

**ATNF ATUC Memorandum**

**To:** ATUC  
**From:** Jim Lovell  
**Date:** 2006 June 1  
**Subject** Tidbinbilla report

**1. 70m Observing statistics for January to June 2006.**

Currently there are 9 active proposals and observations have been completed for 2 of these. Three proposals are for zero-spacing maps to support ATCA observations and two proposals are for pulsar observations. A status summary of proposals is available on the ATNF web pages and is regularly updated.

Between July and December 2005 no observations were made with the 70 m antenna due to maintenance activities and no observations have been possible since (see item 2).

**2. 70m Antenna Maintenance.**

From July 18 until January 2006, the 70m underwent maintenance on the azimuth bearing and the antenna controller hardware was upgraded. Since coming back from maintenance the 70m has had servo problems that have prevented us from pointing the antenna accurately enough in the 12-mm band. The symptoms of this problem are long settling times and the antenna wandering on and off point but up to half the beamwidth! Until this problem is fixed it is not possible to schedule any observations. However, in the meantime, the available time has been used to develop on-the-fly mapping.

**3. Development.**

The most limited resource at Tidbinbilla is observing time, granted to us by NASA. Therefore development work is aimed at getting the most science out of the available time by improving observing efficiency. In the past, this work has included increasing the instantaneously accessible bandwidth to allow more spectral lines to be observed simultaneously and improving the observing software to reduce overheads.

There are two main development tasks currently underway. The first is an implementation of on-the-fly (OTF) mapping, as requested by ATUC. This will improve the efficiency of mapping and antenna pointing measurements over the current point-by-point method. The second is an upgrade to the 12mm system on the 70m from one to two channels. The upgrade will allow dual polarisation observations, improving sensitivity by a factor of  $\sqrt{2}$  and halving the integration time required to reach a given sensitivity limit.

- **OTF Mapping.**

New observing software is under development to implement OTF mapping. To test this, observations at 13 cm have been made to map the beam and results appear promising. More software work is required but the results to date indicate that OTF mapping should be possible.

- **12mm dual polarisation upgrade.**

Installation of the second down-conversion chain has been progressing slowly, primarily because efforts have been concentrated on testing the servos and OTF mapping development. We hope to start testing the second channel in the next few months.

**4. 34m beam-waveguide antenna DSS34.**

At the last meeting, ATUC made the following recommendation:

***ATUC recommend that DSS-34 time is made available at the next Announcement of Opportunity and that the ATNF support observations on a best-efforts basis with current resources.***

The Director responded:

**At time of writing (March 2006) NASA have not yet started to allocate DSS-34 time for radio astronomy. Until they do it seems premature to be offering this facility. Therefore we propose to begin offering DSS-34 once radio astronomy allocations begin appearing in the NASA schedule. This is likely to be the 2007 April semester**

DSS-34 radio astronomy allocations have now started to appear in the schedule with time becoming available from late June. This will be used for some test observations and if all goes well, DSS43 will be offered for the 2007 April semester.