VLB ATRAY MEMO No. 163

December 14, 1982

VLBA SCHEDULE AND TELESCOPE CONTROL PHILOSOPHY (Ph la)

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This memo attempts to outline a philosophy for scheduled telescope control. Drawing upon information in VLBA memos 128 (Vandenberg), 131 (Ewing), and 133 (Pearson), I recommend the following system organization:

A computer at the array control should be used to prepare observing schedules via an intelligent interactive program. This program should be very friendly, perhaps offering a graphical "VisiCalc-like" approach. The observer should have the option to run the program remotely or to send instructions on paper to the array control for entry by an operator.

One schedule file should be created for an observation containing information to run all stations. File identification will contain an experiment name, qualifier, and update number.

The schedule file should be transmitted over telephone lines to an on-site computer. This should be done several days prior to possible scheduling; in the event of long term telephone failure the schedule files could be sent via commercial courier services.

Updating files requires re-transmission of a new file. In rare cases it may be necessary for the on-site operator to locally edit a schedule file.

The schedule file should contain the minimal information required to uniquely specify the telescope/IF/record-system operation (see Table 1 for partial list). All detailed calculations (eg. azimuth calculation, pointing offsets, feed rotation, etc) should be done in the on-site minicomputer.

All scheduled functions which vary from source to source should be contained in "procedures" which are referenced by the schedule file. This follows present MK III system outlined (memo 128). Procedures should be automatically named by the scheduling program, perhaps by "experiment code/source name/qualifier/update". A friendly scheduling program is required so that the observer does not need to see all the details. For example, the user might specify 3C84="Before=Ta; During=Tsys" as a procedure to require certain measurements for each 3C84 observation.

It is important that a monitoring program be running at the array control to verify that all sites are following the same schedule and executing the same procedures.

Provision should be made to allow quick and "direct" control of a telescope via the array center.

The on-site computer should be totally duplicated (modem, cpu, and peripherals) to assure nearly continuous operations (see memo 131).

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PARTIAL LIST OF SCHEDULE FILE INFORMATION:

parameters	description
RA and Dec	precessed positions for pointing
RA/Dec rates	To allow for moving objects (eg. Satellites)
Start/Stop times	U.T.
Band	Specifies receiver/feed/LO configuration
Frequencies	RF freq of DC band edge for each channel
Polarizations	For each channel
Bandwidths	* * *
Sample Rates	
Phase Cal	Whether and how to do it
Noise Tube	TT TT TT TT TT TT
Tape recorder parameters	Depends on specific tape recorder system
Cable length cal	



The entire system blocked out above should be duplicated except for the telescope) including the Central Array Control Computer.