

National Radio Astronomy Observatory  
Charlottesville, Virginia

11 April 1984

To: VLBA Computer Coordination Committee  
From: R. C. Walker  
Subject: Meeting of 10 April, 1984

Note that the Computer Coordination meeting scheduled for 24 April has been canceled.

Persons present at the 10 April meeting were Benson, Burns, Clark, Cotton, Ewing, Fomalont, Hunt, Kellermann, Pearson, Reid, Romney, Shaffer, Walker, Wells, and Whitney.

Clark reviewed the status of the Monitor and Control project. The effort so far has been mostly on the communications hardware for use within each station. The bus specification and associated hardware is nearly complete. They are starting to look at available communication systems for use on the links between the control center and the antennas. A polled, multi-drop system is desired in order to preserve the option of using satellite systems. They expect to make a choice in about 1 month. The station computer will be chosen after the communication system so that hardware that supports the communications can be obtained. That computer should be chosen in about 3 months. The central computer can be chosen in 4 to 5 months.

Whitney noted that dial up lines might be sufficient for our needs but it was pointed out that the dedicated lines are cost effective if they are used more than 1-2 hours a day and are much more convenient.

Ewing reviewed the processor project. Tim Pearson has taken on the job of "software honcho" for the processor. The software is not on the critical path so Marty is not too concerned about it yet. They plan to go ahead with a VAX as on the Block II unless convinced otherwise. Note that this may drive the choice of the monitor and control computer since commonality is desired. They hope to finalize the design by the end of the year. Any major perturbations, such as a new computer or language (other than FORTH) should be known by Aug 31.

The choice of languages was discussed. The Caltech group would like to use as much of the Block II software as possible which means using FORTH in the control program and PASCAL in parts of the fringe processor, although Pearson agreed that much of it would have to be rewritten. There is considerable opposition to FORTH elsewhere on the grounds that it may be hard to maintain. The main advantage stressed by the Caltech group seems to be ease of debugging in a real-time environment. They seem willing to translate to another language but there will be a cost. Pearson promised to look at just what that cost would be. Much of the opposition to FORTH is from people who have not

seen the Block II code and may be based on impressions from much more primitive systems. More information on the style being used at CIT will be distributed. We need to decide on any constraints on the language by about 31 Aug. although it would be good to settle the matter sooner, if possible. Marty suggested that a set of 2 or 3 languages might be chosen that are acceptable for use in VLBA systems.

Bill Cotton reviewed the status of the postprocessing software. This is an area that is in rather good shape because much of the software already exists within the AIPS package. Some major questions that remain are: 1) How much will be done in the fringe processor? 2) How do we pass the monitor data? 3) How do we do geodesy? He mentioned the visit by Benson, Cotton, and Walker to Goddard a few weeks ago. The Goddard software is closely tied to the HP 1000 computer and a specific terminal so it probably cannot be directly borrowed. However, significant pieces (eg the model calculations) might be used. The Goddard group is cooperative and willing to let us have any software that we want.

Marty noted that Rogstad would be a good person to contact about geodesy at JPL.

Clark suggested that instrumental factors could be applied to data and forgotten about. Such factors include cable calcs, Tsys etc. He saw no need to maintain the ability to undo such corrections. This idea provoked strong opposition from Shaffer and Whitney who feel that it should at least be possible pass the data through the correlator uncorrected and it would be better to maintain accountability for all corrections. Clark noted that the VLBA equipment will be better than that used now that occasionally requires that corrections be redone but Whitney pointed out that, even if that is true, outside telescopes will be used. Cotton noted the current concept in the postprocessing group that full accountability will be maintained at least as far as the archive tapes.

Romney asked what should be done about pulsars. Ewing has been planning on a single gate for the whole processor. Whitney noted that at low frequencies, a different gate for each frequency band might be needed to account for dispersion. Other possible needs were mentioned. Walker agreed to try to get some suggested specifications from some combination of N. Bartel, D. Backer, and J. Taylor.

A similar discussion followed about Solar observations. Kellermann agreed to ask Kundu for some specifications.

The monitor and control data base, which must provide processing information for the correlator, was discussed briefly. This is another area that needs study.