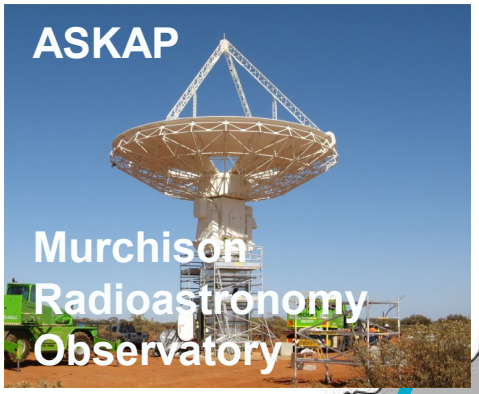
ATNF Operations

ATUC April 2020

John Reynolds

- Staff changes
- COVID-19 update
- Highlights
- KPIs incl. CASDA
- ASKAP & ASKAP-X status
- Pawsey Update
- Decadal Plan: Mid-Term Review

The ATNF at a glance



WESTERN AUSTRALIA
BOOLARDY STATION
GERALDTON
PERTH
NEW SOUTH WALES
NARRABRI
MOPRA
PARKES
SYDNEY

Radiophysics Laboratory

ARRC Kensington Pawsey HPC Centre

New Norcia

Operations – staff changes

Welcome

Bernadette McCormack
Admin, Geraldton

Kyasha Palmer
Admin, Parkes

Farewell & thanks

Tony Maher
Computing, Marsfield

Current status of facilities

- Parkes, ATCA, ASKAP telescopes essentially operating normally
- Essential staff working on site, with precautions
- Staff working from home where they can do so productively

- New Norcia operating with 3 split teams, one on site

- Visitors Centres and public areas at Parkes, ATCA closed to public (also Dish Café)

- Travel restrictions to all sites in place

- Sustainable - for now.
- “Christmas/New Year” mode is a possible contingency

Computing support during pandemic

Shaun Amy (02) 9372-4452 Rm 77B, C Wing
Daniel Craig (02) 9372-4541 Rm 46, G Wing
Brett Lennon (02) 9372-4545 Rm 46, G Wing
Vince McIntyre (02) 9372-4643 Rm 81A, C Wing
Nathan Pope (02) 9372-4489 Rm 24D, F Wing

Ryan McConigley (08) 9923-7767 Geraldton, WA

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Recent ATNF highlights

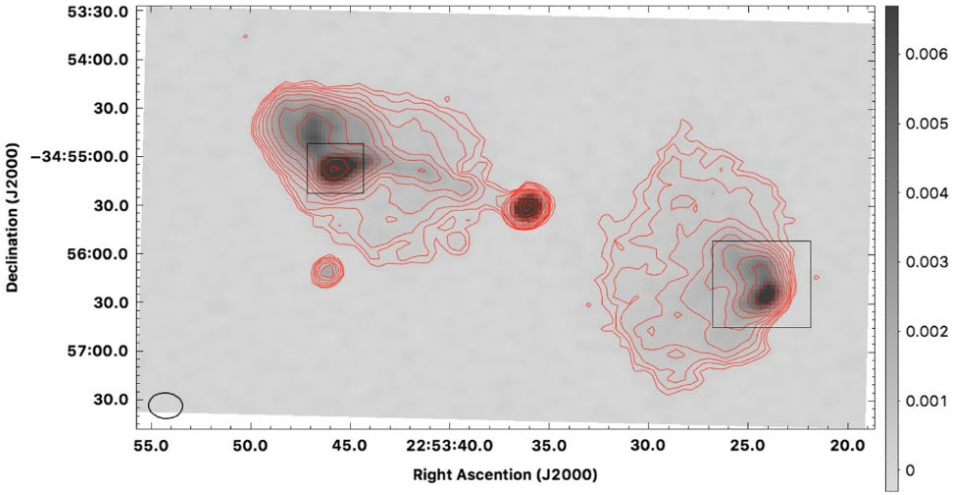
17 Jan 2020

Leading Australian telescopes to get technology upgrades

CSIRO's iconic Parkes radio telescope – fondly known as 'The Dish' – will get a new receiver that will significantly increase the amount of sky it can see at any one time, enabling new science and supporting local innovation in the space sector.

Parkes cryo-PAF and ATCA BIGCAT both funded under LIEF

ASKAP publications continue!



PKS 2250–351: A giant radio galaxy in Abell 3936 (Seymour et al.)

KPIs: Telescope usage

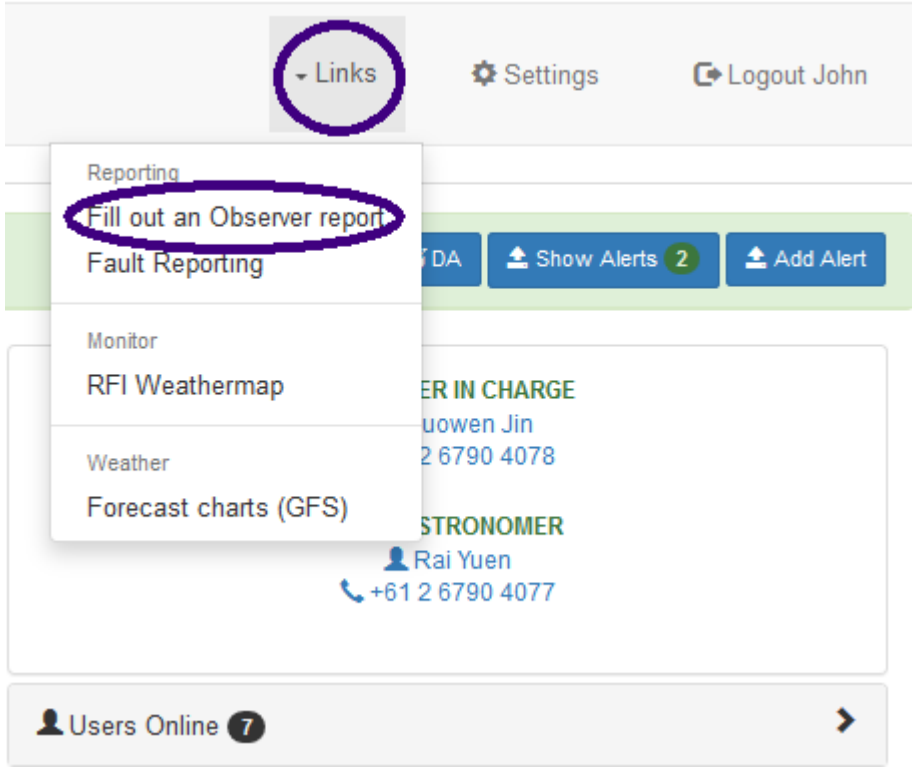
Period: 2019Apr+2019Oct	Parkes	ATCA	ASKAP*	
Successful observing time	78.6 %	75.2 %	34% (>30%)	
Maintenance time	14.2 %	15.9 %		
Time lost to equipment failure	**3.4 %**	1.2 %	< 3.5%	
Time lost to weather	3.2 %	0.7 %		
Idle time	0.6 %	7.0 %		

*ASKAP figures for 6 months Jul-Dec 2019 incl.

CASDA (from Minh Huynh)

- Pawsey & CASDA work continuing despite COVID-19
- CASDA Planning Day 10 Feb successful, guiding CASDA 3.2
- CASDA Stage 3.2 commenced (Mar-Jun 2020)
- ASKAP Pilot Survey data ingested for EMU, WALLABY, VAST, POSSUM, LIGO
- KPIs
  - > 5500 files, > 100TB uploaded FYTD
  - > 80 UI inquiries/month, > 500 VO inquiries/month
  - > 60 successful data requests/month

User Feedback



Response count for 12 months up to Oct 2019 meeting:

29 (32) Parkes
44 (24) ATCA

2 new responses since last meeting!

Issues raised in user questionnaires

>2 : CABB stability

~2 : Web documentation
Problems contacting DA
Apparent network connectivity problems

One-offs:
- Portal features
- Unix Password expiry notification
- New features – incl. “fully automated pulsar observing”

ASKAP-X Project

Captures two broad streams of work:

- Activities to improve the performance and reliability of the telescope, for science and operations users.

- Major functional improvements to the telescope, that will broaden its capabilities and create opportunities for new science; including Coherent FRB Search, Pawsey Upgrade Integration and Tied-Array Processing.

“SAFe” methodology/principles adopted

ASKAP-X milestones (first 7 only)

Milestone	Description	Date	
1	Coherent FRB Search subsystem concept review	June 2019	Completed
2	Project Kick Off	Sept 2019	Completed
3	Verification of Frequency Agility	June 2020	Likely slip to Q4
4	Verification of Beam Weights Archive	June 2020	May slip to Q3
5	Installation of Coherent FRB hardware	Dec 2020	Opportunity to bring forward
6	Commensal observing using the Coherent FRB Search	Mar 2021	
7	Pawsey Supercomputer Upgrade Commissioning Starts	July 2021	

ASKAP-X achievements to date

- Issue with ACM Loss of Data resolved
- Issue with Correlator Dropouts mitigated (work continuing)
- Issue with Digital System Synchronisation after Array Calibration resolved
- Roll out of Polarisation Leakage Calibration complete
- Roll out Masking of Bad Channels in individual beam cubes
- Issue with Systematic Bias of Spectral Indices presenting in images of faint sources resolved
- Upgrade to the Pawsey disk drives
- Architectural workshops conducted:
  - Consolidating System Configuration and Startup Processes
  - Pawsey Disk Space Management
  - Roadmap for the OMP and CSS GUIs.

ASKAP : pilot surveys and ASKAP-X

- Pilot surveys largely complete, but slowed by disk storage limit
- New disk storage (~3PB) has been provided by Pawsey
- Start intensive data-taking campaign, to finish data-taking for pilot surveys
- Campaign duration ~1 month (pandemic permitting).
- Then follows ~4 month consolidation period;
  - Suspend most observing
  - Finish processing for pilot surveys
  - Focus on high priority stability improvements and backlog items
  - Pause ASKAP-X formal management and re-evaluate structure

Pawsey Update

- **Additional** ~3PB of data storage provided by Pawsey for ASKAP Pilot Survey observing campaign

- **Pawsey Supercomputer System (PSS)** tender closed on 25 February and evaluation of the tenders is progressing well.

  (JC Guzman representing CASS)

- RFQ for the procurement of the **ASKAP ingest nodes** was released 7 February 2020 and closed 20 March. The responses are being evaluated at present.

- Estimated delivery of Phase 1 to users (incl. ASKAP) by Q2 2021

Visitors Guide to the Narrabri Observatory

Please note that while fully-supported observing is now available only from the Science Operations Centre in Marsfield, Sydney, experienced observers who are qualified for remote observing are very welcome to stay on site during their observations. Further details of the on-site accommodation are given below. If you require any further information, please contact accommodation@atnf.csiro.au.

Mid-Term Review
SKA and Pathfinders white paper

Recommendations:

- Existing RA facilities be supported to end of decade (2025)
  - This requires support for important upgrades (e.g. BIGCAT)
  - Unique capabilities include follow-up of Pathfinder discoveries
- Access required to large optical telescopes (e.g. ESO membership)
- Radio instrumentation program essential, requires support
- Data and processing centres required to exploit current facilities, support SKA
- Astronomy community needs to foster stable career pathways, ahead of SKA

Mid-Term Review timescale

Aug-Oct 2019 White papers developed, workshops
Sep-Oct 2019 Town Hall meetings
Nov-Feb 2020 Mid-term Review drat prepared
Mar-Jun 2020 Community consultation
Jul 2020 Mid-term review finalised by the NCA

Solicited white papers

- AAT/SSO
- Data and HPC
- ESO and ELTS (including optical instrumentation)
- Gravitational waves
- Multi-messenger/high-energy
- SKA and pathfinders (including radio instrumentation)
- Space

We acknowledge the Wajarri Yamatji people as the traditional owners of the Murchison Radio-astronomy Observatory site

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