ATUC Report (June 2017)

1. ATUC members in attendance:

James Miller-Jones (chair), Stas Shabala, Sarah Hegarty, Stefan Oslowski, Shari Breen, Cormac Reynolds (secretary), Stuart Ryder, Vanessa Moss, Daniel Reardon, Martin Bell (remote).

2. Commendations for CASS

ATUC commends CASS on:

- The implementation of a Rapid Response Mode for the ATCA, while recognising that this is still a "work in progress" and has yet to be fully put through its paces.
- Installation of all 30 PAFs on ASKAP and the commencement of early science.
- Lisa Harvey-Smith's role in the success of the ABC "Stargazing Live" event.
- Acceptance by NAOC of the 19-beam FAST receiver.
- The delivery of a PAF to the Effelsberg telescope after successful commissioning.

3. CASS Culture Project

The workplace culture within CASS had been an issue of concern for ATUC. Accordingly, we were pleased to receive the report of the CASS Culture Project, and we commend efforts to improve the workplace environment and address identified areas of concern. It was clear that a number of past and present staff were consulted and there was an attempt to gather experiences and feedback from a broad cross section of more senior staff, early career researchers and students. ATUC believes that the best outcomes (for staff as well as visitors and students) will be gained by continuing the dialogue around the culture in CASS and it seems that this is what is intended.

As this project continues, ATUC hopes to see clear communication of its progress. ATUC would like to know how the outcomes of the culture report's recommended actions will be tracked and communicated.

***Recommendation**: ATUC recommends that CASS continues to include all levels of staff in discussions on how to improve CASS culture, and requests regular updates on the progress of the CASS Culture Project.*

ATUC appreciates the opportunity to provide input into the development of the ATNF vision and mission, but was surprised that the draft vision statement makes no mention of diversity, and suggests that CASS might consider rewording the statement "We will attract and retain the best

staff" to acknowledge the value of diversity. One possible suggestion might be "We will develop and maintain a diverse and highly-skilled workforce.", although the exact phrasing falls outside of ATUC's remit.

***Recommendation**: Consider a rewording of the new vision statement to acknowledge the value of diversity in the CASS workforce.*

4. ASKAP timeline and SSP priorities

ATUC is of the view that the relative merits of the 10 ASKAP SSPs need to be re-assessed before any ASKAP time is allocated. By the time full ASKAP commences operations in 2019 it will be almost a decade since the SSPs were last reviewed, and in that time a lot has changed. Some science cases may have become more compelling than they were, others less so. Furthermore it has become clear that ASKAP will be 30-50% slower in survey speed than originally envisaged, and that commensal observing will not be possible initially, both of which will impact the feasibility or science return of some SSPs more than others.

The time allocation process being planned by CASS has been suggested to incorporate the following elements:

- Assembling an expert review panel
- Drafting a paper outlining the final telescope capabilities
- Convening a working group including the SSP leads, to explore the implications of the reduced sensitivity and the lack of commensality of the telescope
- Asking the SSPs to develop updated proposals
- Reviewing the updated proposals
- Allocating the time

ATUC feels that the terms of reference for the SSPs will be crucial, and strongly urges CASS to ensure that the expectations are communicated fully and clearly to the SSPs. ATUC would argue that the SSPs should be given a chance to fully update their science cases, given how much the various fields have moved on since the original call for proposals. ATUC is of the view that restricting teams to work only with the science that they proposed in 2009 might not necessarily lead to getting the best science projects onto the telescope. A field that has not developed in 8 years is unlikely to remain as compelling a scientific priority as one that is more active and has consequently evolved significantly in that time. The teams should be given the scope to update their proposals in light of both the current state of the field and the actual final capabilities of the telescope.

Given the updated timeline for the start of ASKAP-36 survey science, with observations now expected to begin in Dec 2018, it is important that CASS also provide the various SSPs with the opportunity to reassess their requirements for Early Science and whether the current allocations are sufficient for each survey. This needs to be done quickly, both so that the Early Science

phase can begin as soon as the current commissioning work permits, and so that these results can inform planning for the full surveys.

ATUC also suggests that following the re-prioritisation of the different SSPs, CASS might consider a yearly process for evaluating the award of ASKAP observing time, in the same way as Large Projects on other CASS facilities must re-submit their proposals every 12 months. This would help ensure continued progress in the ASKAP surveys and timely release of data products in line with the official ASKAP policies.

Recommendation*: ATUC urges CASS to conduct a new assessment of the relative merits, priority, and resources to be offered to the existing ASKAP SSPs before any observing time beyond the Early Science allocations is awarded. ATUC also recommends that the plans for Early Science be reassessed and potentially revised in consultation with the SSPs, in light of the delay in timescale for the start of full ASKAP survey science.*

5. Pawsey issues for ASKAP

ATUC is keen to know what the plan is for dealing with ASKAP-36 data with Pawsey as the backend, in light of the difficulties being faced in handling the current commissioning and early science data, and considering fact that the astronomy-dedicated Galaxy supercomputer will reach the end of its maintenance contract in September. Are there contingency plans if further difficulties are encountered? Are there any plans to transition Pawsey from being the ASKAP processing centre to an SKA Regional Centre?

Recommendation*: CASS is encouraged to draw up and communicate realistic plans for processing at the Pawsey centre, especially surrounding the design and timeline of a replacement machine for Galaxy.*

6. ATCA and Parkes funding

ATUC is extremely encouraged to hear of the progress that has been made in securing the medium-term future of both ATCA and Parkes, and the commitment to operating both telescopes through to the era of SKA (albeit pending budgetary constraints). ATUC commends CASS on its efforts to secure funding through other means (including the sale of telescope time and MRO cost recovery efforts), and encourages CASS to continue to progress these agreements, subject to the constraint of not selling off more than 50% of the time on any given telescope. We appreciate that ownership of telescope time that is sold will not necessarily mean that the data will end up in the CASS archives, but encourage discussions exploring the possibility of commensal projects where appropriate. Conflicts between sold time and National Facility time should not be an issue for the TAC, which should allocate the National Facility share of the time on a merit basis as it has always done.

However as a larger fraction of telescope time becomes sold, care should be taken to protect smaller observing proposals and student training opportunities. ATUC would prefer to avoid ongoing large programs and Legacy projects from taking all of the remaining unsold time, perhaps by “ring-fencing” some fraction (10%?) of the time for “small” and/or student-led PI projects.

ATUC is excited by the proposed BIGCAT and UWB (and cooled PAF) developments, which will ensure that ATCA and Parkes remain at the forefront of scientific discovery into the coming decade, while simultaneously simplifying operations on both telescopes. ATUC looks forward to receiving updates on the progress of funding and development for both these initiatives.

Recommendation*: ATUC is very pleased to see the improvement in CASS’s financial outlook and the consequent commitment to continue operating ATCA and Parkes into the medium term. While it supports the continued efforts in this space, ATUC recommends constraining the fraction of observing time that can be sold on any one telescope to be no greater than 50%.*

7. Long Baseline Array

ATUC was surprised to hear that the possibility of suspending operation of the LBA is still being considered, particularly in light of the apparently sustainable funding outlook for the near future. The renewed confidence in the medium-term future of ATCA and Parkes makes the LBA viable going forward, and it continues to be scientifically productive. As the only Very Long Baseline Interferometry facility in the southern hemisphere, the LBA is a unique instrument which is likely to play an even larger role in the future, for example as follow-up to ATCA Legacy and ASKAP Survey Science projects in the short and medium term, and as a complement to SKA-mid in the long term. Suspending operations even for a short period of time is likely to significantly compromise the long-term viability of the LBA. ATUC is sceptical that the LBA could be revived after any significant period of ‘suspension’. Furthermore, some VLBI projects (e.g. parallax work) would be significantly damaged by missing one or two semesters of observing.

ATUC commends CASS and university partners for their efforts with regards to continuing operation of Mopra. If the new LIEF grant for Mopra support is successful, ATUC would like to see CASS negotiate dedicated access to Mopra for VLBI (both for scheduled observations and for NAPA projects).

ATUC also requests that CASS continue investigating the option of using ASKAP in the LBA, initially in single-dish mode, and subsequently tied-array mode (which would also benefit pulsar observations).

Recommendation*: ATUC strongly recommends that retaining LBA capability should remain a high priority for CASS.*

8. Tidbinbilla

There is a belief within the community that host country time on Tidbinbilla is difficult to obtain, and that little of that time ends up being used by the Australian community. Another issue is the lack of availability of long tracks. ATUC would like to know whether the availability of the two new 34m antennas at Tidbinbilla will potentially free up more 70 m time for astronomy.

Recommendation: *CASS should strive to maximise the value of host country time on Tidbinbilla. CASS should provide statistics on the fraction of Tid host country time that is currently being utilised by the National Facility.*

9. ATCA override policies

ATUC strongly supports the new proposed policy for Rapid Response Overrides (RROs) i.e. all projects (except those exempted from override by the TAC), including Legacy programs, being permitted to be overridden by a proposal that has a rank equal to or greater than some minimum score. These Rapid Response projects have strong scientific arguments to get onto the telescope as quickly as possible without delay. However, ATUC suggests a re-evaluation of the threshold TAC score at which RROs should be able to displace observers. Currently the level of "equal to or greater than the minimum score of programs scheduled for any time that semester" seems to be setting a low bar, since odd outliers (e.g. at uncompetitive LSTs, or in less popular configurations) could artificially lower the threshold. We feel strongly that a merit-based system should be maintained, which strikes an appropriate balance between different science areas. After discussion we propose the alternative level of:

RROs and NAPAs be able to override if they have a score greater than or equal to the minimum score at which all regular proposals were scheduled for at least some amount of time, even if the fraction of time scheduled was less than 100% (which would equate to 3.7 this semester).

This would raise the bar slightly, meaning that RRO proposals would have to be appropriately competitive to achieve the planned science goals. Regardless, before making a final decision, ATUC suggests that it might be prudent to check what the threshold score would have been over the past few semesters at both the originally proposed threshold (minimum scheduled score) and ATUC's alternative suggestion (minimum score at which all proposals received some amount of time).

Other notes and suggestions regarding RROs: 1.) We support the protection of student observing time as it can be time critical for the student(s) that this is not overridden. 2.) Some additional communication to Legacy Project PIs would be warranted to communicate the change of policy (which has been endorsed by the ATSC). ATUC endorses both the facility to request override exemption at the time of proposal submission (for review by the TAC) and also the proposed review of the effectiveness of this policy after 12 months, and would be happy to collate feedback from the community.

Since the ATUC meeting, CASS has clarified that the new RRO policy will also apply to regular NAPA programs. ATUC is supportive of CASS trialling this new system for regular NAPA programs, and will be interested to see the user feedback over the coming months. The new policy would help with the occasions (which have previously arisen) when an entire two-week period gets fully scheduled with either Legacy or other large projects, such that a highly-ranked NAPA trigger could not have been triggered under the existing policy until it was too late. However, ATUC would like to point out that most regular NAPA (i.e. non-RRO) observations can typically wait for a few days before getting onto the telescope, and would therefore encourage the CASS schedulers to consult with all relevant parties following a NAPA trigger, to determine the least disruptive period for scheduling the NAPA within the requested window. Ensuring that NAPA PIs communicate the required time window for triggering in their original proposal would provide important information to CASS in this regard.

***Recommendation**: CASS should implement the revised override policy for Rapid Response Mode proposals (including how they interact with Legacy Programs), and should clarify to users that this policy will also apply to regular NAPA programs. ATUC recommends a slightly higher bar for the TAC scores at which RRO and NAPA observations can displace scheduled observers. All changes to the existing policy should be clearly communicated both to Legacy and large project PIs, and to the PIs of all active NAPA programs.*

10. ATCA Legacy Projects

The first two Legacy Projects have now been taking data for two semesters, and the second two for one semester. The amount of non-VLBI, non-maintenance ATCA time devoted to Legacy projects is relatively stable, at around 35%. ATUC finds this level of allocation to be appropriate, and given the relatively stable funding outlook going forward, is not so concerned at the prospect of the telescope closing before the Legacy projects can be completed. In that sense, the current level of support, at 300-500 hours per project per semester (dependent on prevailing weather conditions for mm observations), would seem to be sustainable even though it would push back the final completion date by a semester or two. ATUC suggests that CASS communicate closely with Legacy Project PIs well ahead of each semester regarding scheduling expectations.

The Legacy Projects made a commitment to timely public release of data products. With two semesters of observation having been conducted to date, ATUC would like to hear more about the plans for data release, and what CASS is doing to provide oversight of these high-profile, long-term projects. Equally, ATUC would like to check that the Legacy Projects are receiving the support (in terms of expertise, data processing, or archiving) that they need from CASS to help facilitate this public release.

***Recommendation**: CASS should aim to provide the Legacy Project PIs with likely future allocations in advance, and should follow up with the Legacy teams to determine how the projects are progressing, and what the plans are for public data releases.*

11. Operational issues at ATCA

Concern was raised at the low number of users who complete the ATCA feedback form after their observing run. Suggestions on how to boost this included offering discounts for on-line purchases from the CSIRO store. However financial inducements such as this should only ever be a last resort. Every scheduled ATCA program has an assigned ATNF Friend (shown only in the UT listing of each semester's schedule, e.g. http://www.narrabri.atnf.csiro.au/observing/schedules/2016AprSem/atca-summaryUT.html). It should be the responsibility of the ATNF Friend to remind users of their obligation to complete the feedback form. AAT observers receive regular e-mails from their support astronomer until they submit a feedback form, resulting in a >90% return rate. Strangely, schedules since 2016OCTS do not list an ATNF Friend for each project - why is this? Another good option would include placing a link to the feedback form in the Portal, next to the "De-register" button for the Observer-in-Charge. That would make it more obvious and more easily accessible to observers as they finish their observing run. Finally, reviewing the questions in the feedback form to focus purely on observing and not on data reduction would remove an excuse for not filling it out immediately following an observation.

Once a meaningful amount of feedback from users is being collected, the results of these should be presented to ATUC at each six-monthly meeting. Any text feedback should also be made available (anonymously) to ATUC so that issues and trends in performance can be identified and monitored.

Recommendation: *ATNF Friends should take responsibility for following up with users to ensure that the observing feedback questionnaire is filled out.*

Recommendation: *ATUC should receive regular updates on ATCA and Parkes user feedback.*

12. Staffing issues

Joint appointments

The Director's report raised the issue of joint CASS/University appointments. ATUC acknowledges that joint appointments between CASS and universities can be mutually beneficial. Experience has shown however that expectations of the joint appointee by both organisations need to be clearly spelled out in advance. There can be a perception by one or both organisations that they never seem to see the joint appointee present more than 1 or 2 days a week, even though they are fulfilling their duties. Joint appointments can be particularly challenging roles to fill and to manage, but can be a very effective channel for bringing more students into CASS. Joint appointments also create opportunities for outstanding staff to secure longer-term positions that might not otherwise have come about.

Career pathways for fixed-term staff

The Director also brought up the issue of career pathways. At present, there are no well-defined career progression pathways for CASS postdocs. ATUC appreciates that it is not possible to convert every fixed-term position to ongoing. Given the number of CASS staff on indefinite positions who move on to other roles inside or outside CSIRO after a few years, CASS should not be too concerned that creating more indefinite appointments will lead to less staff turnover. We also appreciate the potential tension between the requirements of both succession planning and merit-based appointments. However, ATUC feels it is important for CASS staff in fixed-term positions to have the opportunity to regularly (for example, during an annual performance review process) discuss with their managers their medium and long-term career aspirations, both within and outside CASS. This would help staff in charting their career trajectory, and also make them more competitive for any indefinite-term CASS positions that may become available. ATUC hopes that this process may also help address some issues highlighted by the CASS culture report.

13. CASS students

The status of the ATNF higher degree co-supervision arrangement with universities was a topic of discussion at the Open Session. In ATUC's view, this is an excellent initiative that should be continued. Benefits of this program include stronger links between CASS and university research groups, and tangible outcomes such as publications and conference presentations.

Moreover, this program gives students exposure to the technical and scientific expertise of the largest radio astronomy group in Australia. This interaction is crucial to training the next generation of radio astronomers, which is a key part of CASS's vision to foster a strong research community, and of their role as a national leader in radio astronomy.

Accordingly, ATUC notes with concern the falling number of co-supervised students. We acknowledge that this goes hand-in-hand with staff reductions in the Astrophysics group, but recommend that maintaining a strong student program remains a priority. To encourage this, ATUC recommends that 1) administrative overheads that student co-supervision imposes on CASS staff should be minimised where possible, and 2) students be encouraged to engage strongly with CASS, including through research visits and DA shifts.

At present, there is no dedicated fund for bringing students to CASS, apart from during DA shifts. It would be beneficial to increase student engagement with CASS through more frequent visits. One option may be to use funds presently allocated to international conference travel, if the CASS supervisor feels this would be more beneficial. To further encourage student

involvement, the reward of travel funding could be conditional on sufficient student contribution to CASS operation, for example through DA support (or other national facility support, where appropriate). At present, a small fraction of CASS co-supervised students have volunteered for DA shifts. The expectation is currently that each co-supervised student will cover one DA shift per year, which if enforced, would relieve significant pressure to fill the role.

***Recommendation**: ATUC encourages CASS to continue the successful student co-supervision program with Universities. Students should be encouraged to visit CASS for research visits, in addition to DA shifts.*

14. DA training and telescope expertise

The underlying problem with DA expertise is that training during work hours will not expose potential DAs to the full range of likely problems that they may be called on to help fix. Only time and experience with observing can make up for this. In the short term, CASS could consider using the observing feedback forms to identify the statistics of common problems. They could then maintain a wiki or webpage with detailed instructions on common/recently-encountered failure modes and what to do to recover from them, which would provide a first point of reference.

Pairing DAs (experienced with inexperienced) has the advantage of training up DAs with less input from CASS, and alerting inexperienced DAs when problems occur. However, everyone is reluctant to wake someone in the middle of the night unnecessarily, and experienced DAs or observers might just want to fix the problem as fast as possible and get back on the telescope, rather than slowing the process down by waking up and training the inexperienced DA. If this were to happen, the inexperienced DA should be the first port of call, with further escalation to the more experienced DA in case of issues that go beyond their skills.

The small existing pool of DAs could be quickly addressed by enforcing the requirement for CASS students and staff to sign up as DAs. CASS might want to determine how/whether to enforce this for those who do not routinely work with ATCA (e.g. Parkes or ASKAP-focussed). Another avenue would be to send the DA call out to the broader Australian ATCA community.

For Legacy projects, PIs and/or experienced team members could act as Project Experts in the same way as Parkes. If it were possible to schedule Legacy projects in a block (e.g. a week), this would remove the need for DAs over that extended period.

***Recommendation**: ATUC supports continuing the current DA system. To help it remain sustainable, ATUC suggests that CASS evaluate options for improvement, either by expanding the existing pool of DAs, providing less experienced DAs with more options in case of issues (whether via a wiki, webpage, or call to a more experienced, "secondary" DA via a pairing*

system), or by requesting large/Legacy projects to provide their own DAs via a Project Expert system similar to that adopted at Parkes.

15. Synthesis school

ATUC supports the proposal for traditional radio synthesis schools in Narrabri to continue on a biennial basis, and for additional, “forward-looking” schools (focused on current and future instruments/techniques) in alternate years to be organised by other institutions. We encourage CASS to publicise information on upcoming schools as early as possible.

***Recommendation**: CASS should continue to run the biennial radio school at Narrabri, and explore partnership options with other institutions.*

16. Planned site move to Lindfield

ATUC strongly supports the idea of on-site accommodation to be provided at the new Lindfield site, since the accommodation at Marsfield has been a valuable resource for students, observers, international visitors, and CASS staff from other sites.

There are a number of key reasons unique to the service CASS provides as a national facility that require the provision of on-site accommodation:

1. Student presence: Students are a vital and core component of the CASS research community, and provide an important connection between universities and the radio astronomy carried out by CASS staff. The co-supervision of students with CASS often requires visits to the Marsfield site, for observing, support training and collaboration, especially if these students are based at an institution outside of Sydney.

2. On-site observers: It is often necessary for observers to sleep during the day, and travel to and from the office (or on-site observing station) during the night, often after a long observing shift. Such late-night travel could be dangerous, especially for a tired observer, and given the lack of other existing accommodation nearby and the available transport options near Lindfield. The environment at hotels is also often not amenable to effective daytime sleep/rest after an all-night observing run, whereas an in-house option would be able to provide more suitable conditions.

3. International visitors and SKA preparations: Discussions are currently taking place nationwide to plan for regional centres associated with the operation and support of the Square Kilometre Array, of which both Australia and CASS are key players. Providing support for international visitors associated with the SKA will be a central part of the regional centres, particularly with the goal of facilitating international collaboration with other SKA member countries and with

supporting both observations and data analysis. The continued provision of on-site accommodation associated with CASS will ensure it remains well-placed to support and encourage international collaboration as part of the SKA community.

***Recommendation**: That efforts be made to continue to provide and maintain on-site accommodation for students, observers, and visitors following any move to the new Lindfield site.*