VLA Observations of the Ultraluminous X-ray Source in M101

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All error bars are 1sigma unless otherwise noted.

Astronomer's Telegram 311

Radio observations of the ultraluminous supersoft X-ray source in M101
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We report Very Large Array (VLA) observations of the ultraluminous supersoft X-ray source in M101, currently undergoing a strong X-ray outburst (ATEL #305-306). Data taken on 21 July 2004 show no detections at 4.86 and 8.46 GHz, with nominal flux densities at the Chandra position (ATEL #305) of 0.093 +/- 0.033 mJy/beam and 0.007 +/- 0.025 mJy/beam respectively. The 4.86 GHz data at this position are partially contaminated by a nearby (14 arcseconds away) confusing source, CasHII. Removing that source, under the assumption that it is point-like, gives a nominal flux density for the ULX of 0.007 mJy/beam.

The raw and calibrated uv-data, together with deconvolved FITS images and contour plots, are available at http://www.aoc.nrao.edu/~mrupen/XRT/M101ULX/m101ulx.shtml.

The National Radio Astronomy Observatory is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc.

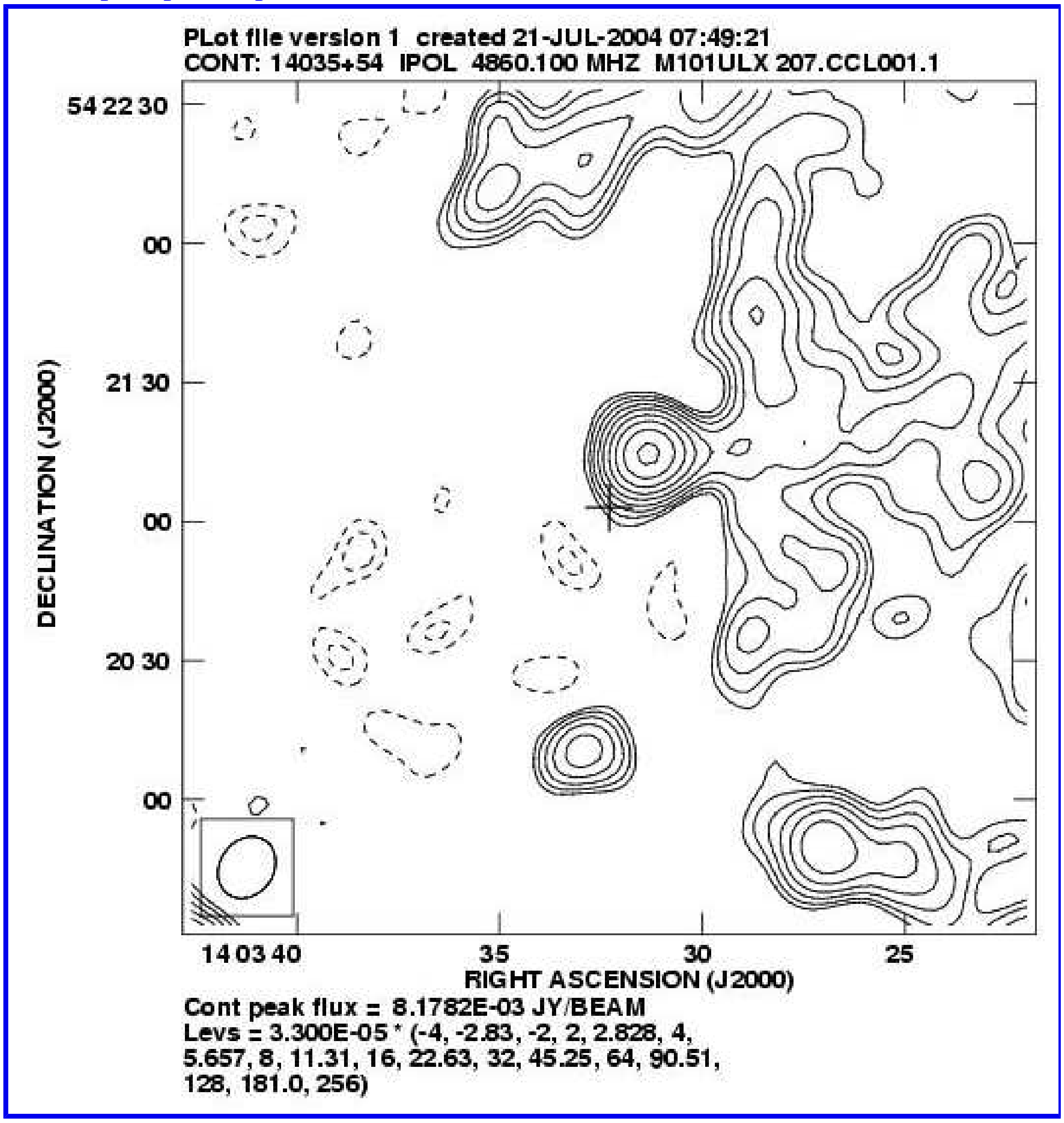
Downloadable data

These data are made publicly available both in raw form, through the VLA archive under project code **AK588**, and as calibrated uv-data and sample images (both in FITS format) through the links below. Please reference ATel 311 if you use the reduced data or plots.

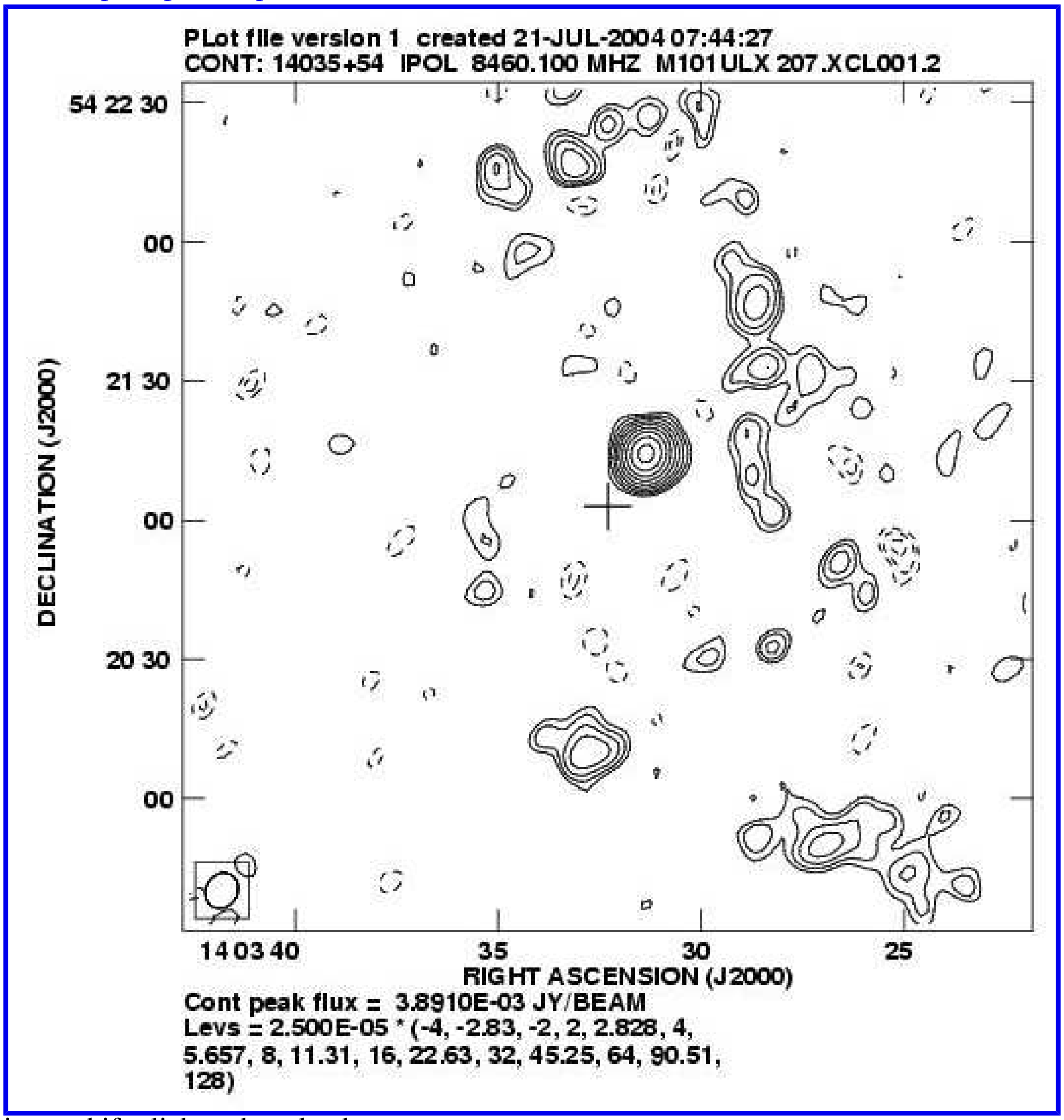
Please note that you may need to shift-click on the links below to write the file to your disk, rather *than simply displaying it in your Web browser.*

The CLEANed images and contour plots presented here have **not** been corrected for the primary beam response. This will not influence the noise/detection level at the position of the ULX. However, it does mean that while the noise level is fairly uniform across the images, the flux density scale is not: sources very distant from the map centers will appear much fainter than they should. The full-width at half-maximum of the primary beam response of the VLA is roughly 9 arcmin at 4.86 GHz, and 5.4 arcmin at 8.46 GHz. See the AIPS EXPLAIN file for PBCOR for more details.

The crosses on the contour plots are 10 arcseconds in diameter, and centered on the Chandra position (see ATel 305). The actual error in the Chandra position should be much less than this, perhaps an arcsecond.

- 21 July 2004 4.86 GHz VLA data:
  - calibrated uv-data
  - CLEANed image (FITS format)
  - contour plot (postscript)
  - 

jpg -- shift-click to download

- 21 July 2004 8.46 GHz VLA data:
  - calibrated uv-data
  - CLEANed image (FITS format)
  - contour plot (postscript)
  - 

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Comments?

Please send any questions, comments, or suggestions to Michael Rupen at the e-mail address given below.

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