

ATUC Report (Nov 2016)

1. ATUC members in attendance:

Virginia Kilborn (chair), Jo Dawson (Secretary), Martin Bell, Sarah Hegarty, James Miller-Jones, Vanessa Moss, Stuart Ryder, Stas Shabala, Willem van Straten (via Skype)

The ATUC congratulates Douglas Bock on his appointment as CASS Director, and looks forward to working closely with him over the coming years. ATUC would also like to commend CASS on:

- The commencement of the Early Science operations with ASKAP-12
- The rate of progress on ASKAP construction, with 28 PAFs now on site
- The commencement of Breakthrough Listen observations at Parkes
- The successful installation of the PAF on Parkes, and subsequent observations
- Achieving the first PAF-PAF fringes between Parkes and ASKAP
- PAF contract with Jodrell Bank
- The Eureka Prize awarded to Lisa Harvey-Smith

2. Budgetary constraints

ATUC appreciates the difficulties imposed by the current financial situation, and is pleased to see that CASS is considering a wide range of options to keep the current National Facility telescopes operating. Acknowledging that the continuation of the Open Skies policy of the past decades would likely result in the closure of one or more facilities, ATUC feels that the user community would be comfortable with some fraction of time becoming unavailable to merit-based access if that were to provide the funding for continued operation of the full suite of National Facility telescopes. If time is to be made available for purchase, ATUC is comfortable with there being as few strings attached as possible (in terms of the proposed science), to maximise the chances of a successful conclusion.

We also encourage CASS to continue investigating all options to raise additional funding, even if that were to involve the loss of some fraction of merit-based time for the community. These options could include the possibility of using some fraction of time for commercial downlinks (e.g. for the burgeoning CubeSat industry), using time for educational and public outreach work that could attract either commercial or grant funding, or as an in-kind contribution to help negotiate Australian access to large optical facilities (such as ESO or Subaru, or downlink for space missions such as WFIRST).

Recommendation: CASS should continue to pursue all possible avenues for revenue generation, including but not limited to the sale of telescope time to interested parties.

ATUC were asked to comment on the four worst-case scenarios put forward by John Reynolds, in the case that no external funding became available. The options presented were:

Option 1 – Potential saving of \$0.4M–\$0.7M/y

- Restrict science operations at Parkes to support Breakthrough Listen

- Cease operation of the Long Baseline Array
- Offer guided tours at Parkes during unused time

Option 2 – Potential saving of ~\$0.5M

- Restrict ATCA science operations to support of Legacy Projects (at 60-70%)
- Cease operation of the Long Baseline Array.

Option 3 – Potential saving of ~\$1M/y

- Operate the ATCA with reduced support in short term, freezing all h/w and s/w
- Cease operations with the Long Baseline Array
- Not sustainable for more than a year or two

Option 4 – Potential saving of ~\$3.6M/y

- Cease all science operations with ATCA and LBA

The fourth option (ceasing all ATCA and LBA observations) would be the most damaging and least favourable, as it would save significantly more money than required, and would entail the loss of all Australian capability that did not involve ASKAP SSPs or single-dish observations. It would also have the largest impact on the overall user base, since ATCA has a much broader user base than either Parkes or the LBA. The third option (closing the LBA and running the ATCA with reduced support and no hardware or firmware upgrades, up to the point that the telescope failed) is also unappealing. Ideally a budgetary compromise should aim to maintain as much of the current capability as possible until replacement facilities (MeerKAT pulsar timing for Parkes, and SKA for multi-frequency interferometry capability) become available. This third option would not be sufficiently long-term to fill this gap. Of Options 1 and 2 (either restricting Parkes operations to only Breakthrough Listen, or restricting ATCA operations to only the Legacy Projects, closing the LBA in both cases), ATUC does not feel that it is within its current remit to decide between these two options without the chance to consult more widely within the community.

It was noted the CASS will conduct an Eol process for potential uses of Parkes and ATCA - ATUC recommends this is widely advertised.

Recommendation: *That the Eol process for purchasing Parkes/ATCA time is widely advertised in the community.*

We now explore some of the risks associated with closing ATNF facilities in the short term.

3. Risks entailed from the loss of National Facility telescopes

3.1 ATCA

ATUC notes the depth of the support in the community for the ATCA, with a number of users strongly encouraging CASS to do everything possible to keep the Compact Array operational, even if this means that the fraction of merit-based National Facility time has to drop to

accommodate external users who are able to help co-fund the operations. The ATCA is the most versatile of CASS's instruments, has the broadest range of science, and will provide critical follow-up capability for the large Survey Science Projects on ASKAP. Key risks arising from the loss of ATCA would include:

- The absence of any southern-hemisphere interferometric capability between 2 GHz (the highest frequency of ASKAP/MeerKAT) and 90 GHz (the lowest current frequency of ALMA) would preclude a large subset of cm-wavelength science in one of the most important areas of the sky (given the southern location of the Galactic Centre). Continued access to this globally important capability should be preserved at least until a successor comes online in the form of the SKA, to enable a smooth transition to the new instruments, as recommended in the Decadal Plan.
- The science return of the ASKAP surveys will not be fully realised without the multi-frequency, higher-resolution follow-up from the Compact Array. As the flagship instrument, it is crucial that the ASKAP surveys are able to deliver the best possible science.
- Many areas of high-impact science are not well-served by large ASKAP surveys. Specific examples include maser studies of star-forming regions, triggered response to energetic transients (e.g. gravitational wave sources or tidal disruption events), and VLBI observations (e.g. large-scale astrometric programs, long-term monitoring). With ASKAP being CASS's clear priority, the loss of an all-purpose instrument would remove all domestic capability for some fraction of the Australian community.
- Upcoming next-generation facilities such as the Cherenkov Telescope Array (CTA), a 300M Euro facility with 100 gamma-ray telescopes in the southern hemisphere and 20 in the north, are very keen on southern-hemisphere radio follow-up capability. As with any transient response, higher-frequency radio follow-up is required to detect and study the counterparts, and the loss of ATCA would seriously compromise Australia's capability to contribute to this growing area of astronomy, in which Australia has already invested significantly via NCRIS and LIEF. At a recent Australian-led CTA meeting **strong** support was given for the multi-frequency capabilities of both ATCA and Mopra and how they could complement and enhance the key science goals of this facility.
- As a versatile, world-class facility, ATCA is important in attracting students to ATNF and to Australian universities. The loss of ATCA would compromise this, and would have adverse impacts on both student training and the studies of ongoing research students.
- ATCA provides a useful testing ground for interferometric studies. New hardware, backends, receivers, or modes can be much more easily tested on ATCA than they could be on ASKAP (given its remoteness) or SKA1-Mid, and the loss of this engineering test capability could provide a strategic risk to CASS's maintenance of a world-class instrumentation program.

3.2 Parkes

ATUC is pleased to see cost-sharing initiatives such as Breakthrough Listen bringing new users to the Parkes community and yielding new results. Other promising ideas, such as the development of Pulse@Parkes into a distance learning resource, will likely help to keep Parkes operational into the future. Although these initiatives are welcome and understood to be

necessary in the present funding environment, the reduction in merit-based access to Parkes poses a threat to some important long-term projects and pioneering research efforts, including but not necessarily limited to:

- The Parkes Pulsar Timing Array - ATUC hopes that this project will continue to be supported until MeerKAT is fully commissioned and open for science, and until there has been a sufficient period of overlapping pulsar timing effort between Parkes and MeerKAT. This overlapping period, during which a large number of pulsars are simultaneously observed by both telescopes, is required to constrain any timing offsets between the sites, such that there are no discontinuities (or jumps) in the timing baseline (such jumps generate red noise that masks the gravitational wave background signal of interest). A reduction in the time allocated to merit-based projects could threaten the long-term international effort to detect low-frequency gravitational waves.
- Long-term facility upgrade plans - The ARC awarded \$370K to a consortium of nine Australian and international universities and research organizations to develop an ultra-wideband receiver for Parkes (LE150100155). The consortium, led by Swinburne University of Technology, includes the CSIRO, Max Planck Institute for Radio Astronomy, The University of Melbourne, Monash University, The University of Sydney, Curtin University of Technology, National Astronomical Observatories of the Chinese Academy of Sciences, and The University of Western Australia. Significant in-kind effort and resources have been contributed by these organizations, most of which are motivated by the anticipated scientific return on their investment (advances in high-precision timing, studies of the magneto-ionic interstellar medium, large-scale neutral hydrogen and hydroxyl, etc.). Reduction in the time allocated to merit-based projects could jeopardize the scientific projects that plan to use the ultra-wideband receiver and lead to wasted time and effort of the organisations involved in its development. This could put strain on the valuable collaborative ties between CSIRO and these organizations.
- Fast Radio Bursts - Of the 17 [published FRB detections](#), 15 were discovered at Parkes, primarily owing to the relatively wide field of view of the 21-cm Multibeam Receiver. Until comparable FRB detection facilities are established and demonstrated, a large international collaboration of astronomers and astronomical facilities depends upon Parkes to trigger rapid multi-wavelength follow-up observations. For example, the burst reported by [Petroff et al. \(2015\)](#) triggered follow-up observations with ATCA, Swift, GROND, Swope, iPTF, GMRT, Effelsberg, SkyMapper, NOT, Magellan, and Keck. Chasing down the origin (especially the redshift) of FRB progenitors/sources is a high impact project (e.g. one that potentially addresses the “missing baryon” problem) that depends crucially on time on sky. Reduction in the time allocated to merit-based projects could jeopardize this project and the engagement of international partners in the follow-up network.
- Engineering development test ground: Single dishes like Parkes provide a versatility and capability that is difficult or impossible to achieve with large array telescopes. For example, they can be equipped with the latest technology that is too expensive and/or large to be used with array telescopes. The development and testing of the Effelsberg PAF is an excellent recent example of the importance of Parkes in this space. Third parties with an interest in developing and testing new technologies could in principle pay for time on Parkes to do so.

3.3 LBA

ATUC notes the high-impact recent science coming from the LBA. This is reflected in the citation statistics for recent LBA papers, which are comparable to or better than other leading international facilities, including ATCA and the VLA. With a number of exciting upcoming technical developments (e.g. recent PAF fringes between ASKAP and Parkes), the potential of the LBA is only set to increase. ATUC therefore notes with concern that all four reduced operations models above involved closure of the LBA. ATUC strongly feels that loss of Australian VLBI capability will have long-term negative effects on the community. Specifically:

- The LBA is the only VLBI facility in the southern hemisphere for the foreseeable future. It will play an important role in maximising the scientific returns from SKA1-Mid.
- Should the SKA run into more serious financial issues, SKA-Low, and hence Australia's status as host country could potentially end up at risk. In such a scenario, VLBI stations would provide Australia's only contribution to hosting SKA telescopes, and therefore form a strategically important link with the SKA.
- VLBI provides a natural vehicle for engaging with the Asian astronomy communities. It would appear strange for Australia to wind back its VLBI capability at exactly the same time as other countries (e.g. Thailand, China) are developing theirs, making the LBA an even better instrument by improving its *uv* coverage.
- By providing high-resolution follow-up, the LBA is highly complementary to ASKAP key science projects. VLBI with PAFs is an exciting development that makes wide field, high resolution follow-up of ASKAP projects feasible. Losing the LBA will significantly limit ASKAP science.
- The high level of technical expertise typically possessed by VLBI observers will be lost if the LBA is not operational. This would have major negative consequences for the broader Australian radio astronomy community, especially in the era of remote observing where new observers increasingly have less in-depth understanding of the instrumentation. It has taken decades to develop radio interferometry expertise in Australia, and even temporary loss of the LBA would pose a significant risk.

4. ATCA

ATUC is excited to see the first Legacy projects getting onto the telescope, and once again commends CASS for this initiative. We look forward over the coming months to seeing some high-profile science flowing from these projects and to the release of early data products by the accepted programs. We reiterate that CASDA may serve as an ideal platform to host/distribute these data products, and encourage ATNF to investigate this possibility further.

The two highest-ranked ATCA proposals have been allocated of order 30% of the available ATCA time over the coming semesters. The next two highest-ranked proposals have also been identified as likely to be scheduled beginning next semester. Having started the Legacy programs, ATUC reiterates its previous request that CASS ensure that the two highest-priority projects can be completed should budgetary constraints entail some loss of ATCA capability. However, when considering their scheduling priorities, ATUC also requests that CASS pay

attention to the balance of science areas being represented on their telescopes. Running 4 Legacy Projects simultaneously would leave very little merit-based time available to other users, particularly if some fraction of the remaining time were purchased by external parties. ATUC notes that the Legacy Projects were specifically defined as being “not reproducible by any combination of smaller projects”, thereby excluding certain areas of science (e.g. transient follow up). If Legacy Projects are to be allocated the majority of all remaining open access time, then this would mark a significant departure from CASS’s diverse user base (especially considering that the two highest-ranked Legacy Projects are in similar science areas to EMU and WALLABY, which are two of the highest-ranked ASKAP SSPs), which has always been one of its key strengths. For example, in an era when gravitational wave astronomy is taking off, neutrino facilities are coming online, and large optical transient sky surveys such as PTF are making regular high-impact discoveries, a policy-driven pivot away from this area would appear to be a risky decision to make. ATUC therefore encourages CASS to ensure continued balance across the full range of science areas represented in the domestic community, ensuring that it continues to function as a true National Facility.

We support exploring an upgrade path via higher frequency phased array feeds for the ATCA. This would provide a wide-field capability unparalleled for many years in the Southern hemisphere. It would also complement the strategic engineering pathway of CASS as well as the software and operations platforms that will have been developed for ASKAP.

If there are to be any changes to the funding model, we request that CASS keep the community updated on the changes as far in advance as possible, to provide users with enough lead time to minimise the impact of any changes.

Recommendations: *CASS should work to ensure that their policies do not adversely impact the diversity of ATCA science and the breadth of the ATCA user community. Should there be any changes required to the availability of the facility, the user community should be advised as soon as reasonably possible.*

4.1 Observing issues

ATUC received a number of comments from observers and DAs praising the ATCA alarm Twitter feed established by Jamie Stevens. However, there were also a number of requests for clarification on what constitutes unattended observing. Does unattended observing mean:

- The observer need not sit at their computer constantly, but should conduct regular checks?
- The observer can be completely away from their computer for hours at a time (even sleeping) relying on the Twitter feed to alert them to problems?
- Some compromise between these two?

Recommendation: *CASS should clarify the current policy for unattended observing with the ATCA, and plans to expand this mode.*

4.2 Automated override functionality

We support the new functionality for automated overrides of ATCA, especially considering we are entering an era of gravitational wave astronomy, an increased number of FRB detections, and ongoing optical transient surveys. ATUC is keen to see this new mode used, now that the effort is being put in to make it available. In that light, CASS may wish to reconsider its NAPA override policy for this category of highly time-sensitive NAPA observations, at least while the number of possible overrides remains low. ATUC could imagine a model whereby subject to obtaining some minimum score from the TAC, a fast-response, automatically-triggered observation could override any ongoing observation, with the lost time being made up in additional green time at the end of the configuration. This could be revisited if the number of triggers increased to the point where such a system became unsustainable.

Recommendation: *ATUC recommends informing the user community as an automated override functionality for the ATCA becomes available. We recommend developing a policy regarding different scenarios for overriding scheduled observations.*

4.3 Duty Astronomers

ATUC acknowledges the changing role of the Duty Astronomer under the updated operational model. Historically the DA has provided an expert interface between observers and Narrabri technical staff, reducing staff workload while also providing valuable practical training for members of the radio astronomy community (particularly students). However, with a shrinking pool of expert DAs and a major shift towards remote observing, the relevance of the DA role has become less clear, while the impact of training inexperienced DAs has become significant.

ATUC recommends that ATNF explore the possibility of retiring the DA system, and moving towards an alternative support model. Possible strategies might include one or more of the following:

- Upgrading the existing project friend model
- Providing observers with an explicit checklist of skills / knowledge points required to run the telescope at the most basic level
- Expanding the current suite of online training tools to include more interactive and task-based modules, and requiring observers to complete these satisfactorily
- Adopting a Parkes-like project expert model

To avoid creating unintended barriers to new users, it would be desirable to reallocate some portion of the time previously spent training DAs to training inexperienced observers who visit the SOC. This training load could be alleviated via increased reliance on online pre-training.

If the DA system is to be retained and remain relevant, it is clear it needs re-examining in the light of the current operational model. ATUC would support the training of Perth-based DAs, and would encourage the ATNF to explore other ways of reducing the load on operations staff, e.g. DA group training sessions with Robin/Jamie. The creation of an explicit list of the expertise required by DAs vs the minimum required by a competent observer would also be useful.

Related point: observer competency and retraining: ATUC suggests that the ATNF explore the idea of moving away from a time-based model (i.e. visit n times per year, which assumes visitors will absorb relevant information but does not ensure it) and towards a skills-based model (i.e. Identify a bare minimum list of tasks that all observers must be confident performing, and devise some means of verifying they can do them). Possible tools for ensuring this include online tests, which should be as interactive as possible! (Not just a multiple-choice check-box.)

Recommendation: *CASS should look into possible models for updating or replacing the current DA system to reduce the workload on staff, and to ensure a minimum level of skills for remote observers.*

4.4 Staffing

ATUC congratulates Phil Edwards on his appointment as Australian SKA Project Scientist. ATUC requests that CASS update users on any changes to key procedures or contacts as the new Head of Science Operations takes up their role.

4.5 Education

ATUC considers the possibility of seeking investment for educational use of Parkes/ATCA as a positive one. We support exploring government funding for such a scheme, or external/international money, such as from Universities for distance learning courses. We support the continuation of the radio school on a biennial basis to reduce the load on skilled scientific and technical staff, and suggest that CASS continue to support collaboration with other institutions such as ICRAR in pursuing possibilities for sharing the load during future radio schools.

Recommendation: *Hosting a radio school every two years would be sufficient to train up new generations of students, and CASS should continue to explore the possibility of partnering with other institutions.*

5. ASKAP

ATUC commends CASS on their continued progress with ASKAP. It has been extremely encouraging to see the fantastic images and spectra coming off the telescope, and to see the beginning of early science observations with ASKAP-12. ATUC looks forward to continued progress over the coming months.

ATUC thanks CASS for presenting the results of their preliminary investigations into costing the tied array mode for ASKAP. Its broad appeal to the community will depend on the continued operation of the LBA, but assuming that CASS is able to maintain its VLBI capability, this extra sensitive element on a fairly long baseline would provide a significant step-up in capabilities. ATUC notes that the community (particularly the FRB and fast transients community) might in principle be able to provide some effort in support of implementing the tied array mode, and encourages CASS to work with interested parties should sufficient funding be identified to pay for the required hardware.

While ASKAP is the top priority instrument, ATUC recommends that CASS give some thought to the future of ASKAP once the ten SSPs have been completed, in the early 2020s. Is ASKAP envisaged to transition to a more general-purpose instrument, be upgraded to enable new/different surveys, or be shut down to save on operating costs and focus on SKA?

6. LBA

ATUC was excited to see high-impact science coming from the LBA, including recent *Science* and *Nature Physics* papers; and recent high-frequency observations with the Korean VLBI network. We support further technical developments in VLBI, including an upgrade path towards PAFs for Parkes and ATCA, as well as an UWB-high receiver for Parkes and (subject to funding) tied-array capability for ASKAP, in line with CASS's priority for technology development.

ATUC also notes that if a substantial fraction of the 5% host country allocation from Tid could be allocated to LBA observations in a more efficient manner (i.e. with the blocks known further in advance, and longer *uv* tracks available), it may be possible to operate the LBA even without significant contributions from Parkes and ATCA.

Recommendation: *ATUC encourages CASS to make every effort to maintain Australian VLBI capability and keep the LBA operational.*

7. TAC & Scheduling process:

Concern continues to be expressed from users about the sometimes short (~1 month) notification time between PI notifications going out, and the start of the next semester. For those scheduled at the start of the semester, this can have serious ramifications when it comes to arranging for observers to come to Marsfield from overseas, arrange for visas, etc. ATUC would like to understand why it can take 6 weeks or more between when the TAC meets, and the PI notifications go out? While scheduling of telescopes can be a complex process, this does seem unduly long. If this period cannot be shortened, consideration should be given to keeping the proposal deadlines and TAC meeting dates as they are, but shift the semester start dates one month later. For Legacy Programs in particular, it would be helpful if a “forward look” draft schedule for future semesters could be issued at the same time, to assist Legacy Program teams in scheduling observers.

Recommendation: *ATUC would like to see the PI notifications and telescopes schedules released at least 6 weeks, and preferably 2 months prior to the start of each semester.*

Given the impact of poor weather on the recent millimetre observing season, ATUC would like ATNF to consider allowing/requiring PIs of 7mm and 3mm projects to add a weather allowance (say 30%) to their time request. The AAT has had a 33% weather allowance for some years (recently raised to 50%), and indications are that this lowers the risk of observers coming away with no useful data from a run, and having to reapply a year later. In the event that conditions are optimal, and the PI gets all the data they need within the first 3/4 of their allotted time (for a 33% weather allowance), they should have the option of integrating longer on-source, or else surrendering the remaining time to the “green” (unallocated) time. This will inevitably make the

available time for millimetre observing more competitive, but timely completion of the highest-ranked millimetre programs has to be made the priority.

Recommendation: *ATNF should give consideration to including a weather allowance in millimetre allocations.*

8. Instrumentation Upgrades

ATUC were asked to consider the relative priority of various different instrumentation upgrade options presented by the Engineering group, including transparent legs for ASKAP; a GPU correlator upgrade for ATCA; the ultra-wideband-high (UWH) receiver for Parkes; tied-array mode for ASKAP; and a cryogenic PAF for Parkes. In the current budgetary situation, the prioritisation of these different options will depend on what external funding can be secured by the community. However, ATUC feels that identifying a plausible upgrade path for the ATCA would help secure the future of the telescope, in terms of enthusing the domestic community and making the telescope more attractive to external parties who might be interested in purchasing some time. We therefore see this as a particularly attractive option, given that Parkes already has external funding through Breakthrough Listen, and that ASKAP is the flagship project for CASS. We encourage CASS to work with interested parties in the community to investigate the possibility of external grant funding for an ATCA upgrade such as the GPU correlator.

In particular, ATUC has considered with interest the ongoing investigations into transparent feed legs as a possible upgrade to ASKAP. While noting the potential of this technology, ATUC also notes the number of technical considerations to be addressed before a full evaluation can be made, and the significant costs of refitting the ASKAP array. In light of these factors, ATUC considers that potential instrumentation upgrades to ATCA and Parkes, as described above, should be prioritised above the implementation of transparent feed legs for ASKAP.

9. SKA regional centres

ATUC can see the SKA regional centres being a useful way for involving the wider community in SKA science and data reduction/analysis. Importantly this would provide a first point of contact for Australian users, being located in a similar time zone. ATUC wondered why the SKA regional centres would be modeled on the Worldwide LHC Computing Grid, rather than distributed astronomy support models such as the ALMA Regional Centres/Nodes, or the National Gemini Offices? It was unclear what the relationship would be between an Australian SKA Regional Centre to be staffed and funded by Australia (and potentially NZ and China), and the independent SKA Observatory office (to be staffed and funded by the SKAO) to be located in Perth.

One potential opportunity for the SKA regional centre could be to design the centre directly to involve collaboration with industry (for example the CISCO Internet of everything Innovation Centre, or CIIC, at Curtin University). This may not only provide funding options, but will return investment to the community, and fulfil the NISA desire for better industry linkages. The area of

high-performance computing, big data and visualisation will continue to be an area of active research within the business sector.

10. ATNF roadshow

ATUC appreciates the initiative taken by CASS to commence visits to institutions around Australia providing the latest updates, status and likely future of CASS. Increasing the level of communication between CASS and the community is viewed by ATUC as an overall positive development, and we hope to see this continue in the future as changes are decided upon and implemented. We note that the timing of the roadshow presentations (on either side of the ATUC meeting) was less than ideal, as it would have been more beneficial to have this update earlier so that the Australian community had sufficient time to provide feedback to ATUC. Also, ATUC received feedback that not all stakeholder institutions were included in the timetable (which itself was not sufficiently well disseminated to the community). It would have been useful to hear more about what CASS sought from the community in response to each presentation, and what capacity there is for influencing the direction in which CASS is heading. ATUC is willing to provide an interim report if there is any additional feedback arising from the roadshow.

Recommendation: CASS should continue to provide future updates to the community, with sufficient notice and opportunity for all relevant members to attend/receive the update and provide feedback. The role that CASS expects the community to play in decision-making should be clear.

11. CASS workplace culture

In light of the recent high profile media discussion around sexual harassment and bullying cases at CASS, the ATUC chair has been contacted by several members of the community concerned about this issue. CASS must ensure a safe working environment for staff, students, and visitors, and ATUC was pleased to see the recent strong statement on this issue by the CASS director. However, it would be good for CASS to explore where the current system has failed in the past and what actions can be taken to improve it in the future.

Recommendation: CASS should continue to improve its anti-bullying and harassment processes for staff, visitors and students. This should continue to be communicated to the community. Special consideration should be taken around procedures for students.

12. Outreach

ATUC would like to encourage more press releases based on results from ATNF facilities, enabling their impact to be more visible to the Australian public who fund the facilities. To that end, it should be easier for PIs to find out who to contact for help with press releases (Helen Sim). Ways to do this could include links from the top-level "Outreach" menu of the ATNF home page; from the "Publications and Acknowledgments" page (which PIs usually check while preparing their paper); and near the top of the "CASS News and Events" page.

Recommendation: CASS should make it easier for users to find out who to contact about issuing press releases based on use of CASS facilities.

13. Feedback from last report

13.1 Site visits/collaboration

ATUC thanks CASS for providing an update at the ATUC meeting regarding the possibility for site visits related to observing and for clarifying the current status of the telescope sites (ATCA/Parkes/ASKAP). Vanessa Moss will work with CASS following this report to ensure information and relevant details (regarding accommodation/transport/etc) are disseminated clearly to the community. In particular, with respect to the proposed ASKAP 'open week', we will discuss with ATNF the details of how this might be implemented.

Recommendation: As suggested in the last response, CASS will develop a clear plan for offering annual short site visits to MRO for interested members of the community. Webpages to be updated to list current logistical information about visiting/observing from other sites.

13.2 Staff contact list

ATUC was disappointed to see that CASS staff contact details are still not available on the Staff List web page, and expects to see this resolved well before the next ATUC meeting.

13.3 Timing of releasing the Director's response to the ATUC report

ATUC would appreciate receiving the director's response to the ATUC report well in advance of the ATUC meeting (a month or two at least) to enable discussions where needed.