Tidbinbilla Report
ATUC, 2006 October

Time Allocation

From July 18 2005 until the end of 2005, the 70-m antenna underwent maintenance. A new antenna controller was installed and work was carried out on the hydrostatic (azimuth) bearing. During this time no observations were possible.

Following the 70m antenna controller upgrade, problems were experienced with the servos. This has meant that, while tracking, the antenna 'wanders' over a significant fraction of the 12 mm beam, making 12 mm observations impossible. Engineers at Tidbinbilla are working to fix the problem, however progress is slow.

Development Work

There are two main development projects under way at Tidbinbilla. The first is an upgrade of the 12 mm system from single to dual channel, which will permit dual-polarisation observing, and the second is the implementation of on-the-fly mapping.

The second down-conversion chain is now installed. At present the 600 MHz bandwidth RF filters must be changed manually until the switch-box is completed but dual polarisation observations are now possible.

More progress has been made toward on-the-fly mapping with the beam being successfully mapped at 2.3 GHz.

Staffing

The tracking station employ a Radio Astronomy Engineer to provide technical and software support for Host Country (ATNF) time allocations as well and VLBI experiments within the DSN. This position became vacant in June and a replacement is currently being sought.

The 34m beam-waveguide antenna DSS-34

This antenna has recently been equipped with a Ka-band (32 GHz) system. While the bandwidth is narrow, it is a very sensitive system (SEFD ~150 Jy) and the band contains a reasonably strong HC5N transition. ATUC expressed interest in gaining access to it in a similar way to the 70m. At their December 2005 meeting, ATUC made the following recommendation:

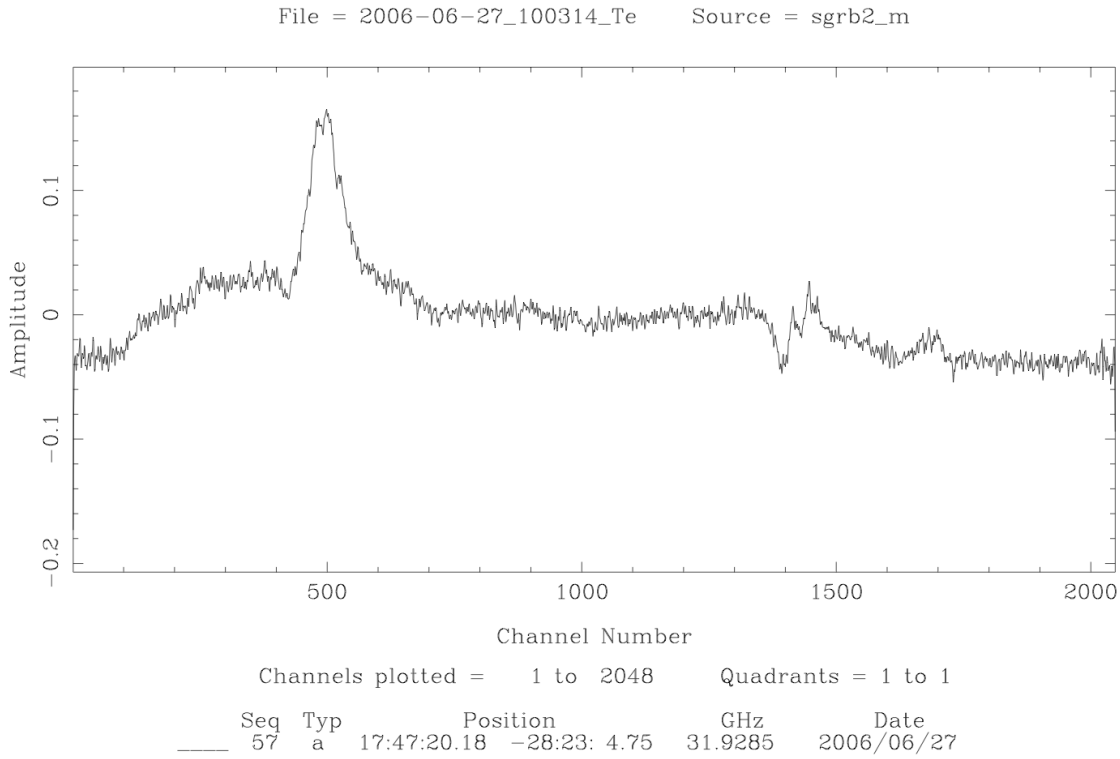
> *ATUC recommend that DSS-34 time is made available at the next Announcement of Opportunity and that the ATNF support observations on a best-efforts basis with current resources.*

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 is being used for some test observations which are going well. HC5N and some weaker lines were readily observed in Sgr B2 (below) and a pilot survey of known star-forming regions is underway to better gauge the usefulness of this transition. DSS-34 will be offered to users for the 2007 April semester.



Jim Lovell
18 October 2006