

ATUC Report – October 2023

1. ATUC members in attendance

Stas Shabala (Chair), Vanessa Moss (Executive Officer), Craig Anderson, Hayley Bignall, Adelle Goodwin, Marcus Lower, Yik Ki (Jackie) Ma, Rami Mandow (student member), Gavin Rowell (by telecon), Manasvee Saraf (student member), Ivy Wong

2. Commendations for S&A

- CRACO's pulsar discovery
- Recent Shaw Prize on the discovery of FRBs, made possible by the Parkes 21cm multi-beam receiver
- Positive outcomes from the investigation into the dual anonymous TAC process
- New Overleaf template to streamline dual anonymous proposal workflow
- Successful hosting of the Narrabri radio school
- Management of spectrum protection
- PhD program for Indigenous student
- Silver Pleiades award

3. Instrumentation upgrades

3.1. Limited spectral line observation capability on ASKAP, ATCA & Murriyang.

The backlog of processing on Setonix has created data storage issues with spectral line projects on ASKAP, and spectral line SSPs have effectively been paused. CryoPAF's commissioning has also been delayed until early 2024. At the ATCA, the user community appreciates ATNF staff efforts in maintaining the ageing CABB system. We note the unfortunate impact of CABB block failure on a range of spectral line and pulsar science. Anecdotal evidence suggests a decline in spectral line proposals in recent semesters. ATUC strongly supports ATNF efforts to provide spectral line capabilities to users.

***Recommendation:** ATNF to evaluate the impacts of the CABB blocks failure on spectral line and pulsar science, on-going student projects, and (from the overall sub-optimal reliability of CABB) continuum science.*

***Recommendation:** ATNF to enable spectral line science on at least one of the three instruments.*

3.2. Scheduling changes due to upgrades.

With the imminent installation and commissioning of both BIGCAT and CryoPAF, the ATUC understands the challenges in observation scheduling for the 2023OCTS and 2024APRS semesters. The ATUC acknowledges the efforts in populating the 2024 Feb/Mar ATCA observation slots freed by

the delayed BIGCAT installation, and encourages further increasing the transparency of the scheduling process for ATCA and Parkes.

3.3. Impact of scheduling changes on external partners.

Users have noted the impacts of upgrade delays on external partners, including challenges relating to deliverables for projects co-funded by external grants through schemes such as ARC LIEF. ATUC encourages ATNF to work closely with partner institutions in reaching prioritisation decisions.

Recommendations: *ATNF to assess the priority of BIGCAT with respect to other instrument upgrades such as CryoPAF and CRACO, in consultation with relevant partners.*

3.4. ASKAP upgrades.

The ATUC open session provided a platform for community discussion on the upcoming upgrades to ASKAP, to keep it competitive with other observatories and relevant in the SKA era. The ATUC view is that strategic consideration must be given as to which upgrades should be prioritised over others. ATUC notes that no resources are allocated towards the upgrade at this stage, and stands ready to assist in consulting the community on possible options.

Recommendation: *ATNF and ATUC to consult ASKAP survey science teams on the short (<5 yr) and medium (5-10 yr) ASKAP upgrade path. ATUC recommends that the ASKAP science PIs are polled to gauge the appetite for upgrading the outer antennas or the inner antennas first, as well as invite other suggestions, noting that no resources are available towards the upgrade at this stage.*

4. Operations

4.1. Unattended observing at Parkes.

The Parkes user community has reported difficulties with finding observers to cover all scheduled observation time and have at times resorted to conducting unattended observing which is not officially supported. This has been exacerbated by the short notice releases of the schedule and spacecraft tracking commitments throughout the APRS2023 and OCTS2023 semesters.

Recommendation: *ATNF to develop appropriate policies for conducting unattended observing with Parkes, as has been previously done for ATCA.*

In the longer term, ATUC notes there is strong support among the Parkes pulsar community for future development of a fully autonomous and dynamically scheduled observing system that can be switched on/off via existing interfaces. The ATUC acknowledges there are few available resources to implement such a system in the short term.

4.2. RFI.

ATUC notes that the RFI situation at ATCA and Parkes remains problematic for observations with the UWL and ATCA L-band receiver system, which are particularly susceptible to saturation issues when 'mid-week' RFI is present.

ATNF used to provide alerts when 'mid-week' RFI that strongly impacts observations with ATCA at L-band and with the UWL at Parkes. Users have noticed that few if any such alerts have been made in recent times.

Recommendation: *ATUC recommends the ATNF resumes providing consistent alerts on the ATCA/Parkes observing portals when mid-week RFI may be present during observations and potentially affected projects are contacted about the feasibility of rescheduling observations.*

4.3. LBA correlation.

ATUC notes that LBA correlation at Pawsey currently relies on the annual merit allocation, which may pose a risk for ensuring LBA users are provided with data in a timely manner. ATUC strongly supports ATNF in providing correlated data products to LBA users, noting the unique niche the LBA instrument occupies internationally.

4.4. Specific queries and suggestions.

Several users raised issues or suggestions which are too specific for inclusion in an ATUC report. These have been summarised in an appendix to this report. In the future, a potential way of engaging with users on such queries may be via a ticketing system.

Recommendation: *ATNF investigates development of a general JIRA ticket system for specific user queries and suggestions.*

5. Data and archiving

5.1. Parkes polarisation calibration.

Parkes users have expressed some confusion on how to acquire necessary files that are required for polarisation calibration of pulsar and FRB observations. These specific files are currently only accessible via tunnelling into ATNF machines such as Venice and require prior knowledge of their location on the shared file system.

Recommendation: *ATNF makes the Parkes pcm.fits files that are required for calibrating pulsar and FRB data available for download via the 'Murriyang Observing Information' webpage.*

ATUC notes that demand on data storage will continue to increase with new instrument capabilities and ensuring sustainable storage strategies will be necessary, and looks forward to innovative solutions developed by ATNF in consultation with the users.

6. Training

6.1. Observer training.

ATUC appreciates ATNF's efforts to train and certify non ATNF-based Observer Experts (OEs) in project teams, including via small demo videos, and notes the largely self-sufficient make-up of the

majority of proposal teams. Users noted that twice-yearly training sessions do not always line up with either observation or individuals' schedules. ATUC supports ATNF in developing a robust program for training new OEs, and encourages continuing engagement by the ATNF with the community. Such a program is essential for ensuring that sufficient expertise remains in the community, and that the number of OEs needing to be supplied by ATNF does not become a burden in the future.

Recommendation: *ATNF develop procedures to ensure that each team has sufficient, current expertise to deliver projects.*

ATUC notes that some ATNF students may have skills which would be useful for producing engaging training content, such as videos.

Recommendation: *ATNF investigates the possibility of engaging student members in development of training content.*

6.2. Student experience.

ATUC highlights the importance of continual focus on enhancement of the student experience, which may include opportunities for telescope site visits.

Recommendation: *Ensure the advertised requirements and benefits provided to ATNF joint-supervised students are clearly defined, up-to-date and consistent with the changing operational model.*

ATUC commends the ATNF for a recent survey of co-supervised students, and the present development of a complementary survey for supervisors. ATUC appreciates the opportunity to provide input to this process.

7. Policies

7.1. Triggering and data sharing.

Community feedback was received stating that the data policies surrounding triggering and sharing of data for NAPA/ToOs are not sufficiently clear. ATUC reviewed the policies listed on the "Data Access and Archives" and the "Target of Opportunity and NAPA Information" websites and found that whilst there is information about the triggered time policies, it is not clear how observing time would be awarded or data would be shared in certain situations. Furthermore, there is currently no policy for the new rapid response triggering mode on ATCA, and how that might compete with existing NAPAs, other than that a NAPA may not override a rapid trigger observation within two hours. The rapid response mode has been largely driven by a single community member, and the triggering mode policy could reflect this given the significant time investment in developing this mode. The observatory policy is not to ring-fence transients, but in practice how this process is managed is opaque to users.

The following questions were raised by users:

- Does an ATel from the group triggering a NAPA using data from a non-ATNF instrument justify placing a proprietary period on ATNF instrument data? (This apparently was used as justification in the previous semester).
- What if a competing NAPA requests a manual override to observe a transient that is currently being observed by a rapid-response override? Would the team of the rapid-response observation have to share that data, even if the NAPA does not include rapid response observations?
- If there is an approved NAPA to observe an object, would a DDT also be approved and the data have to be shared?
- Is there any consideration on proposal grade i.e. is there a minimum grade for which a NAPA can request to observe a transient that the other higher graded NAPA might already be following?

Recommendation: *The data policies surrounding triggering and sharing of data for NAPA/ToOs are updated and clearly outlined on the “Data access and archives” website including specific example scenarios. This includes developing a policy for the new rapid response triggering mode for ATCA.*

Example scenarios include:

- *Two approved NAPAs request to trigger on the same target. (The policy currently states that in this case an impartial expert may be assigned to observe and the data shared between groups, but is proposal score taken into consideration?)*
- *A NAPA requests to trigger on a target already being observed by a rapid response trigger. (Would the rapid response data also be shared with the other NAPA?)*
- *A DDT is received for a target that is covered by an approved NAPA. (Would the DDT be approved and the NAPA be required to share the data?)*
- *Two DDTs are received from different groups to trigger on the same target.*

ATUC also requests a clarification relating to the propriety period for data in the case of an ATel using data from non-ATNF instruments from a group triggering a NAPA.

7.2. Anonymous proposal review.

During the open session, evidence was presented to suggest that anonymisation of ATNF proposals did not markedly influence outcomes. ATUC appreciates this analysis and encourages continued periodic reviews. ATUC notes these preliminary conclusions stem from proposals which were: (a) not entirely anonymised, and (b) linked to instruments with low over-subscription rates, where most proposals are successful. Insights from international facilities highlight the significance of anonymity, especially for highly sought-after instruments. ATUC acknowledges that for long-term projects, the competence and capacity of the team is vital for successful project outcomes, and hence it is important to assess these aspects when considering proposals.

Recommendation: *ATNF should continue with anonymisation of normal proposals, in line with international best practice. For long-term projects, ATUC recognises and supports the inclusion of the non-anonymous ‘team capabilities and expertise’ proposal section as suggested by ATNF previously, which should remain exempt from TAC review.*

7.3. Human capital.

ATUC appreciated the update on ATNF demographics, and ATNF's ongoing work in diversity and equity. The committee encourages ATNF to continue focusing on working towards increasing diversity, noting that in addition to equity considerations diverse teams are also more productive. ATUC also supports ATNF efforts in ensuring appropriately secure career pathways for early-career researchers, recognising the importance of this for medium and long-term viability of the national facility, including in technical operations of ATNF instruments for which only a small number of people (sometimes a single person) have sufficient operational knowledge.

APPENDIX

Specific issues for ATNF's consideration

National facility users have made a number of observations and suggestions relevant to ATNF operations. These are too specific to be included in the main report. We list these below for ATNF's consideration. We recommend that the ATNF investigate the possibility of a ticketing system to address such suggestions and queries in the future.

Facility operations

- Develop ATCA and UWL calibration pipelines
- Develop standard pulsar processing and searching pipeline for Parkes
- Update Miriad installation webpage from FTP to HTTP and remove links to Wikipedia
- Provide transport facilities (e.g. bicycles) at observatory sites for those who need to observe on site

Student experience

- In the absence of DA contributions, consider the following roles for a two-week ATNF support requirement for co-supervised students: student events organising committee, training video-production, management of engagement within the student community, collecting and sharing student feedback for ATNF committees e.g., ATUC, DEI etc.
- Collate data on how many student projects (and thus degree completions) are affected by on-going delays in data collection/processing (e.g., with Pawsey and ATCA)
- Consider running: (i) a student symposium; (ii) a panel discussion or student-focused event with relatable role models from diverse backgrounds sharing their experiences and career pathways. A day of student talks could be added to the radio school, if finding time and resources for the student symposium is difficult.

Suggested questions for supervisor survey

- Are your students aware of all the resources that are available to them via ATNF? If not, what would be the best way to circulate these?
- Has the travel funding been sufficient for your student? If yes, what opportunities were made viable? If not, what opportunities were made unviable?
- Have the ATNF training resources available to your student been sufficient? If not, has the time commitment of training your student on your part been reasonable? If not, how can ATNF provide further support?
- (For university supervisors): Do you have a good understanding of CSIRO processes relevant to your student?
- Are there opportunities available for your student to connect with the Australian or International community around their specific research interest? If yes, will they be able to use these? If not, why?
- How is your student managing expectations and reporting requirements from both CSIRO and their university? Can any ATNF expectations be streamlined to reduce the compliance burden?

- Are there any ATNF-related issues affecting the progress of your student's thesis, and/or ways in which ATNF can help with the progress?
- Since the DA program has been discontinued, what is the engagement of your student with the ATNF facilities? Does your student have any expertise that can be used to support the National Facility?

Changes to funding model

ATUC members understand that investment in new national facilities is likely to require alternative funding models for some of the existing facilities. A key consideration relates to the timelines of any transition. ATUC notes that many members of the astronomy community will have embedded ATNF facilities into their funding plans, and many commitments (e.g. via the ARC) are "locked in" for several years ahead. ATUC advocates for timely, ongoing communications with the community, including adequate forewarning of any changes.