

Credit: Shaun Amy



Credit: Alex Cherney/terraastro.com

# ATNF Science

Dave McConnell  
ATUC meeting  
6 June 2017



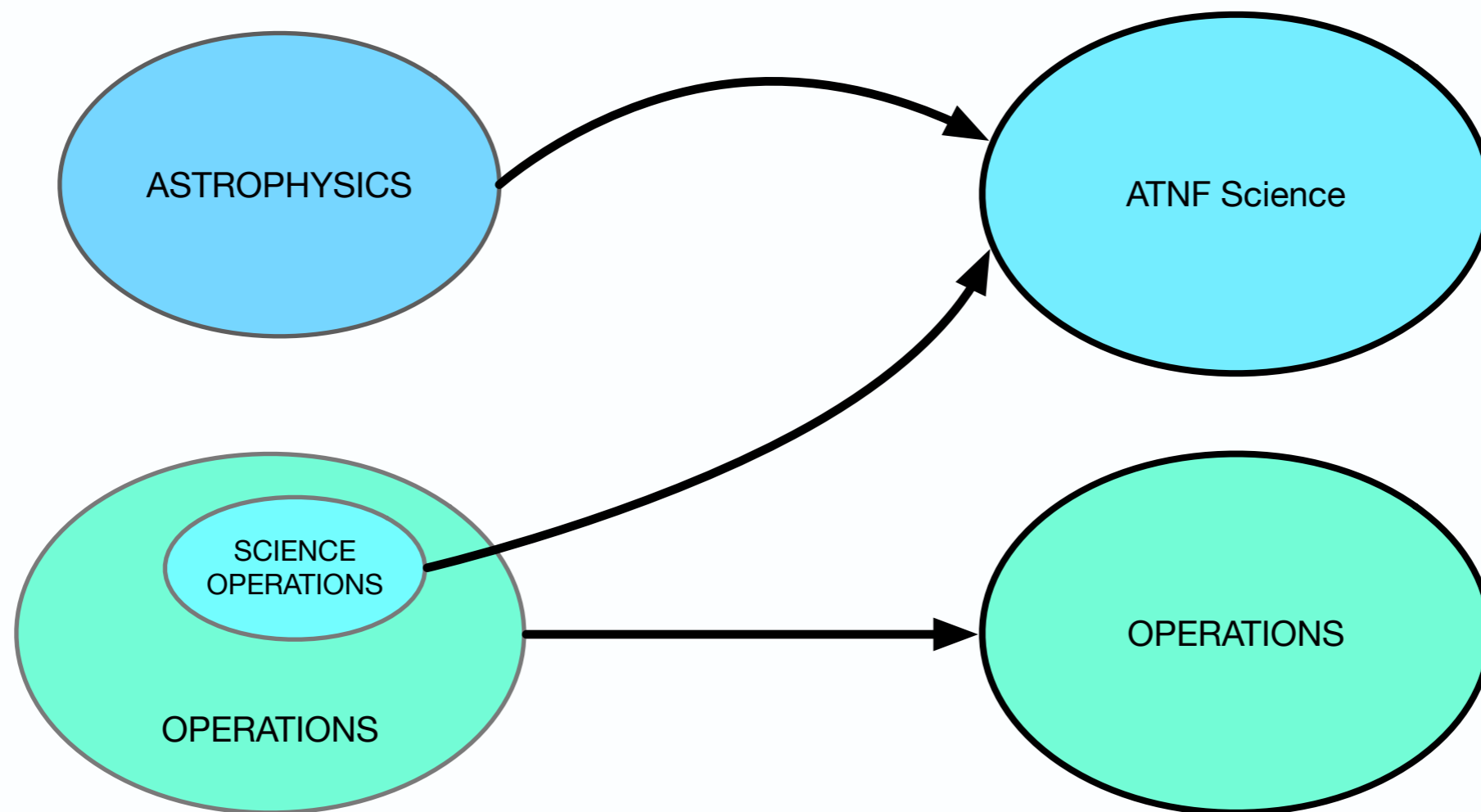
ASTRONOMY & SPACE SCIENCE  
[www.csiro.au](http://www.csiro.au)



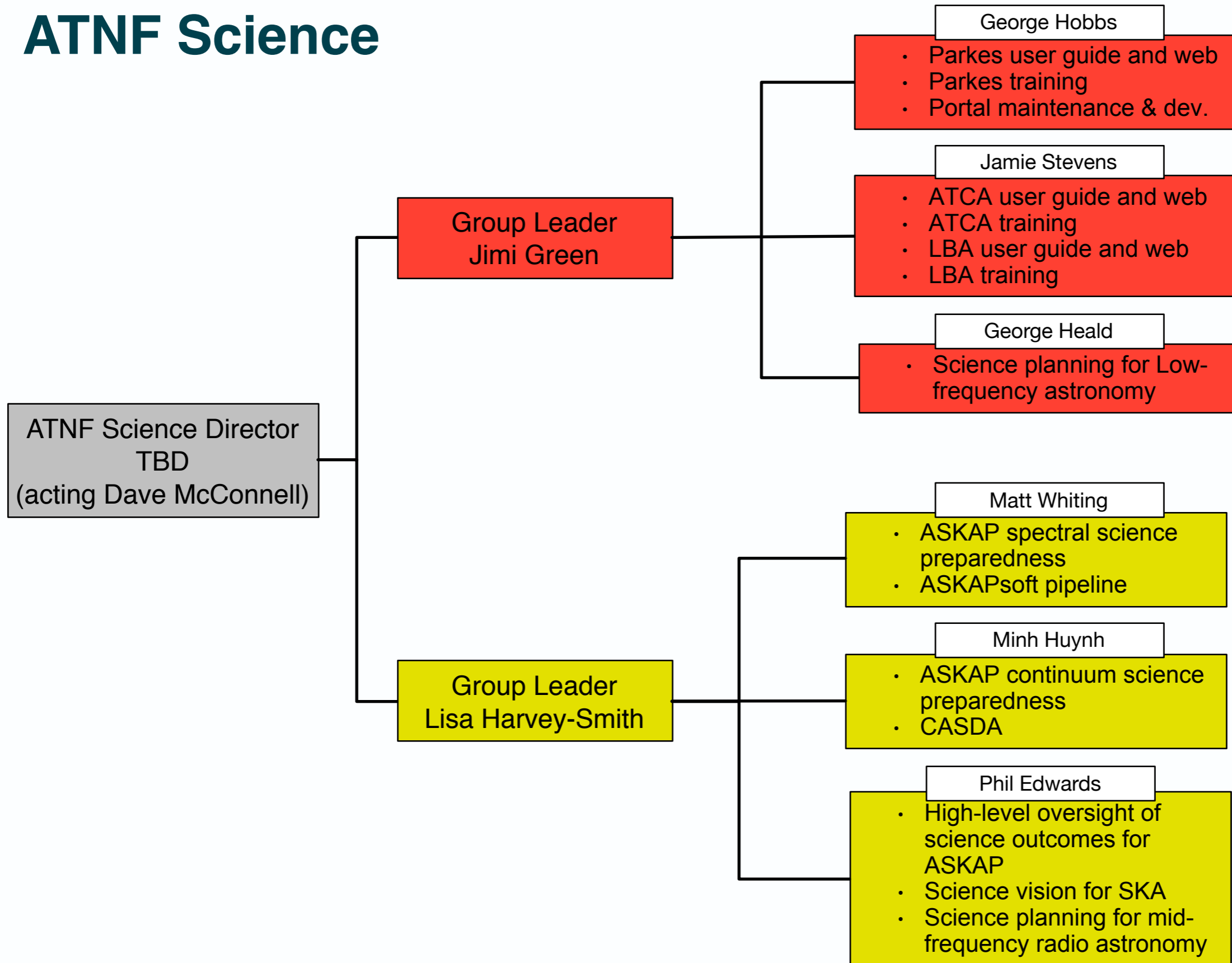
# ATNF Science

- **ATNF Science** the new Program
- Time Allocation and telescope schedules
- Radio School 2017
- Science highlights

# ATNF Science



# ATNF Science



# ATNF Science - contact points

PARKES



Jimi Green

Lead Scientist  
Scheduler

ATCA



Jamie Stevens

Lead Scientist  
Scheduler

LBA



Chris Phillips

Lead Scientist  
Scheduler

ASKAP



Aidan Hotan

Project Scientist

# ATNF Science - contact points

## ATUC

- membership, organisation
- secretary

John Reynolds → ATNF Sci Director  
Cormac Reynolds

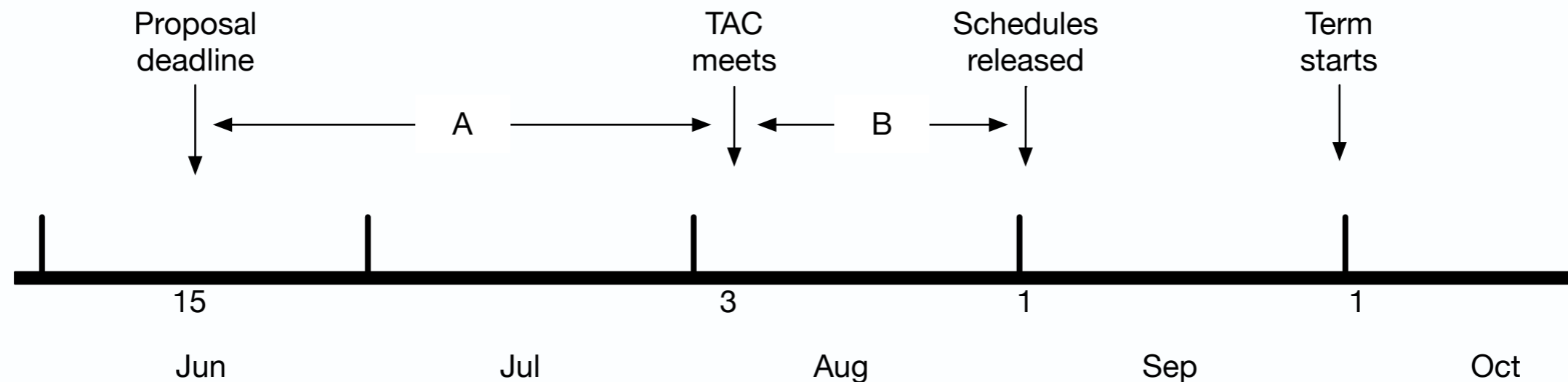
## Time Allocation Committee

- membership, policy
- executive officer

Lisa Harvey-Smith  
Hayley Bignall

# Time Allocation and scheduling

**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.



A : collate and distribute proposals  
reviewers assess proposals  
B : Schedules prepared

**Conclusion:** It is very difficult to prepare schedules more than one month before the start of the observing term without moving the proposal deadline earlier.

# 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.*

## **Proposal:**

1. In NRAO off-years (2017 and every other year) CASS organise and hold a "traditional" synthesis imaging school in Narrabri, with the ATCA playing a major part
2. Alternating years there is a more "forward-looking" school that is less about the fundamentals and focuses on topics such as wide-field radio astronomy, big data, etc., taking place in Perth and organised by local institutions, for example ICRAR.
3. That teaching resources are contributed each year by the non-organising institution.



# Radio School 2017

**Synthesis school planned for Narrabri this year**

**SOC has been formed with Wasim Raja as chair**

**Proposed date is the week starting 25 September**

- there is a clash with the International Astronautical Congress
- the date needs to be fixed as soon as possible

# Science Highlights

## ATCA Legacy projects

- The GAMA Legacy ATCA Southern Survey (GLASS)
  - PI: Minh Huynh (CASS/ICRAR)
  
- Imaging Galaxies Intergalactic and Nearby Environment (IMAGINE)
  - PI: Attila Popping (ICRAR/UWA)



# The GAMA Legacy ATCA Southern Survey (GLASS)

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## A Legacy 4cm Survey of the GAMA G23 Field

### **In a nutshell:**

- Deep and wide 5.5 and 9.5 GHz survey of the GAMA G23 field
- Cover 50 sq deg to ~30 microJy rms at 5.5 GHz and ~50 microJy rms 9.5 GHz
- Understand radio galaxy populations and their role in galaxy evolution
- Trace Star Formation with Thermal Radio Emission

Legacy radio dataset in well covered field



# GLASS Status

## OCT 2016

- 48 days (555 hours)
- Mix of 6A and 1.5C (31%)

## APR 2017 (current ongoing)

- 25 days (297)
- Mix of 6A and 1.5C (20%)

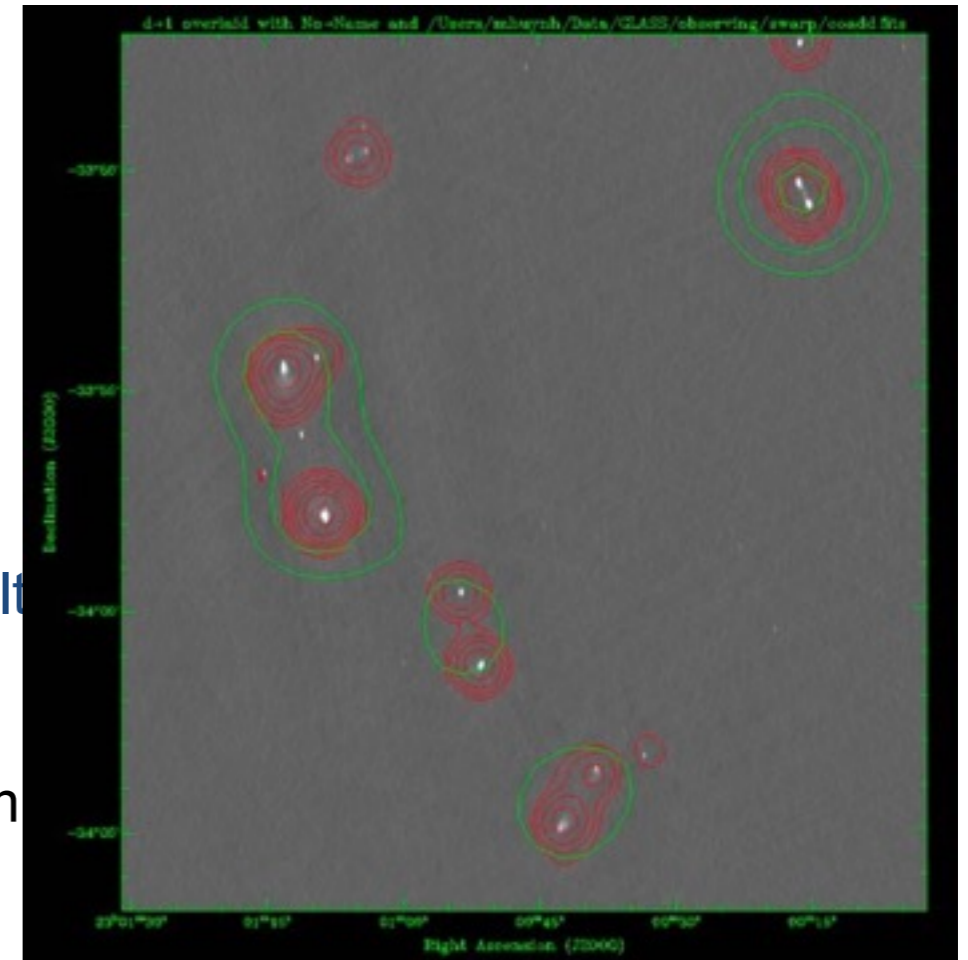
1/6 of G23 covered per semester, preliminary reduction results of OCT 2016:

5.5 GHz: rms ~22 microJy /beam, ~5.7 x 2.0 arcsec beam

9.5 GHz: rms 35 – 40 microJy/beam, ~3.2 x 1.2 arcsec beam  
(worse in regions with artefacts/around bright sources)

Integrated 5.5 GHz source counts consistent with eCDFs  
(Huynh et al. 2015)

~2800 sources (5 sigma) at 5.5 GHz, expect 17,000 in full field



ATCA legacy project C3157

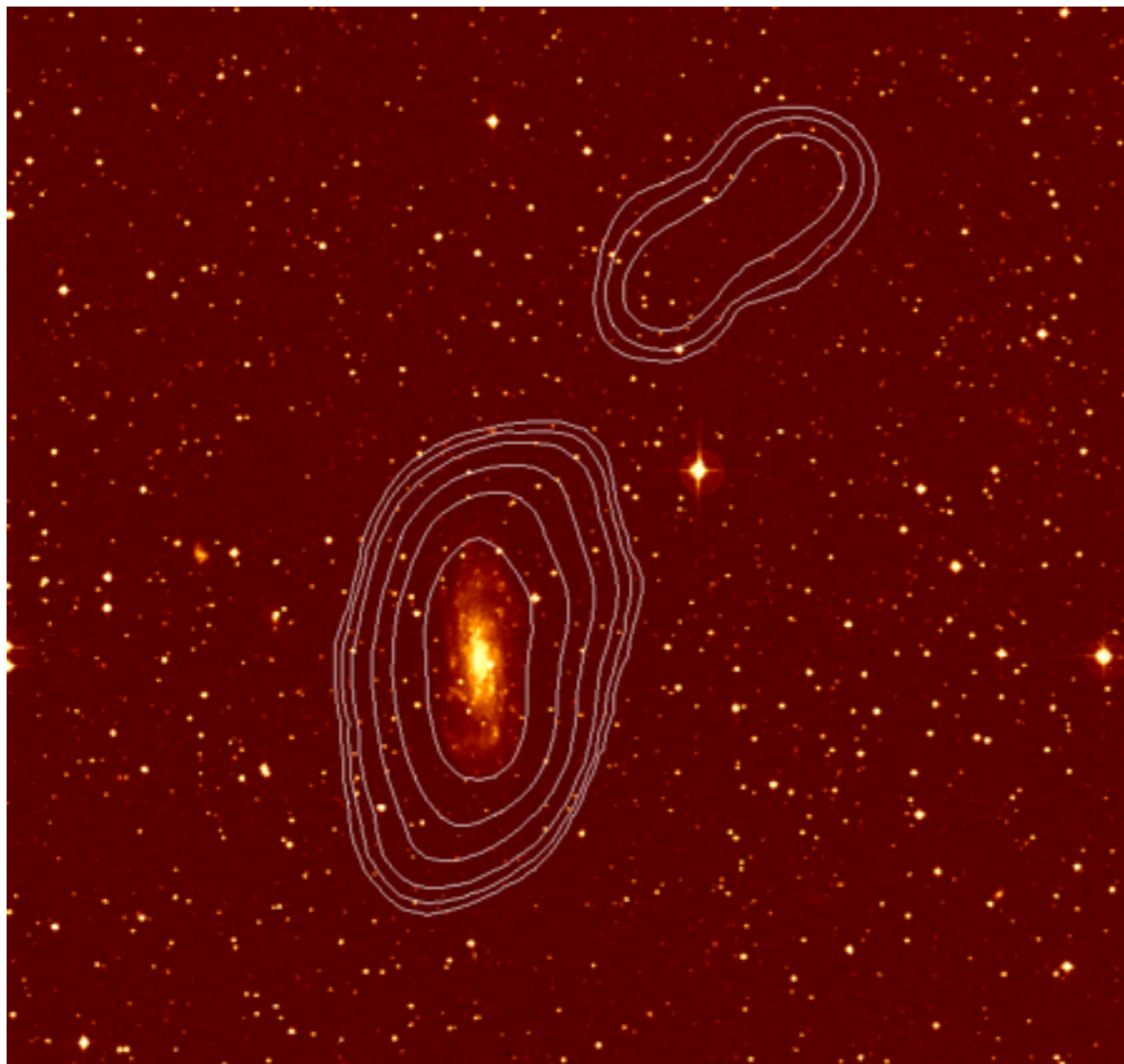
## Imaging Galaxies Intergalactic and Nearby Environment

PI: Attila Popping (ICRAR / UWA)

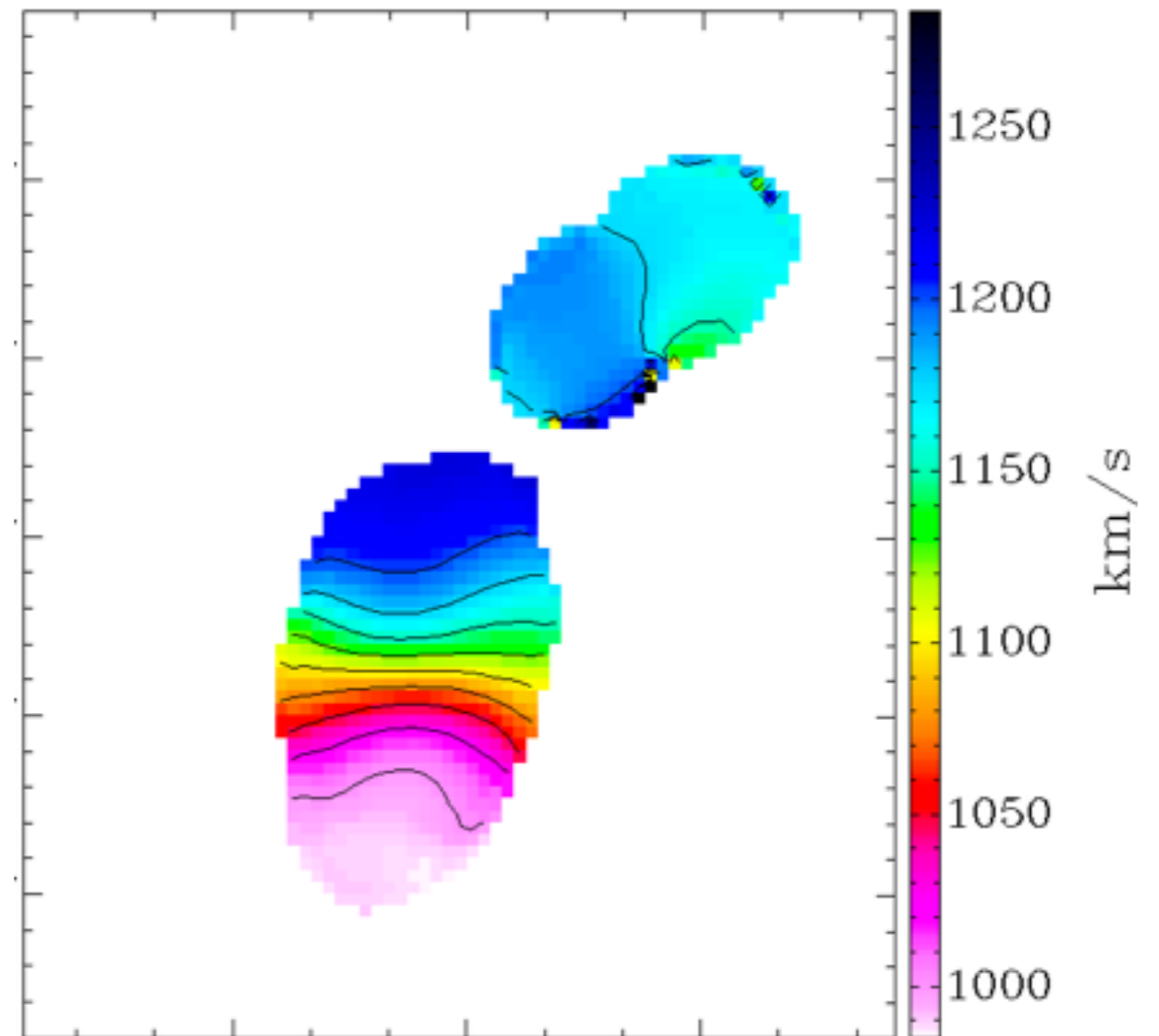
- Observe 28 spiral Galaxies and their direct environment
- Use 8 most compact configurations of ATCA (12 hours each)
- Total time 2688 hours
- $\text{NHI} \sim 2.5 \times 10^{17} \text{ cm}^{-2}$  over  $20 \text{ km s}^{-1}$ .
- resolution  $1'$  to  $2.5'$



[www.imagine-survey.org](http://www.imagine-survey.org)



NHI contours  $1e17 - 1e19$



# Science Highlights

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## Observing Pulsars with a Phased Array Feed at the Parkes Telescope

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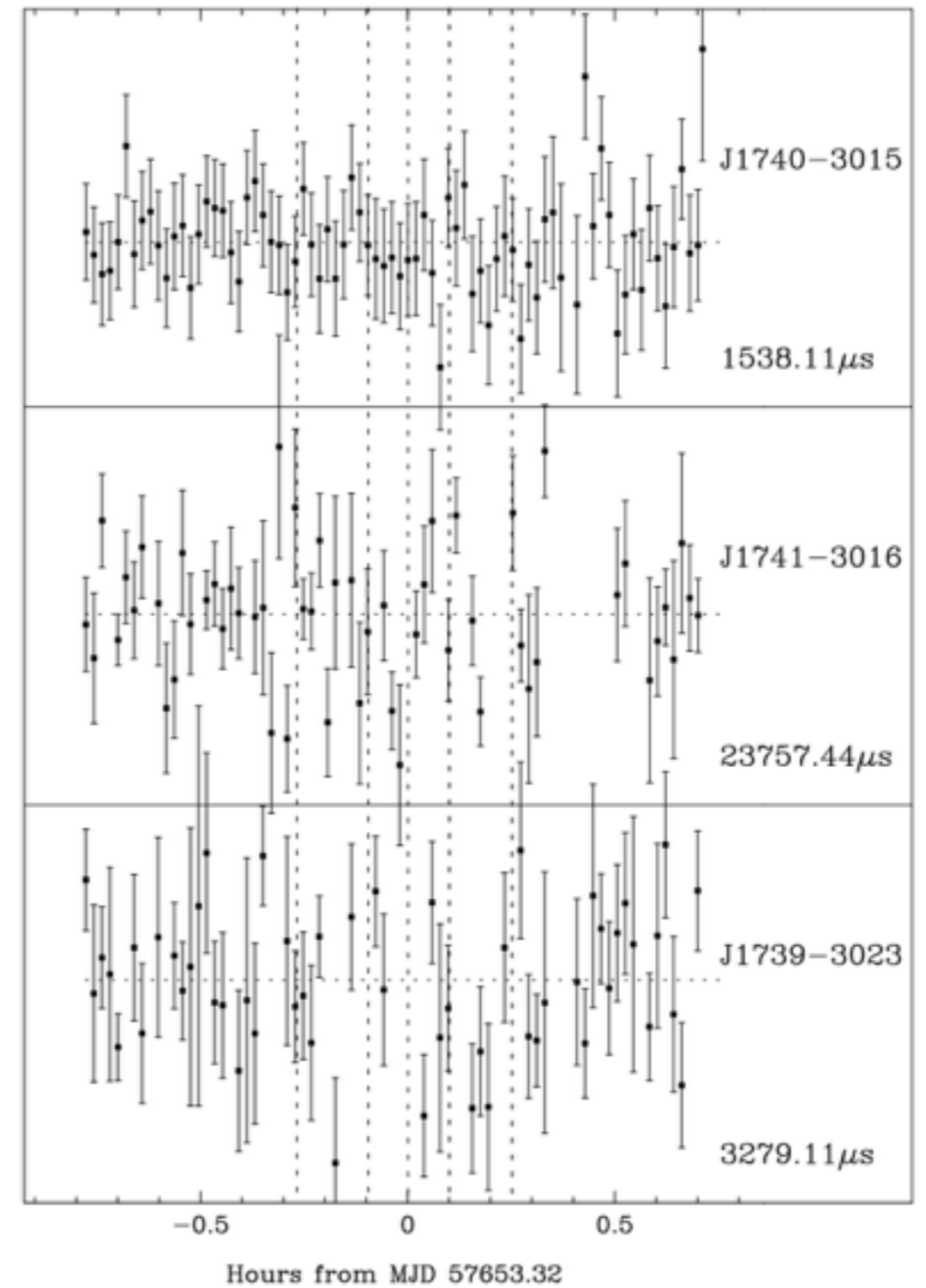
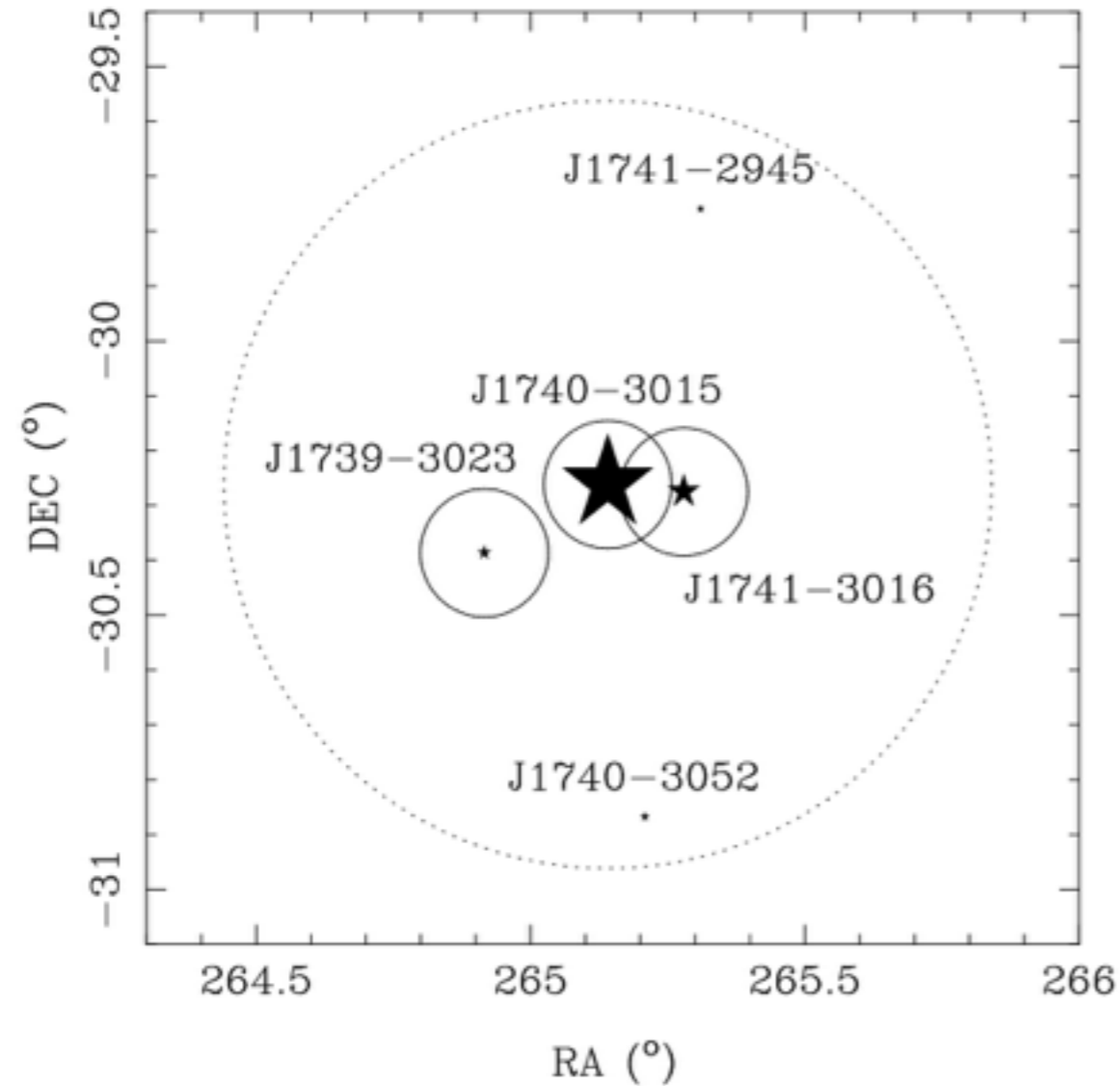
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# Science Highlights

*Pulsar Observations with a Phased Array Feed*





# Science Highlights

and also:

## ASKAP

- HI imaging                      Juan Madrid
- CRAFT results                 Keith Bannister
- ASKAP polarization         Wasim Raja

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