ATUC Report to the Director - February 2012

This meeting of the AT Users Committee was held at the ATNF Headquarters on 13 February 2012.

Attendance: John Dickey (Chair), Chris Phillips (Secretary), James Allison, Virginia Kilborn, Ryan Shannon, Chris Springob, Steve Ord, Hayley Bignall (online from Curtin), Kathrin Wolfinger (student representative) and Giovanna Zanardo (student representative).

Commendations and Successes

The ATUC gives its congratulations and applause to the ATNF staff for their successful hardware development projects at Parkes, including:

- The Matrix (backend switch)
- Master Control Panel
- Control and Monitoring
- Site UPS essential bus
- standby generator replacement
- high voltage infrastructure
- new maser hut
- HIPSR UWA/Swinburne/Oxford&CSIRO
- RFI analyser

All these developments will strengthen the overall Parkes facility, and they will make operations more reliable and robust. This is a prerequisite for the remote observing model that is a major part of the new Parkes operations paper.

Response to Parkes operations model document:

The discussion at this meeting was centred on the report “Instrumentation Options for the New Parkes Operations Model". References to options and long vs. short term goals are in response to questions raised in that document.

1. The long term goal of two wideband single pixel receivers plus a PAF receiver to replace the multibeam is strongly approved. ATUC would be grateful to learn more about the practicalities of such a system. Some users have recommended consideration of building an array receiver to operate at 20-25 GHz.

   Recommendation 1: At a future ATUC meeting an overview from engineers, perhaps in the context of a report on a design study, will be presented.

2. As progress is made toward the new WB receivers, it is important to preserve existing capability on the telescope, if needed.

   Recommendation 2: New receivers are tested and commissioned before completely decommissioning the existing receivers.

3. On the interim problem of reducing the load on the science operations staff (SO) at Parkes, the ATUC accepts the proposition that receiver changes be reduced to 6 per semester. This is the unanimous opinion of the ATUC.

4. On the question of which receivers should be “mothballed”, the ATUC does not agree that any of the existing receiver suite should be decommissioned. If any receivers are “mothballed”, it should be on condition that they can be reinstated with minimum difficulty. We understand that the longer a receiver is unused, the more difficult it will be to bring back into service. Note that all single dish, general purpose observatories have the problem of how and when to mothball receivers.

   Recommendation 3: Careful consideration is placed on the “mothballing” procedure so reviving mothballed receivers is practical.

5. We recognize that some receivers are better suited to remote observing than others. Users will have to accept the limitations in monitor data if they propose for the older receivers, but this is not a reason to take the receivers out of service.

6. The ATUC declines to make a scientific priority decision in favour of one receiver over another. The TAC is the only committee that considers the science justification of one proposal vs. another. We accept that the TAC and the scheduler will make decisions on which receivers to install based on the highest ranking proposals. This is close to “option 4”, with the recognition that student proposals will be given special consideration by the schedulers. Within Option #4, the selected student proposals will also need some assurance that the students will be able to complete a thesis project, based on the continuing availability of the full receiver suite.

7. The ATUC did not like the suggestion that receiver mothballing decisions should be made on the basis of usage over the last few years. There is obviously a role for this information, but the recent 5 year priorities report and other scientific strategy documents should be considered.

   Recommendation 4: ATNF more carefully reviews the process for deciding which receivers to mothball.

8. The ATUC felt it was not clear that the operational overhead of receiver changes was properly accounted for. The savings in SO staff time may not justify the negative effect on science usage of the telescope.

   Recommendation 5: ATNF operations will review the new Parkes receiver change policy after two semesters to determine the total savings that have resulted and update the policy accordingly.

9. ATUC notes that Tidbinbilla is a much more sensitive telescope than Parkes at 20 GHz.

Recommendation 6: ATNF should explore the tradeoffs between Tidbinbilla and Parkes for spectroscopy above 20 GHz

10. The committee notes that geodetic VLBI requires simultaneous S+X band.

11. The committee notes that S-band VLBI to Ceduna is an important capability, for long EW baselines at low frequency (Ceduna does not yet support L band).

12. A decision between options 1, 2, and 3 is not justified until the cadence requirement of the PTA is demonstrated, i.e. what gap size away from 2-3 week sampling can be tolerated?

    Recommendation 7: ATNF will request scientific evaluation of the tradeoff between different cadences for the PTA, given the same total telescope time.

13. With limited receiver changes, well ranked proposals may not be scheduled because the required receiver is not available. This will generally be a small number of proposals.

    Recommendation 9: Highly ranked Parkes proposals should have 12 month validity in case a receiver does not get on the telescope in one semester.

14. The TAC should continue to achieve the best science outcomes in its judgement of proposals. There will be an overlap between the role of the TAC and the role of the scheduler in deciding which receivers will be selected in a given semester. This needs to be studied. The alternative is to close doors in advance, which we do not approve.

15. ATUC notes that allowing only 6 receiver changes per semester will severely impact LBA scheduling and science. In the years 2008-2011 inclusive, on average Parkes has observed 270 hours per semester with the LBA. (This is not including IVS observations.) This is typically broken into two, week-long sessions per semester. In recent semesters, several shorter sessions have also been scheduled for monitoring projects. Normally each VLBI session would require at least a receiver change before and after each session, with some of the longer sessions also requiring a mid-session receiver change. Up to eight receiver changes per semester for LBA observing alone (including swapping receivers out after each session) are typical in the current mode of operation. Allowing only 6 receiver changes per semester will therefore severely impact LBA scheduling and science capability in the medium term, until the proposed Ultra Wide Band receivers are available. Some monitoring projects will become unfeasible, and only a limited number of frequencies could be observed with the LBA in a given semester.

16. The load on SO staff could be relieved by assistance from suitably experienced observers.

Recommendation 10: To reduce the load on SO staff in the short to medium term,

ATUC suggests that users with special requirements are encouraged to ensure that skilled observers are available to take responsibility for system testing and supporting their own observations as much as possible.

Date and Format of the next meeting:

The next meeting is expected to be called for 11-12 July 2012.