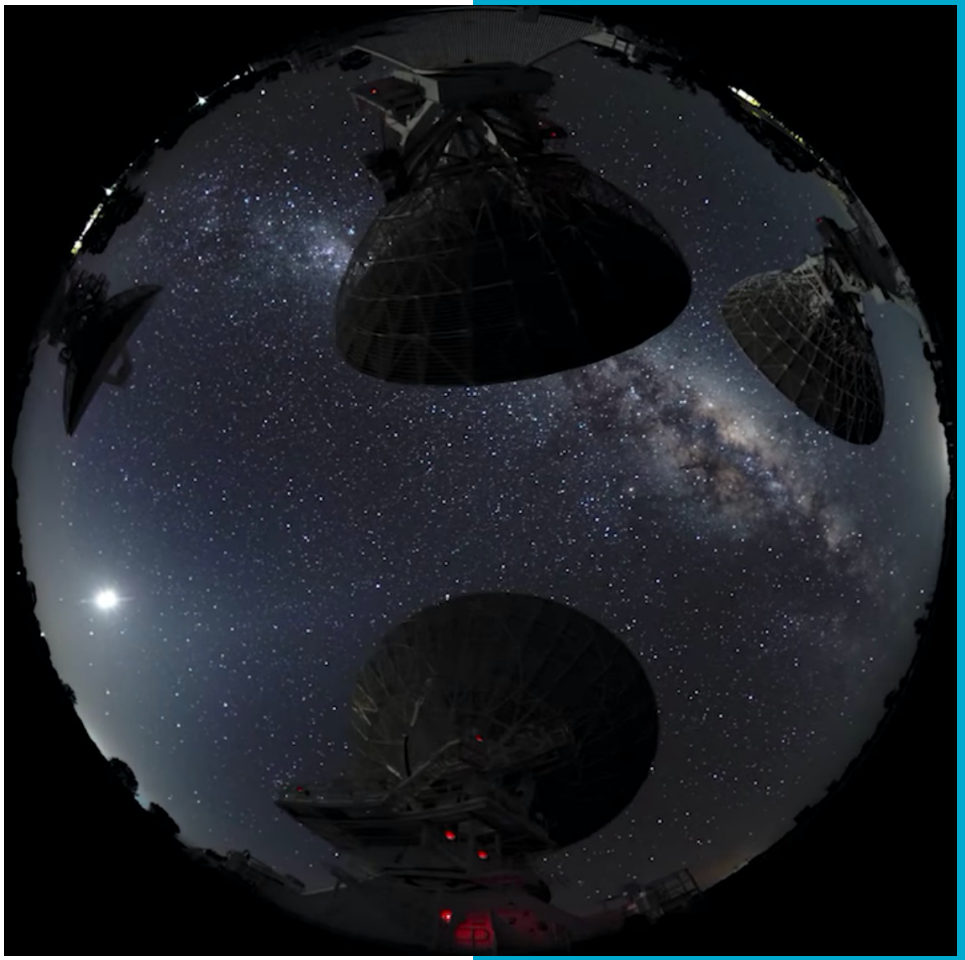
ATNF Science

Phil Edwards &
Elaine Sadler
ATUC | 22 April 2020



Picture credit: CSIRO/Alex Cherney

Outline

- Awards and Prizes
- Staff changes
- Recent science highlights
- Vacation students
- Bolton symposium
- ATCA Future Science Case
- Acknowledgements and Press Releases
- OPAL issues

Awards and Prizes

Congratulations to

- Robin Wark
- Karen Lee-Waddell
- Rob Hollow
- Douglas Bock

LIEF funding

Staff changes

ATNF Science has recently farewelled

- Jane Kaczmarek

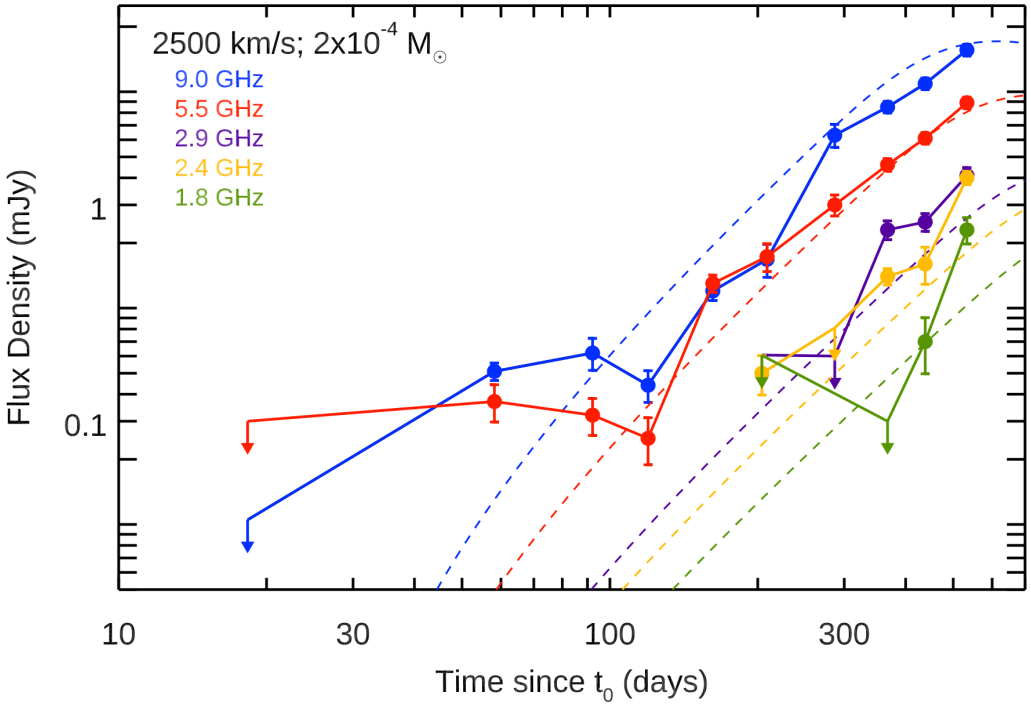
and welcomed

- Alec Thomson
- Rajan Chhetri (hosted by Curtin)
- Ivy Wong

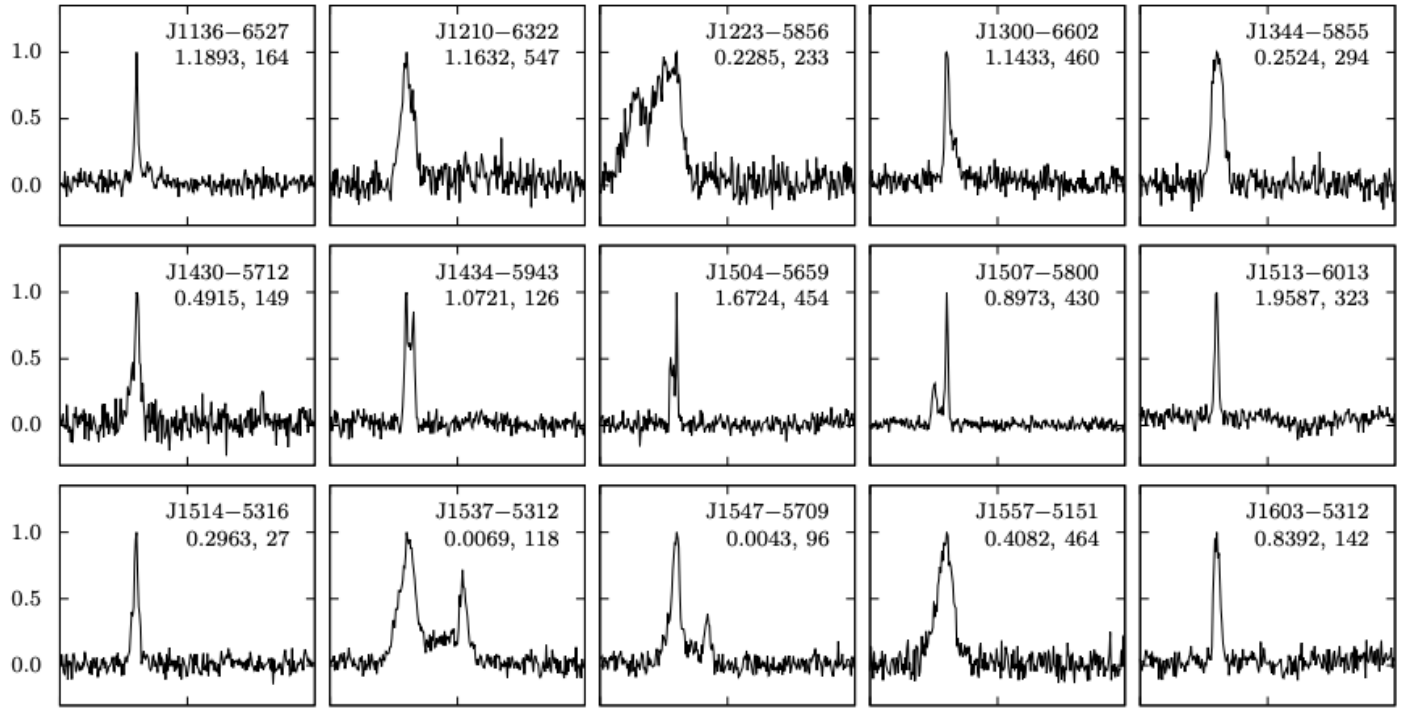
And, coming soon

- Nithya Thyagarajan
- Bolton Fellow
- HI WALLABY postdoc – applications close April 24
- ResearchPlus Postdoc (hosted by Macquarie) – to be advertised soon

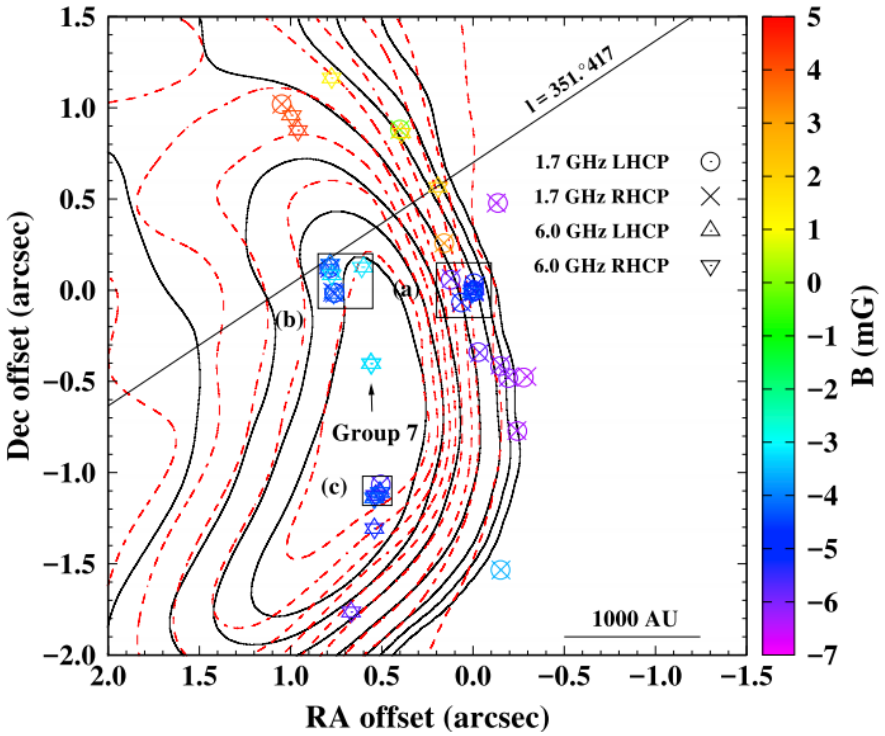
ATCA – Aydi et al.



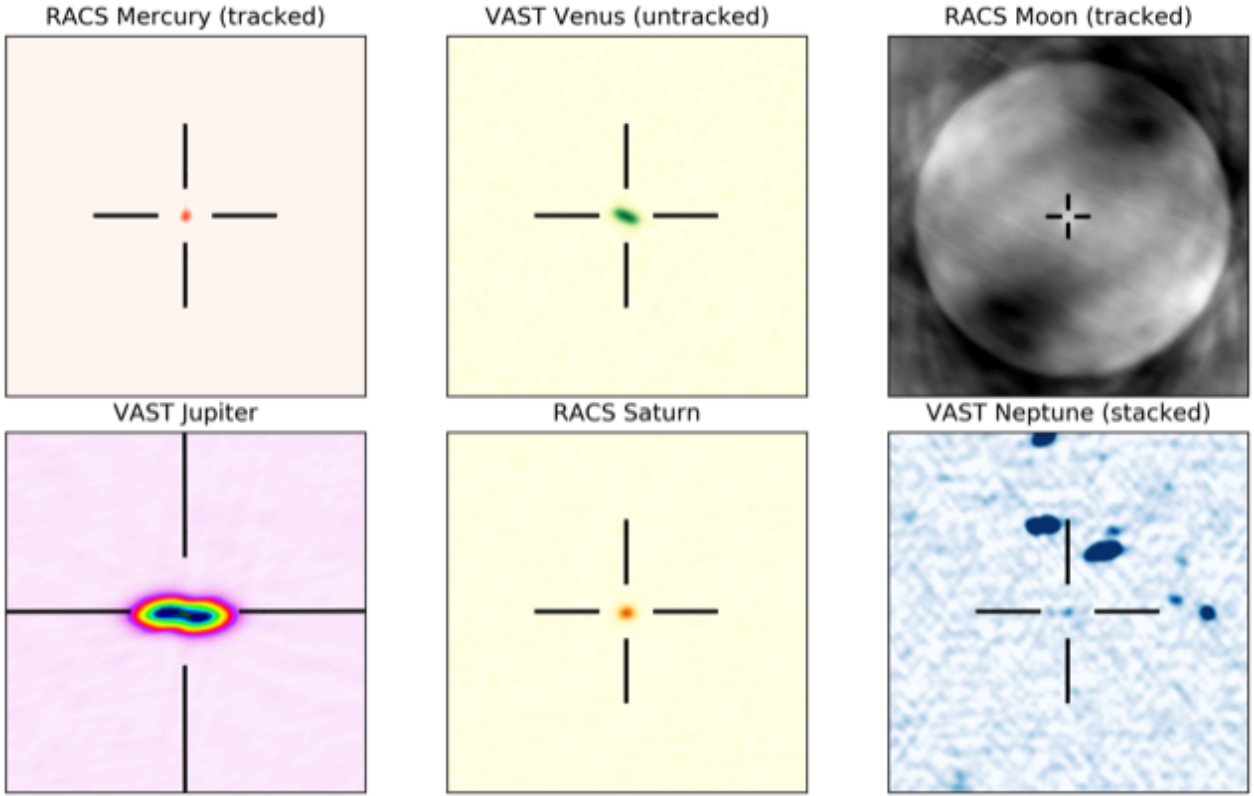
Parkes – Cameron et al.



LBA – Chanapote et al.



ASKAP


RACS Mercury (tracked)
VAST Venus (untracked)
RACS Moon (tracked)
VAST Jupiter
RACS Saturn
VAST Neptune (stacked)

Tidbinbilla

VLBI

- EAVN observatories invited to join 2020 LBA sessions if available and PI feels it is of interest. Typically useful for source > -55 dec. Will suggest to EAVN Directors at their October 2020 meeting to formally encourage joint LBA/EAVN proposals

- *CASS to continue efforts to maintain the viability of the LBA network, particularly with the potential capacity-building upgrades on the horizon such as the cryoPAF technology and enhanced bandwidth from BIGCAT and the UWB*
- Testing of VLBI with UWB GPU backend going well. VLBI up to 8 Gbps (maybe 16 Gbps) will be possible with 2 to 8 bits. Planned availability end 2020. BIGCAT and cryoPAF being designed with VLBI in mind.

The 8th international technical VLBI working group meeting, Nov 2019

Vacation students

- 14 students
- Based at Marsfield, Kensington, and Tindbinbilla
- Projects across astronomy and engineering

Bolton Symposium

- Held at Kensington in March 2020
- Longer presentations by ECRs, shorter introductions by others
- Discussion sessions in the afternoon
- Thanks to Katie Jameson, Tessa Vernstrom and Shi Dai

ATCA Future Science case

- Document nearing completion, will be considered by AT Steering Committee at their May 2020 meeting.
- Substantial update of the 2016 document on ‘Science with the ATCA in the next 5-10 years’

Changes since 2016:

- ❖ 2017: LIGO detection of gravitational waves
- ❖ 2019: ASKAP now operational with all 36 dishes
- ❖ 2019: MeerKAT (S. Africa) and Apertif (NL) also operational
- ❖ 2019: FRBs can be localised to their host galaxies
- ❖ 2019: ARC LIEF funding for new ATCA correlator (BIGCAT)
- ❖ 2019 onwards: Increasing pressure on ATNF operations budget

ATCA Future Science – background

- 2016 Decadal Plan (on ATCA and Parkes): *A mid-decade review of these facilities should consider their role, impact and funding model for the latter half of the decade.*
- 2020 MTR document not yet released, but with delays to the SKA1 timeline the community need for ATCA and Parkes is likely to continue for some years
- ATNF operations budget increasingly over-stretched by running ASKAP in addition to ATCA and Parkes
- CSIRO has put out calls for partners to contribute external funding in return for access to time on ASKAP, ATCA or Parkes
- Parkes has been successful in attracting external funding, ATCA less so

Questions for the new ATCA science case

- What key science do we expect to do with the ATCA in the period after 2020, when the SKA precursor telescopes ASKAP and MeerKAT are in full operation?

For each science area:

- Is this breaking new ground, or consolidating older work?
- Can this work be done elsewhere, and how practical is that?
- What (explicitly) are the expected outcomes?

Also,

- What training roles does the ATCA provide, and how important is this?
- What new opportunities might there be for external funding?

ATCA key science areas after 2020

Comments from ATUC are welcome!

Studies of transient and variable radio sources

- Including gravitational-wave events, gamma-ray bursts, radio supernovae, Galactic black-hole outbursts, and many others
- ATCA's fast response and broad frequency coverage are unique

Follow-up studies of objects from the ASKAP surveys

- Important for extracting maximum astrophysics from ASKAP
- Includes spectral-line, continuum, polarization and long-baseline studies, mainly at frequencies above 2 GHz.

VLBI observations and technical development

- Growing interest in a VLBI capability for SKA1-MID, but effectively this is only feasible with ATCA in the array.
- Potential for important development work in both VLBI and RFI mitigation

Acknowledgements and Press Releases

- ATNF has standard acknowledgement text to be included in publications
  - https://www.atnf.csiro.au/research/publications/Acknowledgements.html
  - These have been expanded with the inclusion of text acknowledging the traditional owners of the ATCA, Parkes and Mopra sites.

- ATNF welcomes news of press releases related to the use of our facilities and is happy to provide supporting materials and promote results and publications
  - The greater the advance notice, the better!

OPAL issues

- Several issues impacted the Dec 2019 proposal deadline
  - OPAL checking of Scientific Justification page limits was not 100% reliable
  - ATNF website firewall hardware issues caused dropouts in OPAL access

- For 2020OCT, the full proposal layout will change, with the surnames of the proposal team placed at the end of the proposal
- A proposal to analyse anonymised proposal outcomes of ATNF proposals to be considered for CSIRO ethics approval

- Proposal deadline for 2020OCT will be Tuesday June 16, 5pm AEST

Thank you

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