

The Arecibo 305-m Telescope in VLBI



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Proposing VLBI with Arecibo:

Arecibo brings uniquely high sensitivity to VLBI.

The 305-m telescope is available for observing with;

- the VLBA
- the HSA (High Sensitivity Array)
- the GLOBAL array
- the EVN (of which Arecibo is an associate member)

Submit proposals to the usual addresses and deadlines for these Networks, giving special justification for the inclusion of Arecibo.



Telescope Specifications:

- Diameter: 305 m (1000 ft)
- Longitude: $66^{\circ}45'W$; Latitude: $18^{\circ}20'N$
- Declination Range: $-1^{\circ} < Dec < +38^{\circ}$
- Frequency Range: 300 MHz – 10 GHz
- Surface Accuracy: ~ 2 mm (rms)
- Pointing Accuracy: ~ 5 arcsec (rms)

Available Receivers:

- 312 – 342 MHz (10 K/Jy)
- 422 – 442 MHz (11 K/Jy)
- 1.1 – 1.7 GHz (10 K/Jy)
- 1.8 – 3.1 GHz (10 K/Jy)
- 3.0 – 4.0 GHz (9 K/Jy)
- 3.9 – 6.1 GHz (8 K/Jy)
- 5.9 – 8.1 GHz (6 K/Jy)
- 7.8 – 10.2 GHz (5 K/Jy)

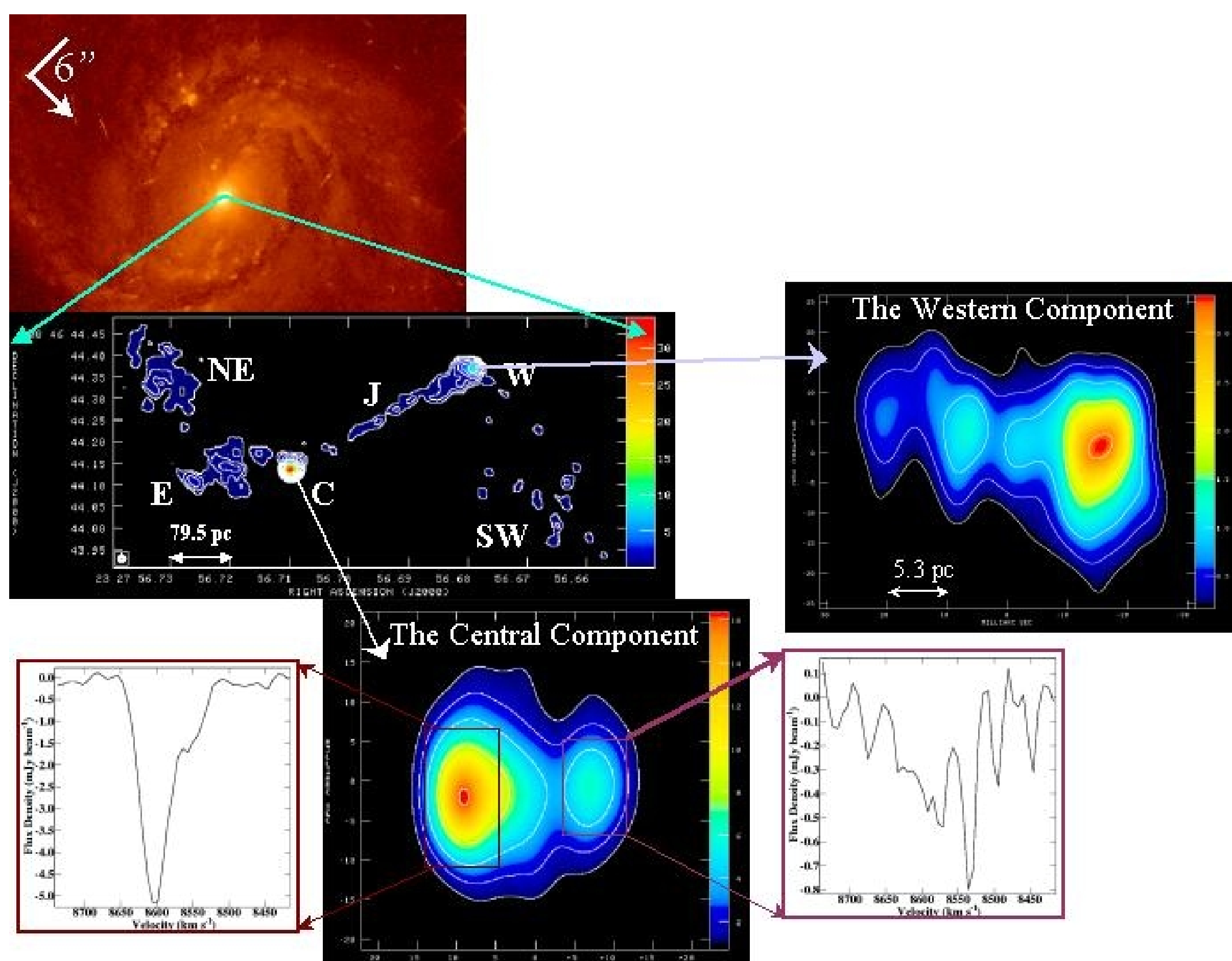
(System Sensitivity in K/Jy is given in parentheses.)

System Equivalent Flux Densities are in the range

SEFD = 2.5 – 5 Jy

For more details, see;

<http://www.naic.edu/~astro>



Sy-2 nucleus of LIRG. NGC 7674, observed with VLBA + Arecibo. HI absorption found towards the C, E & NE components, but not towards J, W & SW, reveals a rotating disk/torus associated with the central AGN. (Momjian, Romney, Carilli & Troland)

Recent History:

1997-2001: 44 runs in HALCA (VSOP) mission.

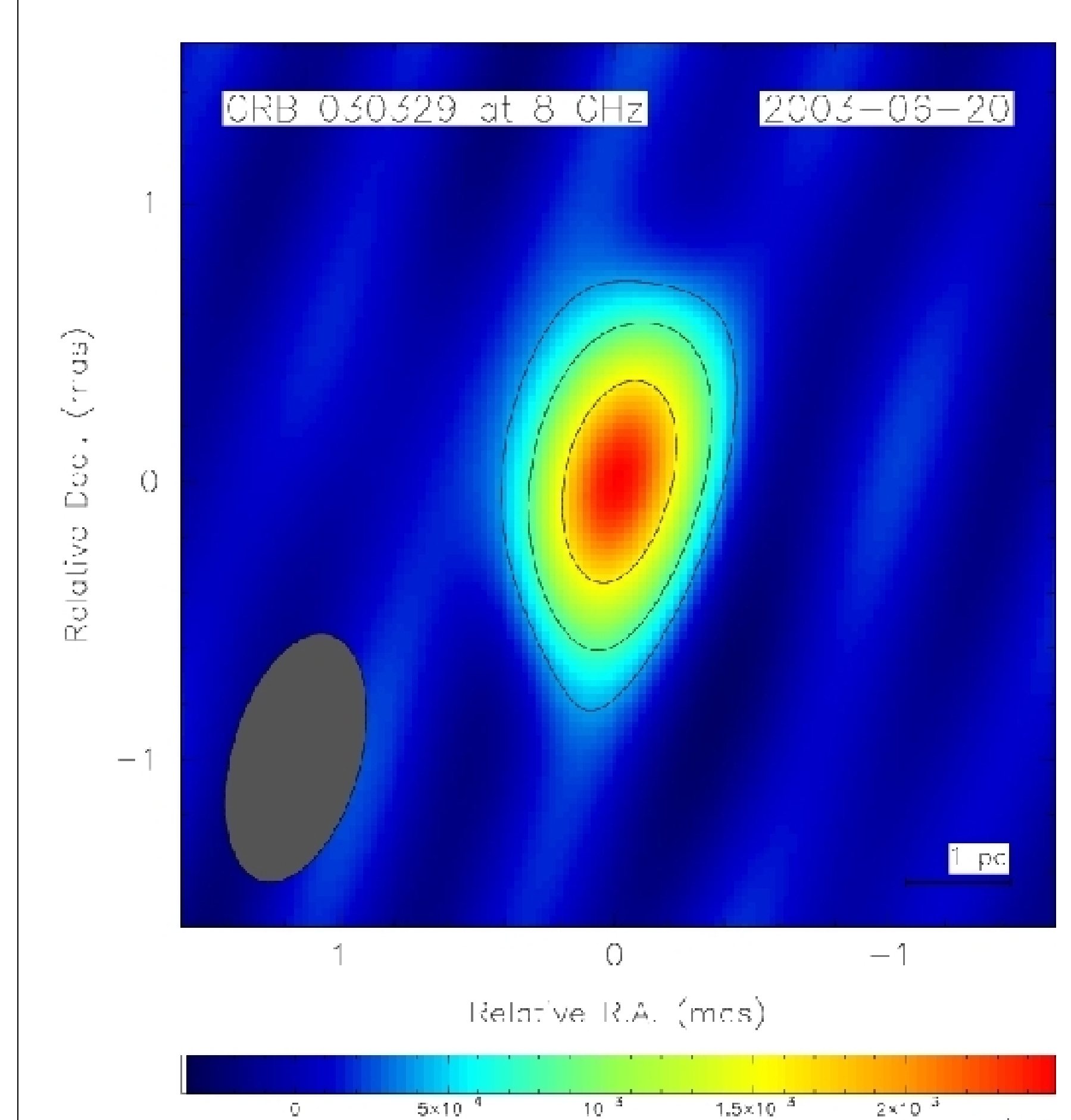
2001: Received VLBA4 acquisition system allowing data rates up to 512 Mbps.

2004: Delivery of Mark-5A disc recorder permitting 1 Gbps recording.

2005: First transatlantic eVLBI (32/64 Mbps); longest eVLBI baseline yet (Arecibo -- Torun, PL).

2006: NAIC joins EVN EXPReS program, aiming at 1 Gbps recording by 2009.

2007: Improved internet connectivity (256/512 Mbps) expected by May.



GRB 030329 at 8.4 GHz, 83 days after the burst. This used VLBA, Arecibo, phased-VLA, and phased-WSRT. The resolution is 0.5×1.0 mas, and the peak flux density 3 mJy. (Taylor, Frail, Berger & Kulkarni.)