Interoffice

National Radio Astronomy Observatory

Charlottesville, Virginia

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To: 12-m File

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12 METER MILLIMETER WAVE TELESCOPE
MEMO No. 144

Subject: Startup of 12-m

After the surface is installed and adjusted on the new backup structure, many tasks need to be undertaken. This memo is a first stab at listing those tasks. I should mention that we now have 3mm and 1.2mm room temperature receivers that may be used at either the prime focus or the Cassegain focus of the new surface.

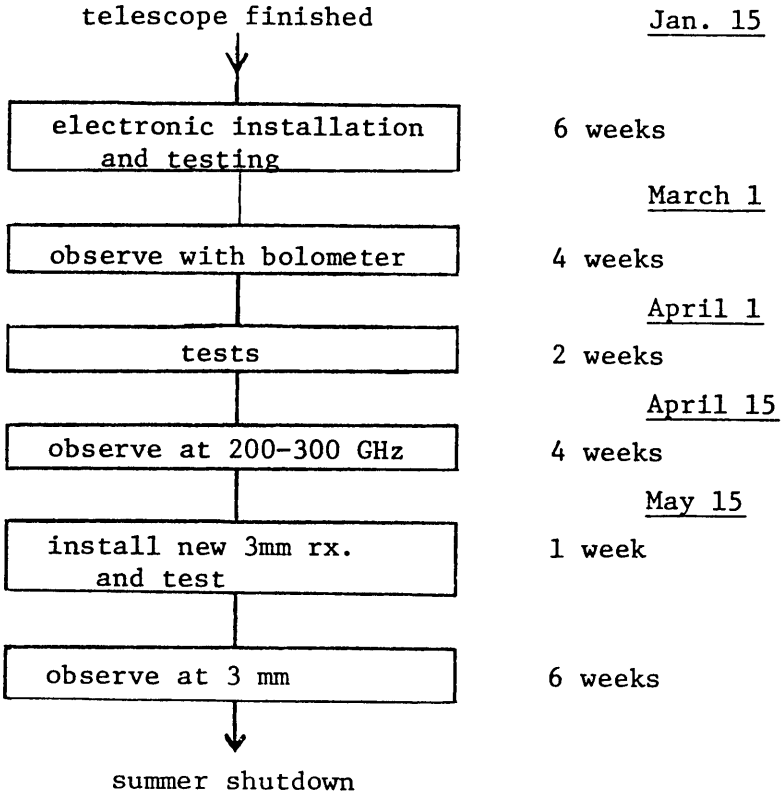
TASKS	TIME (days)
Recable telescope	3
Install and align sterling mount	2
Test horizontal subreflector drive	1
Measure and adjust AZ and EL servos	2
Install 3mm prime focus receiver	1
Measure aperature efficiency, pointing, beamwidths, etc. on Jupiter and Saturn	2
Install 1.2mm prime focus receiver	1
Measure as 3mm	2
Install selection mirror and test	2
Install fixed mirrors and align	2
Install 3mm room temperature cass receiver	1
Repeat RF measurements	2
Test 3mm correcting optics	2
Install 1.2mm room temperature cass receiver	1
Repeat RF measurements	2
Install cryogenic lines	1
Install 200-300 GHz receiver and test	4
Install He_3 bolometer and test	4
Software checks	3
	38 days

TOTAL TIME - approximately 6 weeks

These tests are certain to reveal many problems and many things have not been included in the list. Our feeling is that at the end of the tests we will be able to start observing in the 200-300 GHz range and also use the bolometer. Note that we have not yet tested the new cooled 3mm receiver and also we will not have many of the features that we now offer with the system.

One possibility is that after the tests outlined above, we observe with the bolometer for about 4 weeks (we have a large number of proposals already). We then take another couple of weeks of test time to sort out problems that have emerged and then observe at 200-300 GHz for a few weeks. Note that during this time we have a good room temperature receiver installed permanently on the telescope to check the pointing periodically (there are not many continuum services at 1mm). After this we install the new 3mm receiver, test and then observe at 3mm up to summer shutdown.

So a suggested schedule looks something like this:



During summer shutdown we do the following:

1. Follow up on all problems revealed in tests and observing.
2. Test new 2mm receiver.
3. Install and test calibration system.
4. Install and test dichroic system.
5. Install new control computer.
6. Install 1024 channel spectrometer.
6. Install inductosyns.
7. Test new servo system.

This suggested plan achieves the following:

1. It makes the telescope operational in its most unique frequency range as soon as possible.
2. It provides periods of rest for the overworked Tucson crew.
3. It seems a reasonable way of uncovering problems while at the same time allowing the instrument to be useful scientifically.