

# ATUC Report (November 2022)

## 1. ATUC members in attendance

Ramesh Bhat (Chair), Craig Anderson, Hayley Bignall, Michelle Cluver, Adelle Goodwin, Emily Kerrison (student member), Emil Lenc, Yik Ki (Jackie) Ma, Peter Macgregor (student member), Vanessa Moss (Secretary), Ryan Shannon, Ivy Wong

## 2. Commendations for S&A

- Successful Science & Technology Day
- First ASKAP data imaged using the Pawsey Setonix supercomputer
- 2022 Peter McGregor prize to the ASKAP team from the Astronomical Society of Australia
- Progress on the commissioning of the CryoPAF on Parkes (Murriyang), including its sensitivity and engineering tests by single-port detection of the Vela pulsar
- Signing of the Indigenous Land Use Agreement and the new Inyarrimanha Ilgari Bundara Murchison Radio Observatory name

## 3. Developing Future ATNF Instrumentation

The ATUC hosted a Science and Engineering meeting a day prior to the regular open session meeting. The motivation for the meeting was to discuss possible directions for upgrades to ATNF facilities, leveraging the expertise and innovation within the ATNF technologies group. The possibilities discussed were multifaceted and generally at varying stages of conception and development, and it is therefore not possible for ATUC to recommend a specific path forward. The ATUC however notes it is essential for ATNF to continue to engage in regular, transparent, and substantial consultation with the broader Australian community for planning and prioritisation of future instrumentation, including potential ASKAP upgrades, and the timescales on which some of these upgrades may take place.

The Science and Technology day can be considered as the first step in this process. The ATUC felt that it will be necessary to build community consensus in advance, and in

preparation for the next Australian Astronomy 2026-2035 decadal review. Crucially, it will be necessary to also understand how any of the proposed upgrades complement (rather than compete) with the SKA development, especially in light of the latter's inherently fast survey speeds, while satisfying a broad swathe of science applications for the astronomy community.

ATUC notes that building future instrumentation (and indeed, appropriately exploiting existing instrumentation) inevitably requires corresponding investment in the development of software. A recurring theme during the open sessions was that firmware and software development is often under-resourced (a problem not limited to ATNF) and that this significantly limits the extent to which the current ATNF instrumentation can be scientifically exploited. Increased investments in software/firmware development capability could therefore have a greater short-to-medium-term impact than investments in hardware upgrades alone. ATUC notes, for example, that several ASKAP Survey Science Teams have substantial software development requests that cannot easily be addressed by ATNF before ASKAP survey operations commence. However, the development requests are often merely for standard radio astronomy data processing techniques, which could improve data and science quality significantly. The ATUC also felt that it would be immensely useful for ATNF to accurately forecast the various cost estimates associated with ongoing software and technical development, as it would be vital for the timely completion and success of projects.

Bearing in mind the above considerations, and the ensuing discussions during the closed sessions, the ATUC would like to make a number of recommendations, as summarised below.

***Recommendation:*** Bearing in mind the above considerations, and the discussions that ensued during the open/closed sessions, the ATUC recommends S&A consider a broad framework in the path forward, along the lines as summarised below.

1. Alongside scoping the development of future instrumentation, efforts need to be made to consolidate and take advantage of existing instrument capabilities that are already built-in, but not fully exploited (e.g., due to time and/or FTE constraints). For example, the RFI nulling and beam tracking capabilities of the PAFs remain unutilized in current observations with ASKAP.
2. Initiate community consultation to facilitate convergence of specific ideas to guide major instrumentation or upgrades — for example, science weeks for further discussions, white papers proposing specific upgrade paths, town-hall

meetings. ATUC would appreciate a presentation of specific, cost-estimated, community-driven upgrade options at a future meeting.

3. Consider appointing an ASKAP upgrade scientist/engineer (coordinator), who will coordinate the various aspects of future upgrades and related activities.
4. Take advantage of the community consultation initiatives focused on instrument upgrade paths, and where relevant, explicitly seek engineering (community) inputs on what is achievable (and desirable) with only software/firmware capability upgrades to current instruments.
5. Lay out an explicit and transparent framework for decision-making and approvals *vis-a-vis* instrument upgrades.
6. Increased community engagement to address some of the specific (software) tasks (e.g. secondments of University ECRs).
7. While considering major instrumentation upgrades, factor in the technical and computing resource requirements and longer-term sustainability.
8. Connect with the community and develop the case for time-domain/multi-messenger science that can be exclusively done with wide-FoV instruments like ASKAP, and rapid-response capability.

The ATUC recognises the substantial time and effort needed to ensure a smooth progression of the upgrade path and in the implementation of many of the above approaches, and would look forward to regular updates at future ATUC meetings.

#### **4. ATNF Strategy**

An update was presented at the open session regarding ongoing discussion meetings and presentations that were made on the subject of shaping the ATNF strategy and vision for the next decade and beyond. It was mentioned at the April 2022 meeting that there are plans to form working groups to provide input. The ATUC advice was sought on convening the advisory team. The ATUC is interested in being informed about any specific recommendations received from the Steering Committee. The ATUC would like to advocate that the membership of these working groups and the advisory committee include members from the University community, as well as student members who may

have been a part of the ATNF programme and have either continued in astronomy or moved to University.

**Recommendation:** ATUC seeks further clarification on the make-up and plans for convening the advisory committee.

**Recommendation:** ATNF to consider including external (University) members in the working groups and advisory team for providing input to the strategy, and ensure that there is representation of the student engagement/training aspects in the process.

## **5. Diversity & Inclusion (D&I)**

The ATUC was pleased to note that S&A has appointed an Equity and Diversity Officer (D&I Manager), the only business unit within CSIRO to do so. The officer will support the work of the diversity and inclusion committee and enact S&A's Diversity and Equity action plans.

ATUC encourages the D&I Manager to participate in broader discussions around transparent and effective communication, especially in a post-COVID world where inclusive methods of exchange, discussion and knowledge-sharing are essential.

The ATUC values the need for a positive culture within S&A, especially with respect to interaction with the user community. ATUC would like to be briefed on the aspects of D&I that may benefit the broader community including the students, and look forward to future updates on actions relevant to us.

In a presentation at the April 2021 ATUC meeting, it was projected that a report will be presented in due course from the UNSW study of ATNF proposal evaluations and the TAC grading practices from the semi-anonymisation proposal evaluation scheme that was rolled out about two years ago. ATUC would appreciate an update on the UNSW study of ATNF proposal evaluations.

**Recommendation:** S&A include an update from the D&I officer at the next ATUC meeting on their vision and the aspects of the D&I action plan that are relevant to student training and the broader user community.

**Recommendation:** ATUC requests an update on the UNSW study of ATNF proposal evaluations and, if available, include this at the next ATUC meeting.

## **6. ATNF Web Pages and Communication**

As discussed in Section 5, effective communication (both internally within S&A and with the external user community) is central to ensuring the equity of information flow in the current (and continually evolving) work environment and landscape. This is something that many organisations and observatories are confronting, and the ATUC recognises some of the inherent challenges and difficulties. That being said, it is also important that this becomes a core consideration for moving forward, particularly with respect to the forthcoming strategic planning and future initiatives. ATUC discussed several aspects in this regard, including the need to keep the various web pages up to date, and reviewing communication channels with the user community.

### **6.1 ATNF web pages**

The ATUC has been made aware that a number of ATNF web pages are either out of date, or contain broken links, and in some cases provide conflicting information, or could be enhanced in general. There appears to be even numerous zombie pages. For example, the lack of information on the ATNF sites as to where individual ATNF staff are stationed, which would be valuable for visitors who want to approach the ATNF staff during their on-site visits ([https://www.atnf.csiro.au/people/astro\\_people.html](https://www.atnf.csiro.au/people/astro_people.html)). Another example relates to the data policies, where the current version (available at [https://www.atnf.csiro.au/observers/data/data\\_policies.html](https://www.atnf.csiro.au/observers/data/data_policies.html)) can be compared with the older version from 2015 (<https://www.atnf.csiro.au/observers/data.html>).

***Recommendation:*** ATUC requests clarification on the planned effort (and an expected timeframe) for a refresh (and update) of the ATNF web pages.

### **6.2 Communication Pathways and Information Exchange**

In the post-COVID era, ensuring transparent and efficient pathways for communications around strategic initiatives and planning is increasingly important, both within S&A and with the wider user community. Regular newsletters, such as those circulated monthly to the ASKAP community, have proven to be beneficial in quickly and effectively providing useful and updated information to the community.

ATUC is pleased with the success of the Science & Technology day and the discussion that ensued, as well as the overall opportunity for the community to engage in current and future initiatives. It was also felt that this could be a semi-regular event, or can be suitably augmented by alternate avenues; e.g. regular “mini town hall” meetings (may

even be limited to ~1 hour duration) and/or webinars (e.g. to provide updates on the developments of BIGCAT, CryoPAF). If and where relevant, these may also include some pre-recorded sparkler-type (short) presentations for additional value-add benefits.

***Recommendation:*** S&A to evaluate existing communication pathways (both internally and with the external user community) and ascertain their effectiveness and inclusivity given the ever-changing work environment and landscape.

***Recommendation:*** S&A to consider incorporating newsletter-type communication (e.g. quarterly updates from Director or Program Leader), mini-town hall meetings etc.

## **7. Data Archives**

Data archival is one of the most important functions of an observatory as the legacy value of all observations depends strongly on the effectiveness of the data archive. The ATUC were updated on plans to migrate ATOA to CASDA. From a user perspective, ATOA and CASDA are very different data archiving services. Apart from serving datasets from different telescopes, CASDA currently offers calibrated and processed datasets from ASKAP, while ATOA offers the raw observations from Parkes (Murriyang), ATCA and Mopra.

The ATUC discussed a number of aspects relating to the near future migration of ATOA to CASDA, and would like to request further clarification on some details, addressing the below points:

- Will the new ATOA in CASDA also serve calibrated and processed datasets from all ATNF-operated observatories or just ASKAP?
- Currently, data taken with the ATCA does not immediately appear on ATOA but are accessible from an internal ATNF machine (eg. carina / kaputar) where the raw dataset could be partially processed and reduced in size before initiating data transfer. Will such interim processing capability be available for future ATCA observations post-migration to CASDA?
- Existing CASDA users have a direct download limit of 0.5 TB. In the future, BIGCAT is likely to yield larger datasets than existing or past instrumentation. What are the practical limitations and impact on data transfer for users? While it may be possible to adjust the download size limit, the efficiency of downloads may be constrained by the data sizes as well as the specific method through which the data are mounted and served.

**Recommendation:** ATNF to consider various aspects pertaining to the migration of ATOA to CASDA, and provide further clarification at the next ATUC meeting.

## **8. ASKAP**

The ATUC commends the ASKAP team for successful completion of two rounds of pilot surveys and the recent release of survey commencement and operations plans. The ATUC was also pleased to note the impressive science productivity over recent years, with 37 papers published in 2022 and many more currently in preparation. It was highlighted that some workarounds may be needed for the current software deployment system in order to support the full survey operations that are about to commence. This includes firmware improvements to optimally exploit the hardware/PAF capabilities (e.g. RFI nulling, beam tracking etc). It is also expected that the investment in autonomous operation will yield a significant improvement in operations and help maximise the survey efficiencies.

**Recommendation:** ATNF to evaluate the development work (i.e. software and firmware improvements) needed to support the full survey operations, and provide an update at the next meeting on how the planned trial runs progressed over the next semester.

## **9. National Facility Support model**

The ATUC was updated on the National Facility Support model, including the student training programme and the proposed changes to the Observer Training and Qualification model. The ATUC recognises the value benefits of observer training and qualification, as these programmes provide ATNF-affiliated students with valuable hands-on radio astronomy training, thereby helping to extend their skill set.

### **9.1 Student Programme**

The updates included learning activities and student engagement at the Open Session. It was mentioned that an online school is being planned this year for summer vacation students, new staff, and co-supervised students, and that this will likely be held at the end of November, or early December 2022. While it is indeed a welcome development that training is resuming, the ATUC did not feel this to be an ideal solution for the radio

school moving forward. The ATUC's view is that the training needs of summer vacation students are markedly different to those of postgraduate students and ECRs, and the radio schools need to reflect this. Clearly, there appears to be a strong demand for running such dedicated radio schools on a regular basis. (Noting the results from an online survey at the Open Session Day, where approximately 60% of the attendees said they have attended an ATNF radio school, and 34% wanted to but did not have the opportunity.) ATUC is aware of radio schools being held in various formats (hybrid and virtual) by other observatories in the post-Covid era (e.g. by NRAO and LOFAR), and would like to encourage ATNF to consider whether similar strategies can be adopted for ATNF radio schools.

Beyond the radio school, ATUC discussed the student programme more generally, and several points were raised as to how to improve the overall student experience. In particular, it was noted that both a student symposium and Bolton symposium have been run in the past fairly regularly as a way to bring students together and share current research. However, there have been no such events in the past several years. (For instance, a joint Bolton and Student symposium was last held in 2017). The ATUC notes that the size of the S&A-affiliated student cohort has grown significantly over the past years, and the students are now distributed not only across the country but also across the globe. This poses certain challenges in organising and holding such events in an effective manner e.g. having them in Marsfield may no longer be appropriate or cater to many of the students. However, the ATUC believes that reinstating these, in some form or other, would certainly add great value to the Space & Astronomy student programme. It is also understood that broader changes are being planned for the student programme, though details are not clear at this stage.

The ATUC notes that one of the major strengths of the Australian radio astronomical community has been the strong supportive network for students and early career researchers that are presented by these schools and symposia and other avenues. The ATUC, therefore, urges the ATNF to consult students as to what they are looking to gain from student-focused events and the student program more generally. The ATUC would like to recommend that S&A undertakes a simple multiple-choice survey with a small number of direct questions (pertaining to the type, frequency and location of such events), which can be circulated to ATNF students, along with a short description of background info (e.g. previous events like the Bolton symposium, radio school, and student symposium).

**Recommendation:** prioritise the organisation of a radio school targeted at PhD students and ECRs next year. This should be separate from any training offered to undergraduates as part of the summer vacation student programmes.



**Recommendation:** reinstate student-focused events like the Student Day and Bolton Symposium, and consider formats that are more appropriate to the distributed student cohort.

**Recommendation:** ATNF to provide further clarity on any proposed changes to the student programme.

**Recommendation:** undertake a student survey to help assess the type, frequency and locations of future student and Bolton symposia.

**Recommendation:** ATNF to look into resource requirements for student training, and consider whether it would be appropriate to elect a champion from amongst staff who will prioritise various aspects of student learning.

## **9.2 Observer Training and Qualification**

The ATUC was briefed on the observing support model, where 'Observer Experts' will be linked with specific projects in order to support observations. This would replace the Duty Astronomer model that is currently employed for ATCA and formalise the Project Expert model employed at Parkes, thus unifying the support models across both of these instruments and also the LBA. The new model is being introduced in a staged rollout, with a minimum viable product to be implemented in the APR2023 semester, and additional training planned for OCT2023.

While it is still the early stages, with a number of details yet to be finalised, the ATUC was however pleased to see that comments from the April 2022 report acknowledged, in particular, concerns about the project handover. At the open discussion session, it was pointed out that instrument upgrades like BIGCAT and CryoPAF are likely to require additional training for the community to make full use of new data products. The ATUC understands that there are plans to hold dedicated training sessions in the October 2023 semester, based on the experience that will be gained from early commissioning of BIGCAT.

The ATUC would like to seek further clarification on the structure of the accreditation programme. For instance, how does ATNF envision this being conducted? Additionally, would some recognition of prior learning be considered to streamline the process for relatively more experienced users? A related point here concerns the involvement of students during the rollout; would this include just current ATNF students who have experience as Duty Astronomers, or also students who are new to the community?

Whilst the competency of “Observer Experts” is paramount, especially during the transition period, it is important that the ATNF continues to train individuals to fulfil the associated tasks (and roles), rather than relying solely on the existing expertise and overburdening current staff. This may also help guard against a skill shortage in the future.

Further, in one of the discussion groups, it was pointed out that the training experience is more effective with multiple repeated exposures. Therefore, in addition to existing training videos, it would be worthwhile to consider expanding this to include a set of videos that feature different observing setups for different experiments. For instance, the ATNF may request short (~2-3 minutes) videos from large project teams (which involves 400+ hours of telescope time) that explain their projects and the observing setup for the purpose of training and education. Such a collection of videos can provide a useful resource, and may hopefully span the diversity of projects using each facility and instrument.

Questions were raised as to what the protocol will be when project experts are novices. A presentation at the Open session also highlighted some of the inherent difficulties in training many observers simultaneously (>30), compounded by observing times that fall outside of normal business hours and the potential lack of available telescope time. The ATUC would like to seek clarification regarding how “novice project experts” will be supported within the new model and what mechanisms are currently available to train large numbers of observers. ATUC would appreciate regular updates at future meetings to help gauge how the rollout is received by the community and as an opportunity to solicit feedback and suggestions.

***Recommendation:*** ATNF to provide clarification on the structure of the accreditation programme for observer training and qualification.

***Recommendation:*** ATNF to provide clarification on the involvement of students during the proposed rollout of the model.

***Recommendation:*** ATNF to consider requesting short (2-3 minutes) videos from Large project teams that explain their projects and telescope setup for the purpose of training and education.

***Recommendation:*** provide additional clarification regarding how novice project experts will be supported in the new system and what mechanisms are available to train large numbers of observers.

**Recommendation:** provide regular updates at the future ATUC meetings to gauge how the rollout is being received by the community.

## **10. ATCA & BIGCAT**

The ATUC was updated that ATCA large projects have been concluded and that consideration is being given to future legacy projects. It was also felt that a comprehensive assessment of the benefits and impacts of the first round of legacy projects would be necessary, before considering a future round of legacy projects.

**Recommendation:** ATNF to undertake an assessment of the benefits and impacts of the first round of legacy survey projects before the commencement of future legacy projects.

### **10.1 ATCA upgrades**

ATUC was briefed about the possible physical upgrade options for the ATCA, many of which are mechanical and electrical system upgrades. The ATUC appreciated the presentation from the ATCA operations teams pitching the case for an upgraded ATCA infrastructure, and the unique opportunity this provides to engage with the engineering team based in Narrabri. Faster slew of antennas would improve the observing efficiency, and will also enable faster, rapid response transient modes. Furthermore, reduced reconfiguration times would also increase observing efficiency. Upgrades would also ensure the safe operation of ATCA into the future. Given these benefits, especially the improved safety, the ATUC strongly supports the upgrades, if funds (and resources) can be arranged to facilitate the upgrade.

**Recommendation:** ATNF to evaluate the cost estimate for ATCA physical system upgrades that will result in improved observing efficiency and ensure telescope safety.

### **10.2 CABB to BIGCAT transition**

ATUC understands that many of the CABB related issues currently experienced by observers will no longer be relevant for the BIGCAT (especially issues such as correlator block drops, delay calibrations and changes of correlator modes). However, it is also crucial to ensure that comprehensive user support is available to users even in shared-risk modes. This includes providing updated user manuals, processing software (and resources) where needed, and archive locations (for data download).

On the topic of CABB-related issues, it was pointed out that there are often artefacts at the phase centre in some modes (e.g. pulsar binning and 64-MHz zoom modes). The ATUC understands that CABB replacement components are becoming increasingly difficult (or even

impossible) to source, which complicates the maintenance and repair of the system in case of any failures (as such currently 4 correlator blocks are unable to reliably form zoom bands).

The open session included some discussion of the inherent versatility of BIGCAT, including the possibility of 'plugging in' custom backend experiments or adding correlation of additional 'outrigger' antennas to enable novel experiments (which may differ entirely in their size and design of the six main ATCA antennas). ATUC notes that this could help maintain ATCA as the most agile and versatile general-purpose interferometer in the world.

ATUC was also briefed that BIGCAT will use a different data format than CABB. This naturally raises some questions; e.g. can this data format be easily ported into familiar data reduction packages such as MIRIAD? If not, this should be considered essential to the development of the BIGCAT. How does the new data format affect the timeline and plans for transition to CASA, if that becomes the officially supported ATCA data reduction package, and in such a case, what are the attendant implications for requisite user support and science output from ATCA?

**Recommendation:** Update the current ATCA user's guide to highlight that CABB can result in artefacts at the phase centre when using the 64-MHz zoom modes and pulsar binning modes.

**Recommendation:** ATNF to provide clarification on a contingency plan in case CABB encounters a catastrophic failure before BIGCAT becomes science ready.

**Recommendation:** In light of CABB experience, ensure that necessary steps are taken to prevent the issues causing artefacts at the phase centre.

**Recommendation:** ATNF to evaluate the resources in terms of software development and the user support required to successfully transition to BIGCAT operations and early science.

### **10.3 Renaming the Observatory**

The ATUC commends the indigenous naming of the ATNF facilities to acknowledge the traditional owners of the observatory sites, though the ATCA is now conspicuous by the absence of one. The ATUC recognises that the observatory is already dedicated to past CSIRO chairman and radio astronomer Dr. Paul Wild ('The Paul Wild Observatory'), but would also like to see appropriate indigenous recognition at the site and naming scheme for the telescope/antennas.

**Recommendation:** In addition to the current name, 'The Paul Wild Observatory', S&A to consider an indigenous name for the Observatory. It is envisaged the observatory is then known by its original name, as well as an Indigenous name that is culturally and locally appropriate.

## **11. Parkes (Murriyang)**

The Parkes Radio Telescope (Murriyang) is undergoing a major instrumentation upgrade with the commissioning of the CryoPAF system, which will help ensure that the telescope maintains its leading place in the world and continues to meet the needs of the scientific community. The ATUC was briefed on the status of the CryoPAF commissioning during the open session. The CryoPAF was tested on Murriyang in the week prior to the ATUC meeting, during which the Vela pulsar was detected in single-port measurements. While it is in the very early stages, the overall system performance looks promising, with a system equivalent flux density about 30% lower than that of the UWL receiver. The CryoPAF will now be returned to Marsfield for further testing, before being reinstalled on Murriyang during the APR2023 semester to begin science commissioning. A web interface to accompany the CryoPAF, Gariwang, is also in place. Finally, the ATUC was also pleased to hear that the open update sessions were held prior to the ATUC meeting, outlining the CryoPAF capabilities and science commissioning timeline. These were well attended by the community.

The users raised the important point that ‘shared risk data’ should not be taken with CryoPAF without software capable of processing such data. This is important as it is stemming from user experience with the UWL system.

The sensitivity of the CryoPAF makes it a promising instrumentation for pulsar timing. Pulsar timing and other applications would require beamforming algorithms optimised for maximising sensitivity and calibratable polarimetric response, which may require consideration of algorithms beyond the standard maximum signal-to-noise (S/N) that are required across the larger field of view for large surveys.

In the open session discussion, Parkes staff noted that some observers were recording data at rates higher than that planned during the observing proposals. Left unchecked this could place undue pressure on computing facilities and resources available for data archival, and therefore steps need to be taken in order to mitigate such practice. They also noted some difficulties with training large groups, and training observers with time scheduled out of regular business hours, as discussed in 9.2 above.

The proposed implementation of an ultra-wideband mid-/high-frequency receiver (UWH) system will complete the renewal of Parkes instrumentation, enabling a fleet of receivers to cover the frequency range from 0.7 to 30 GHz, which will support wide-ranging science, without requiring a change of receivers. ATUC therefore continues to support pursuing the development of the UWH receiver and consider resubmission of the LIEF bid for the next round (if unsuccessful in the current round).

***Recommendation:*** ATNF to consider suitable mechanisms that discourage observers from exceeding their proposed data rates, including the possibility of setting a hard limit based on proposal plans.

**Recommendation:** ATNF to investigate the feasibility of implementing beamforming algorithms beyond standard maximum S/N algorithms to enable pulsar timing and targeted observations.

**Recommendation:** ATNF to pursue the development of UWH receiver given the broader range of science that will be enabled alongside the increased observing efficiency for Parkes.

## **12. LBA**

The ATUC is pleased to see a healthy subscription figure for LBA science over the past years, being on par with that of other ATNF instruments. The ATUC is relieved to be informed of the anticipated continued participation of the 12-m and 30-m antennas at Warkworth, thanks to the planned take-over by the New Zealand Ministry of Business, Innovation and Employment.

The ATUC is however concerned about the feasibility of receiver changes at Parkes in the CryoPAF era and its impact on LBA operations. It appears that nearly two-thirds of LBA experiments over the past decade have used frequencies above 4 GHz, and over 80% of papers published in the last five years including LBA data, present LBA data at frequencies above 4 GHz. Indeed in the longer term, the solution is the development of a UWH receiver. However, in the meantime, it is important to communicate with the users regarding the near future options for LBA operations that may require Parkes at frequencies above 4 GHz. The ATUC recommends that development of a UWH receiver is given due high priority, especially given the great impact this will have on VLBI science.

**Recommendation:** ATNF to communicate with users regarding the possible changes to LBA operations at frequencies above 4 GHz, while pursuing the development of a UWH receiver.

## **13. Commissioning new instrumentation**

ATNF is nearing the science commissioning of three major instrumentation (CryoPAF, BigCAT, CRACO), all of which promise to be capable of delivering transformational science for Parkes, the ATCA and ASKAP. Reports were provided on the progress of each instrument during the open session and the ATUC was asked to comment on how the ATNF can engage the wider community in commissioning activities.

Community engagement with the commissioning activities typically involves a contribution from University graduate students and ECRs. For example, CRACO commissioning involves regular weekly meetings between S&A and University partners (including students). However, given the rather stringent time limits of Australian PhD theses, some supervisors will be concerned about committing student time to projects which don't result in research outputs directly related to their PhD thesis. An alternative option for commissioning would be to second postdoctoral fellows into commissioning positions. To lessen the risks to the careers of ECR postdocs,

contract extensions (specifically for commissioning involvement) may be attractive to postdocs, and provide them with financial certainty. It may also be worthwhile to consider additional suitable avenues; for example, project possibilities for students in other areas (e.g. Computer science or engineering) who may be able to contribute towards specific software development or firmware upgrades as a part of their thesis or postdoctoral research projects.

**Recommendation:** consider seconding existing ECR postdocs, either internally, or externally (e.g., through providing additional 6-12 month contract extensions), to address the resource requirements toward science commissioning of major instrumentation such as CryoPAF and BIGCAT.

**Recommendation:** ATNF to explore the project possibilities for students/ECRs in other areas (such as computer science) to contribute towards specific software or firmware upgrades as a part of their research projects.

#### **14. ATNF Science retreat**

The ATNF Science programme recently held a retreat in Barossa Valley (South Australia) to discuss medium-term strategy and planning. This was a hybrid meeting with ~30 people in in-person attendance and a similar number joined online. This largely discussion-based meeting organised multiple small-group and breakout discussions as well as full group discussions, to discuss various aspects relating to key future directions and changes, and student programmes and outreach/education activities. A summary document is currently in preparation.

The ATUC was curious if anything informative has emerged from the retreat that pertains to the changes in staff-student interactions, and their well-being and mental health. Some clarification was provided noting that there were discussions about finding a balance and catering to diverse requirements in the new normal. The ATUC understands that the new D&I Manager has been tasked with looking into this further, including any possible impact on the mental health and well-being of staff and students.

**Recommendation:** ATNF to provide a summary of the relevant actions at the next ATUC meeting.

#### **15. Proposal process and NAPA policy**

The open session also included a presentation from the TAC Chair. The ATUC was briefed about the imminent plans to transition to “full anonymisation” during the TAC proposal review process, while recognising that it remains important to be able to assess the capability of the proposal teams to successfully carry out the proposed project, particularly for Large Projects.

ATUC was also presented with a proposed modification to the NAPA policy related to triggering on radio transients. With the fast growing landscape in time-domain astronomy, this is expected to continue, particularly considering the emergence of multiple large facilities - like LSST, LIGO, and ASKAP - which produce events to follow up with ATNF facilities. The new policy provides a mechanism for sharing data with multiple project teams. The full policy (as appended to the Open Session presentation on ATCA Update) mentions an “exclusionary period” within which no other NAPA may trigger on the same object, in relation to rapid-response triggering, however without explicitly defining the exclusionary period. ATUC also noted that the web pages, e.g. at [https://www.atnf.csiro.au/observers/apply/too\\_apply.html](https://www.atnf.csiro.au/observers/apply/too_apply.html) state “If results are not made available within a week of the observations, then the raw data may be released to other groups.” ATUC notes that some of the links on that page appear to be out of date.

**Recommendation:** Devise suitable mechanisms within the TAC process to allow a fair (and objective) assessment of the capability of the proposal teams, particularly for Large Projects.

**Recommendation:** the NAPA policy be amended to explicitly include a description of the exclusionary period for rapid-response triggers, and details on data release conditions.

## **16. User Feedback**

Many of the relevant points that emerged, either during the breakout discussion sessions held on the Open session and the Science & Technology Day, or from in-person interactions with the user community attended these sessions, or through email communications received by ATUC, have already been covered in the appropriate sections. It was also pointed out that it would be useful to have a mechanism to provide feedback anonymously (e.g. google form). There used to be a user feedback form on the ATNF page ([https://www.atnf.csiro.au/management/atuc/atuc\\_feedback.html](https://www.atnf.csiro.au/management/atuc/atuc_feedback.html)) but it is no longer in use (due to security reasons). A suggestion was also made to set up a Mattermost/Slack channel for the ATUC so useful discussions can continue even beyond (and outside) regular ATUC meetings (this has already been addressed). The ATUC is also pleased to report on having received compliments and commendations (mostly from the breakout discussions) about the Science & Technology day.

**Recommendation:** ATNF to reinstate the online user feedback form that (optionally) allows anonymous feedback.

## **17. Communication between ATNF and ATUC**

The ATUC ToR includes providing broad user feedback and advice to the ATNF Director and senior management and making recommendations toward maximising the science productivity across the ATNF facilities. ATNF receives feedback from other advisory committees, including



the ATNF Steering Committee, and ASKAP Survey Science Teams and Principal investigators. In order to provide informed advice and ensure an effective functioning, the ATUC would benefit from summaries of the discussions and feedback from these other groups. As an example, the ATUC appreciates receiving a copy of the RASSP summary document in response to a request made in the April 2022 report. Similarly, a high-level summary of ATSC recommendations, as relevant for the ATUC, would be greatly appreciated.

**Recommendation:** ATUC would appreciate receiving summaries of outcomes and highlights from the ASKAP Survey Science PI meetings.

**Recommendation:** ATNF to provide a summary of the December 2022 ATSC meeting prior to the next ATUC meeting.

## **18. Date and format of next meeting**

The proposed dates for the next ATUC meeting are 4-5 April 2023, in advance of the May 2023 Steering Committee meeting.

The ATUC notes that the feedback from the discussion sessions and conversations held within Gather (during the S&T Day and ATUC open session) were indeed valuable as they provided a stimulating platform for some energetic discussions and brainstorming in collaboration with the community. The inclusion of such discussion sessions in future meetings should therefore be retained, and may even be slightly expanded in favour of alternating some reports, or even moving some to pre-recorded updates, to possibly allow slightly longer sessions for the key presentations, and to incorporate short discussions within their allocated time slots.

**Recommendation:** Retain and possibly expand the discussion sessions in future meetings.