Directors report

ATUC

Lewis Ball

5 December 2013

CSIRO Astronomy and Space Science
www.csiro.au

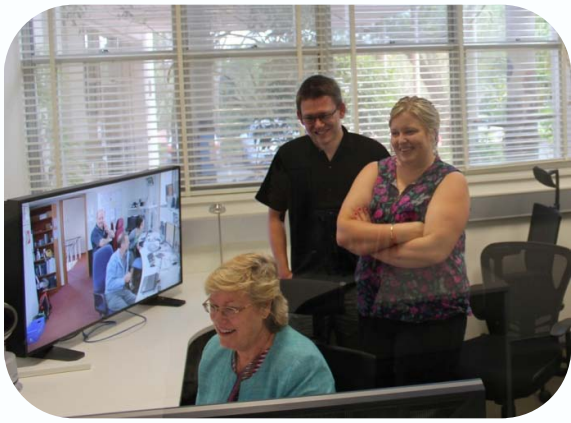
ATUC members

- John Dickey, UTAS (Chair)
- James Allison, U Sydney
- Virginia Kilborn, Swinburne
- Ryan Shannon, CASS
- Stephen Ord, ICRAR – Curtin
- Minh Huynh, ICRAR – UWA
- Tobias Westmeier, ICRAR – UWA
- Emily Petroff, Swinburne
- Craig Anderson, U Sydney

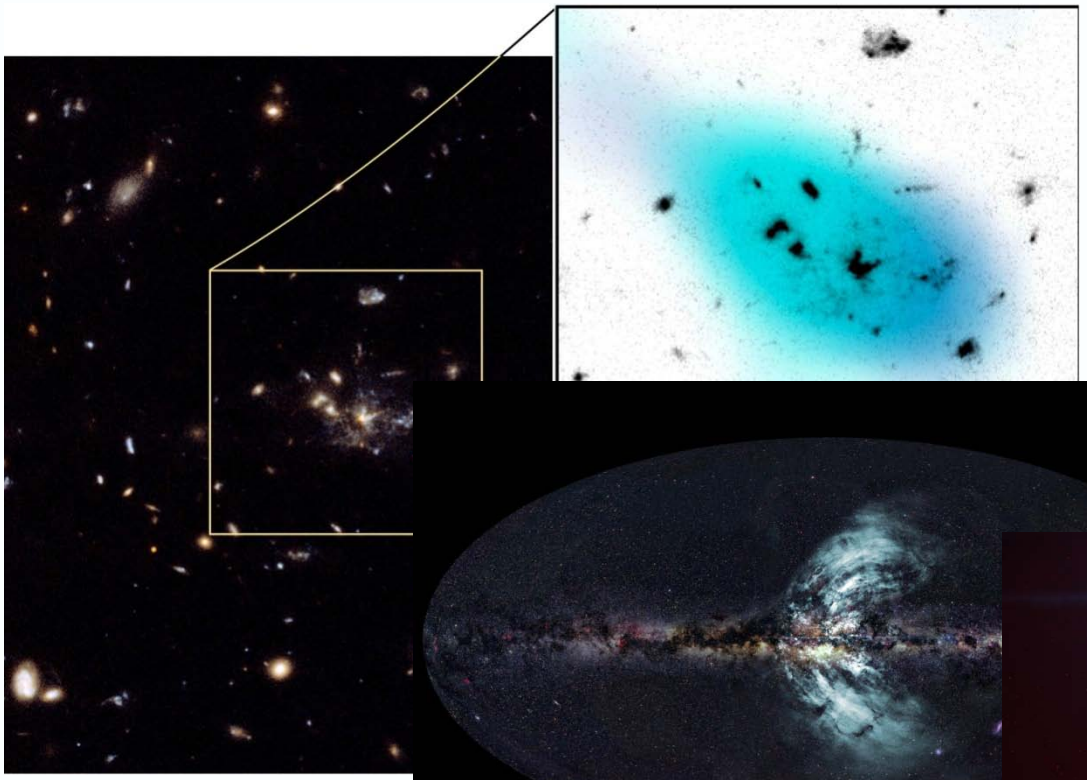
- Nick Seymour (Secretary)

Achievements

- First ever demonstration of PAF-equipped array – image of the sky
- Secure role in SKA pre-construction with $9M Commonwealth funding
- Science Operations Centre operational
- Parkes remote observing now default
- Funds for ASKAP to ~ full scope
- 25th Anniversary of the ATCA
- Continued delivery of excellent astronomy capabilities while restructuring operations of Parkes, Mopra and the ATCA
    - 153 papers using ATNF data in last year
    - 172 papers by CASS authors
    - 3 Nature and 2 Science papers since July



Great Science



Galaxies in the raw

Galactic geysers

Things that go flash

Engineering/Technologies

• PAF technology earned a gong at the Engineering Excellence Awards. Display at Powerhouse Museum.

AUSTRALIAN ENGINEERING EXCELLENCE AWARDS 2013
WINNER

• MPI engineers visited in October. Better understanding of issues associated with a sensitive PAF.

• 4-12 GHz receivers performing well. Some minor work to complete the upgrade.

• FAST feasibility study substantially complete. Three engineers visited in September. We think we can do it.

Opportunities/Plans/Challenges for 2014

- Show BETA works – demonstrate a PAF-equipped array
- Deliver first Mk II PAFs – on time, on spec, on budget
- Community engagement in ASKAP Early Science planning
- Embed SKA Centre in CASS and CSIRO-wide activities & deliver on first year goals of SKA pre-construction
- Establish CASS presence in Perth
- Secure NCRIS2 funding and matching capital from CSIRO
- Explore new Parkes receiver options
- Continue to deliver great science!

CSIRO Board SKA discussion Oct 15

- Participation in SKA a strategic priority for CSIRO
- Delivery of ASKAP is central
- Major opportunity for both CSIRO and Australia to play a leading role in one of the world's largest scientific facilities
- CSIRO stands ready to support the Australian Government to enable the SKA in Australia, to provide the CSIRO facilities and infrastructure necessary to facilitate the SKA (MRO, ASKAP …), and to be the primary operator of SKA Australia
- CSIRO supports an inclusive approach to SKA Australia operations (as for science) and expects to engage with other stakeholders in Australia that can contribute substantial capability and expertise to SKA operations, especially ICRAR and iVEC

Latest ASKAP News

http://www.atnf.csiro.au/projects/askap/news.html

- 6 x Mk I (BETA) PAFs installed
- HI emission detected with 3 BETA antennas from SOC
- 5x4 PAF testing complete
  - Tsys spec achieved across the band
- First prototype Mk II PAF in assembly and verification
- First Mk II printed circuit boards being delivered

- Funding for 6 Mk I plus 24 Mk II PAF system secured
  + 1 prototype + 1 spare + 1.5 contingency
- 6 more Mk II PAFs "likely" through NCRIS2 matching from CSIRO
  + 1.5 contingency
- Major procurements underway for (up to) 36 Mk II PAFs

HI absorption detected with 3 BETA antennas

Remote commissioning of BETA begins

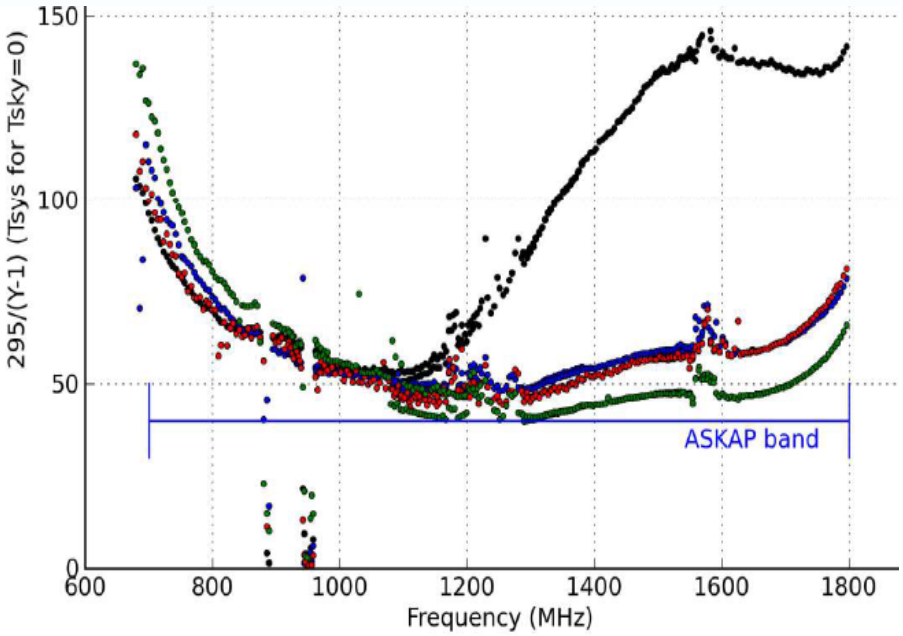
Mk II PAF performance

- Successful 5 x 4 chequerboard design campaign at Parkes
- Aperture array mode

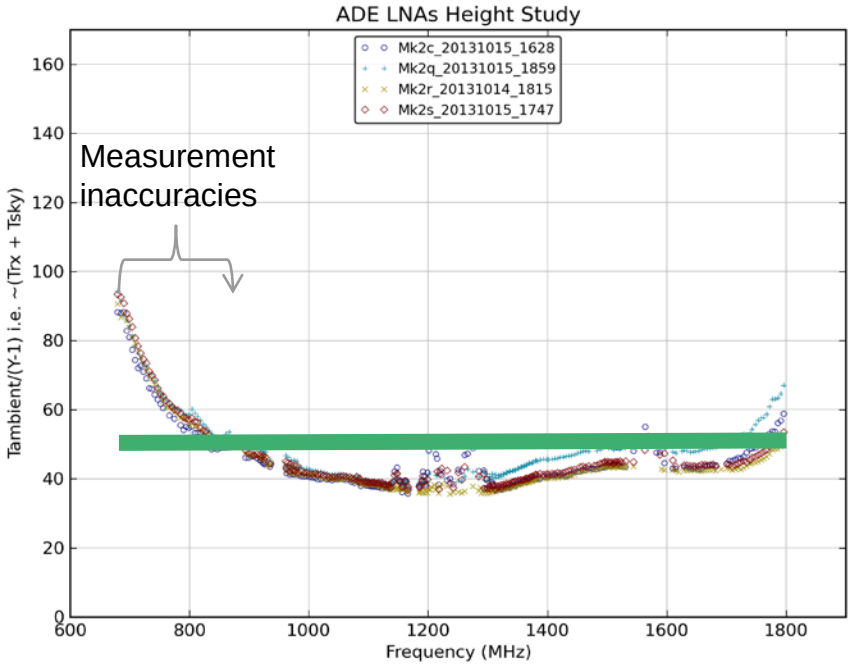
- AA performance + simulation

suggests ~50K Tsys across the band on an antenna!

July



September



Testing of ADE Prototype

Community engagement

- Early Science workshop at Marsfield
  - AAL facilitation – Schmidt and Green
  - 70 participants, 14 institutes, 5 countries
- Plan released, positive feedback
- Commissioning updates now distributed to >3000 astronomers

CRIS and NCRIS – Purpose & Scope

ASKAP early operations, period of system characterisation, testing, science verification and early science

Accelerate engagement of the principal scientific users with CSIRO's ASKAP commissioning team

- Tuning and documenting system performance for the specific goals of the Survey Science Projects
- Scheduling, observing, providing documentation and support
- Electricity
- Engineering Operations at MRO

CRIS Milestones

	Milestone	Due Date
1	Workshop to develop early science plan	15 August 2013 DONE
2	ASKAP Early Science Plan	31 October 2013 DONE
3	Demonstration of continuum capabilities	1 February 2014
4	Demonstration of spectral line capabilities	1 February 2014
5	Demonstration of VLBI using a single beam formed from a PAF	1 June 2014
6	Demonstration of widefield continuum and polarisation capabilities on Mk II PAFs (polarisation uncalibrated)	1 November 2014

Datasets to SSTs; images publicly available

Funding breakdown

Component	CRIS ($m)	Proposed NCRIS ($m)
Technical staff (MRO Operations, Commissioning and Early Science Team)	0.7	3.1
University secondment program		1.3
Electricity	0.9	1.4
Other		0.2
TOTAL	**1.6**	**6.0**

NCRIS milestones under discussion

ATNF observatories

- With NCRIS2 (& CRIS), funding = costs through 2014/15
- From 15/16
  - Funding: CSIRO ~$18.2M, Other ~$0.6M
  - Costs: ASKAP ~$10M, Parkes, Mopra & ATCA ~$12M
  - **Gap ~$3M p.a. (pre SKA-1)**
- Your ongoing support and advocacy for ongoing funding to CSIRO (e.g. through enduring NCRIS program) is essential if we are to continue to provide all these facilities
- Alternative, as outlined at last ATUC meeting, is to
  - Seek external user-pays funding
  - Implement further substantial cost reductions

Principles

If a change to the open availability of an ATNF telescope is necessary, CSIRO will

- Provide at least two observing cycles notice
- Take special account of the needs of students
- Seek to avoid a situation where an external funding arrangement restricts science open to competition
- Seek to retain at least 75% of ASKAP time for the first 5 years for the Science Survey Projects

Furthermore, if external funding then…

Subject to a compelling case & demand for world class science, CSIRO will seek to

- Preserve some open community access
- Provide observing access commensurate with current and past contributions
- Encourage collaboration to avoid overlapping obs
- Protect projects already approved for the original proprietary period
- Place all data in an archive, freely available after a proprietary period

We acknowledge the Wajarri Yamatji people as the traditional owners of the ASKAP Observatory site.

Thank you

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Recruitment freeze

- Announced 31 October
- CSIRO, APS and all government agencies
- Affects all new appointments/recruitments, including new contracts for term staff, except:
  - Postdoctoral fellows
  - Students
  - Visitors
  - Targeted indigenous roles
- Can make a case for “mission critical” appointments