Aus-VO Overview

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Situation

- Aus-VO as such has no funding…
- but several projects do!
- Australia is very active in a number of national and international projects

Situation

- Very strong radio and optical astronomy communities
- Several theoretical astrophysics groups (simulations)
- Australian SKA Pathfinder (ASKAP)
- Australia Telescope Compact Array (ATCA)
- Parkes (‘The Dish’)
- Molongolo Observatory Synthesis Telescope (MOST)
- Murchison Widefield Array (MWA)
- Anglo Australian Telescope (AAT)
- Skymapper
- Antarctic Astronomy (MoU with China)
- ….

Situation

- Time share on Gemini and Magellan
- Major involvement in five SKA consortia
- GAMA survey core team at ICRAR
- world-class multi-object spectrographs
- all groups and institutions maintain many global collaborations

VO Situation

Little attendance and direct contribution to IVOA except this time

But: Quite impressive uptake by many projects!

ASVO
All-Sky Virtual Observatory

- The All-Sky Virtual Observatory (ASVO) is enabling researchers to access a growing collection of theoretical and observational datasets, via a distributed network of ASVO "Nodes".

  http://www.asvo.org.au/

ASVO
All-Sky Virtual Observatory

- The ASVO project currently involves Astronomy Australia Limited, Swinburne University of Technology, the Australian National University, National Computational Infrastructure, and the Australian Astronomical Observatory. ASVO has received funding from the Australian Commonwealth Government though the National eResearch Collaboration Tools and Resources (NeCTAR) Project, the Australian National Data Service (ANDS), and the National Collaborative Research Infrastructure Strategy.
- See more at: http://www.asvo.org.au/

ASVO
All-Sky Virtual Observatory

The Theoretical Astrophysical Observatory (TAO) houses queryable data from multiple popular cosmological simulations and galaxy formation models in a database that is optimised for rapid access. Query results can be funnelled through additional "modules“ and sent to a local supercomputer for further processing and manipulation. These modules map the simulations onto the observer’s plane, and include light cone, SED, mock image, and telescope simulator modules. All this is accessible via the cloud through a browser for access anywhere in the world by the astronomical community. TAO was developed, and is hosted and operated, by Swinburne University.

STATUS: Operational.

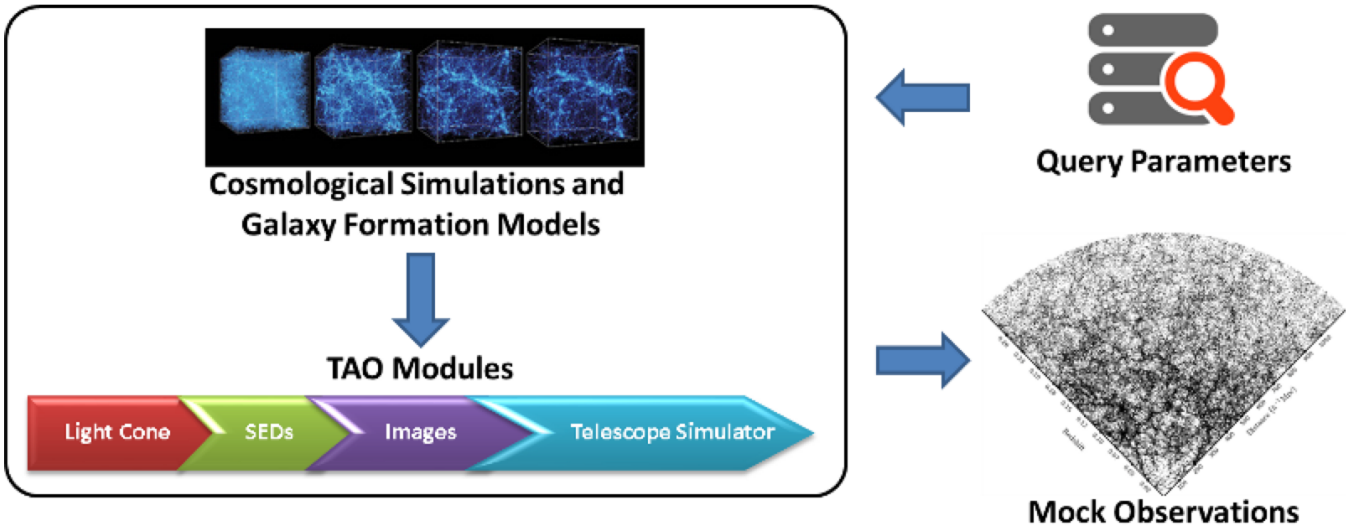
IVOA: Implements Cone search

Theoretical Astrophysical Observatory

The Theoretical Astrophysical Observatory (TAO) houses queryable data from multiple popular cosmological simulations and galaxy formation models.

Results can be funnelled through higher-level modules to build custom mock galaxy catalogues and images. TAO is accessible from anywhere you can access the internet.

TAO is part of the All-Sky Virtual Observatory (ASVO) and is funded and supported by Astronomy Australia Limited, the National eResearch Collaboration Tools and Resources (NeCTAR) , and Swinburne University of Technology.



The ASVO-SkyMapper Node provides an integrated and comprehensive environment for the hosting, analysis, and exploration of data from the SkyMapper telescope, which is producing the most detailed and sensitive map of the southern sky at optical wavelengths. Led by the Australian National University, SkyMapper will produce ~2 PB of images and a ~100 billion-row database of associated measurements during its 5 year survey. These unique data support a wide variety of science goals, from discovering the oldest stars in the Galaxy, to uncovering new dwarf galaxies, solar system objects and distant supernovae. SkyMapper data products are being released without embargo to the Australian community through ASVO-SkyMapper, with worldwide access to follow ~1 year thereafter. The first full data release (DR1) is planned for December 2015, and in the meantime, the data access services are available at skymapper.anu.edu.au for user testing.

STATUS: Operational, but data is just starting to flow

TEST DATA RELEASE - NOT FOR SCIENTIFIC USE

Australian National University

SkyMapper Test Data Release

TDR Information | Known Issues | How to Access | Cone Search | Image Cutout Service | Full Catalogue Search | Sky Viewer

The **SkyMapper Test Data Release** (TDR) is a preview of the characteristics and data access protocols for the SkyMapper Southern Sky Survey.

The **SkyMapper Southern Sky Survey** is a project of the **Research School of Astronomy and Astrophysics**, **The Australian National University**. The goal of SkyMapper is to create a comprehensive digital survey of the southern sky.

The SkyMapper cone search, image cutout and table access protocol services, and the web interface for interacting with these services, was developed as part of the wider **All-Sky Virtual Observatory** project, with funding provided by **Astronomy Australia Ltd.** The system is hosted by the **National Computational Infrastructure**.

The community is invited to scrutinise the data and feed back to us any findings, which we would use to inform our full data reduction towards a DR1 of the Short Survey later in the year.

Important: We anticipate that no publications will arise from this test data set and suggest that science publications should await the public data release DR1 planned for later in the year. Should you wish to deviate from that advice, you need to include the SkyMapper development team as co-authors.

Contact: **skymapper@anu.edu.au**

The Anglo-Australian Telescope (AAT) Node of the ASVO will provide an archive infrastructure and interface to enable researchers to access key datasets from the AAT, Australia's foremost onshore optical facility, equipped with state-of-the-art instrumentation. The ASVO-AAT Node is currently being built by the Australian Astronomical Observatory (AAO), the owners and operators of the AAT and will be complete in 2017. ASVO-AAT has been designed to be extensible and scalable to meet the current and future needs of the Australian astronomical community. This will be demonstrated by the deployment of the first two exemplar datasets that span the range of capabilities to be provided: 1) The Galaxy And Mass Assembly (GAMA) survey and 2) The Sydney- AAO Multi-object Integral-field (SAMI) spectrograph survey

STATUS: Design stage.

IVOA: Will implement IVOA standards as required by the data.

ASKAP Science Archive

CASDA Project Wiki
- Analysis
- Architecture
- Project Management
- Project Glossary

Analysis

Log In

CASDA Project Wiki

updated May 09, 2015 by Chapman, Jessica (A&S, Marsfield)

Welcome

Welcome to the CSIRO Australian Square Kilometre Array Pathfinder Data Archive (CASDA) project space.

Please feel free to collaborate with us on this project by adding content.

What is CASDA?

CASDA will be a core component in the Australian Square Kilometre Array Pathfinder (ASKAP) system. CASDA will essentially become the primary point for storing, managing, sharing and using processed ASKAP data products.

ASKAP will produce astronomy data at an unprecedented rate and CASDA will be home to a subset of this, pushing the envelope on the 'big data' paradigm.

About the CASDA Project

The CASDA project is a partnership between CSIRO Astronomy & Space Science (CASS), CSIRO Information Management & Technology (IM&T) and the Pawsey Supercomputing Centre.

The first stage of the project (Stage 0) was used to define the necessary requirements, use cases, workflows, business processes, architecture and designs of CASDA. This stage ran from August 2013 to July 2014. The project is now in the second stage (Stage 1) and is developing and implementing the CASDA applications software and integrating this with infrastructure at the Pawsey Centre and in Canberra.

The target date for the initial production release is December 2015.

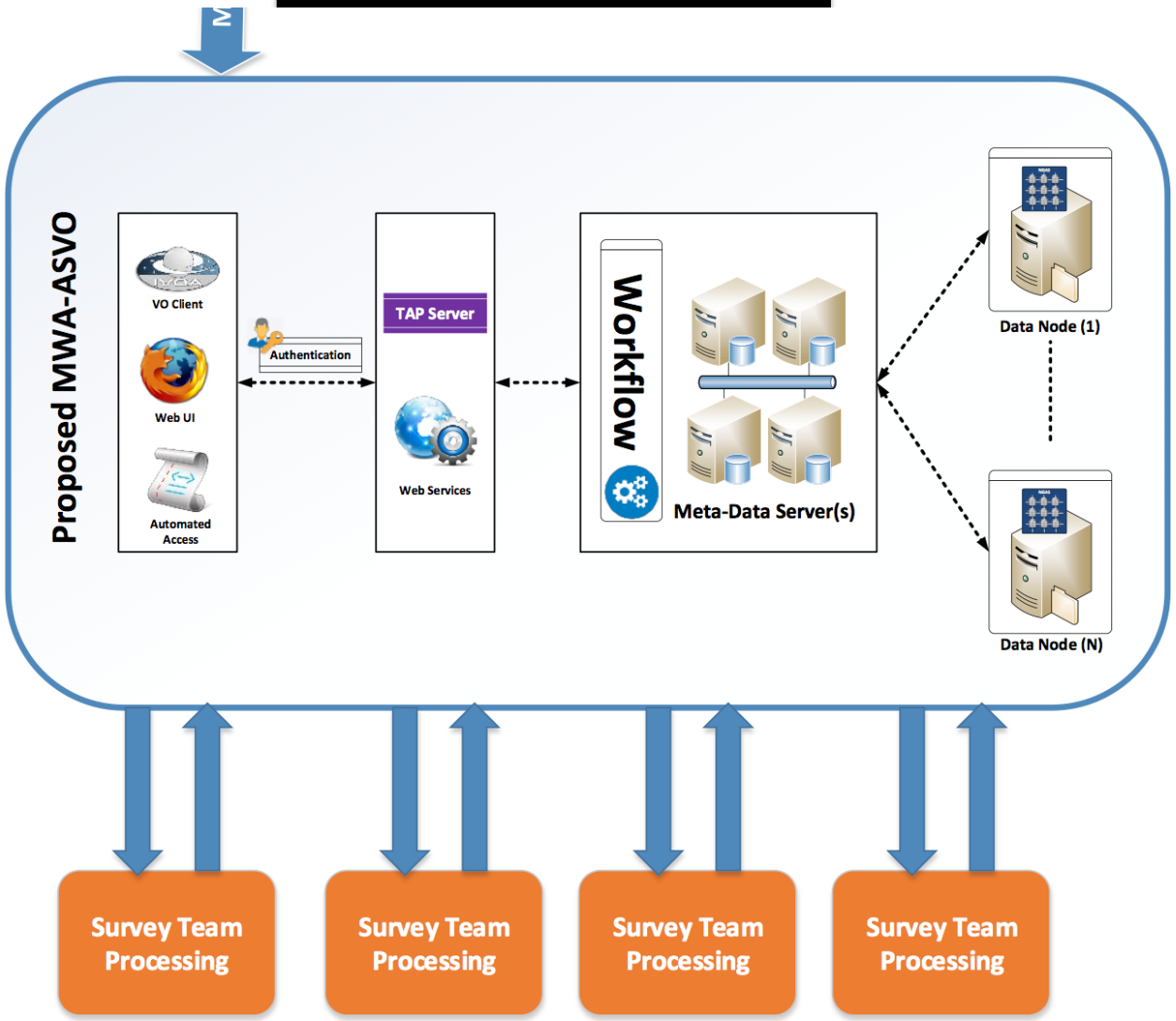
STATUS: Early roll-out

IVOA: Implements SIAP2, TAP and cube cutout, SSAP(?)

A Murchison Widefield Array (MWA) Node of the ASVO has recently been designed, and we are now looking at options to implement this design, in order to make the unique low-frequency radio data from MWA available to the broader astronomy community. The MWA is located in Western Australia where the future Square Kilometre Array (SKA) low-frequency array will be built, and is owned and operated by Curtin University. The MWA uses a novel design to have a wide field of view on the sky and be highly versatile and adaptable through signal processing rather than through moving parts. The MWA is performing large surveys of the entire Southern Hemisphere sky and acquiring deep targeted observations, which will generate up to 9 PB of data by 2016 that is being stored at the Pawsey supercomputing centre in Perth.

STATUS: Design stage. (7.8 PB in Pawsey, ~ 4 PB replicated)

IVOA: Will implement SIAPv2, TAP (ConeSearch) and SSAP

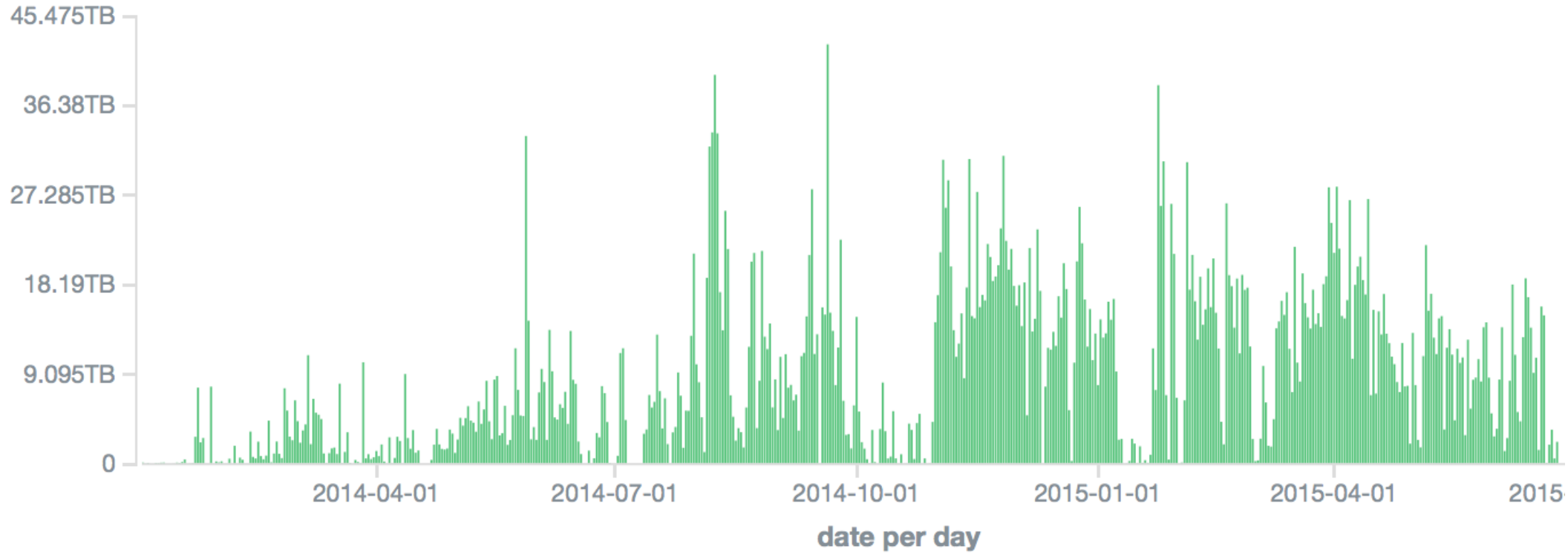


Amr Hassan & Luke Hodkinson

Figure 2 illustration of the proposed system role as a centralized data archiving and dissemination platform

- The MWA archive does already have an IVOA enabled interface based on the GAVO DaCHS, but people are mostly using the Python API
- Data in principle public, but visibilities in proprietary format.
- Nevertheless, it is being used quite heavily.

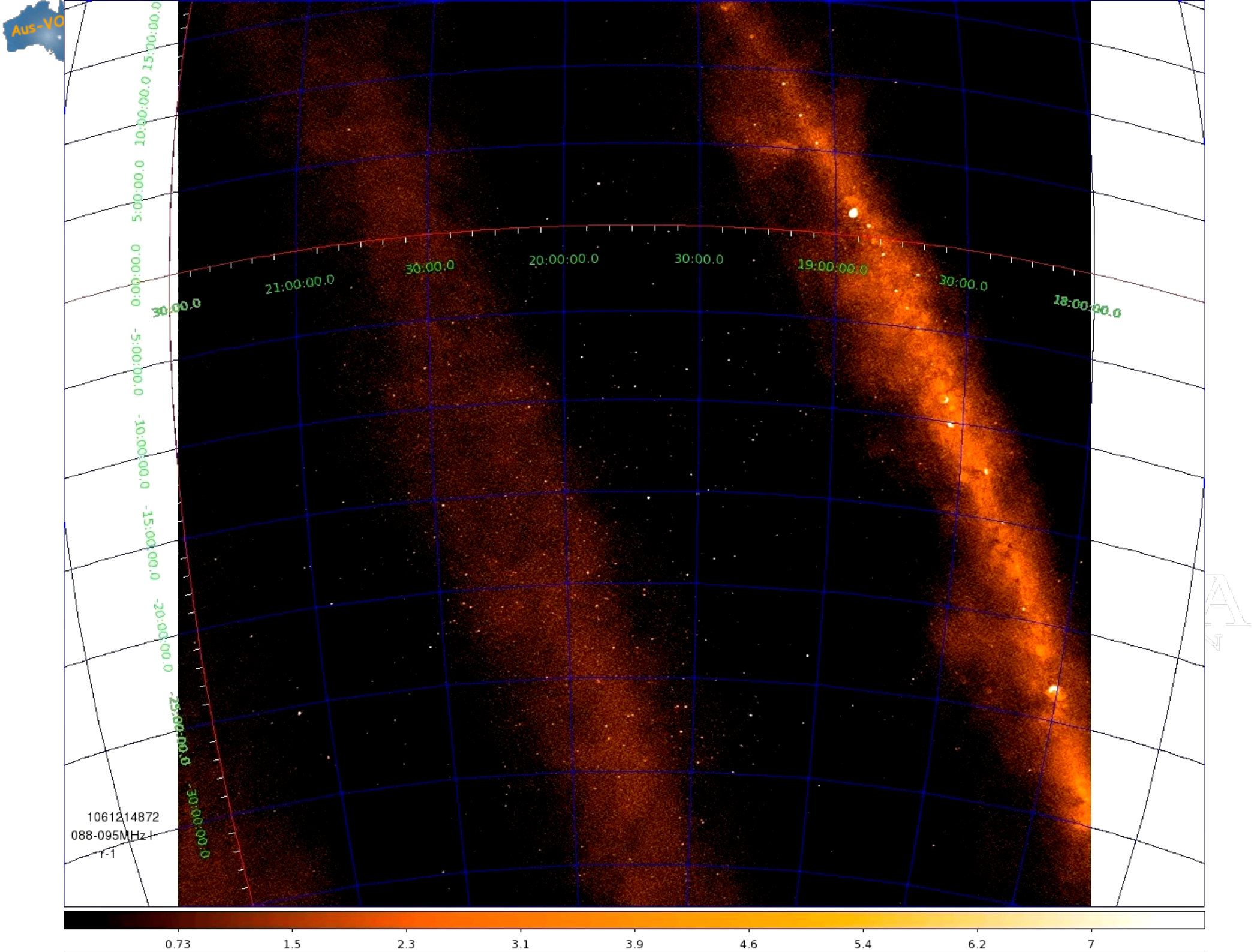
Size distribution retrieval only



GLEAM: The GaLactic and Extragalactic MWA Survey

- Half-sky coverage (~30.000 SqDeg)
- multiple bands, with different resolution
- Specialised data (full sky videos)

GLEAM: The GaLactic and Extragalactic MWA Survey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