ATUC Report (March 2023)

Summary of key recommendations

ATUC discussed a number of topics including D&I, student program & training, ASKAP Guest science and Long-term proposals, as well as ATNF-managed facilities and major instrumentation under development (BIGCAT, CryoPAF, CRACO), and the new OE model and data archives. A brief summary of key recommendations are noted below:

1. ATNF to survey both S&A and university supervisors on the success of the student program, and consider extended placements for HDR (PhD) students to provide them opportunities for skill development.
2. ATNF to consider polling users in advance of the 2024APR proposal call to gauge the community interest and demand for ASKAP Guest science, and develop a policy for commensal projects on ASKAP during open time.
3. Strong encouragement for community engagement to discuss and converge on a number of important aspects pertaining to the new “long-term” proposal category; e.g. hold a workshop. A transparent review process and a mechanism for periodic assessment/accountability are essential for this scheme.
4. Prioritise shared-risk GW follow-up observing during BIGCAT commissioning.
5. Implement the proposed 1-2 receiver changes at Parkes while pursuing the development of a UWH receiver; seek prospective university partners well in advance of ARC LIEF deadlines.
6. Consider the secondment of suitably skilled ECRs and student researchers to address the resource constraints in the commissioning of CryoPAF.
7. ATNF to create a transparent training pathway/training materials for developing new OEs and ensure student training is integral to this OE model; retain (or provide) travel support for students and consider incorporating student training statements into proposals.
8. ATNF to discuss with ATUC on a more exact (and effective) role of the ATUC in representing ASKAP users.
9. ATNF poll the ASKAP community (SSTs and users) on the value benefits of an improved astrometric accuracy of ASKAP data products.
10. Undertake a detailed feasibility study of the proposed ASKAP LNA upgrade including the relevant timeline.
11. Considering longer-term science benefits, all pulsar timing data sets be archived in DAP, and consider hosting at least decimated data products for large projects.
12. ATUC be briefed (via an out of session meeting) on ATNF strategy for the future.
13. ATNFto take steps to maximise value of in-person ATUC meetings, and consider Perth for next ATUC to better connect with the WA-based community.

Following discussions with ATNF Science Program Director, ATUC recommendations are now tagged with the following priorisation ratings, in terms of the expected impact and the urgency as perceived by the ATUC. A summary of this information is appended at the end of the report.

Impact:

3 most important (critical to present/future ATNF operations or ATUC meetings)

2 medium importance (will have a large but not critical impact)

1 less important (useful and nice to have)

Urgency:

3 most urgent (actioned before next ATUC)

2 medium urgency (timescale of 1-2 years?)

1 less urgent (should happen but doesn't really matter when OR is long term/ongoing)

1. ATUC members in attendance

Ramesh Bhat (Chair), Craig Anderson, Hayley Bignall, Adelle Goodwin, Emily Kerrison (student member), Emil Lenc, Yik Ki (Jackie) Ma, Peter Macgregor (student member), Vanessa Moss (Executive Officer), Ryan Shannon, Stas Shabala (incoming Chair)

Apologies: Ivy Wong

2. Commendations for S&A

- First fringes on Setonix from LBA correlation
- First successful tests of BIGCAT beta version
- Commencement of Survey Science Projects for ASKAP
- Transition to the full anonymization of the proposal review process
- Retention and progression of postdocs within the Science group
- Timely repair of ATCA antenna 6 after unfortunate cable wrap breaking

Best wishes to Brett Preisig on retirement, after an exceptional dedicated service.

3. Diversity and Inclusion

ATUC appreciated an update on diversity and inclusion from the new D&I officer, the first such position in the CSIRO. The officer has visited all of the S&A sites and taken on the advice from the D&I committee in planning work. The officer has identified key priority areas for the unit, including indigenous engagement. Initial work has naturally focused on engaging with S&A staff. The ATUC enthusiastically encourages user involvement in D&I activities and the broadening of the officer's mandate to ensure equity for ATNF users.

It was unclear to the ATUC if and how feedback from the users could be provided to the D&I committee. Given many ATNF websites are behind the CSIRO firewall, the D&I feedback is currently not accessible to users.

At the 2021 April ATUC meeting, the ATUC was given a report on staff demographics, which included gender imbalances across research groups. At the time, the ATNF noted that hiring practices had been revised to improve gender balance. Given that 2.5 years would have passed by the next ATUC meeting (November 2023), the ATUC will be interested to see an updated report to evaluate the effectiveness of the updated hiring policies.

The ATUC further notes that the UNSW study of ATNF proposal evaluations including TAC grading practices was also promised by around the mid-2023 timeline. ATUC commends the ATNF for implementing the anonymous and dual-anonymous proposal review process since the last meeting, and looks forward to the UNSW report at the next meeting.

Recommendation 3.1: ATNF appoints a non-CSIRO user of the ATNF to the S&A Diversity and Equity committee.

Recommendation 3.2: ATNF advertise D&I feedback form to users (https://www.surveymonkey.com/r/CASS_DI_feedback).

Recommendation 3.3: ATNF report on staff demographics at next ATUC meeting.

Recommendation 3.4: ATNF brief ATUC on results of the study at the next ATUC meeting.

4. Students and training

ATUC was updated on the development of activities and training opportunities which make up the student programme. The ATUC is particularly pleased to note that both the postgraduate and summer vacation programmes have maintained steady enrolment, and the summer vacation student program has achieved a healthy gender balance for the last few years. An informal training school was held in 2022 for ATNF and ICRAR summer vacation students. However, communication with postgraduate students was inconsistent, so this event was not well publicised to that cohort, meaning many co-supervised students still have not had the opportunity to attend dedicated radio physics training run by ATNF.

On the subject of training, a radio school is now planned at Narrabri in September 2023. ATUC warmly welcomes this step, as students will benefit from visiting the Narrabri site and avail the opportunity to network with their peers, many of whom they have not had a chance to meet yet, due to the distributed nature of the co-supervised cohort.

The postgraduate program is also under review, and a survey has been distributed to co-supervised students. Although at first this survey was not anonymous (possibly inhibiting honest feedback), ATUC has been made aware that an anonymous option was introduced shortly after our concerns were raised at the closed session.

ATUC understands that there are also plans to survey CSIRO supervisors. However, it was felt that the program review would benefit from insights from both the ATNF and university supervisors. Surveying both groups may reveal useful insights into potential improvements to the program which may be missed by co-supervised students. The ATUC is therefore interested to see a summary of the feedback from both the student survey and any survey of supervisors.

Universities are advocating increased emphasis on engaging with Industry as part of their HDR student training. Further, under an amendment made to the Commonwealth Scholarships Guidelines (Research) 2017 in 2021, industry internships are incentivised by increased grants provided to higher education providers. Eligibility for the scheme requires that an internship or industry placement needs to be at least 60 days long and ideally related to the student's area of study.

ATNF is well placed to engage with this opportunity by creating extended placements for students in HDR programs, to develop skills applicable to their research. Any such placements would necessarily align with the interests of host institutions, as well as potentially meeting some of ATNF’s research needs. As a division of CSIRO, and an

Australian government agency responsible for scientific research, it would be appropriate for ATNF to support this initiative to the extent that is practically possible.

Recommendation 4.1: ATNF to survey both ATNF and university supervisors on the success of the ATNF student programme. ATUC is willing to help facilitate this survey to ensure the questions asked are relevant.

Recommendation 4.2: ATNF to develop extended placements for HDR students to maximise on the opportunities provided by amendments to the Commonwealth Scholarships Guidelines (Research) 2017 Act.

Recommendation 4.3: A report on the postgraduate program review be presented at the next ATUC meeting in October 2023 which includes an overview of the feedback received from surveying students and supervisors.

5. ATNF communications

Communicating scientific accomplishments and important project milestones to the general public is essential to the success of ATNF and the users. The communication team is able to support media releases and promotion of ATNF users' science results. The users welcome the assistance that CSIRO can provide in supporting and collaborating on press releases for ATNF users.

ATUC notes that a major refresh is currently being planned for the ATNF web pages. In the long run this will help address many of the issues that were raised in the previous report. While this is an activity that may run across multiple semesters, it is encouraging to note that there is an ATNF staff member already working on the OPAL-related feature improvements as a priority.

Meanwhile, it will still be important to ensure essential contact information of operational support staff is readily available via the web pages, as well as other important fixes are addressed; for instance, it was pointed out that the LBA sensitivity calculator is currently not working (script is not allowed on web pages).

Recommendation 5.1: ATNF advertise support that CSIRO communications team can provide for university-led ATNF-user projects.

Recommendation 5.2: ATNF website is updated at a basic level to ensure no incorrect information is present while the longer-term website refresh project is underway.

6. TAC updates and new proposal categories

6.1 Guest science on ASKAP

At the open session, the ATNF TAC Executive Officer presented an update on the time assignment process. A major change is occurring next semester with the availability of ASKAP for guest science. ATNF users welcome the opportunity to take advantage of the system. The ATUC understands that the TAC will likely be expanded to provide the breadth and personnel to assess a hopefully larger and more diverse set of observing proposals.

While it remains unclear the level of interest there might be in this and future calls for ASKAP guest science, the ATUC's view is that the observatory and users may benefit from a foreshadowing of expected proposals. For example, in advance of MeerKAT open observing calls, SARAO polled potential users to express interest in the use of the MeerKAT. This provided the observatory the opportunity to gauge proposal pressure for the new instrument and also intended observing modes. For example, this could be a useful exercise, especially if Setonix resources are constrained in the near future.

At the open session, it was noted that there are commensal observing opportunities for ASKAP. While there are commensal projects approved for some of the key ASKAP survey science projects (e.g. CRAFT), this is not the case for guest science time. Projects commensurate with guest time would increase the productivity of ASKAP and produce more science. Commensal observing modes are supported on other telescopes (MeerKAT, JVLA), which can be used as models for ASKAP policy.

While most ASKAP guest observing is expected to follow the data publication policy of the SSPs, the ATNF allows some projects to have proprietary periods, at the discretion of the TAC. The ATUC notes that CSIRO and the survey science teams have developed observing programs that support this important endeavour. The ATUC view is that proprietary data should be considered as an exception. However, the prescription for the proprietary time is not clearly defined and so should be developed in advance of the first ASKAP open time call.

At the open session it was mentioned that a rubric has been developed for proposal evaluation. This is a positive development and will help ensure consistency in TAC evaluations. While it may not be appropriate to share the rubric with the community, the community would certainly benefit from some further guidance on expectations around the proposal. This will help improve both the proposals and also outcomes, and will help users write stronger and well-motivated proposals.

6.2 “Long-term” proposals

ATNF has proposed a new “Long-Term” project category. These “long-term” (Large) projects would certainly benefit the user community, who would thus be encouraged to develop proposals with longer term science goals in mind, and will avoid the need to propose on semester by semester. Such projects would also necessarily highlight the longer term need and viability for ATNF instrumentation.

Importantly the ATUC notes that such long/large projects need to be held accountable through periodic progress reviews, with time allocations predicated depending on the delivery of publications and data releases. Large/long project types are considered by other facilities (the extremely large projects of NRAO, for example), and ATNF may like to review practices that other observatories follow and lessons learned, as well as the lessons learned from the now completed ATCA legacy projects. It is essential that these projects are well resourced to ensure the data collected are processed, analysed, and published in a timely manner.

While in principle such proposals could be advertised any semester (ATUC noted that there are certainly long programs now on all facilities), such a scheme may ideally be advertised after the successful commissioning of BIGCAT and CryoPAF. Community buy-in is essential for this new observing scheme, and so the next step is clearly further engagement of the users.

With this important initiative in mind, ATUC deliberated on the merits of the scheme in detail and felt that a workshop would be needed to fully scope the new proposal type. In the discussions that ensued, the ATUC identified a number of questions that could be addressed by such a workshop which can also inform the related policy development. Some of these are noted below:

- How will current “long-term” projects (that have been ongoing for a few years) be treated in this new proposal category? Will they be expected to go through the full new proposal process?
- For projects that may seek to upgrade to a long project after 1 or 2 semesters, will there be a requirement for them to go through the full proposal process?
- Is there a difference between a large long-term project (e.g. pulsar timing array) or a small long-term project (e.g., maser monitoring). Should they be assessed in the same way?
- How to deal with the claim staking aspect in such projects (e.g. GW followup)?
- What is a suitable cadence for such long-term proposal calls? How much time will be allocated to these types of proposals as opposed to regular proposals?

- Should additional members be added to the TAC to alleviate the burden on the TAC members who are tasked with assessing regular proposals? Should there be an external oversight?

A workshop can help answer many of the above and formulate a strategy that is both fair and equitable. The ATUC hence strongly encourages that ATNF consider such a community engagement.

Recommendation 6.1: ATNF to consider polling users in advance of the 2024APRS semester call for proposals to gauge the community interest and demand for ASKAP guest science.

Recommendation 6.2: ATNF develop a policy for commensal projects ASKAP during open time.

Recommendation 6.3: ATNF to develop a policy for the proprietary period in advance of the first open call for ASKAP guest science.

Recommendation 6.4: ATNF provides further instructions on proposal templates that match expectations from the ATNF TAC.

Recommendation 6.5: ATNF to hold a workshop on long-term projects.

Recommendation 6.6: After the workshop ATNF solicits expressions of interest for long- term projects to assess interest and identify overlapping projects that could be consolidated into stronger cohesive projects.

Recommendation 6.7: ATNF proposes a transparent review process to ensure that long term projects are fairly assessed, and TAC advice can be used to revise large project allocations in the case a project is missing deadlines for key deliverables.

7. ATCA and BIGCAT

The ATCA remains a highly productive and valuable instrument for cm astronomy. ATUC is pleased to see that antenna 6 on ATCA was repaired in a timely manner after the mechanical failure of a cable wrap mount, and that many of the repairs could be performed using in-house resources. At the previous ATUC meeting, ATCA engineers had highlighted some concerns with the ageing mechanical and electrical systems on the telescope, and urged consideration of funding for upgrades of these systems. It was

noted that neglecting such could ultimately represent a safety concern if not addressed. Even though the recent antenna failure was not directly associated with these posited upgrades, it highlights the potential impact of future failures on science productivity and personnel safety if maintenance and inspection are inadequate.

ATNF noted that there has been some further degradation of the CABB correlator, with pulsar binning modes no longer available. ATUC anticipates the timely completion of BIGCAT to restore CABB modes that are currently unavailable.

ATUC was pleased to see great progress is being made in developing new *caobs*, as well as an updated scheduler and simulator tools. The BIGCAT verification test results using ATCA and Mopra VLBI data are indeed promising.

ATNF noted that there will be some unavoidable downtime during LIGO O4 (from May 2023 - early/mid 2025) which could impact GW follow up. This is high-impact science and ATCA is the only instrument in the southern hemisphere with capability to cover wavelengths between 4 GHz and 50 GHz for the early time follow up of transients like BNS mergers. ATUC therefore advocates shared-risk modes that will help follow up of GW events which would also enable follow up of other high-impact transient events. Hopefully these are also likely to be some of the first modes (continuum imaging) to be commissioned.

The other disruption that could occur during O4 is the RF upgrade. This will increase the sensitivity and flexibility of BIGCAT. The upgrade is likely > 1 year away, but may also impact O4 GW follow up.

The ATUC is pleased to hear that ATNF has begun the process of considering an Indigenous name for the observatory and looks forward to hearing updates on the progression of this matter.

Recommendation 7.1: ATNF to prioritise shared risk GW follow-up observations during BIGCAT commissioning.

Recommendation 7.2: ATNF to update the community on upgrade at the next ATUC meeting.

8. Parkes (Murriyang) and CryoPAF

ATUC welcomes the newly appointed senior system scientist, and looks forward to working with them to ensure Parkes remains a cutting edge instrument into the SKA era.

Making the best scientific use of the now-mature UWL system deserves a high priority. This can include coordinating with the user community and poll them to see how they are using the instrument and in particular with regard to developing strategies for RFI characterisation mitigation. ATUC notes that ATNF has been making efforts to engage the community to understand the use of the UWL receiver, and planning to organise training workshops. These steps will help facilitate the transfer of knowledge between community members and ATNF.

ATUC also notes that there was no LIEF bid for a UWH receiving system this year, due partially to the lack of university partners. LIEF bids have long lead times with university internal deadlines, oftentimes many months in advance of the ARC LIEF deadline. The ATNF notes future bids will likely emphasise VLBI science that can be uniquely enabled by the advent of the UWH. A VLBI focus can potentially broaden the LIEF partner instruments.

At the open session it was also highlighted that the 20 year maintenance is imminent and expected to result in 2 x 1 month shutdowns. These are important maintenance activities to ensure safety and health of the telescope, and the ATUC is on board that these shutdowns are inevitable.

Recommendation 8.1: ATNF seeks prospective university partners well in advance of LIEF deadlines.

8.1 CryoPAF

Progress is being made with the CryoPAF development and the science commissioning activities are expected to commence at the end of 2023 April semester, with shared-risk observing starting in the 2023 October semester. The presentation at the open session also highlighted a number of working groups looking at different aspects of the CryoPAF commissioning. The teams are developing detailed plans. Communication between working group leads and the community is essential for the smooth progression of the commissioning. Most working groups have been assigned a lead, though “beamforming and weights” currently does not have an assigned lead. It appears that commissioning

of the CryoPAF could be benefited through secondments of (suitably skilled / capable) postdocs and/or PhD students.

Recommendation 8.2: ATNF to consider the secondment of appropriately skilled ECRs and PhD students that may help address the current resource constraints in commissioning CryoPAF.

9. LBA

The ATUC was pleased to note that the LBA continues to deliver high impact science, despite being a modestly scheduled instrument, observing ~720 array hours per year. VLBI will become an important area in the SKA era so it is essential that the LBA capability is retained and supported in the coming decade.

The proposed LAMBDA project provides the technical roadmap for low-frequency VLBI with SKA_LOW. Encouraging progress is being made with the test-bed deployment at Narrabri.

ATUC was also pleased to note that the future science case for LBA is in preparation, including consideration of a stand-alone LBA, LBA in the SKA era, and low frequency VLBI.

Prior to the completion of the proposed UWH receiver at Parkes, it will be necessary to change the receiver (i.e. removing either the UWL or CryoPAF receiver) to enable high frequency VLBI. ATUC recognises that receiver changes will involve significant effort at the Observatory. The ATUC strongly endorses the proposed 1-2 receiver changes per year at Parkes to enable high frequency VLBI, while noting the importance of pursuing the UWH receiver development.

Recommendation 9.1: ATNF to implement the proposed receiver changes per year at Parkes for continued support of high frequency VLBI, while pursuing the development of the UWH receiver.

10. Observing and new support model

The new support model for Observer Experts is being implemented across the ATNF facilities. The model replaces the Duty Astronomer (DA) model for ATCA and will formalise the Project Expert model that has been in place at Parkes. It appears that the

new model is well received by the community, with the majority of proposals for the APR2023 semester being self-supported by observing experts (OEs) within the project team. However, it remains unclear how students may fit into the OE model (e.g. how they will be trained if at all, and if it will be required that ATNF students spend time as OEs as was the case with the DA model).

The OE model may require additional training resources to ensure that all proposals have individual OEs that are sufficiently well trained. This is important both to avoid putting a considerable strain on the ATNF staff acting as OE, as well as to ensure a sufficient pool of trained "expert" observers is available within the community.

As highlighted in the previous reports, ATNF co-supervised students were able to avail benefits such as travel to facilities alongside fulfilling their responsibilities of serving as DAs. It is unclear if this will continue under the new OE model.

The ATUC recognises the benefits of providing training on hands-on operations of ATNF telescopes to students, and proposes that observing projects may be encouraged to devise plans to maximise such benefits for students through; e.g., the inclusion of a short student training statement in the observing proposal. The availability of trained student experts may also help alleviate some of the resource limitations anticipated in the near future as new instrumentation (BIGCAT and CryoPAF) comes online, and allow a better distribution of expert observer time commitments from ATNF staff. It would also be desirable (especially in the case of Large or "Long-term" projects) to incorporate this as part of proposal evaluation and the TAC grading schemes.

Recommendation 10.1: ATNF to create a transparent training pathway/structured body of training materials for developing new OEs within the community.

Recommendation 10.2: ATNF to consider student training aspects under the new OE model, and ensure that is integral to the training program.

Recommendation 10.3: ATNF to devise support/training models that will benefit ATNF students to undertake travel to Marsfield or Perth and to interact with their supervisors alongside availing themselves of hands-on training opportunities.

Recommendation 10.4: ATNF to consider incorporating student training statements into proposals, and additional ways to incentivise student training through projects.

11. ASKAP

The open session highlighted the known issue of astrometric inaccuracy with ASKAP. This systematic offset (of a few arcseconds) is caused by the phase calibration strategy of ASKAP observations (i.e., without using known phase referencing calibrators), and can vary across the 36 PAF beams. A potential approach to mitigate this is to develop a sky model for phase referencing. It is unclear how much time and resources will be required (the ATUC notes there are complications in that the intended sky model, based on RACS, is also affected by this issue). To gauge whether this will be a worthwhile investment of the ATNF resources, it will be useful to seek some community feedback on the importance of an improved astrometric accuracy for their science cases, as well as other technical developments.

The ATUC has previously pointed out that the need to better clarify (or define) the role of the Committee in representing the ASKAP user community. It is increasingly apparent that some clarity will be needed on this front, as there already exist direct and frequent communication pathways between the SSTs and the ATNF management (though, with the upcoming ASKAP Open Time and Guest science proposals, the ATUC will certainly be keen to communicate with the general users of the telescope).

Recommendation 11.1: ATNF poll the ASKAP community (both SSTs and general potential users) on the significance of a much improved absolute astrometric accuracy of ASKAP data products on different science cases.

Recommendation 11.2: ATNF & ATUC members to discuss the exact roles of the ATUC in representing ASKAP users, and clarify, or explicitly outline more effective approaches to fulfil those roles.

11.1 ASKAP update

The ATNF has carried out a successful trial of full survey science observing over the end-of-year shutdown, with the dynamic scheduler and processing pipeline enabling nearly fully automated & autonomous observing.

The ATUC notes that the delays in the commissioning of the Setonix supercomputer have led to a pause in the ASKAP surveys. The users eagerly look forward to the resumption of the observations at the expected survey speed starting in early May.

While most observing programs require the use of Pawsey ingest and post-processing systems, there are some projects that do not require such resources. As such, these

projects can be carried out as “filler” observations to keep the telescope observing during periods of high processing workload. This can help to maximise the observation efficiency and result in the increased scientific productivity from the ASKAP.

Recommendation 11.3: ATUC recommends that filler observations (e.g. CRAFT or other projects) be considered to fill the gaps in the dynamic schedule.

11.2 ASKAP upgrade

The ASKAP Project Scientist presented a possible roadmap for mid-term upgrades to ASKAP that would increase the array’s sensitivity. One of the plans involves a modest ($2M) investment to upgrade the ASKAP PAF low noise amplifiers (LNA), and is expected to reduce the system temperature (and therefore increase the survey speed) by a factor of three. This upgrade can be performed alongside normal ASKAP operations. The ATUC thus supports this proposed upgrade, and is eager to hear about the detailed plans in the coming ATUC meetings. It was mentioned that information regarding the upgrade has also been presented in other recent meetings, in which the user community and SST’s are also in favour (given the modest cost with improved performance, and the fact this work can be undertaken in parallel to normal ASKAP operations).

Recommendation 11.4: ATNF to undertake a detailed feasibility study of an ASKAP LNA upgrade, including a timeline for prompt initiation or progression.

12. Data, archives, ATOA

Plans are firming up for migration of data from ATOA to CASDA. The presentation at the open session put forth some specific questions for the ATUC feedback. One of them is regarding how to search for data in ATOA/CASDA and whether download options need to be for an individual telescope/project or data from all telescopes for given parameters (e.g. position), or a combination.

The ATUC feeling is that users primarily will access data via project codes, but when archival searches are being carried out it would be very useful to be able to search using specific parameters (e.g. position, telescope, frequency, continuum/spectral mode) and return a list of all observations and instruments that satisfy the criteria. The latter is also a requirement for the submission of new observing proposals. It would also potentially be useful to be able to extract data based on e.g. position, sub-band, without

first having to download very large files including other data (only to then discard most of the data).

Another topic concerns large data rates and the time to transfer, as well as the ingest to ATOA/CASDA. For instance, is it necessary for continuum observations to be available for download within 24 hours? The ATUC view is that for most projects, modest latency is acceptable. However, time domain astronomy for example, can involve time-critical projects in which it is necessary to quickly process data, e.g. to communicate results to the community to motivate multi-wavelength follow up campaigns. Delays in access to the data can result in lost science and lost capabilities for ATNF facilities. Expedited data access could be requested at the proposal stage.

The community has benefitted from the availability of the Parkes pulsar data access (DAP) portal for the last decade in which nearly all pulsar data has been archived by CSIRO. The DAP is the world-leading pulsar archive, including pulsar searching and timing observations. ATNF has proposed a revised data storage policy for Parkes pulsar data. The plan would require teams to demonstrate a feasible data storage plan (either relying on proposing to CSIRO scientific computing for data hosting, transferring it to home institutes, or hosting it on ATNF machines for a month). The ATUC however notes that transferring data hosting to home institutions vastly reduces legacy value and will complicate the process of open data releases.

The Pulsar DAP has been running for a decade; it is worth considering how well it is utilised. For example, are there some data sets that have been deposited but never used?

Recommendation 12.1: ATNF to consider priority data transfer for time-critical projects (e.g. some ToO/NAPA projects).

Recommendation 12.2: Investigate and test best available data transfer protocols, benchmark download speeds for data download from CASDA to various locations, and document expected speeds for community use.

Recommendation 12.3: All pulsar timing data sets be archived by Parkes.

Recommendation 12.4: ATNF hosts decimated data products (polarisation, time, or frequency averaging).

Recommendation 12.5: ATNF to provide an update on the usage of the pulsar DAP at the next ATUC meeting.

13. Technologies roadmap

The technologies (Engineering) group provided an update of the ongoing activities, triggering discussions around the ATNF technology roadmap. The roadmap hasn't changed since the last meeting, but is expected to be adapted as ATNF of the future project evolves.

The community looks forward to engaging with the ATNF engineering group in student supervision in the exciting era of engineering development.

14. ATNF Science and Retreat

ATNF Science provided an update on the program and highlighted recent scientific results. There have been a number of new arrivals and retention of postdocs into more senior positions.

An update was also provided on last year's ATNF science retreat. The retreat covered many of the topics discussed at the ATUC open session and in this document. ATUC looks forward to continuing collaboration with ATNF Science on the implementation.

15. ATNF of the future

The ATUC was also briefed in the closed session on the planning exercise referred to as "The ATNF of the Future" (ATOF). The ATNF has formed a set of working groups, primarily comprising ATNF staff, but also includes a small number of external users and stakeholders. The working groups are expected to provide draft papers that will be used to establish scenarios of how ATNF will operate in the 2030s. The outcomes will be presented to the ATNF steering committee at the upcoming meeting in May and will be further refined. The ATUC understands that ATNF intends to present the outcomes after ATSC recommendations to ATUC. The users are expected to play a key role in defining and supporting the ATOF and ATUC is eager to contribute to the planning appropriate time.

Recommendation 15.1: ATUC be briefed via an out-of-session meeting on ATNF of the future.

16. User feedback

ATUC has observed that there has been only limited feedback and comments coming in from the community in the lead up to ATUC committee meetings. This is a noticeable change, and could possibly be to do with a lack of appropriate avenues for soliciting feedback from the community, coupled with alternative feedback to ATNF management (i.e. ASKAP SSP PI meeting). The ATUC would like to put forth some suggestions to help address this.

Recommendation 16.1: ATUC and ATNF consider providing an anonymous form to give users an opportunity to provide feedback and raise issues they may be otherwise uncomfortable to raise in person.

Recommendation 16.2: ATUC and ATNF solicit asynchronous feedback from users through CSIRO Mattermost and through ASA Slack channel that is being established.

17. Date and format of next meeting

ATUC feels strongly that the in-person aspects of these meetings hold great value, and therefore should be retained. In particular, they offer many users the chance to interact with staff whom they would otherwise rarely have a chance to meet. Accordingly, it is reasonable to encourage staff to attend site during the week of ATUC (where possible), in order to further maximise the value for all attendees, and facilitate the opportunities for ‘hallway conversations’ and other benefits of in-person meetings.

While the ATUC meetings continue to be held at Marsfield, the ATUC recognises an established (and growing) astronomy community in Western Australia which tends to have a strong online presence at the meetings. Given the distribution of S&A staff and ATNF users across the two locations now, it is timely to consider alternating the meeting location between Marsfield and Perth. Additionally, the meeting details need to be publicised in advance to allow the community and S&A staff to plan appropriately.

It would also be worthwhile to consider a review of the structure of ATUC meetings, to ensure the live presentation time is used effectively. For example, when the schedule becomes exceedingly busy, some updates could be provided in written or pre-recorded form and released ahead of time, leaving more time for questions and discussions at the open meeting. Alternatively, some updates (e.g. LBA) could be delivered annually. Indeed any such changes should be done in consultation with the ATUC.

The ATUC also greatly values interaction from the ATNF leadership at ATUC meetings. The ATUC especially values attendance from the ATNF Director, in the open sessions, the debrief, but also in informal meeting breaks.

Recommendation 17.1: ATNF to take steps to ensure value of an in-person ATUC is maximised.

Recommendation 17.2: The next ATUC meeting be held in Perth to better connect with West Australian ATNF users.

Recommendation 17.3: ATNF and ATUC to review the structure of ATUC meetings.

Recommendation 17.4: ATNF to confirm and publicise the date and venue of the next meeting ~ 2 months in advance.

18. Priorities of recommendations

The following table represents the weighted impact and urgency scores based on input from ATUC members. Higher numbers indicate higher impact/urgency associated with these recommendations.

Recommendation	Impact (1 = low, 3 = high)	Urgency (1 = low, 3 = high)
3.1: ATNF appoints a non-CSIRO user of the ATNF to the S&A Diversity and Equity committee	1.5	1.4
3.2: ATNF advertise D&I feedback form to users	1.8	1.6
3.3: ATNF report on staff demographics at next ATUC meeting	1.9	2.1
3.4: ATNF brief ATUC on results of the study at the next ATUC meeting	1.8	1.8
4.1: ATNF to survey both ATNF and university supervisors on the success of the ATNF student programme	2.0	2.1
4.2: ATNF to develop extended placements for HDR students to maximise on the opportunities provided by the Commonwealth Scholarships Guidelines Act	2.1	1.8
4.3: A report on postgraduate program review be presented at the next ATUC meeting in October 2023	2.0	2.1
5.1: ATNF advertise support that CSIRO communications team can provide for university-led ATNF-user projects	1.9	1.5
5.2: ATNF website is updated at a basic level to ensure no incorrect information is present while the longer-term website refresh project is underway	2.5	2.5
6.1: ATNF consider polllng users in advance of 2024APR semester call for proposal	1.8	1.6
6.2: ATNF develop a policy for	2.1	2.0

commensal projects ASKAP during open time		
6.3: ATNF develop a policy for assessing if ASKAP observations for proprietary ASKAP observations	1.9	1.9
6.4: ATNF provides further instructions on proposal templates that match expectations from the ATNF TAC	2.1	1.9
6.5: ATNF to hold a workshop on long-term projects	2.0	1.8
6.6: After the workshop ATNF solicits expressions of interest for long-term projects	2.0	1.5
6.7: ATNF proposes a transparent review process to ensure that long projects are fairly assessed	2.6	1.9
7.1: ATNF prioritise shared risk GW follow-up observations during BIGCAT commissioning	2.5	2.1
7.2: ATNF update community on upgrade at future ATUC meeting	1.8	1.8
8.1: ATNF seek university partners well in advance of LIEF deadlines	2.6	2.5
8.2: ATNF to consider the secondment of appropriately skilled ECRs and PhD students	2.4	2.0
9.1: ATNF to implement the proposed receiver changes per year at Parkes for continued support of high frequency VLBI	2.4	2.0
10.1: ATNF to create a transparent training pathway/structured body of training materials for developing new OEs within the community	1.9	1.8
10.2: ATNF to consider student training aspects under the new OE model, and ensure that is integral to the training program	2.0	1.6
10.3: ATNF to devise	1.8	1.3

support/training models that will benefit ATNF students to undertake travel to Marsfield or Perth		
10.4: ATNF to consider incorporating student training statements into proposals, and additional ways to incentivise student training through projects	1.9	1.5
11.1: ATNF poll the ASKAP community (both SSTs and general potential users) on the significance of a much improved absolute astrometric accuracy	1.8	1.3
11.2: ATNF & ATUC members to discuss the exact roles of the ATUC in representing ASKAP users	1.6	1.3
11.3: ATUC recommends that filler observations (e.g. CRAFT or other projects) be used to fill gaps in the dynamic schedule	1.8	1.1
11.4: ATNF to provide detailed feasibility study of ASKAP LNA upgrade	2.0	1.9
12.1: ATNF to consider priority data transfer for time-critical projects (e.g. some ToO/NAPA projects)	2.0	1.5
12.2: Investigate and test best available data transfer protocols, benchmark download speeds for data download from CASDA to various locations	1.6	1.3
12.3: All pulsar timing data sets be archived by Parkes	2.1	1.0
12.4: ATNF hosts decimated data products (polarisation, time, or frequency averaging)	1.8	0.9
12.5: ATNF to provide an update on the usage of the pulsar DAP at the next ATUC meeting	1.3	1.5
15.1: ATUC be briefed via an out-of-session meeting on ATNF	2.0	1.8

of the future		
16.1: ATUC and ATNF consider providing an anonymous form to give users an opportunity to provide feedback and raise issues	1.9	2.0
16.2: ATUC and ATNF solicit asynchronous feedback from users through CSIRO Mattermost and through ASA Slack channel that is being established	1.8	1.5
17.1: ATNF to take steps to ensure value of an in-person ATUC is maximised	2.3	2.1
17.2: The next ATUC meeting be held in Perth to better connect with West Australian ATNF users	2.0	2.0
17.3: ATNF and ATUC to review the structure of ATUC meetings	1.6	1.6
17.4: ATNF to confirm and publicise the date and venue of the next meeting ~ 2 months in advance	2.3	2.0