

# MERLINImager – developers' view

Anita Richards December 2006

- ★ The old way
- ★ MERLINImager
  - ⊙ Interface
  - ⊙ Workflow
- ★ Strengths
- ★ Weaknesses
- ★ Future

MERLIN Archive Visibility Data Retrieval Form - Mozilla

# MERLIN Archive Visibility Data Retrieval Form

Release 2.1 Jan 2006

Use this form to extract automatically generated visibility data from the MERLIN Archive. At present, most L- and C-band continuum data (around 1.4 and 5 GHz) taken between 1993-1999 inclusive are available. The data will be retrieved as a multi-source FITS file (SPLAT) exported from AIPS for the field requested in each processing block (up to one month long). Up to five data sets will be supplied per query. Associated calibration sources and solution, flag etc. tables will be included. The data for the field alone will also be written out as a single-source, single channel FITS file with any relevant calibration applied. See the [archive query form](#) for the source originally observed and the [MERLIN page](#) for more details and other information. Please use the [acknowledgement](#) in any publication.

For further details contact [merlin\\_archive@jb.man.ac.uk](mailto:merlin_archive@jb.man.ac.uk)  
 This is an experimental service so feedback and reports of any problems are welcome.

After submitting the complete query you will be directed to a page which provides instructions. Data extraction may take 2 min - hours depending on the amount of data. We will email you when you can download your data.

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**Obligatory:**

Enter in format 23.05.00000423.000000 (sexagesimal) or R.A. and Dec. 358.7640917 28.633625 (degrees)

Enter in format 23.05.00000423.000000 (sexagesimal) or R.A. and Dec. 358.7640917 28.633625 (degrees)

in Equinox  Enter J for J2000 or B for B1950 (default J)  
 or  
 Source name  *If used, must be exact name used for MERLIN observations*

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**Optional** (leave defaults if wished, do not leave blank)

Field size (arcsec)  If you request a field of view <21 arcsec diameter at a position closer than 11 arcsec to the original pointing centre, data will be squashed to a single frequency channel; for wider fields multi-channel data will be supplied. The maximum MERLIN field of view is a few tens of arcmin, depending on frequency and configuration.

Frequency and frequency tolerance  Enter in format 1420.0 100.0 (MHz) or leave default for all available bands: 1370-1430 MHz or 1550-1730 MHz (L-band) 4500-5200 MHz or 6000-7000 MHz (C-band)

Start and end times  Use format YYYYMMDD or leave default for all epochs (most L- and C-band continuum data from 1993-1999 inclusive is available and an increasing amount outside those dates).

**MERLIN 2005**

**Web forms:**

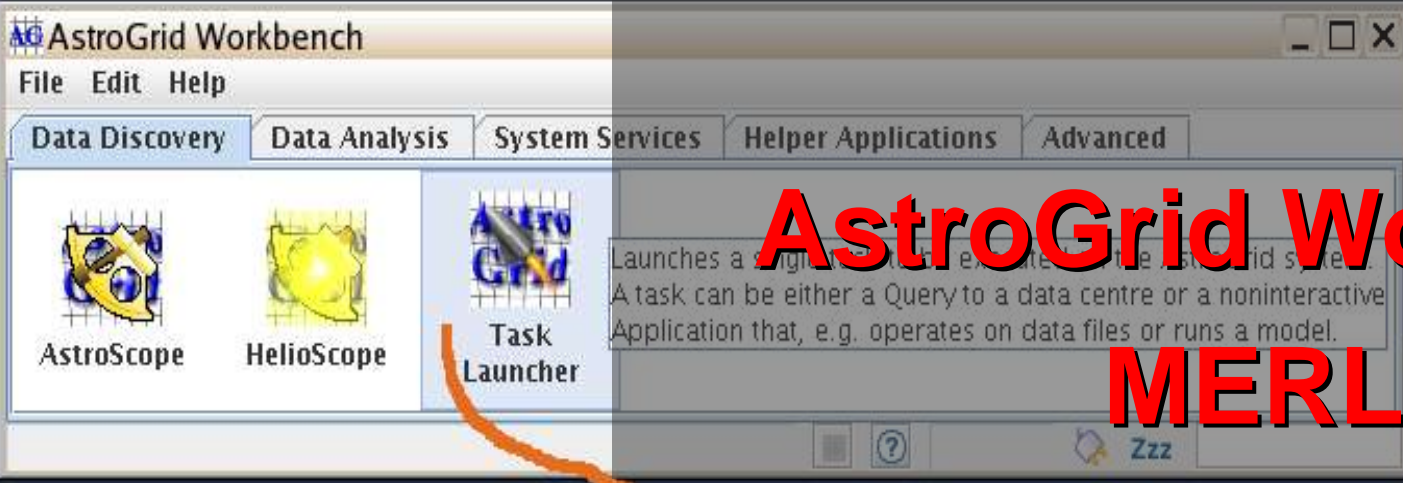
**Static images**

**Calibrated visibility data**

- \* POPS AIPS cal pipeline
- ☼ perl for DB access, strategy
- ☼ manual flagging
- \* L & C (1.4, 5 GHz) continuum
- \* Visibilities live on disc
- \* Sample products
- \* SPLITs for DIFMAP
- \* Even PIs use for first look
- \* User version of pipeline
- ☼ AIPS procedure

2006

# AstroGrid Workbench MERLIN Imager



*Simple  
inputs  
Name/  
Pos  
(Size  
ResIn  
Freq  
Date)*

**Task Launcher - MERLIN Imager**

File

Created by Astrogrid

**Chooser**

Query

**Parameter**

XML

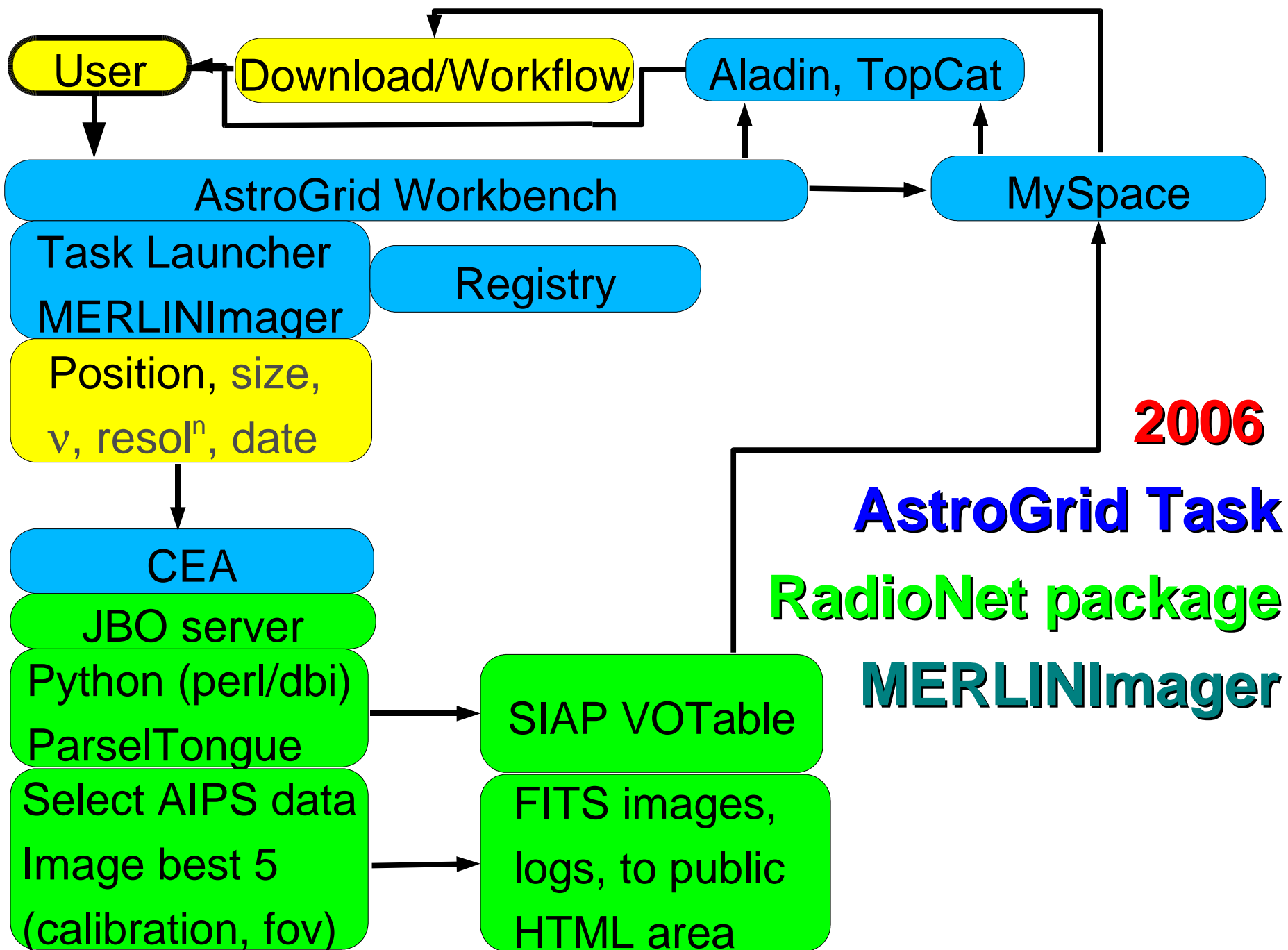
Info

Security

Inputs		Name	Value	...	...	...
RA	0.0					
Dec	0.0					
Equinox	J					
MERLIN name	HMSGE					
Frequency	5000					
Ftol	5000					
Image Size	1					
Resolution	0.1					
Start	19910101					
End	20201212					

Outputs:		Name	Value	Ref?	Rep?	Del?
MERLIN Images List	ivo://uk.ac.le.star/anitarichards/MERLIN/HMSGE.vot			<input checked="" type="checkbox"/>		





# Current Problems

- ★ Very high resolution > sparse sky coverage
  - ✿ At present only a separate web site lists positions
  - ✿ Observing log in Vizier (but out of date)
  - ✿ Need to link MERLIN database to DSA
  - ✿ Need to describe coverage suitably
- ★ Validate use input - OK!
  - ✿ But error messages inside VOTable
- ★ Make sure 'completed' message not premature
- ★ AIPS limitations:
  - ✿ Lock file to prevent clashes on same data set - flaky
  - ✿ Only 6 AIPS processes at a time
  - ✿ Queuing system – but it doesn't work yet
- ★ Need to convert cal stages POPS to parseITongue

# Future

## ★ Other data products

- ☼ Polarization icubes'

- ☼ Visibilities

  - ★ Time variability e.g. X-ray Binaries

## ★ Automate flagging

## ★ Other frequencies (but more judgement needed)

## ★ Spectral line data

- ☼ Broad channels – easy up to stage of finding the line

  - ★ Possible using python to examine target bandpass data?

- ☼ Narrow-band – need to choose good data for  $v$  offset

- ☼ Can now visualise datacubes in Aladin

- ☼ Extract spectra, moments, other products

## ★ Combine with VLA or EVN data

- ☼ We all speak python now!

- ☼ Federate NVSS-FIRST (user demand!)