



ASKAP update for April 2022

In this issue we discuss the outcomes of the Review of ASKAP Survey Science Proposals, plans for consolidation work, Pilot Surveys Phase II and RACS.

Outcomes of the RASSP

The recently completed Review of ASKAP Survey Science Projects (RASSP) was a key step on the path to ASKAP's first full survey campaign. An external international review panel was asked to determine an exact time allocation for each of the survey projects, such that the combined survey program could be completed within 5 years.

CSIRO Space & Astronomy has now received a formal report from the review panel. This report has been reviewed by the director of Space & Astronomy and its recommendations accepted. The panel's feedback on individual survey proposals has been circulated in confidence to the corresponding teams, and a summary of the final time allocation is shown in the table below.

Project	Allocation (Hours)	Allocation (% of requested)
EMU+POSSUM	8533	67
WALLABY	8832	71
GASKAP-HI	4440	65
GASKAP-OH	526	43
FLASH	1200	66
DINGO	3200	40
VAST	2174	44
CRAFT	Fully commensal	

With an oversubscription rate of 1.74 for the first 5 years, the panel was unable to grant all the requested time. In

most cases, reductions will be made in sky area rather than integration time, to maintain sensitivity targets. Pressure from satellite RFI and the need to optimise source counts has prevented the large-area EMU and WALLABY surveys from being commensal in the same frequency band. The preferred strategy requested by EMU, WALLABY and POSSUM involves independent observations of large sky areas in ASKAP's low and mid frequency bands, with commensal processing of both bands for POSSUM. The need for commensal processing of nearly all observations during full surveys will be challenging and is one of the reasons that the upgraded processing power of Pawsey's Setonix supercomputer is critical to our future survey efficiency.

The RASSP report highlighted the high quality of all survey proposals received and the amount of effort already invested. All teams were granted at least 40% of their time request.

Once the full survey program commences (currently planned for late October 2022), we will endeavour to make data available to all teams on a regular basis, as we have for Pilot Surveys in the past. The per-team time distribution each month will reflect the relative allocations overall, within the flexibility required to maintain optimal dynamic scheduling.

Towards full surveys

The next step on the path to full surveys will be to complete Pilot Surveys Phase II. Observations still need to be done for DINGO and GASKAP-OH due to extended quality gate iteration. Aside from a few commensal fields requiring more iteration, all other projects have been fully observed and, in most cases, fully processed. The final processing strategies developed for Phase II will be tested

on Setonix when enough nodes become available. Pawsey staff are [working to make the transition as smooth as possible](#) for their entire user community, including the ASKAP operations team. We will most likely begin the full surveys with another round of quality gates to ensure the new system is performing as expected and that commensal modes meet expectations.

Consolidation and planning

The ASKAP operations team has coordinated a comprehensive report describing work that needs to be done to meet our efficiency targets for the full surveys. While this consolidation work proceeds over the next few months, we will discuss operational requirements for the full surveys with the Survey Science Teams at the regular working group meetings and the Operations forum.

Soon, we will issue a request for preliminary field lists for the full surveys, so that simulations can be explored with knowledge of the entire observing pool.

Full survey workflows

Most of the Survey Science Teams now have experience with ASKAP's workflow, from defining survey fields through to determining a processing strategy, receiving data via CASDA, validation and finally release. The challenge with full surveys will be to accomplish these tasks efficiently so that data flow is maintained, and we always have disk space at Pawsey for new observations.

ASKAP's autonomous scheduling algorithms will consider disk space and validation progress when weighting field selection, to ensure prompt feedback on data quality and prevent backlogs.

ASKAP guest science program

Due to the time pressure of the full survey program, the RASSP recommended that guest science be capped at 10% of the total available time. A call for proposals will be issued sometime after the main surveys have started. Guest science proposals will most likely be assessed by the ATNF Time Assignment Committee using the same process as Parkes and the Compact Array.

ASKAP at ATUC

On the 4th of April, the Australia Telescope Users' Committee held an open session in advance of its next committee meeting. Several representatives from the ASKAP Operations and RACS teams presented updates on progress and plans. We also posed a few questions for ATUC to consider, around SST representation and community uptake of ASKAP data.

RACS progress report

While awaiting validation of Pilot Survey Phase II quality gates, we have begun to observe a second pass of RACS-low. The released low-band RACS data were observed quite differently to the other two bands, before autonomous scheduling and other system improvements were in place. Data from the other bands therefore has more uniform sensitivity across the sky. Another pass should improve the global sky model that we intend to create from all three bands and provide an opportunity to search for transients.



Figure 1: Australia has experienced heavy rain in many regions this year and the MRO is no exception! Rain limited access to the site in early April with road and runway closures. Operations continued as normal via remote control. Photo provided by Kurt Warhurst.

As Australia's national science agency and innovation catalyst, CSIRO is solving the greatest challenges through innovative science and technology.

CSIRO. Unlocking a better future for everyone.

Contact us

1300 363 400
+61 3 9545 2176
csiroenquiries@csiro.au
csiro.au

For further information

Space & Astronomy
Aidan Hotan
+61 8 8643 8543
aidan.hotan@csiro.au
<https://www.csiro.au/en/research/technology-space/astronomy-space>