



# The Australian SKA Pathfinder

## Early Science Programs

Lisa Harvey-Smith

June 2013

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



# Background

# ASKAP Survey Science

Early 2009, ASKAP called for proposals for large (>1500hrs) amounts of time.

Extensive interest, with:

- 17 proposals
- 693 astronomers from 358 science institutions around the world
- Requesting 4,384 24-hour days of observing (12 years)

Ten teams were selected, representing over 400 astronomers

# Survey Science Projects

## Highest Priority

**EMU:** All-sky radio continuum survey  
(*Norris*)

**WALLABY:** All-sky HI emission survey  
(*Korbalski/Staveley-Smith*)

## Also supported

**CRAFT:** Fast transients (*Hall*)

**COAST:** Pulsars (*Stairs*)

**FLASH:** HI absorption against continuum  
sources (*Sadler*)

**GASKAP:** Galactic HI and masers (*Dickey/  
McClure-Griffiths*)

**DINGO:** Deep HI survey (*Meyer*)

**POSSUM:** All-sky polarisation survey  
(*Gaensler/Taylor/Landecker*)

**VAST:** Variables and slow transients  
(*Murphy/Chatterjee*)

**VLBI:** Very Long Baseline Interferometry  
including ASKAP (*Tingay*)

**ASKAP teams are open collaborations – you are welcome to join!**

# Project duration and commensality

- In first 5 years of operation, 75% of ASKAP time will be for surveys.
- No a priori guaranteed time given to particular countries, groups or institutions
- ASKAP not a user-operated telescope – scientists interact with archive
- It is expected that several projects will run commensally where possible
- Major projects have requested >1500 hours each, but may require much more to achieve goals (~2 years)

# When do I get to play with ASKAP?

# ASKAP commissioning

- During the period of ASKAP commissioning, there will be no calls for proposals.
- There will be a strong focus on commissioning and verification. Observations will be carried out by the commissioning team.
- During ASKAP survey design studies, SSTs have suggested suitable targets for commissioning observations.
- These targets will be strongly considered, provided they are suitable, when commissioning observations are scheduled.
- All commissioning data that are released shall be done so publicly (no preference is shown to individuals nor to SSTs).

# ASKAP Early Science

We propose to commence an 'early science' program with 12 antennas, extending this incrementally as the number of receivers increases.

- *No proposals – just a coherent program to deliver maximum scientific value*
- *No proprietary data – all ASKAP data are public*
- We expect ASKAP 'early science' to initially use ~20-50% of 12-hour nights, ramping up as more receivers are deployed.
- The development of an early science plan is subject to a community consultation process. Input is welcomed from any astronomer.



# ASKAP Early Science (contd.)

- At this stage the nature of these ‘early science’ observations will be described in very broad terms; e.g. *“with 12 dishes we will commence a wide-shallow survey of the whole ASKAP sky recorded in 18 kHz spectral channels, covering the 1420 MHz neutral hydrogen line”*.
- We will take into account a ramp-up of capabilities e.g. *“starting with a wide continuum survey at 800 MHz, our focus will shift to a shallow-wide HI survey once surface brightness sensitivity of ASKAP exceeds XYZ”*
- Sensible options and decision points will be identified now, but detailed survey design will wait until ASKAP Mk II receivers have been thoroughly tested.
- Precise telescope specifications at the commencement of ‘early science’ will remain fluid.
- The SST role is advisory. ‘Early science’ data products will be released publicly. There is no implied ownership of data.

# Consultation Process

ASKAP early science outline has been distributed to:

- ASKAP Survey Science Teams
- Department of Innovation
- Australia- New Zealand SKA Co-ordination Committee
- Australia Telescope User's Committee
- Australia Telescope Steering Committee
- ATNF Time Assignment Committee
- Astronomy Australia Limited

Face-to-face presentations given to:

- Swinburne University
- Monash University
- AAL
- ATUC (today)

Planned for July-August:

- Session at ASA Annual Science Meeting, visits to other universities (please contact Lisa), community workshop (Marsfield, 5<sup>th</sup> August) to discuss early science program.