

## **Allocation of Tidbinbilla 70m time for ATNF proposals**

NASA allocate approximately 300 hours per year of Host Country time on the 70m antenna. This time is used for single-dish and LBA observations. Obtaining 70m time on the required days and in the LST ranges needed has always been a problem due to the high priority given to spacecraft support. For 12mm single-dish observations this is somewhat less of an issue as any day during the winter is suitable and only the LST range is important. For LBA observations though the method of allocating time has been to identify dates with suitable 70m time and allocate the observation weeks to coincide. This is far from ideal given 6 month terms for ATNF, which must be scheduled about two months in advance of the term starting, compared to JPL scheduling which goes out to only about 4 months in the future. In effect this means that LBA observations requiring Tid can only be arranged with reasonable certainty for the first two months or so of an ATNF semester.

An alternative strategy would be to try and fit in better with the JPL scheduling process. JPL produce User Loading Profiles (ULP) for all spacecraft (Ground Based Radio Astronomy is considered a “spacecraft”) and these describe scheduling requirements out to many years in the future. The detail of these requirements is at the level of how many hours required on a given antenna in a given week. While the total amount of time we get allocated per year is difficult to increase, there is some room here to negotiate the date and duration of these allocations.

The details of the Deep Space Network schedules are defined about four months in advance. Schedulers at JPL meet monthly to coordinate and prioritise the various demands on the DSN and radio astronomy is represented at this meeting. When requesting additional time or defending what we have from other missions it is important that our representatives have some information about what the time will be used for and why DSN facilities are needed. The requirements for this have recently changed and the process has been clarified somewhat. The JPL policy as it relates to VLBI proposals now states:

*VLBI experimenters should submit their proposal to the appropriate VLBI array organization, using the format required. The proposal should clearly state why the DSN is required, and a copy of the proposal should be sent to*

*Dr. Lawrence Teitelbaum,  
Manager, Advanced Tracking and Operational Techniques  
c/o Linda Lievense  
Jet Propulsion Laboratory 303-402  
4800 Oak Grove Drive,  
Pasadena, CA, USA 91109  
E-mail copies should be addressed to [Linda.L.Lievense@jpl.nasa.gov](mailto:Linda.L.Lievense@jpl.nasa.gov) .*

*Approval from the appropriate organization is sufficient peer review for the allocation of DSN resources.*

*Since the DSN schedules time four to six months in advance, copies of network proposals sent to JPL facilitate scheduling and technical assessment.*

The full text of this policy is available from  
<http://dsnra.jpl.nasa.gov/proposals/index.html>

Following discussions with Pam Wolken and Carleen Ward, who represent radio astronomy scheduling at JPL, the following change to our scheduling strategy is suggested.

1. Identify the weeks for the LBA session well in advance, perhaps a year or more, and make sure they are recorded in JPL's ULP.
2. Once proposals are accepted by the TAC, send them to JPL as specified above, perhaps in a prioritised order, making sure that the justification for 70m time and required LST ranges are clearly stated. (In the future it may be a good idea to suggest PIs include an additional section in their proposals clearly justifying their 70m request).

The advantage of this method is that it fits in better with the ATNF six-month terms and will hopefully give us the time we require.

This method could also be extended to proposals requiring 12 or 24 hour observations outside the LBA weeks. However because the time resolution of JPL's ULPs is one week it may not be possible to identify the date of these allocations until four months prior to the observation. Perhaps in this case some flexibility in the Parkes, ATCA and Mopra schedules could be accommodated.

## **Impact on 70-m Single-Dish Observations**

The current arrangement is to schedule two LBA weeks in the October semester and only one in the April semester to keep the demand off the millimetre seasons at the ATCA and Morpa. This also has the advantage that most of the winter season allocations at Tid are available to single-dish work at 12mm.

If the above method proves successful, there might be a concern that too much 70m time is being used for VLBI at the expense of single-dish observations with higher TAC rankings. At present the demands on Tid for VLBI are much higher than single-dish: 264 h compared to 110 h. The total time requested amounts to a Tid oversubscription of about 1.2 for a 300 h/year allocation.

The comparatively small request for single-dish time at present may be caused by the 70m being unavailable for 6 months last year due to maintenance plus the first 6 months of this year (at least!) being unusable at 12mm due to a problem with the servos. It is likely that demand for single-dish observations will increase to be comparable with VLBI requests in the future once dual-polarisation and on-the-fly-mapping become available.

It is important to monitor how 70m time is being allocated to make sure that the highest priority science is being done. It may be difficult to increase the amount of time allocated to VLBI above about 48 h per session or about 50% of the annual allocation (but this remains to be seen), especially as single-dish observing can be carried out in shorter allocations and at almost any time. So in the present circumstances there seems little likelihood of VLBI pushing out single-dish or vice-versa.

*Jim Lovell, 25 July 2006*