

VLB ARRAY MEMO No. 451

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17 April 1985

To: VLBA
From: W. D. Cotton
Subject: Data Processing Meeting 16 April 1985.

VLBA Postprocessing Group Meeting
1985 April 16

Participants:

CV: Benson, Cotton, Romney, Wells
VLA: Cornwell, Crane, Moore, Simon, Walker
CIT: Pearson
GB: Kellermann

The items discussed on the agenda were the following:

The agenda for the next VLBA post processing meeting (16 April, 1600 EST ph (203) 797-0901) is as follows. The secret pass word for CONNEX is "conference code 999P". This file is CVAX::UMA3:[VLBA.DATAPROC]16APR85.TXT.

Specific items for discussion:

1) Craig asked for a write up of what has been done on the calibration and editing project. This tome is in UMA3:[VLBA.DATAPROC]NOTE16APR85.TXT and is 32 pages long. (If you are unhappy copying/printing/reading all of this blame Craig.) A few items which are not discussed in NOTE16APR85.TXT which perhaps should have been are:

- Weights. Weights derived from sensitivities etc. are not yet implemented. This has little influence on what has been done so far and only impacts FILLR which must somehow compute these.
- Frequency averaging. Should this be done in UVGET and/or CALCOP? I suspect not. This should probably be done after dividing the data by the model; at least for calibration purposes.

2) My current intention is to try and implement as much as possible of the calibration and editing software for VLBI data coming from the current (NRAO but also perhaps CIT) correlator(s). That is, to try to create a datapath whereby data will be put into the form that we expect from the VLBA correlator. Thus, we can get several (perhaps many) years experience before the VLBA comes on line.

3) Other.

R. Simon said that K. Johnston and he still do not have the long promised document on the needs of geometric observations but promised that something would be ready next month.

Item 1)

Gain Table

The question of whether or not the geometric model (delays, rates etc.) need to be in the data as well as the gain table was discussed. C. Walker pointed out that the question depended on how accurately the model values could be interpolated from the values given in either the visibility records or the gain table and what the accuracy of these interpolated values need to be. Simon promised to look into the specs for geometric accountability and put a relevant discussion into the report he and Johnston are working on. Romney pointed out that the correlator model is really applied on a baseline basis but was not sure how this affected the gain table - random parameter question.

Romney also asked that the document to be prepared by Johnston and Simon include a discussion of how the specified accuracies are to be defined.

Crane didn't think that the geometric observables needed to be in the gain table at all. Cotton pointed out that frequent tabulation of these values will be needed for some corrections to astronomical data as well as geometric observations.

Flags

The discussion of prior flagging in the large document distributed before the meeting caused a fair amount of conclusion. After some discussion it was decided that the best approach was to include all prior flagging (any thing before the archive writer) as a negative weight and carry along a table giving all flagging criteria. Thus if a user decided to undo some of the flagging he/she/it can unflag all of the data and then reapply the desired flags. This avoids having to apply all of the prior flags each time but allows selective undoing of the prior flags.

Source table

There was some discussion about whether a single set of flux densities was sufficient in the case of bandwidth synthesis or other cases where channels are widely separated. The safest thing to do is to have a set of flux densities (I,Q,U,V) for each IF.

Changing Observing Configuration

There was an extended discussion about what to do if the observing configuration changed (e.g. the frequency of one of the IFs to avoid interference). Crane advocated putting the IF frequencies into the index records. Another approach is to put data with different observing configurations in different files.

T. Pearson wanted to put data from different IFs into separate records. Thus the frequency could be carried as a random parameter. Pearson also argued for variable length records (?) but there was little other support for the idea.

Working Document

Cotton agreed to maintain NOTE16APR85 as a working document describing the state of the calibration and editing support software.

Item 2)

Cotton briefly described plans to convert current correlator output into the form expected for VLBA distribution tapes. As time ran out this discussion will be continued next month (assuming there is a next month).