

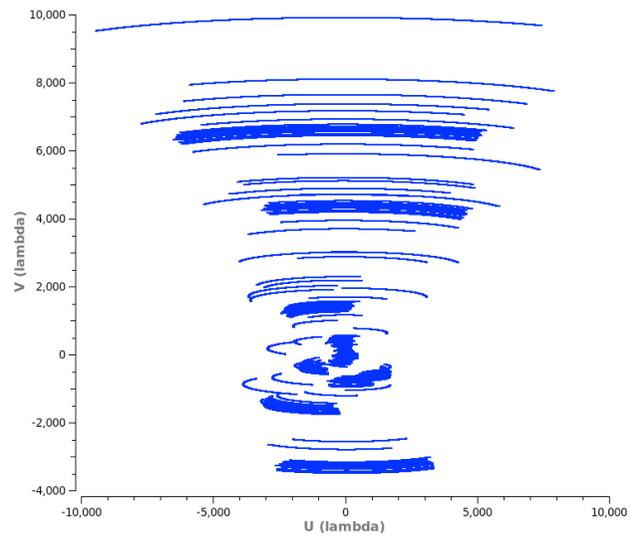
LBA Observations of Hercules A: Preliminary Results

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Hercules A: LOFAR Observations Overview

- LBA Outer:
 - Observed for 6 hours on 15-Jun-2012
 - 15 - 63 MHz
- HBA Low data also taken, but not yet analyzed

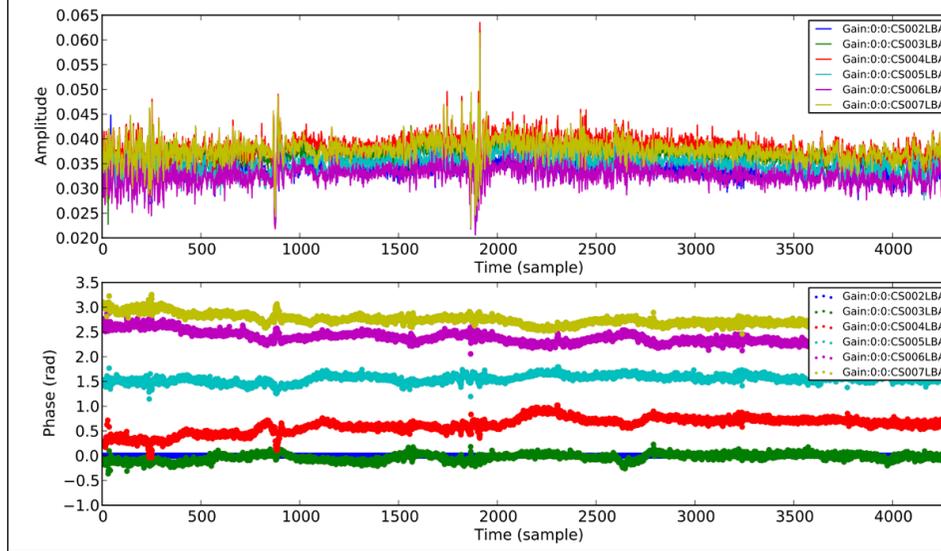
UV coverage at 55 MHz



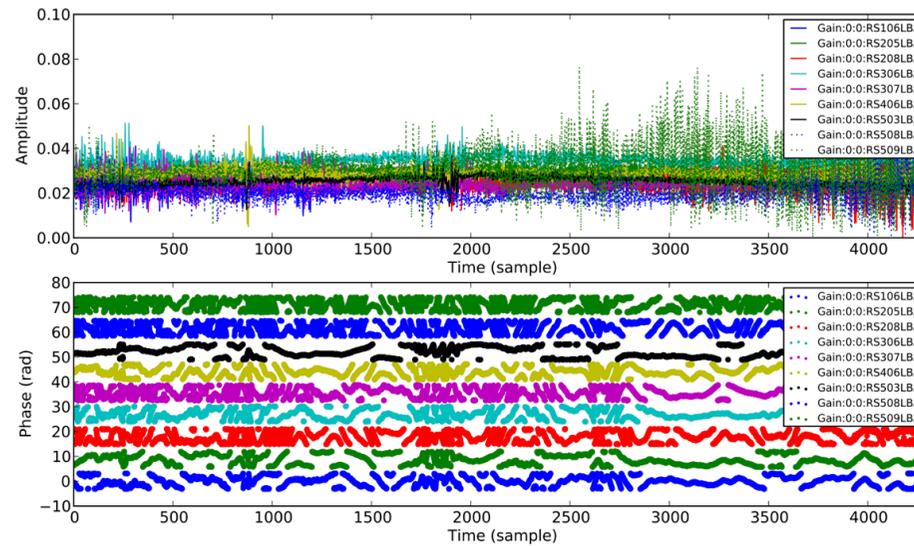
Data Reduction

- Standard pipeline reduction (flagging + demixing + averaging to 1 channel per SB)
- Beam towards phase center removed
- Converted to circular polarization
- Calibrated in BBS:
 - Calibrated on LL and RR, 5 second sol'n interval
 - Model from VLA 74 MHz image (clean components)
- Imaged with Casapy CLEAN

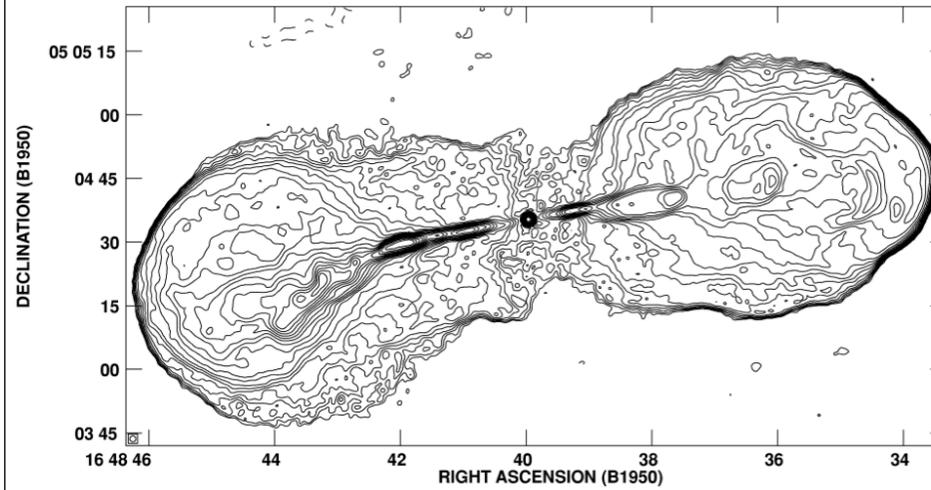
BBS Solutions: Core Stations



BBS Solutions: Remote Stations

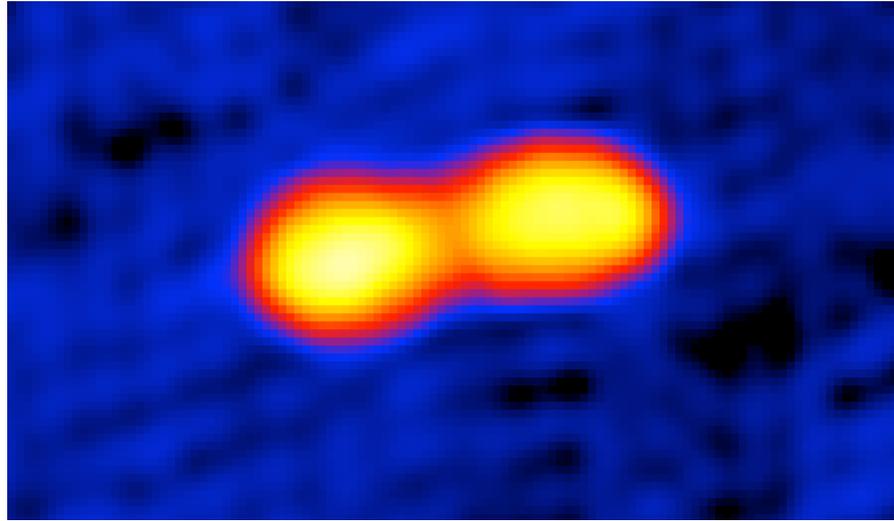


1.4 GHz observation



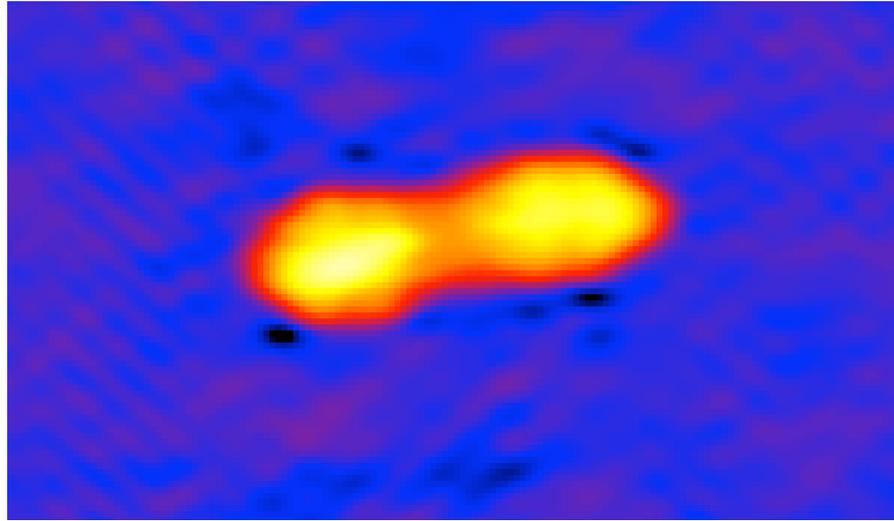
Beam: 1.4×1.4 arcsec; Noise: 0.1 mJy/beam; from Gizani & Leahy(2003)

74 MHz VLA image



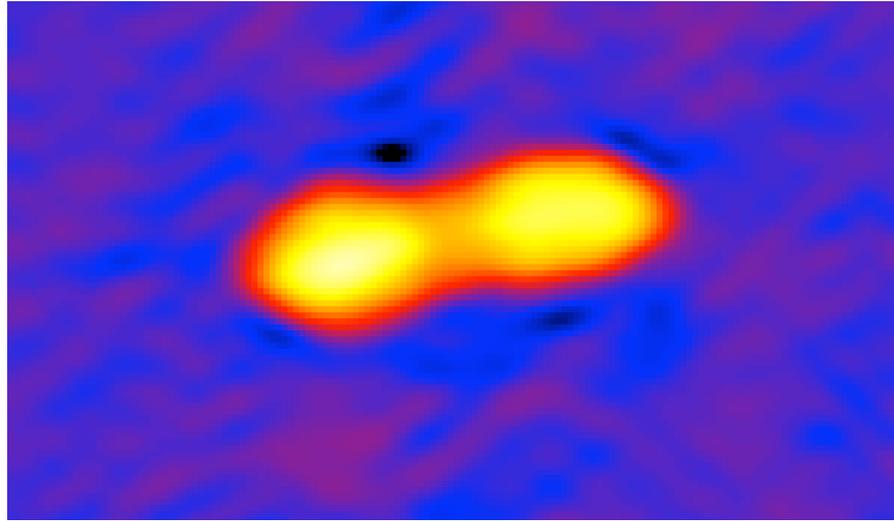
Beam: 25.4×21 arcsec; Noise: 0.14 Jy/beam; from Gizani, Cohen & Kassim (2005)

55 MHz (LOFAR)



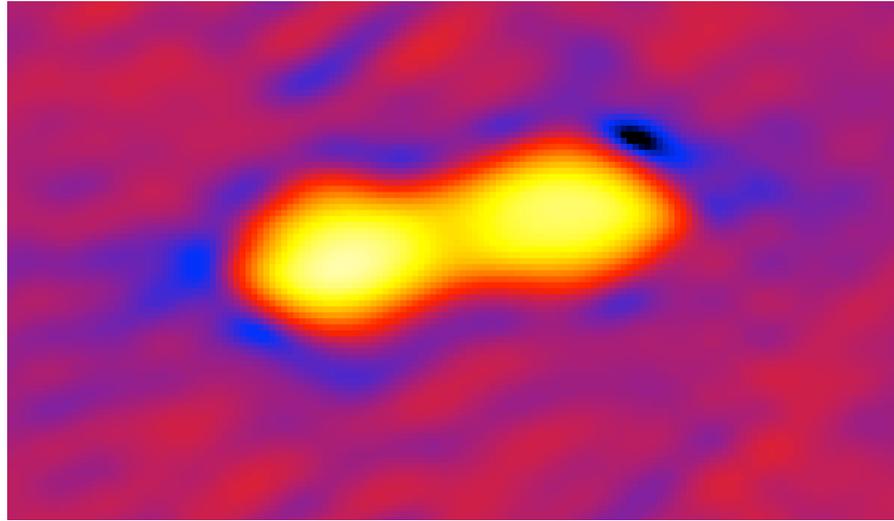
Beam: 21×12 arcsec; Noise: 0.12 Jy/beam; from 16 subbands

45 MHz (LOFAR)



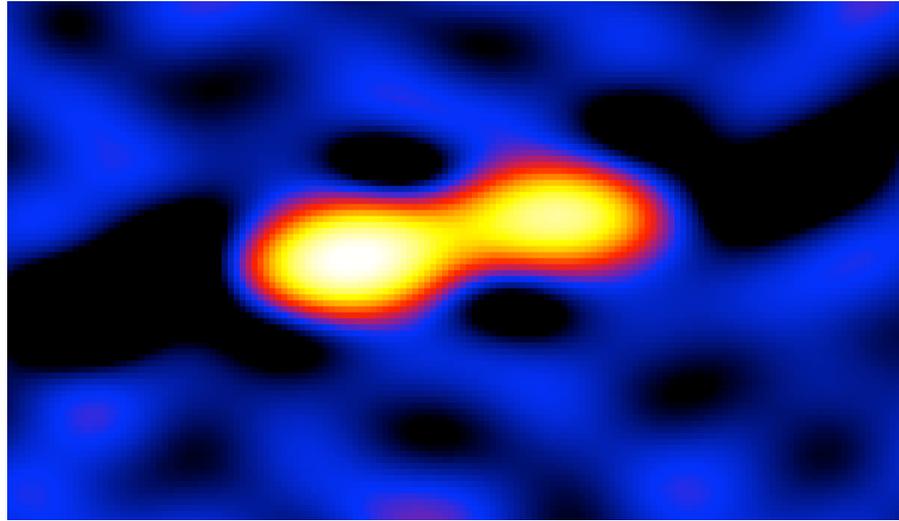
Beam: 26×14 arcsec; Noise: 0.18 Jy/beam; from 16 subbands

35 MHz (LOFAR)



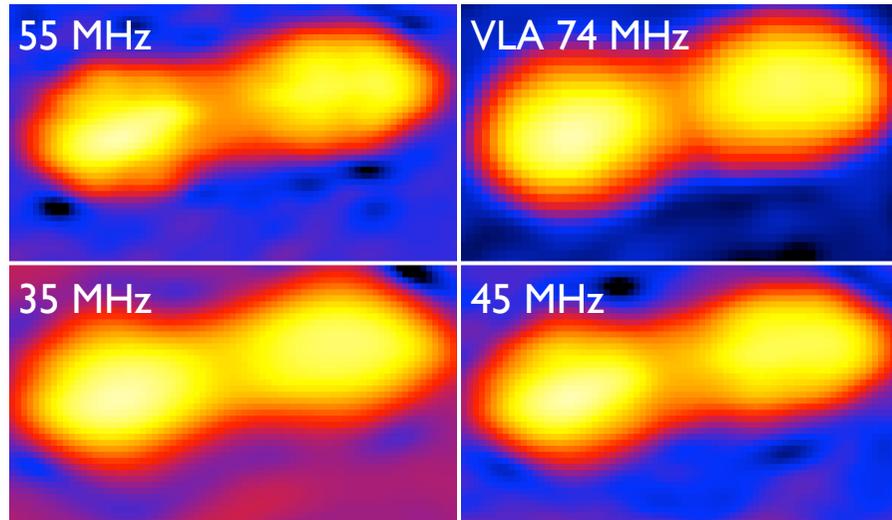
Beam: 34×19 arcsec; Noise: 0.5 Jy/beam; from 16 subbands

17 MHz (LOFAR)



Beam: 65×35 arcsec; Noise: 11 Jy/beam; from 16 subbands

VLA/LOFAR



Summary and Future Work

- Image at 55 MHz exceeds VLA 74 MHz image (Gizani, Cohen & Kassim 2005) in both resolution and noise level
- Useful images to 17 MHz
- In future:
 - Try self-calibration
 - Analyze HBA data