

# The e-MERLIN pipeline



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## **What it is:**

A pipeline for e-MERLIN data reduction.

Modular: run in stages using an inputs file.

Requires: python, ParseITongue, AIPS and Obit.

## **What it does:**

Loading & sorting

Averaging

Concatenating

Flagmask + flagging

Diagnostic plotting

Calibration (with caveats)

SEFD calculation

## **What it doesn't (yet) do:**

Perfect calibration(!)

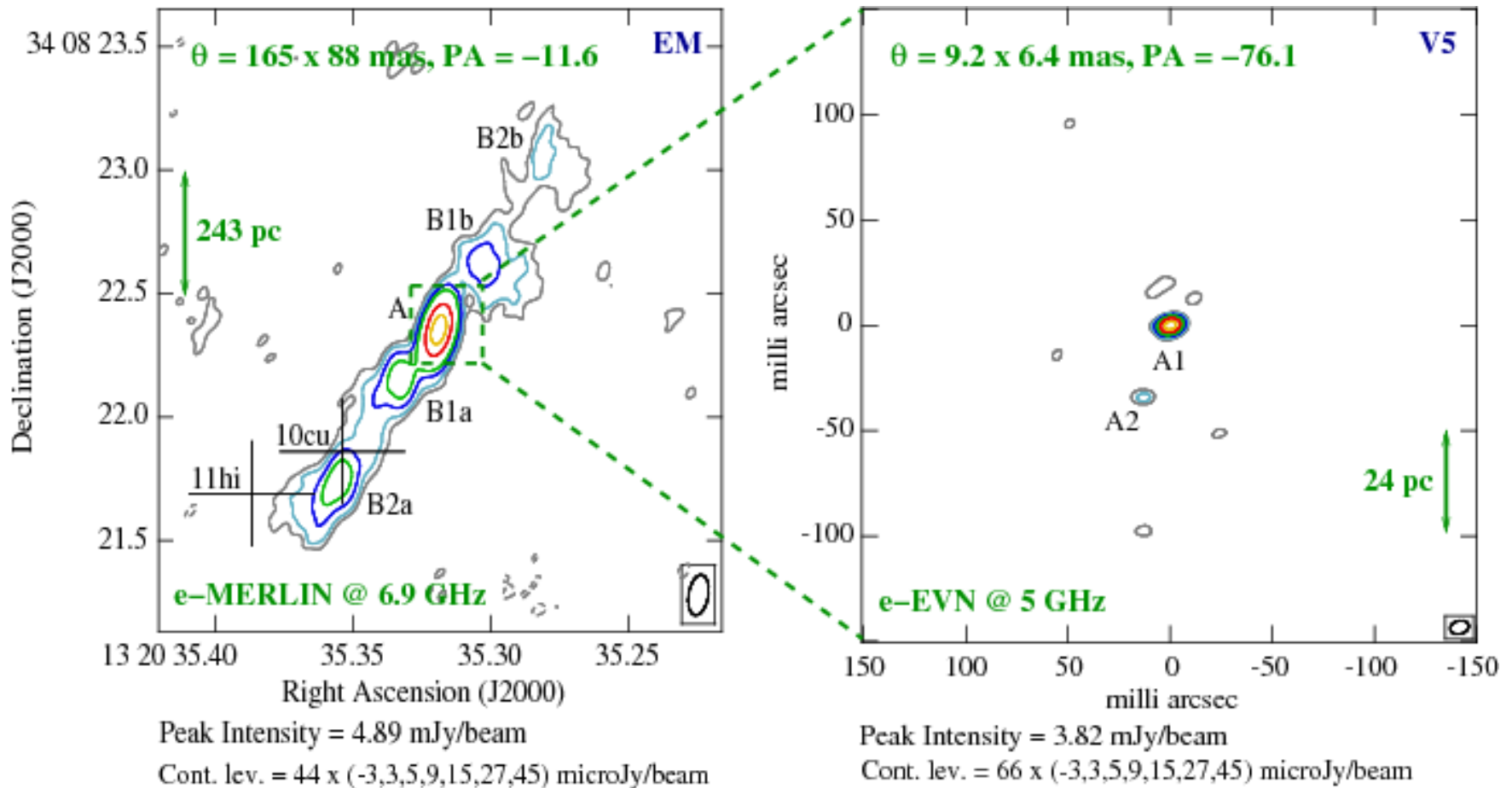
Mixed (line) mode

Multiple source/phcal pairs

Wide-field imaging

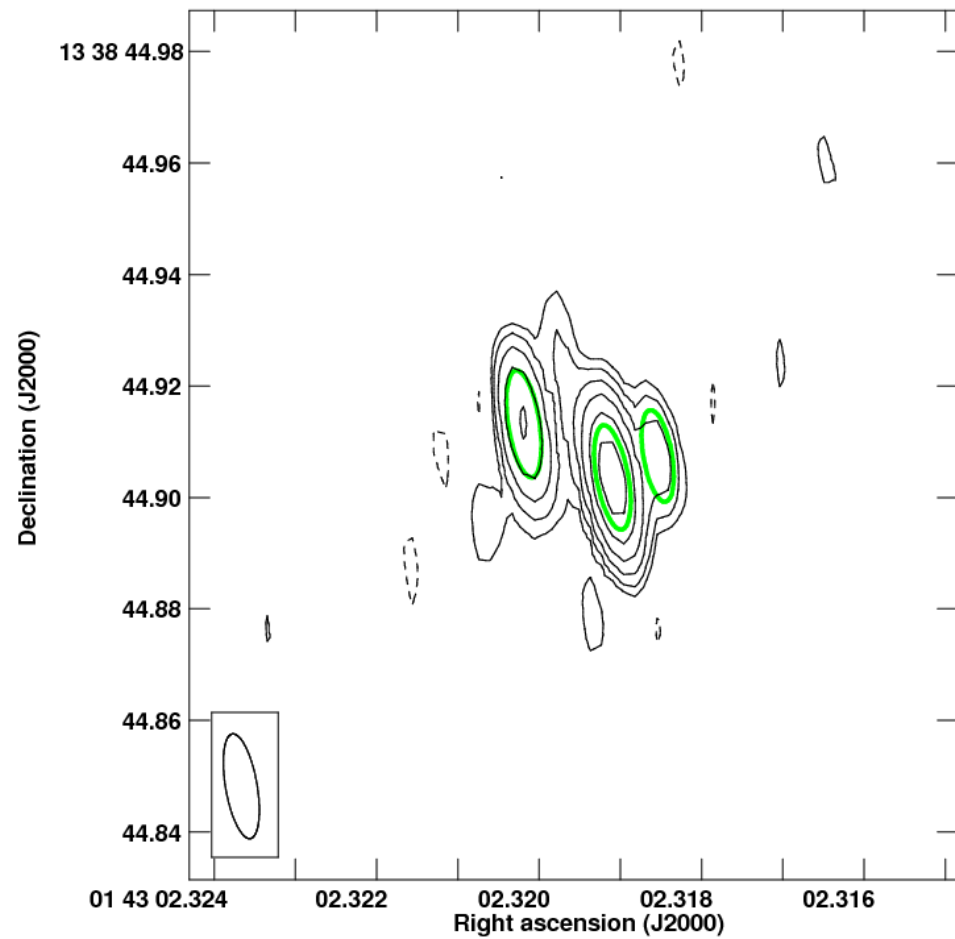
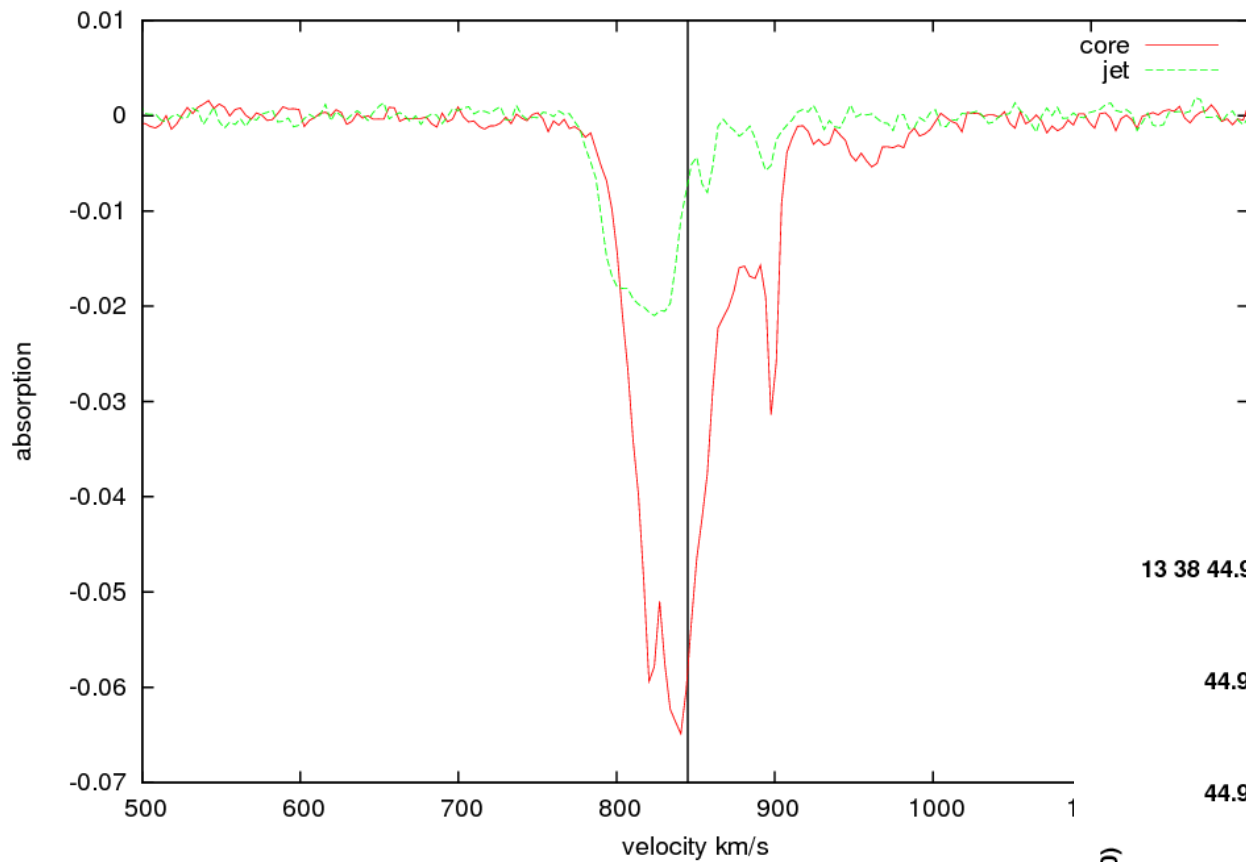
Publication-quality images

# The first published e-MERLIN map:

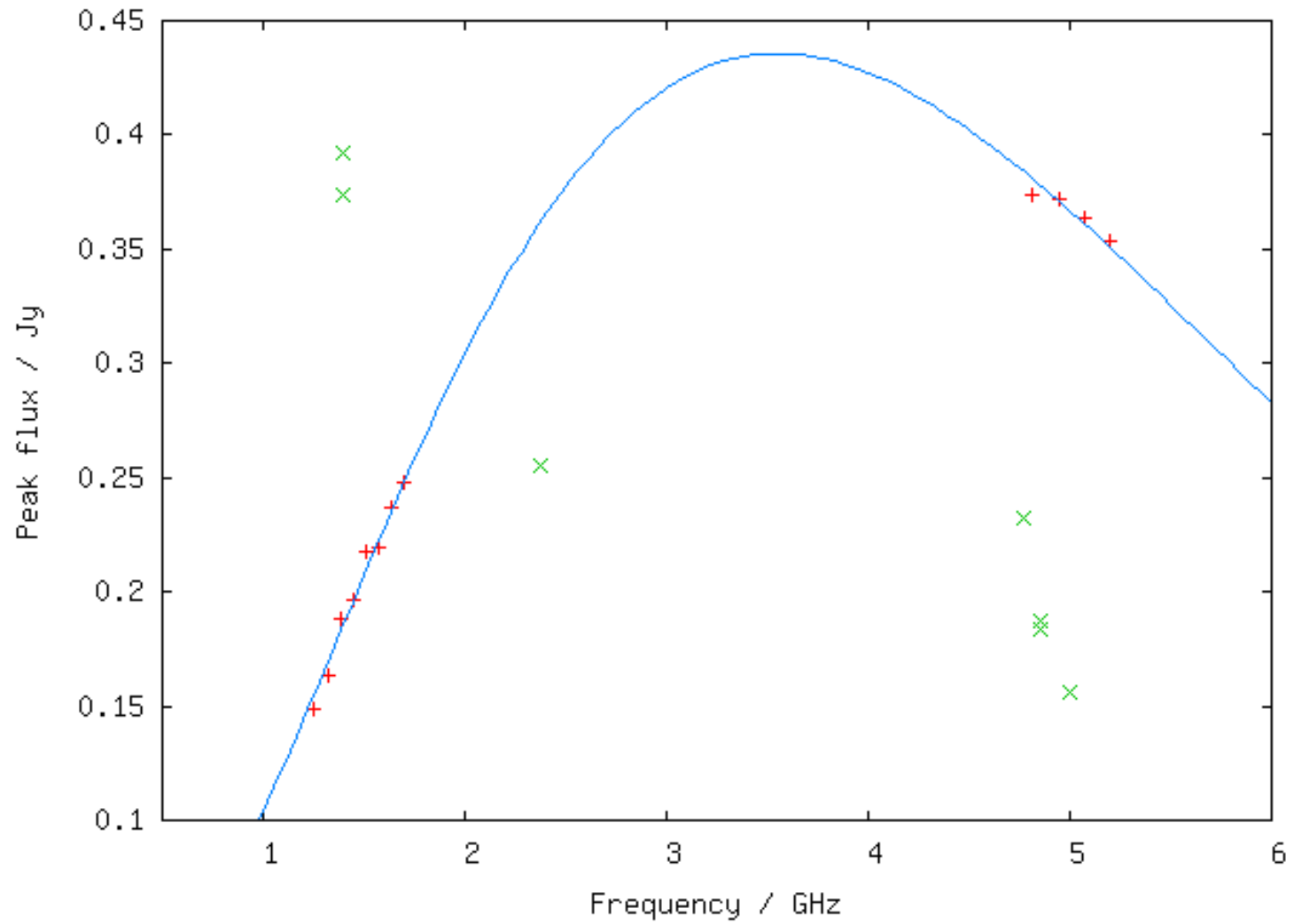


Romero-Cañizales et al A&A 543 72 (2012)

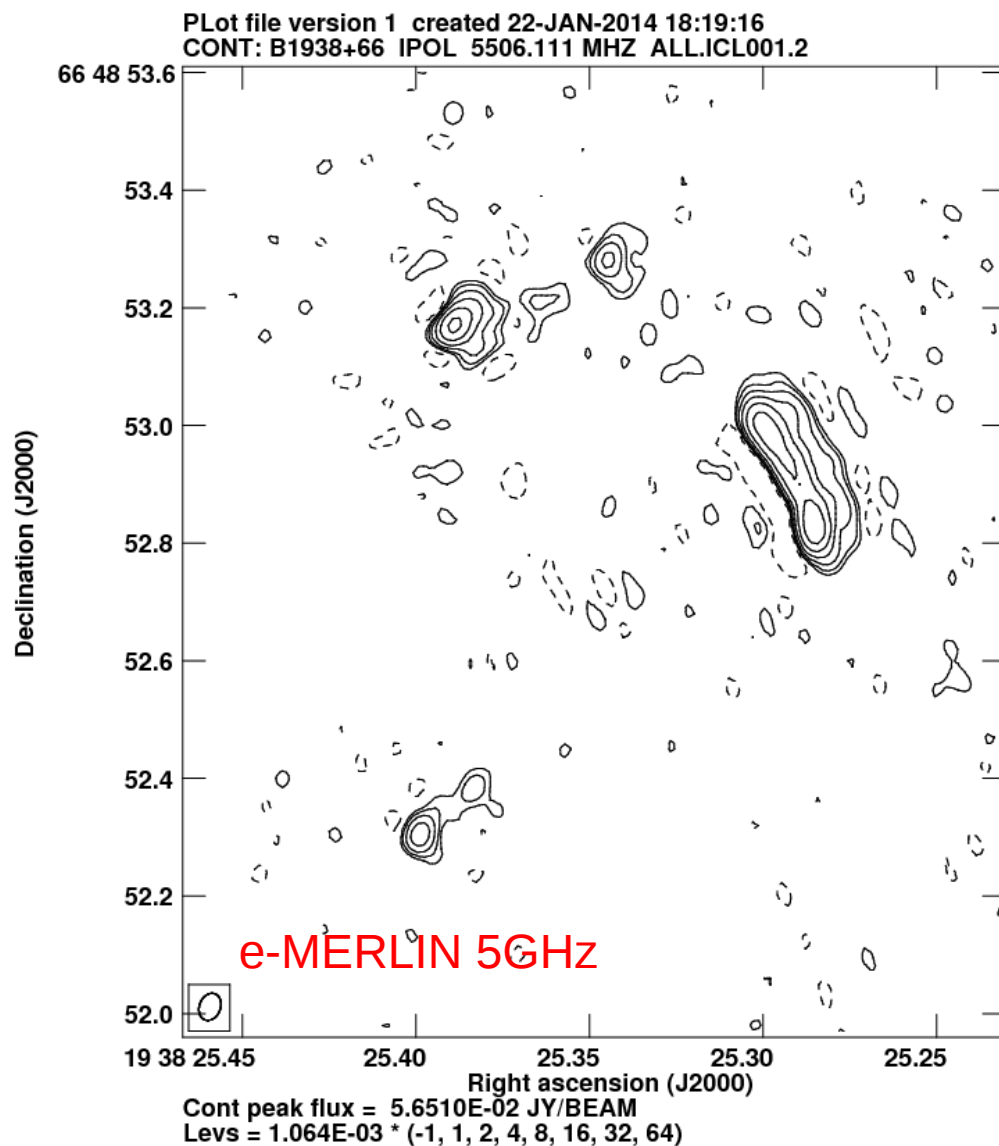
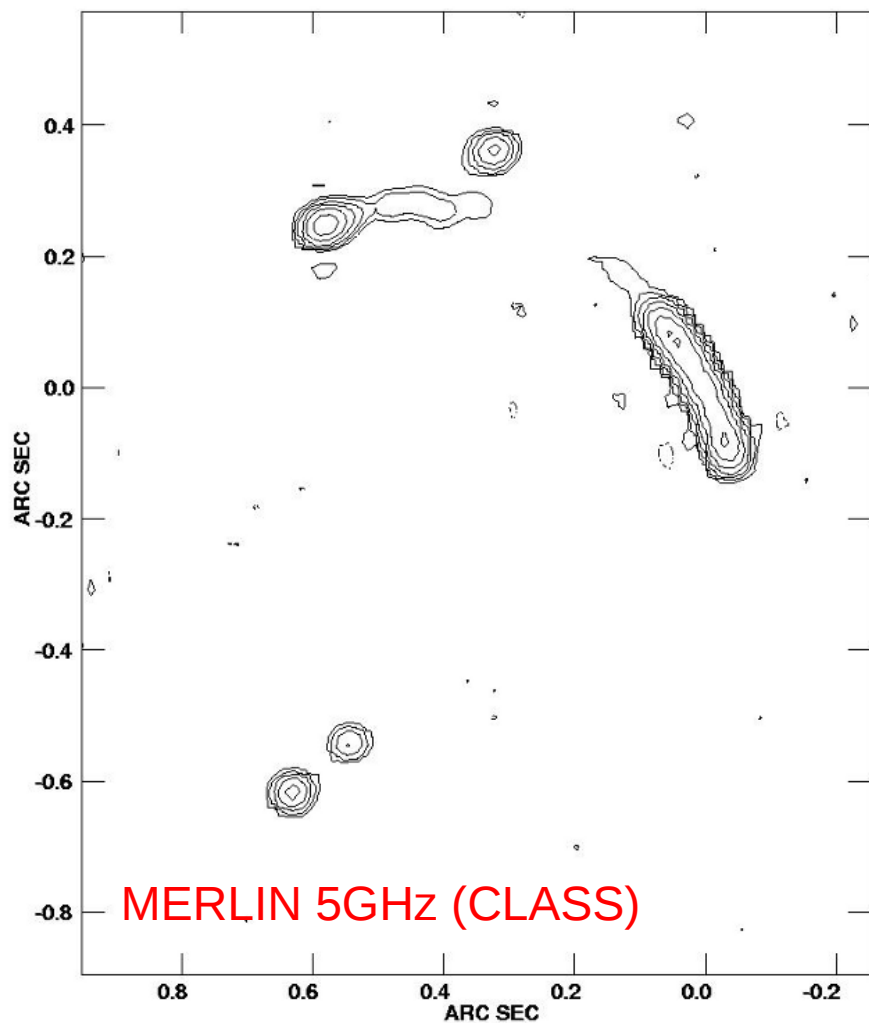
HI absorption against core and jet in NGC660



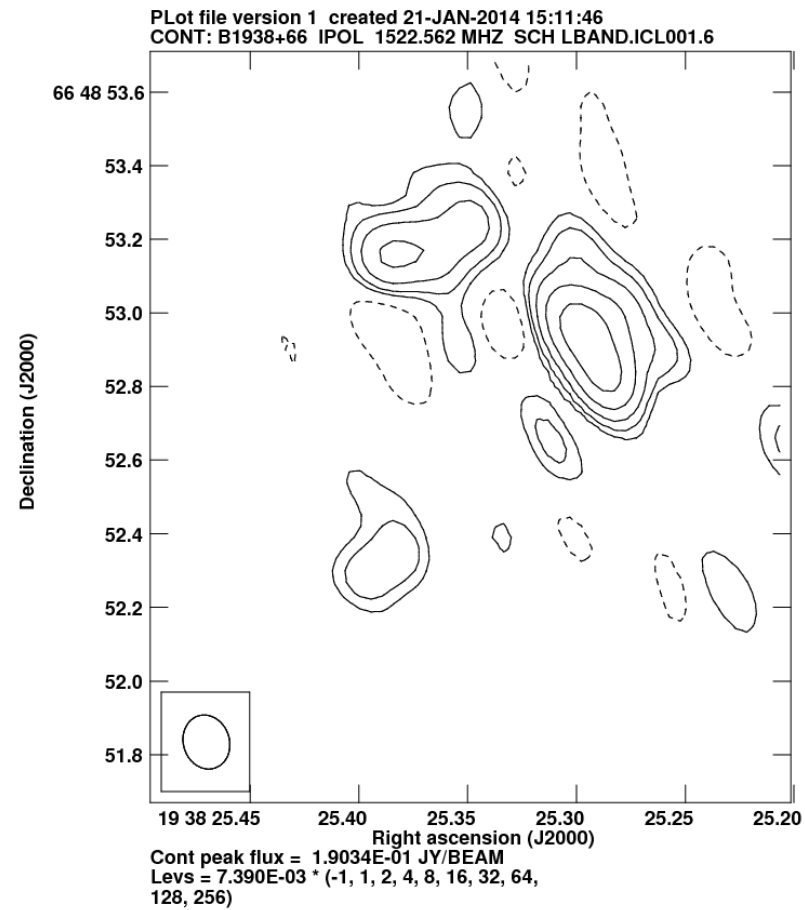
1.5 and 5 GHz e-MERLIN May/June 2013



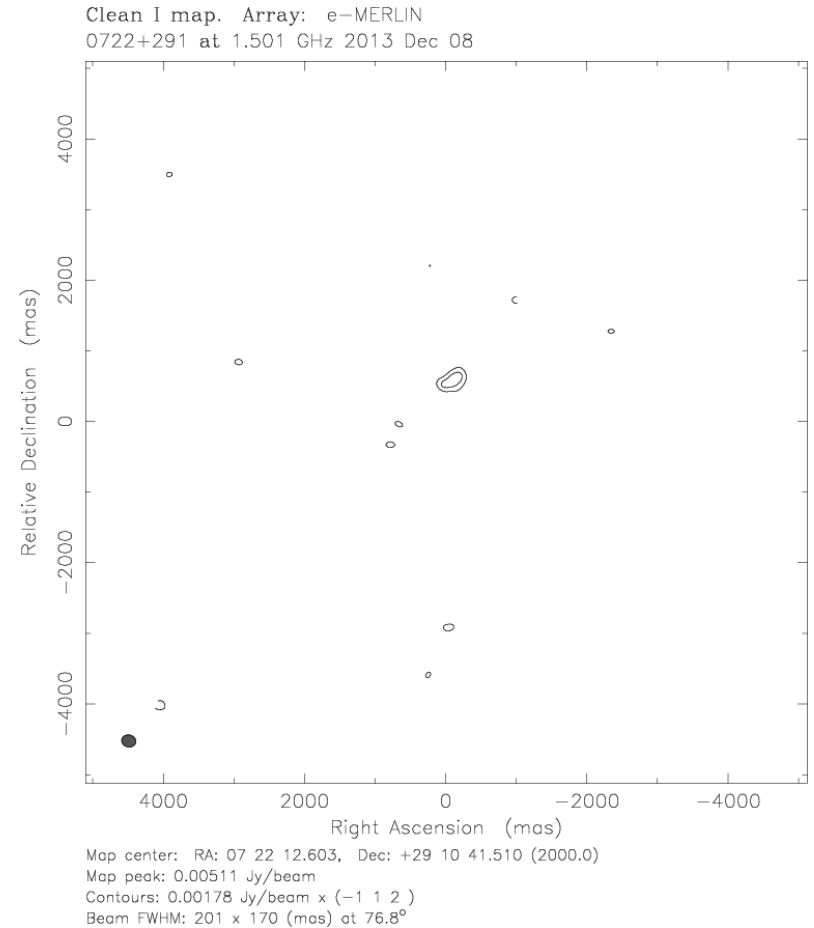
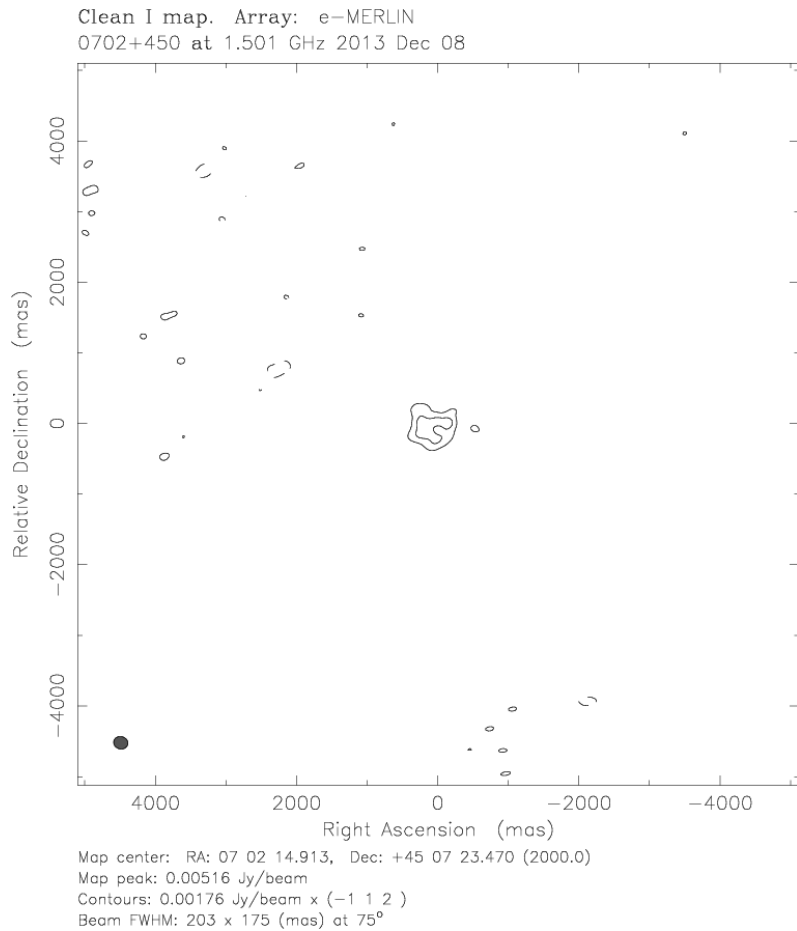
# When you have well-behaved data:



# The same source at L-band



# Those two 12-minute detections:

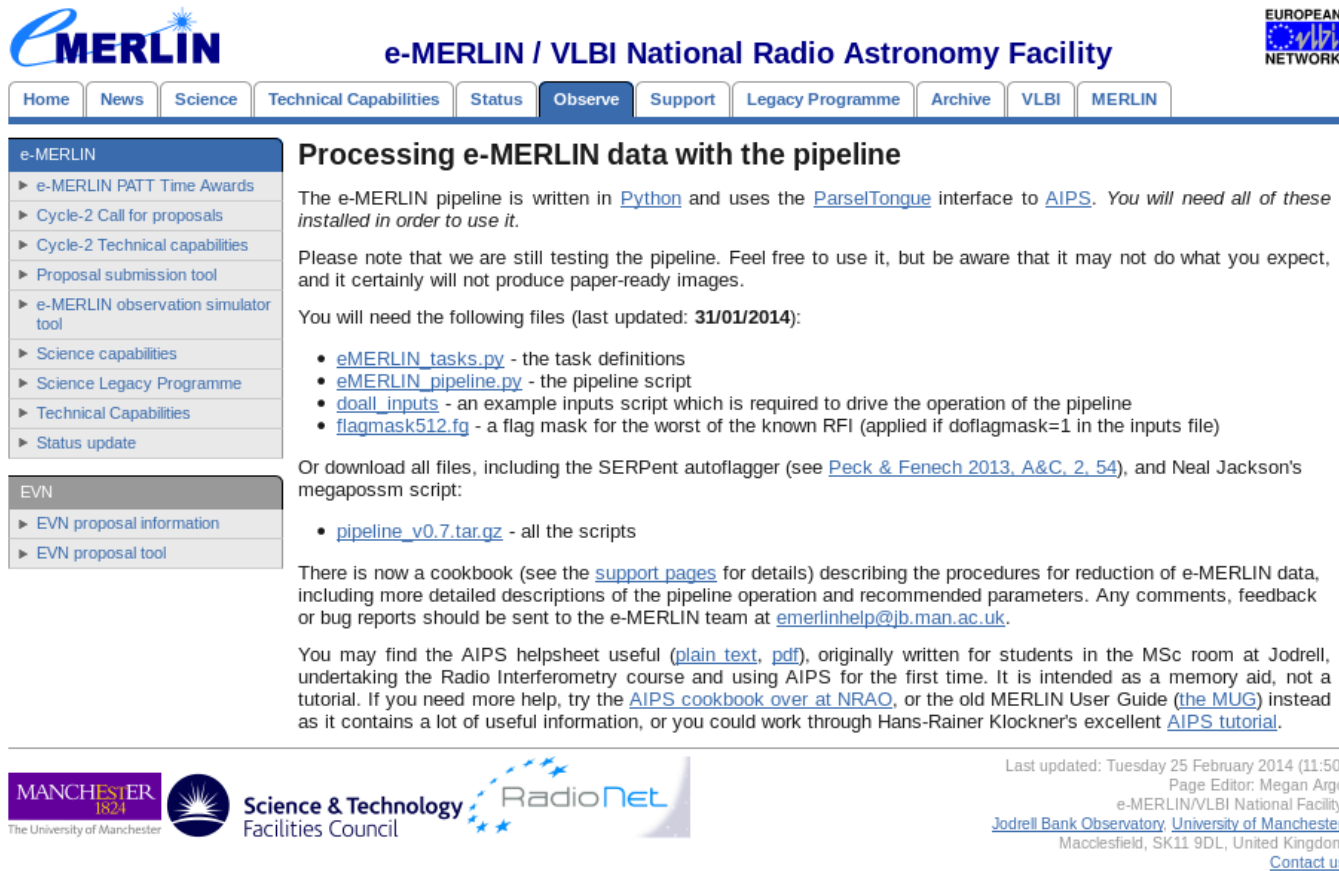


Follow up to Argo et al MNRAS Letters 431 58 (2013)



# Where can I get it?

<http://www.e-merlin.ac.uk/observe/pipeline/>



The screenshot shows the e-MERLIN website interface. At the top, there is a navigation bar with links for Home, News, Science, Technical Capabilities, Status, Observe (highlighted), Support, Legacy Programme, Archive, VLBI, and MERLIN. The main content area is titled "Processing e-MERLIN data with the pipeline". It contains several paragraphs of text and a list of files for download. On the left side, there is a sidebar menu with categories like e-MERLIN and EVN, each with sub-links. At the bottom, there are logos for The University of Manchester, Science & Technology Facilities Council, and RadioNet, along with contact information and a last updated date.

**e-MERLIN** EUROPEAN VLBI NETWORK

**e-MERLIN / VLBI National Radio Astronomy Facility**

Home News Science Technical Capabilities Status **Observe** Support Legacy Programme Archive VLBI MERLIN

**e-MERLIN**

- ▶ e-MERLIN PATT Time Awards
- ▶ Cycle-2 Call for proposals
- ▶ Cycle-2 Technical capabilities
- ▶ Proposal submission tool
- ▶ e-MERLIN observation simulator tool
- ▶ Science capabilities
- ▶ Science Legacy Programme
- ▶ Technical Capabilities
- ▶ Status update

**EVN**

- ▶ EVN proposal information
- ▶ EVN proposal tool

## Processing e-MERLIN data with the pipeline

The e-MERLIN pipeline is written in [Python](#) and uses the [ParseITongue](#) interface to [AIPS](#). *You will need all of these installed in order to use it.*

Please note that we are still testing the pipeline. Feel free to use it, but be aware that it may not do what you expect, and it certainly will not produce paper-ready images.

You will need the following files (last updated: **31/01/2014**):

- [eMERLIN\\_tasks.py](#) - the task definitions
- [eMERLIN\\_pipeline.py](#) - the pipeline script
- [doall\\_inputs](#) - an example inputs script which is required to drive the operation of the pipeline
- [flagmask512.fg](#) - a flag mask for the worst of the known RFI (applied if doflagmask=1 in the inputs file)

Or download all files, including the SERPent autoflagger (see [Peck & Fenech 2013, A&C, 2, 54](#)), and Neal Jackson's megapossm script:

- [pipeline\\_v0.7.tar.gz](#) - all the scripts

There is now a cookbook (see the [support pages](#) for details) describing the procedures for reduction of e-MERLIN data, including more detailed descriptions of the pipeline operation and recommended parameters. Any comments, feedback or bug reports should be sent to the e-MERLIN team at [emerlinhelp@jb.man.ac.uk](mailto:emerlinhelp@jb.man.ac.uk).

You may find the AIPS helpsheet useful ([plain text](#), [pdf](#)), originally written for students in the MSc room at Jodrell, undertaking the Radio Interferometry course and using AIPS for the first time. It is intended as a memory aid, not a tutorial. If you need more help, try the [AIPS cookbook over at NRAO](#), or the old MERLIN User Guide ([the MUG](#)) instead as it contains a lot of useful information, or you could work through Hans-Rainer Klockner's excellent [AIPS tutorial](#).

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