



Director's update

Douglas Bock | ATUC | 8 November 2021

Australia's National Science Agency



ATUC membership

Welcome to:

- Ivy Wong
- James Leung (student member)
- Vince McIntyre (secretary)

Thank you to:

- Bi-Qing For
- Cormac Reynolds

Awards for Keith

- Malcolm McIntosh Prize for Physical Scientist of the Year at the 2021 Prime Minister's Prizes for Science.



- ASA Anne Green Prize for mid-career scientists

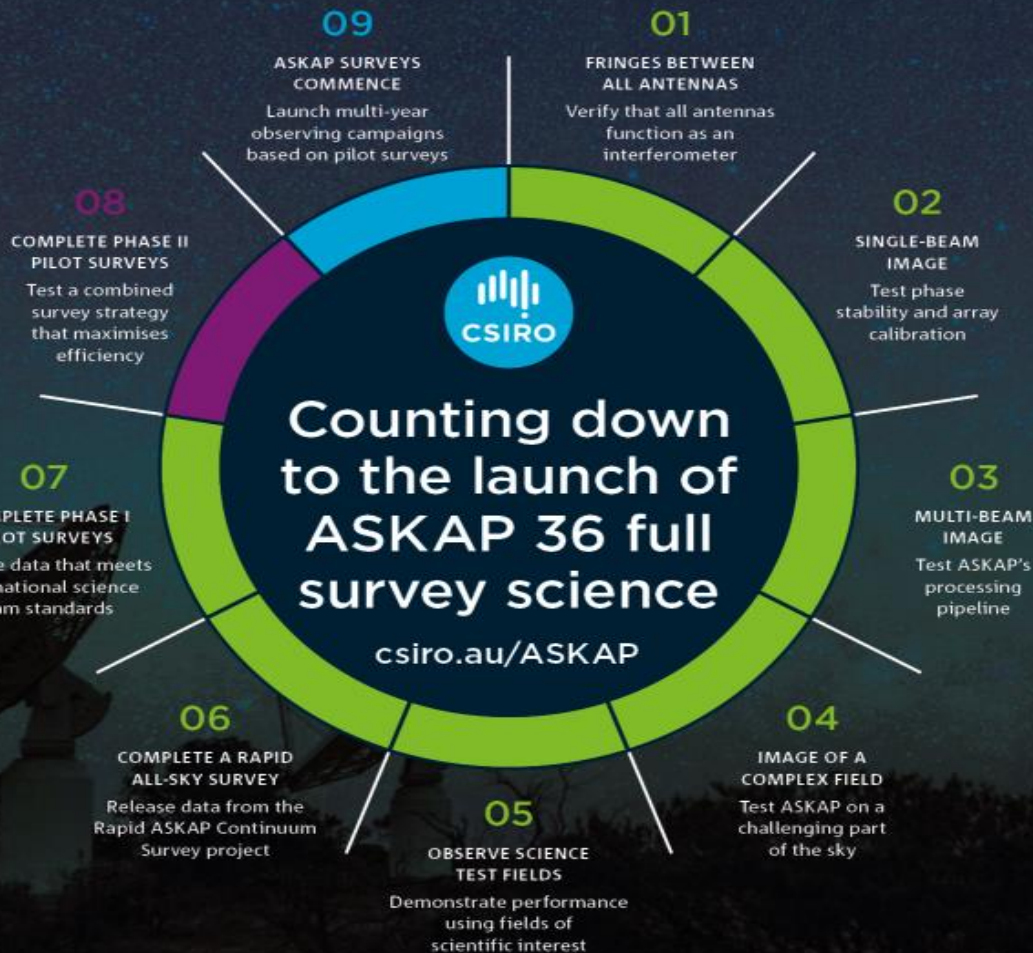


Diversity and inclusion

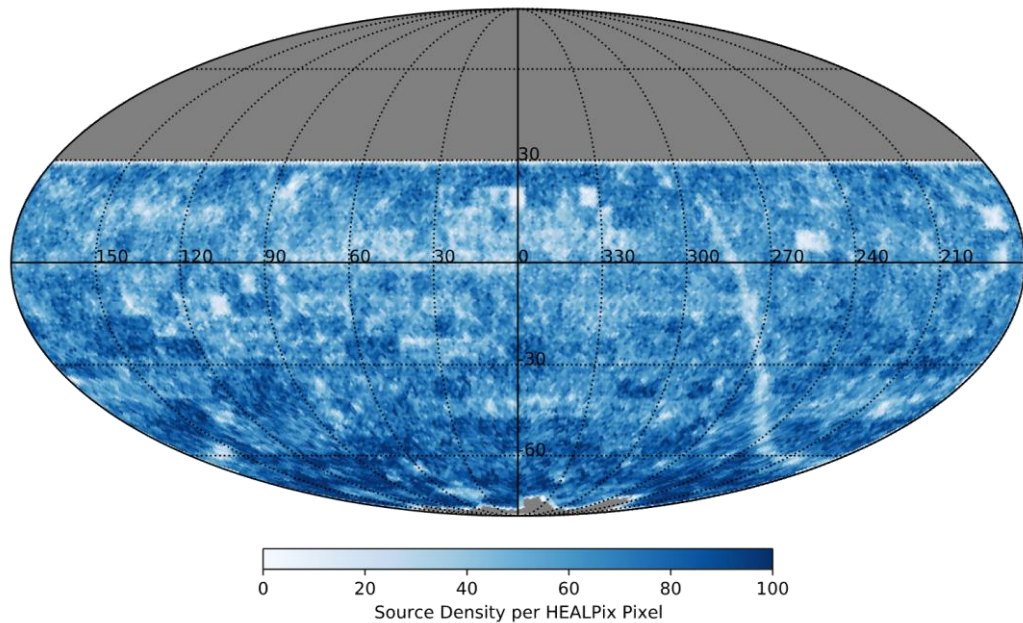
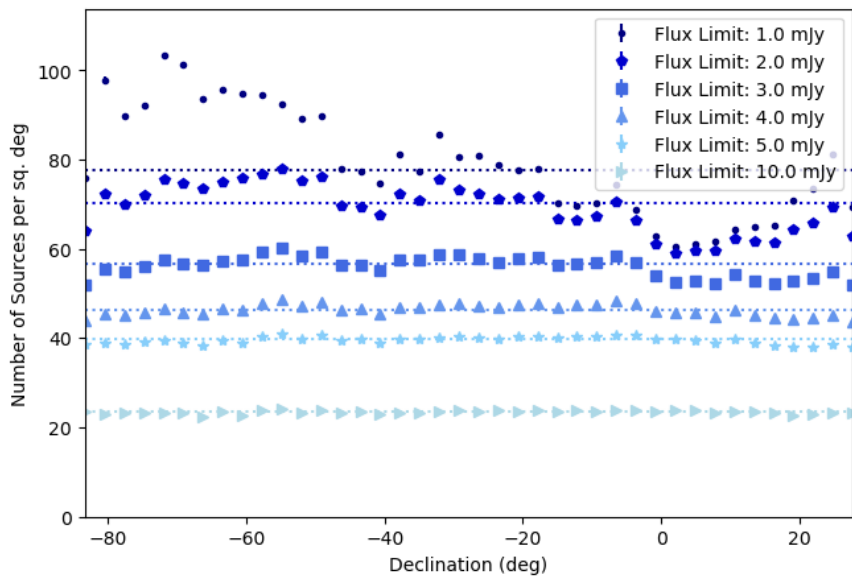
- Bronze Pleiades status (ATNF)
- LGBTQ Inclusion: Gold Employer status (CSIRO)
- Inclusivity review and workplace culture survey
- ATUC – improving diversity of presenters
- TAC – anonymised review of observing proposals



ASKAP



ASKAP - RACS source catalogue




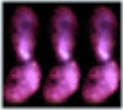



Hale et al. 2021, *PASA* in press.

Pawsey Supercomputing Centre

- Setonix – 50 petaFLOPS
- Acacia – 60 PB online
- Banksia – 70 PB offline



Technology	2020	2021	2022	2023	2024	2025	2026 +	
 <p>Ultra Wide Band Feed Systems</p>	0.7 – 5.0 GHz systems		PKS MPI	4.0 – 30 GHz systems				
 <p>Phased Array Feed Systems</p>	Cryogenic Rocket Phased Array Systems* (0.7 – 2.0 GHz) PKS FAST		Cooled/room temp Rocket Phased Array Systems (0.7 – 2.0 GHz) ASKAP		Cryogenic Phased Array Feeds (20GHz and above) ATCA Quasar			
	Cryogenic Rocket Phased Array Systems (4.0 – 20.0 GHz) ATCA Quasar							
	RFSoc Technologies (low frequency, large volume)							Commercial
 <p>Digital Signal Processing</p>	RF System on a Chip Technologies - scalable and fully digitized systems* (high frequency, high bandwidth – low volume) PKS ATCA TID		COTS Technologies (FPGA; GPU; P4 switches) – beamforming and signal processing* PKS ASKAP ATCA SKA					
	RFSoC Technologies (low frequency, large volume)							Commercial
	RF System on a Chip Technologies - scalable and fully digitized systems* (high frequency, high bandwidth – low volume) PKS ATCA TID							
 <p>Image and Data Processing</p>	RFI mitigation, real time processing, big data analytics, archiving and end user curation						All ATNF facilities	
 <p>Underpinning Technology Development</p>	Antennas, feeds and RF design and EM modelling, cryogenic systems, ultra-low noise amplifiers (LNA) and electronics design, precision machining and manufacture (including exotic materials), power supply systems and thermal design All ATNF facilities							
	Embedded software and computing, networking, high precision timing, fibre optic systems						All ATNF facilities	

*To accommodate the commercialisation project inside CASS, the Technologies Program will resource dedicated training and knowledge translation across to the team recruited into Quasar.

Shaded boxes indicate technologies feeding into Quasar.



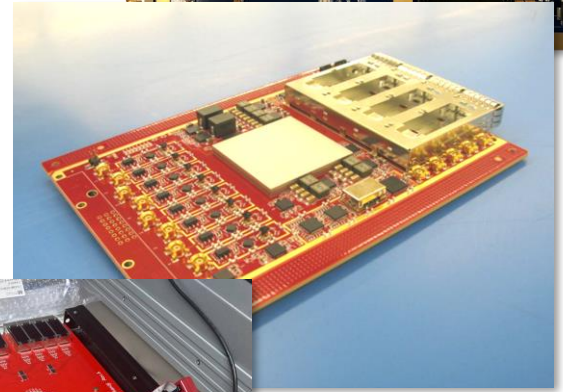
Strategic R&D

- Essential & reflected in Roadmap
 - In-project R&D
 - Development of new & disruptive technologies (e.g. RFSoc)
 - Exploration of new ideas & concepts
- Total R&D effort 15-18 FTE
 - 25-30% of effort
- Appropriate level
- Financially sustainable during SKA construction

Bluering



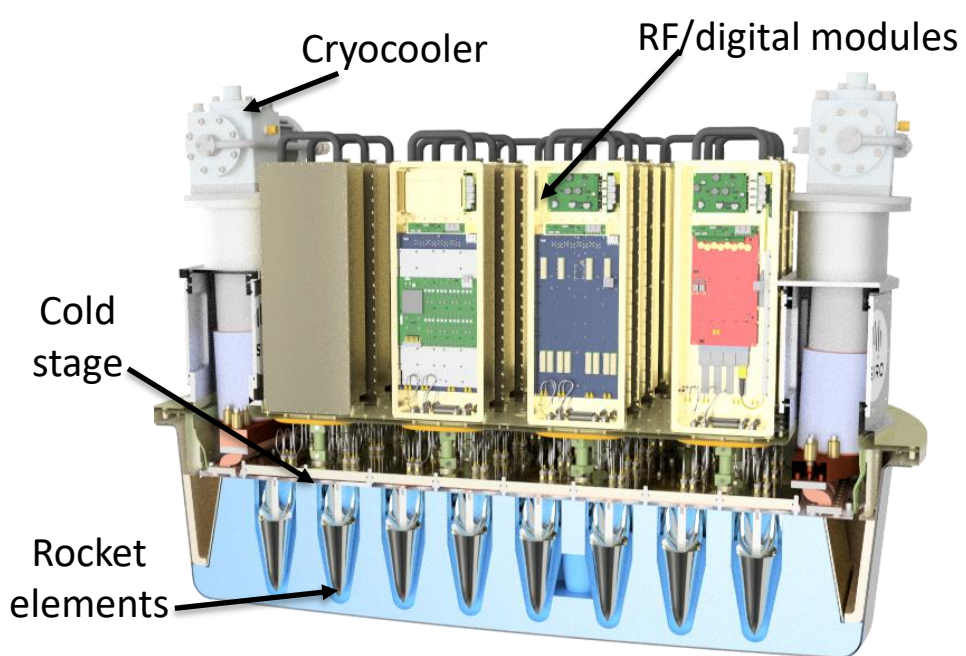
Jimble



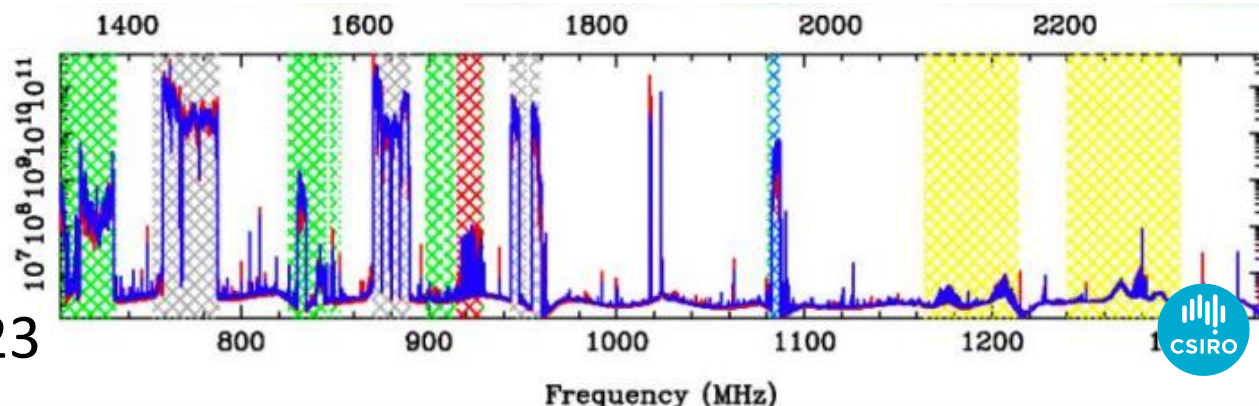
Irukandji



CryoPAF



- Beamformer ✓
- GPU science arch. ✓
- Software ✓
- RF signal chain —
- On dish Sept 2022
- Science ops July 2023



BIGCAT

Broadband Integrated GPU Correlator for ATCA

- RF design ✓
- Digitisers —
- GPU correlator code. ✓
- CABB replacement in late 2022
- RF upgrade in 2023

LIEF pipeline

- Ultra-wideband mid-high receiver for Parkes (4-30 GHz)
 - Submitted in March 2021, led by WSU
 - Results due in coming months
- Community call for expressions of interest resulted in no new proposals, but the UWB M-H will be resubmitted if it is unsuccessful in the current round.

SKA

- SKA-Low Telescope Director, Sarah Pearce
- SKA-Low Site Construction Director, Antony Schinckel
- ILUA - Final negotiation meeting held. Full community meeting in principle support to SKA proceeding and ILUA being finalised.
- Construction approved by SKAO Council. First Australian market approach for SKA construction released.
- Negotiating Agreement for Bilateral Collaboration with SKAO
- Curtin University partially vacating some space in CSIRO's ARRC building in Perth for SKA Low Telescope Operations staff.
- AusSRC - part of a global computing and data delivery network



Space & Astronomy

November 2021

Director: Douglas Bock

Deputy Director: (recruiting)

Chief Operating Officer: Kate Callaghan

Space Program & Space Tech FSP
Kimberley Clayfield

AquaWatch Australia
Alex Held

Centre for Earth Observation
Amy Parker (a/g)

CDSCC
Kevin Ferguson

Maintenance & Facilities
John Phillips

Operations & Engineering
Kevin Knights

Administration & Logistics
Heather Blair

ATNF Operations
John Reynolds

ASKAP & New Norcia
Brett Hiscock

NSW
Peter Mirtschin

S/ware & Computing
JC Guzman

Technologies
Tasso Tzioumis

Antennas & Receivers
Stephanie Smith

Digital
Aaron Chippendale

SKA Construction
Sara Tomka

ATNF Science
George Heald

NSW
George Hobbs

WA
Minh Huynh (a/g)

ATNF Chief Scientist
Elaine Sadler

SKA Telescope Operations
George Simpson

SKA Program Management
Mita Brierley

MRO Site Entity
Rebecca Wheadon

Support services
BD&C Rebecca Michael (a/g)
Contracts Dan Hills
Communications Gabby Russell
Finance Rodney May
HR Greg Dowling
Health Safety and Environment Georgia Prentice
Legal Carolyn Hart

This meeting

ATSC recommendations

- That an increase in human capital and operating costs for ASKAP be made, to deliver on its science promise, particularly during the survey programs.
- That a refreshed science support plan for the ATNF be prepared in consultation with ATUC that ensures ASKAP continues to deliver world-class science and supports the effective delivery of instrumentation.
- That CSIRO continues to engage with the international community on southern hemisphere VLBI to support an articulation of the principles behind investment in low-frequency VLBI.

VLBI in the SKA era



14-18 February 2022

Free online event

- Abstract submissions due 19 November 2021
- Registration deadline 11 February 2022

Focus points

- National Facility Support model.
- Prioritising our RFI efforts
- Releasing schedules in shorter blocks to accommodate changing timelines to testing/developing/commissioning new equipment.



Thank you