings

3. **Barnhart** announced the appointment of **Aaron Connell** as an Otterbein student intern to become office manager of the consortium office. **Aaron** is majoring in Business Administration and is a Minor in Computer Science.

Further Business:

1. We have several IBM 1130's to give away.

2. **Barnhart** is to call the security people. Front door transmitter is not working.

MEETING ADJOURNED 12:45 PM

The business meeting was suspended so that the people attending could go pick up power poles along Jewett Road. **Barnhart** remained behind to give a tour and explanation of the organization to the guest and drivers.

3 Dec 1988

Those present: **Barnhart, Dixon, Ayotte, Koch, Backus, van Horne, Connell, Janis, Brown, Mershon, Ellingson, Campanella, Simon, Phillips, E. W., Ebersole, D. E.**

Announcements:

1. Intrusion Alarm was recorded Thursday evening 1 Dec. Sheriff did not call **Barnhart** as instructed if he found anything out of the ordinary. Resolution seems clear when a volunteer surfaced who did not make it past the second door in the focus room hallway. He left before the sheriff arrived so the chains were up and the sheriff did not go all the way back.
2. A number of changes are needed to the roster list of phone numbers. All active volunteers should be requested to review their data and respond to **Janis**.
3. **Kraus** and **Dixon** sent a letter of condolence to Green Bank NRAO concerning the collapse of the 300-foot dish. No reply had yet been forthcoming.
4. **Van Horne** volunteered to send a letter to the Serendip people offering support and observing opportunity.

Software Group (Dixon)

1. The SETI Club on campus has turned up a flurry of FORTRAN programmers. This should bring the software development back up to speed.
2. It looks as if four PDP 11/23's are on their way into the hands of the Radio Observatory group. This should speed up the off-line programming considerably. Ultimate disposition of the units will not be decided until final transfer of the

equipment is accomplished.

Publications Group (Ayotte)

1. The envelope printing is complete. Invoice to Headquarters is eminent [sic; "imminent" probably should have been used].
2. The pre-print project goes apace. Small problems still exist in the scanner program for copying photo. These should be cleared up by pre-print # 8 or so.

Headquarters (Barnhart)

1. Our PC based accounting system is now on-line. **Connell** has signed on as NAAPO headquarters office manager and will be responsible for monthly financial reports.
2. **Bill Mook** has donated a Hayes Smartmodem to the cause. When installed on the IBM PC/AT it will free up the PC/XT for transfer to the focus room and PC communications should then become possible. Micro-Group activity is much needed in this part of the project.
3. A request has been made for **Janis** (or appointed substitute) to submit reports of the weekly Tuesday meetings in Dreese Lob to the working Session.

Further Business:

The problem of slow paced volunteer activity, especially at the critical times of examinations and vacations was noted. It is possible this problem might show some improvement with added volunteers, perhaps recruited by the active volunteers involved.

Meeting adjourned 11:40 to allow for tours for the new guests.

Coordinator's Corner

The Holiday season takes its toll on volunteer labor. Final exams places a sharp strain on the ability to do things "not so high on the priority list."

Interestingly, this is also the time most academics (or those forced by position to work around academics) devote a large portion of their time to performing in the off duty tasks. **Bob Dixon** and I seem to be keying on this time very heavily because there are few classroom or administrative crises on tap this month. We enjoy seeing new volunteers not having the phase difference coming out of the shadows. **Ali Vardag** and **Rod Ferryman** (both veteran IRCC consultants!) are actively filling in the role of FORTRAN programmers. Things do get done.

I now understand more fully why I have studiously avoided administrative work. The worst part about being part of a bureaucracy lies in the fact that almost everyone you must deal with is a bureaucrat.

Another setback has occurred in the thermal recorder game. We drop back to an eight channel recorder with a firm 15 January pick-up date.

It will be about the same time we have to start deciding what to do with the materials donated to us by **George Foster**. Everything comes at once.

As this will most likely reach you between the two year-end holidays, I would like to wish all of our friends and supporters a very glorious holiday season. Without you we would not be sending these newsletters and preprints. Till next year -

Phil Barnhart

Project List

(contact person in parenthesis)

TASK	GROUP	ASSIGNED PERSONNEL	STATUS
FORTTRAN programming	Software	(Dixon), Ferryman, Vardag	operating
Mechanical Evaluation	Mechanical	(Huck)	needs volunteers
Chart Folding	Observers	(Van Horne)	needs volunteers
PC to Focus Room	Micro Group	(Bamhart)	needs volunteers
Newsletter writing	Publications	(Ayotte)	needs reporter/writer
Cart Monitoring and motion	Mechanical - Electronics	(Berry)	Manchester needs support from RO
Data Transfer and analysis	Software	(Morrison)	St. Vincent needs support from RO
Signal Calibrator	Electronics	(Bamhart) Lonc St. Mary's	Mark I nearing completion
Weed and Varmint control	Site Team	(Van Horne) (Snider' class?)	needs volunteers
Cement and block repair	Site Team	(Van Horne)	needs volunteers

We request that contact persons and group leaders (RFI, Mechanical, Electronics, etc.) submit tasks and status information for updating this list. All jobs needing attention should be included. Descriptions of the kind of skills or facilities should be included. All others who see a task that you or someone else might accomplish, please send it along. There are a large number of things that can be included (should be included). Public relations, fund raising, community service, research programs,

site development and off site opportunities are fair game.

By getting the tasks before us and the needs to carry them out we hope to stimulate more volunteer involvement and generation of ideas.

Volunteer needed to:

1. program FORTRAN 4 available and expressing interest from the SETI Club at OSU (should contact **Dixon-R** ASAP)
2. make 11/40 card reader work (open)
3. coordinate Micro Group activities (open). Contact **Barnhart-P**
4. coordinate grounds keeping at RO (open)

Radobs Notes

Mon 21 Nov 88

Bob Dixon

Pole Party #2 Successful

We carried another 7 poles to the RO Saturday. Those participating included **Ron Koch, Steve Janis, Rick and Dick Helwig, Walt Mitchell, Ron Huck and Bob Dixon.**

There was an 8th pole we gave up on for now. There will eventually be another 10 or so after they are removed from the ground by the power crew. I do not know when that will happen.

Tue 22 Nov

Bob Dixon

Program work

I am planning to spend the entire day Friday at the RO working on the SETI program software. A writer from Final Frontier magazine will also show up then to do a story about our work. I also plan to spend some vacation days over the Christmas season there.

Wed 23 Nov 88

Bob Dixon

NRAO Dealings

Bill Brundage called me today. He is a former RO grad student and now in charge of the VLA efforts to detect Voyager at Neptune. He says little is yet known about the 300 foot collapse. He was here when the OSU telescope collapsed years ago, and is now getting accused of being associated with the only 2 radio telescopes ever to collapse!

Sat 26 Nov 88

Bob Dixon

Software Progress

I spent all day Friday working on the SETI program software. Considerable progress was made, and the problems I set out to fix were fixed. Of course there are always others, but we are getting close.

Other problems and facts:

The air conditioner is not adjusted right or working right or documented. When I arrived the room was much too hot. This is very bad for the equipment. There are no instructions posted which clearly explain what to do. I turned down one thermostat to 70. Apparently this caused the a/c to cycle on and off as for the rest of the day the room cycled from too hot to too cold, also bad for the equipment.

Vic Kean is trying to disconnect the gasfets and terminate them. This needs to be investigated asap.

Tom Van Horne was there also and was helpful in starting to document the software. This is a big project that needs lots of someone's time. Not just to do but to plan it and write programs to do it.

Sun 27 Nov 88

Tom Van Horne

soft doc

All of the files on **Bob's** ID were printed on Friday before I left. (that is all of the .

ftn files) There are references in some of the programs to other programs and subroutines that are not easily findable. **Bob** informed me that a number of these are **Marc Abel** specials but even under his ID, no source code was to be found. Even if these references are to entry points, we really should have this stuff better documented.

It occurs to me **Bob**, that cross-referenced compiling and hunting for source code in the system might be an excellent way for someone to get involved in the software development/maintenance areas of activity — more so even than developing special software applications. That is, in order to figure out what references what, they would have to develop considerable familiarity with the general layout of the SETI system which would probably inspire them to ask questions about what the specific programs are actually doing. Lets get some of our FORTRAN enthusiasts started on this. It would also be a good level of introduction to the RSX operating system.

Sun 27 Nov 88

Tom Van Horne

Columbus Astronomical Society

Even though sick on Saturday, I loaded myself up with drugs and went and gave a talk to the Columbus Astronomical Society at 8pm. My judgment may have been impaired, but I think it went very well, with great interest in our activities being displayed by the group. They were very concerned about the collapse at Green Bank and felt that we should be receiving much more support for the work we are doing than we are getting. However, this did not seem to translate into a surge of volunteer offers. We may get a few volunteers out of it, at least one person called me later that evening and wants to come to next Saturday's meeting.

Sun 11 Dec 88

Bob Dixon

SETI Progress

Saturday I found and fixed the problems that were causing the SETI program to crash. It now runs continuously without failure. This is a new milestone. But now of course we just have the next level of things to fix. The data it gets from the receiver is rubbish, so I suspect the receiver is not connected or adjusted properly The program continuously finds gigantic signals like -200 sigma, which are of doubtful

reality. Because it continuously finds these signals, it cannot be left running, because it will fill up the disk with all the exciting detail about these rubbish signals. My progress is now also impeded by lack of proper documentation. Saturday I had program listings covering most of the floor in the focus room, trying to sort things out and find what I needed. We critically need the notebook that **Marc Abel** made updated and kept up to date, with all the current listings. I think a program could be written to automatically do this, but it would some skill with RSX.

Sun 11 Dec 88

Bob Dixon

Modem Status

We are going to buy 3 professional 2400 baud modems of the same type used by the OSU computer center. They include full error correction. We can get used guaranteed ones for \$325 each. If we have any trouble with them, I can get help from the computer center.

Mon 26 Dec 88

Bob Dixon

Recent Progress

1. New Modems: They are here, but do not work yet. **Ron** installed one in my house which works OK to call the campus DEC20, but not to the 11/23. We continue to experiment with the 11/23 problem. As of now, the old modem has been reinstalled at the RO, but now it does not work either, so now you cannot dial in to the RO at all.
2. Software: **Rodney Ferryman** and I spent several sessions working on things, and he is making good progress toward understanding things. I have made him a privileged user so he can get to the things he needs, We plan to work more this week.
3. Hardware: There continues to be a/d overload problems, and I am ready to work on the hardware, but there is zero test equipment now in the focus room so I cannot. The older scope is there but it does not turn on. There is no VOM there, nor the sweep generator. **Ron** please bring the sweep generator and all accessories

(detector, attenuators, etc). Also VOM and all common test equipment.

Tue 27 Dec 88

Ron Huck

flat reflector

I talked to **Ed Teiga** last week. I asked him how you were supposed to set the flat reflector when looking through the telescope. Originally they used pieces of survey rulers, and **Gene** would have to climb up every so often and replace them when they faded or got painted over. **Ed** thought **Gene** finally painted over the rulers and painted a stripe on the markers. Some of the bays are twisted, especially near the one that fell, so the painted-on stripe was different for each marker (**Jim** made a note about the drawings of the markers in the control house on the video tape some people have copies of). I have not seen any painted-on stripes so maybe they got painted over the last time the flat's screen was painted.

I asked **Ed** what the purpose of the lower brakes is. They are to keep the flat from falling up (when the flat is almost vertical, they help to keep it from falling onto the ground plane should a gust of wind come along).

The switches for the brake heater flood lamps are in the air compressor house. They are 3 circuit breaker switches, one for each phase of the 3 phase line.

Ed said for long moves of the flat there is a spot (maybe around 15 - 20 degrees, he couldn't remember for sure) where the brakes and everything are not in good alignment or don't track right so that the actuator switches don't always work right and he said someone would have to climb up and wiggle them.

I think this information should go on the flat moving instruction tapes.

Fri 30 Dec 88

Ron Huck

2400 BAUD MODEMS

AFTER MUCH TESTING AND MANY CALLS FROM **BOB'S** HOUSE WE NOW HAVE A 2400 (ONLY) BAUD MODEM ON THE 11/23. THE BIG DELAY WAS THAT THE ORIGINAL MODEM CHANNEL ON THE SERIAL

CARD WAS BAD (WHO WOULD HAVE THOUGHT....) AND ANOTHER CHANNEL HAD TO BE WIRED FOR 2400 BAUD. CURRENTLY THE MODEM ANSWERS ON THE FIRST RING. UNTIL WE GET A MODEM CARD WITH AUTO BAUD WE ARE STUCK AT 2400 BAUD. THE PEOPLE TO BE THANKED ON THIS PROJECT ARE: **BOB DIXON, JIM BOLINGER, AND MIKE FIDDLER.**

Tue 3 Jan 89

Bob Dixon

Recent Progress

I have finished editing much of the SETI Zoom paper, but am stopped by the Argus description at present. Also no progress with the illustrations. I am supposedly on vacatton, but still had to go to the office 3 days last week. And maybe some this week. As Ron said, 2400 baud dial-in now works to the RO, but much more work is needed. We mysteriously lost the ability to let people answer the telephone first (this has nothing to do with the modem speed), and we are now stuck at 2400 baud only. **Rodney** has taken up the Kermit project where **Frank Shen** left off. Don't know how far he got.

Tue 3 Jan 89

Tom Van Horne

flat moving video

I ran a copy of the flat moving video for my own reference and so the VHS tape Ron loaned me is now available for anybody else who wants to see it. The tape is in my mailbox in 805 Dreesse and is open to anyone who wants it as far as I'm concerned.

I don't know if anybody else has seen it, but I recommend its viewing.

My father, at my request is doing some preliminary investigation of what electronics would be necessary for us to have an electronic readout of bay angle in the control house, what manufacturer might supply the necessary electronics at what cost. This would at least be some improvement and would make easier further automation of the flat moving process.

Wed 4 Jan 89

Bob Dixon

More developments

As a result of New Year's festivities, several unexpected things have occurred:

1. **Jerry Ehman** has returned the Decwriter 4 printing terminal we loaned him some years ago. It is a desktop unit, fairly nice.

2. We may have 2 new good volunteers at Saturday's meeting. One is an EE who works at Accuray, experienced with computers and interested in Astronomy. The other is an acoustical engineer who does consulting work, and knows **Angie Campanella**.

Sat 7 Jan 89

Angelo Campanella

BIG-EAR Flat Moving Info.

[GENE MIKESELL's detailed BIG-EAR
FLAT REFLECTOR MOVING instructions](#)

TO ALL OPERATORS:

#1 Close air tank drain valve. Open main line air valve at compressor. Start air compressor. NOTE: Allow 15 min for air to pump up.

#2 Open control house. Throw winch and brake switches ON. NOTE: Turn heater to OFF position.

#3 Set up sighting instrument to new declination. NOTE: Do NOT move bays more than 1 degree at a time: check log book to see what declination the flat reflector is presently at BEFORE moving it.

#4 Check air pressure gauge. NOTE: Do NOT move flat reflector if air pressure is below 110 PSI.

#5 Check wind speed indicator. Do NOT move flat reflector in wind speeds higher than 30 MPH.

#6 Check line voltage meter. Check winch voltage meter. It must be 440v +/- 20v. Make sure that the brake pilot light is ON.

#7 Turn ON intercom. NOTE: Intercom MUST be used to listen to each bay as it is being moved. Also ROTATE brake switch to its No.2 position (First Bay to be moved?-Ang).

#8 Focus the sighting instrument, using center cross-hair on #2 West Ruler. NOTE, Ruler settings are on first page of Log Book.

#9 Open air brakes on No.2. NOTE, Air brake lights are not always reliable. If in doubt, GO OUT and LOOK to see if brakes have opened.

#10 Lift up safety hinge on No.2 winch switch ONLY.

*** Move Bay to new declination by doing the following:

NOTE: Be sure to move each bay DOWN VERY SLIGHTLY before moving it up. Also, be sure that bay actually MOVES when its winch switch is ENGAGED.

*** THE MOST IMPORTANT STEP IN MOVING THE FLAT REFLECTOR IS BEING ABSOLUTELY SURE THAT EACH BAY MOVES WHEN ITS WINCH SWITCH IS ENGAGED.

#11 When Bay is at new setting, close brakes and drop safety hinge down on winch switch.

#12 Rotate brake light and intercom switch to position No. 3. Follow steps #3 through #11 for remainder of Bays (No.3 to No.8).

#13 When final move is made, note date, new declination & time in log book. NOTE: Be sure to INITIAL log book for each declination change.

#14 Rotate brake light switch to off position. Turn brake, winch and intercom switches to off position. Turn heaters back on.

#15 Check air drain indicator pointer. Point to opposite number. Lock up control house. Drain the bay whose number was indicated by the pointer in control house.

#16 After opening air drain, proceed WITH HASTE to air compressor and shut off compressor. Close main air line valve at compressor. Refill main air line oiler. Open tank drain. Close main air line at number bay which you have drained.

NOTE: THE ABOVE INSTRUCTIONS MUST BE FOLLOWED TO THE LETTER!!! IF THERE ARE ANY QUESTIONS, CONTACT **GENE MIKESELL** OR **ROBERT TOWNSEND** 'BEFORE' ATTEMPTING TO MOVE THE FLAT REFLECTOR.

Memo from **Ang Campanella** 17:11:55 1/7/1989

In my mental following of **Gene's** instructions, a few question-marks arose:

- a- **Gene** starts with instructions to move bay#2 or brake #2? I can't be sure. What happened to #1? Is there no #1? Or are these merely switch positions?
- b- In #7, does **Gene** mean that you should use the intercom to listen to each respective bay MECHANISM sounds, or to a human operator located there to provide eyewitness comments?
- c- I cannot get a clear picture of the goings-on in #15 ("Point to opposite number" ... "Drain the bay" ...). Is there a sump pump in each bay? Or do we form a bucket brigade? Or is there a moisture condensate drain valve at the low point in the air line leading to each bay brake cylinder?
- d- Likewise for #16. What's a "main air line oiler"?

All in all, **Gene** was quite clear that the winch and brakes need the utmost of scrutiny. In this instruction set, he did not elaborate on what to do if said movements did not materialize. Heroic actions to assure their proper functioning were probably done always 'In the normal call of duty'...

Mon 9 Jan 89

Bob Dixon

Antenna Moving

I want to give great kudos to those who have made great progress in this area lately:

1. **Jim Bolinger** and **Ron Huck**, for making the videotape. It is an EXCELLENT documentary of everything.
2. **Angie Campanella**, for finding the old moving instructions.

Taken together, these should solve most problems of understanding. Most of **Angie's** questions will be answered when he sees the tape. (Angie - you can borrow mine if you like). There is a bay 1. The Intercom is supposed to listen to the mechanism, not a person. The Intercom may no longer work. Don't know. Could be fixed as needed. The oiler is explained on the tape. Anyone know what kind of oil to put in it?

The haywire may seem outrageous to some, but remember these are workarounds done by people with no engineering background. From an engineering and scientific viewpoint, there really seem to be no serious problems that cannot be solved with a more careful approach. So far as I know, there have been no attempts to trace the wiring and correct the problems with it. In any case, one could just run new wires to replace the failing ones, right along the old ones.

Mon 9 Jan 89

Bob Dixon

Publicity

Thanks to **Steve Janis'** efforts, the latest issue of On-Campus has many news items about our noteworthy efforts this past year.

Future Working Session Schedule

21 January
4 February
18 February
4 March
18 March
1 April
15 April
29 April
13 May

(10-12 @ the RO office building unless otherwise noted)

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Designed by Jerry Ehman

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