

The Australian Virtual Observatory

Aus-VO: Progress and goals



<http://www.aus-vo.org/>

Andrew Hopkins
University of Sydney

Aus-VO organisations

□ Partner Institutes:

- CSIRO Australian Telescope National Facility
- The University of Melbourne
- The University of Sydney
- Swinburne University of Technology
- Anglo-Australian Observatory
- The University of Queensland
- Monash University
- The University of New South Wales
- Victorian Partnership for Advanced Computing
- ANU Mount Stromlo Observatory & Supercomputing Facility



□ Collaborators:

- CSIRO Mathematical and Information Sciences
- Australian Partnership for Advanced Computing

APAC Astronomy Grid

- ***Funded by the Australian Partnership for Advanced Computing (APAC) National Facility***
- ***APAC National Facility seeking continued funding support next year: Astronomy white paper for inclusion in proposal coordinated by Rachel Webster***
- ***Active members & partners are:***
 - ***Melbourne and Swinburne***
 - ***UNSW and Sydney***
 - ***ANU***
- ***Project Leader: David Barnes***



APAC Grid: Infrastructure

- Data grids
 - data store
 - data access protocols
 - authentication & authorisation
 - network facilities
- Compute grids
 - workflow
 - job configuration, submission & monitoring
 - code-to-data paradigms

Aus-VO: Proposed Goals (2002-2004)

- *Bring legacy astronomy archives on-line*
- *Ensure future project compliance*
- *Provide access to archived realizations of simulations (a VO-theory portal)*
- *Describe all data fully, and support a small and well-chosen set of interoperability protocols*
- *Develop tools and interfaces to find, acquire, process and visualize data*
- *Build national grid infrastructure to host the data, tools and interfaces*

Skycat Astronomical Catalogue Viewer



Current database

Help

Define Cone

RA h:m:s (eg 12:45:00) or decimal degrees(eg 180.0)

Dec d:m:s (eg -45:45:00) or decimal degrees(eg -45.0)

Radius degrees

Define Box

Define Ranges

Select Columns **Active**

Sorting

Records **Active**

Submit

Format of results

See the 'Help' section for more information about Java Web Start



Skycat is a software product of the Australian Virtual Observatory. To report errors, suggest enhancements, or to find out how to submit your catalogue for hosting in Skycat, please email skycat@aus-vo.org

06)

ant data

$>10^9$

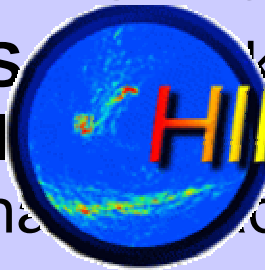
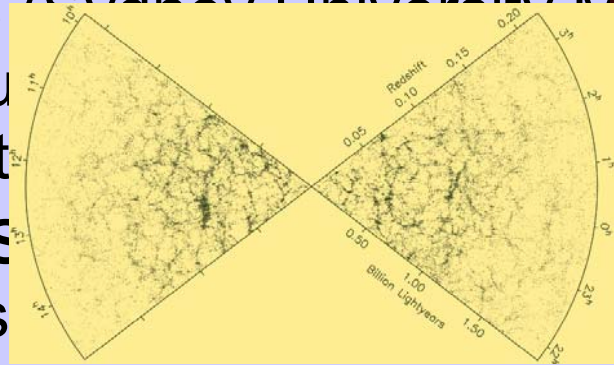
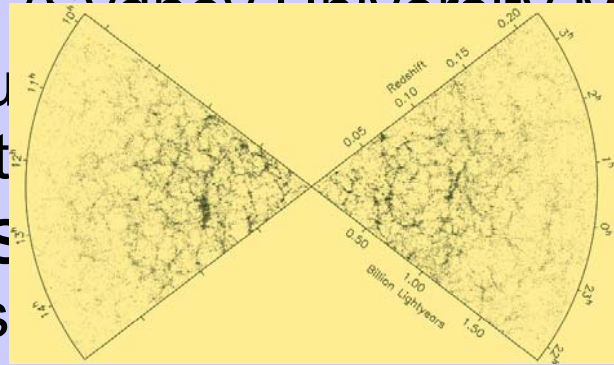
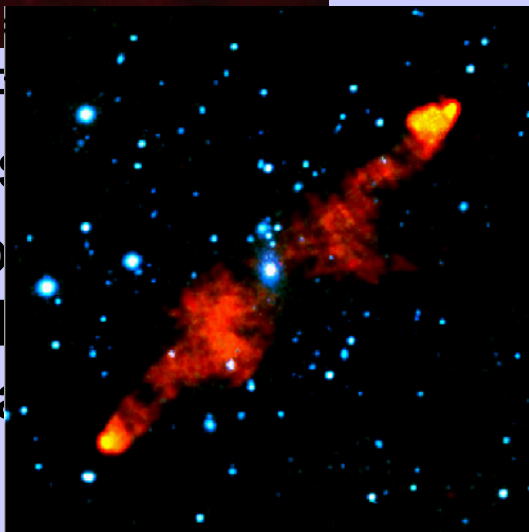
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Aus-VO: Archives

□ Common format on-line archive projects:

- **HIPASS** (HI Parkes All Sky Survey) – HI 21cm emission line spectral line survey, 4500 sources, 1024-channel radio spectra

- **SUMSS** (Sydney University Multi-beam Sky Survey) – radio continuum survey, 1500 sources, 1500 parameters

- **2dFGRS** (2-degree Field Galaxy Redshift Survey) – optical survey, 1500 sources, 1500 parameters

- **ATCA archive** (Australia Telescope Compact Array) – all observations since 1988, circa 1.5 TeraBytes, separate observing projects! Substantial metadata describing data with metadata.

- MACHO, RAVE, Pulsar timing archives, Gemini archive, **SkyMapper**, and more still to come!

The Australia Telescope Online Archive

□ ***Consists of:***

- ***All ATCA data since 1990, totalling 1.9 Tb, covering over 1000 projects***
- ***Data reduction pipeline for ‘quick and dirty’ images***
- ***Remote visualisation system for image display***

□ ***People:***

- ***Peter Lamb, Tara Murphy, Anil Chandra, Praveena Tokachichu, Chris Owen***

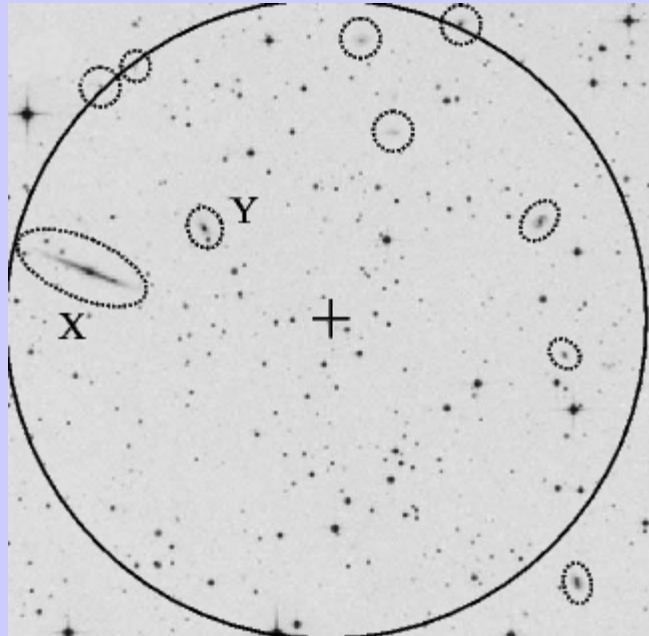
□ ***<http://atoa.atnf.csiro.au/>***



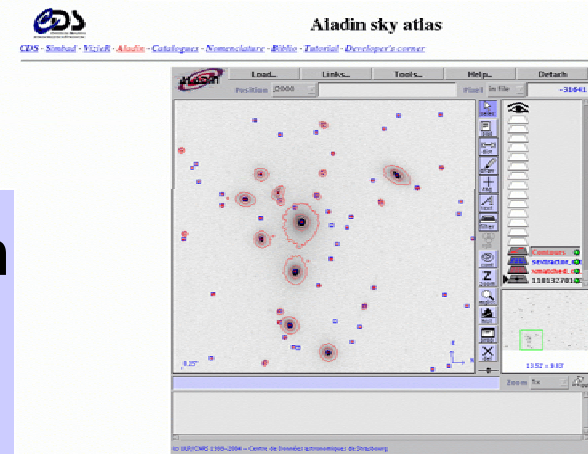
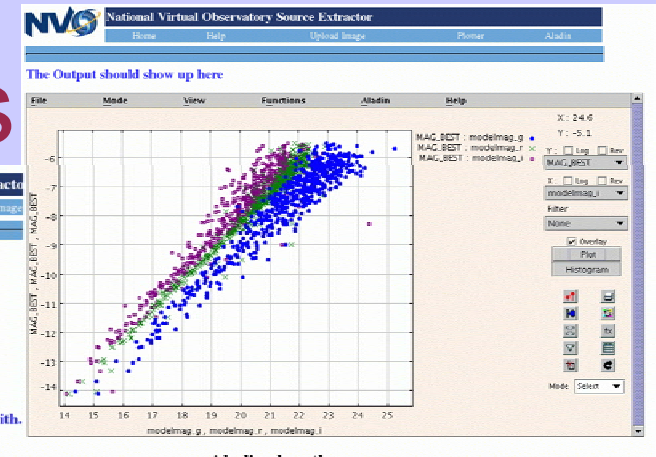
Aus-VO: Problems

- What do we do?
 - Vast extent of infrastructure and technology to develop
 - Very limited number of Australian researchers
 - Contact between astronomers and IT/grid experts still limited to senior personnel
- Who does it?
 - PhD students and postdocs have limited science outcomes, has impact on future employment prospects
 - Senior researchers have teaching/grant-writing/research commitments of their own
- How can we contribute?
 - Develop modular webservice tools, to be incorporated in existing environments (such as AstroGrid)
 - Careful selection of services allows immediate scientific results, as well as resource for subsequent services

Aus-VO: Planned Tools



Tools:
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 orpho
 s tools.
 ing, **SVM-tech**
 network



- Data reduction pipelines for:
 - Molonglo Observatory Synthesis Telescope
 - **AT Compact Array archive**
 - Gemini, for Australian-used instruments
- Portal for theoretical astrophysics jobs:
 - configuration and execution
 - monitoring
 - result retrieval and initial analysis and display

Aus-VO: Links

- **Aus-VO:**
- **ATNF VO projects:**
 - **RVS:**
 - **ATOA:** [**atoa.atnf.csiro.au/**](http://atoa.atnf.csiro.au/)
 - **Pipeline:**
- **Skycat:** [**services.aus-vo.org/skycat/**](http://services.aus-vo.org/skycat/)
- **Macho data portal:** [**www.macho.anu.edu.au/Data/MachoData.html**](http://www.macho.anu.edu.au/Data/MachoData.html)