

# ASKAP User Policy

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## **Document History**

| Title                                       | Revision | Date        | Author                          | Remark  |
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| Recommendations<br>for ASKAP User<br>Policy | Final    | 2008 Oct 21 | Ilana Feain & Simon<br>Johnston | Submitted to ATNF<br>Director                         |
| Draft ASKAP User<br>Policy                  | 1.1      | 2008 Oct 23 | Ilana Feain & Simon<br>Johnston | Draft sent to ATNF<br>Director and Deputy<br>Director |
| Draft ASKAP User<br>Policy                  | 1.2      | 2008 Oct 24 | ATNF                            | Minor revisions                                       |
| ASKAP User<br>Policy                        | 2.0      | 2009 Oct 16 | ATNF                            | Minor revisions                                       |
| ASKAP User<br>Policy                        | 3.0      | 2024 Oct 14 | ATNF / John Reynolds            | Include RASSP and other updates                       |

## **Document Status:**

This document represents CSIRO's User Policy for the Australian SKA Pathfinder (ASKAP) which commenced taking scientific observations in 2014 with a six-antenna array BETA, and commenced full survey operations in 2022.

The development of the policy was informed by extensive input from the astronomy user community through the ASKAP User Policy Taskforce, chaired by Dr Ilana Feain of ATNF, which passed its recommendations to the ATNF Director in October 2008. Additional input was received from the Australia Telescope Steering Committee (ATSC) based on consideration of the Taskforce recommendations at the ATSC meeting on 16 & 17 October 2008. CSIRO also sought advice from the Australian SKA Coordination Committee (ASCC), which in turn received advice from its own Science and Technical Advisory Group (STAG).

Version 3.0 of this document contains some adjustments of policy and additional context, recognising the time elapsed since the previous version.

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### 0. Background

ASKAP is designed as a fast survey telescope delivering science-ready data products directly to users, with the expectation that a majority of time be devoted to large surveys of order a year or more. These features differentiate ASKAP from CSIRO's other radio astronomy facilities and thus a specific ASKAP User Policy is required to ensure effective and efficient operations and the best scientific outcomes.

#### Survey Science Projects

In October 2008 CSIRO (ATNF) issued an open call for Expressions of Interest (EOI) for ASKAP Survey Science Projects (SSPs). The EoI Evaluation Committee, an ATNF-appointed and chaired committee with strong international representation, evaluated each response for scientific, technical and operational feasibility. The EoIs were not ranked. On 30 January 2009 the Principal Investigators of all Expressions of Interest that broadly met the feasibility checks were invited to submit an updated proposal as a Survey Science Project. The EoI Evaluation Committee identified projects where merging seemed practical and reasonable and suggested to these groups they consider submitting a merged proposal. For some, this invitation to resubmit was subject to caveats or recommendations by the Committee.

The submitted SSP proposals were evaluated in 2009 by the SSP Assignment Committee, a committee made up of international experts with a broad range of proficiencies, on the basis of: (1) their scientific merit, (2) the quality of their design study plan, (3) the perceived community benefit and (4) the team organisation. In addition to advising the ATNF Director on the ranking of the SSP proposals, the Committee was also asked to provide advice on the fraction of time which should be devoted to SSPs, opportunities for commensal observing, and data release policies.

The outcomes of the Committee were released in September 2009. Each SSP was notified of the panel's assessment of their project, which was in most cases a grading into A (fully supported), A- (supported with "reasonable efforts") or B (unsupported). Several proposals had two or more components that were graded individually.

#### RASSP

A second scientific review of the SSPs, known as the Review of ASKAP Survey Science Projects (RASSP), was conducted in 2022 by an independent panel of nine international astronomers selected and appointed by the ATSC to span a range of astronomical expertise matching the science aims of the SSPs. All nine active SSPs submitted revised proposals to the RASSP panel who made specific recommendations of the observing time to be allocated to each SSP over a five-year survey period. The RASSP panel also recommended that the time allocated to Guest Science Projects (GSP) be between 5% and 10% of available observing time.

#### 1. OPERATIONAL PRINCIPLES

The following principles define the framework within which ASKAP will operate.

- 1.1 ASKAP telescope time will be assigned to astronomical research projects subject only to scientific merit and to technical and operational feasibility.
- 1.2 No *a priori* guaranteed science time will be allocated to particular countries, institutions or individuals.
- 1.3 ASKAP will not be a user-operated telescope. Generally, users will interact with the ASKAP Science Data Archive (CASDA).
- 1.4 ASKAP data products will be released publicly through CASDA on a timescale designed to maximise scientific utilization and impact.
- 1.5 The CASDA Archive will be available to astronomers from all over the world.
- 1.6 Simultaneous (commensal) observing programs will be encouraged where possible.
- 1.7 In general there will be four classes of observing time allocated on ASKAP; Survey Science Projects (SSP), Guest Science Projects (GSP), Target of Opportunity over-rides (ToO), and time allocated to test or demonstrate new capabilities or observing modes.
- 1.8 Time Assignment will be made by the ATNF Director, subject to advice received from the appropriate Time Assignment or Survey Review committees.

### 2. SOFTWARE INSTRUMENTS

- 2.1 An ASKAP software instrument is a mode of telescope operation that enables high quality data (and/or data products) to be placed into the CASDA archive for users to retrieve.
- 2.2 ATNF will develop three basic software instruments necessary for science operations.

These software instruments are:

- A continuum software instrument to produce calibrated images over the full field of view for a large fraction of the sky, and
- A slow transient software instrument to image changes in the continuum sky on the time scale of five seconds or longer, and
- A spectral line software instrument to produce a spectral catalogue over the full field of view for a large fraction of the sky.

ATNF is committed to developing future software instruments for ASKAP, and adding enhanced capabilities according to science priorities, budget, personnel and development timescales.

2.3 The Survey Science Projects together with the ATNF and its users will drive the direction of future software instruments and enhanced instrument capabilities.

## 3. SURVEY SCIENCE PROJECTS

#### Definition

The ASKAP Survey Science Projects are large (>1500 hr) and coherent science projects that utilise ASKAP's wide field-of-view and fast survey speed to enable major science outcomes. Survey Science Projects are distinguished from Guest Science Projects (see Section 4) by the following:

- Survey Science Projects are large and coherent science projects, which address widely recognized astrophysical issues and that could not be reasonably addressed by any combination of Guest Science Projects.
- (ii) Survey Science Projects will enable scientific results that are intended to be of general and lasting importance to the broad astronomical community.
- (iii) Survey Science Project data and data products will enter the public domain in a timely way to enable effective opportunities for follow-up observations and for archival research both with ASKAP and other observatories.

- 3.1 For the first five years of routine science operations with ASKAP, it is envisaged that at least 75% of observing time will be available for Survey Science Projects.
- 3.2 The observing time required to complete a Survey Science Project will be allocated in advance, but will remain subject to staged data releases and progress reviews.
- 3.3 ASKAP Survey Science Projects will be selected by competitive peer-review.

#### **Survey Science Teams**

- 3.4 Membership, including leadership, of ASKAP Survey Science Teams (SSTs) will be open access in accordance with principles 1.1 and 1.2.
- 3.5 The role of a Survey Science Team is to facilitate the design, implementation, integrity and delivery of Survey Science Project data and data products to the CASDA archive.
- 3.6 Survey Science Teams will play a lead role in survey design, software instrument design, early science commissioning, data processing and quality control.
- 3.7 Survey Science Teams must provide clear statements on their proposed data release and publication timescales.
- 3.8 To facilitate interactions with ASKAP staff, each Survey Science Team should include at least one person associated or affiliated with ATNF.

#### **Data Access**

- 3.9 All data and data products produced by the software instruments (subject to storage capacity) will be made publicly available through the CASDA archive, on a time scale determined by operational issues (e.g. quality control) and not proprietorial interests.
- 3.10 Ranking of Survey Science Projects will take into account the intention of the Survey Science Teams to provide value-added data products into the CASDA archive. Teams should specify the form of any such products as well as their intention and timeline for providing them.

## 4. GUEST SCIENCE PROJECTS

Guest Science Projects are observational programs that require <1500 hours of observing time to complete and that utilise ASKAP's capabilities to enable scientifically interesting experiments. Guest Science Projects can include Non A-priori Assignable proposals (NAPA) but do not include override requests such as Target of Opportunity (Section 5).

- 4.1 It was originally envisaged that for the first five years of routine science operations with ASKAP up to 25% of observing time would be available for Guest Science Projects. However, owing to the large subscription factor (>1.7) of the combined SSP surveys themselves, the 2022 RASSP review recommended that this figure be reduced to between 5% and 10% of available time.
- 4.2 Proposals for Guest Science Projects will be subject to competitive peer-review by the Time Assignment Committee (TAC).

#### **Data Access**

- 4.3 The TAC will have the discretion to allow a proprietary period of up to 12 months from the last scheduled observations to data and data products from Guest Science Projects, provided that compelling or exceptional grounds are established in the GSP proposal.
- 4.4 Otherwise Guest Science Project data and data products will be released publicly into the CASDA archive without any proprietary period.

#### 5. TARGET OF OPPORTUNITY

Existing ATNF policies for telescope override observations are adopted.

- 5.1 Target of Opportunity events are unexpected astronomical events of extraordinary scientific interest for which observations on a short time scale are justified.
- 5.2 Target of Opportunity observing time is allocated at the discretion of the ATNF Director and may displace other scheduled observations at short notice. To avoid conflicts of interest, ToO requests may be declined if they overlap unduly with existing observations and proposals.
- 5.3 ASKAP time may also be requested for observations to commission, test or demonstrate new ASKAP capabilities or modes.

#### **Data Access**

5.4 Target of Opportunity data and data products will be released publicly into the CASDA Archive without any proprietary period.

#### 6. SCHEDULING & TIME ASSIGNMENT

- 6.1 All ASKAP proposals are to be submitted through OPAL at <u>https://opal.atnf.csiro.au/.</u>
- 6.2 The ATNF Time Assignment Committee will evaluate Guest Science Project proposals.

- 6.3 The Director of the ATNF will approve ASKAP Survey Science Projects (SSPs), and the observing time allocated to them, based on the recommendations of an Independent Committee of international stature, having expertise in astronomical survey projects and management of large teams.
- 6.4 The Independent Committee will provide advice to the ATNF Director on the overall fraction of available observing time to be devoted to Survey Science Projects and Guest Science Projects.
- 6.5 The Independent Committee may provide advice to the ATNF Director on the release time scale for survey data products, consistent with maximising survey impact and utilization.
- 6.6 Survey Science Projects, and the release of survey data and data products, will be subject to annual progress reviews by the TAC or other committee appointed by the ATNF Steering Committee for that purpose.

#### 7. EXTERNALLY PROVIDED HARDWARE OR SOFTWARE

- 7.1 Hardware or software that is developed in collaboration with or provided exclusively by external partners to be deployed on ASKAP will be operated as National Facility infrastructure as soon as practicable after commissioning.
- 7.2 ASKAP data and data products obtained using software instruments developed in collaboration with or provided exclusively by external partners, are subject to the user policies laid out in this document.

#### 8. COMMISSIONING, VERIFICATION AND RELATED PROGRAMS

8.1 ASKAP observations taken for the purposes of commissioning, science verification, Early Science or Pilot programs, or for mission-led projects such as RACS, should be released, where appropriate, into the CASDA archive once adequate quality control checks are performed. Release of data into CASDA should precede publication of any results from such data.

### 9. ACKNOWLEDGEMENT & CITATION

- 9.1 Intending authors of any publications describing ASKAP observations, instrumentation or characteristics are requested to follow the guidelines outlined in the <u>ASKAP Publication Policy</u>.
- 9.2 Users of ASKAP are requested to acknowledge the Australia Telescope National Facility in any publication arising, as described in the <u>ATNF Publications Acknowledgement Statements</u>, noting that this is an obligation on CSIRO under the ILUA with the Traditional Owners of the site, the Wajarri Yamaji People.
- 9.3 Users of the CASDA archive are requested to acknowledge CSIRO in any publication arising, as outlined in the above Acknowledgement Statements document.
- 9.4 Authors of publications describing ASKAP are encouraged to cite the ASKAP Systems Description Paper (Ref. 1).

## 10. GLOSSARY

ASKAP: Australian Square Kilometre Array Pathfinder

ATNF: Australia Telescope National Facility

ATSC: Australia Telescope Steering Committee

ASCC: Australian SKA Coordination Committee

CASDA: CSIRO ASKAP Science Data Archive

**GSP:** Guest Science Proposal

ILUA: Indigenous Land Use Agreement

RACS: Rapid ASKAP Continuum Survey

**RASSP:** An independent Review of ASKAP Survey Science Projects carried out in 2022.

SKA: Square Kilometre Array

SSP: Survey Science Project

SST: Survey Science Team

STAG: Science & Technology Advisory Group (advising ASCC)

TAC: The ATNF Time Assignment Committee that reviews Australia Telescope proposals.

#### **11. REFERENCES**

1. "The Australian Square Kilometre Array Pathfinder: I. System Description", Hotan, A.J. et al, 2021, Publications of the Astronomical Society of Australia, Volume 38, article id. e009.

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