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°45´W; Latitude: 18°20´N
- Declination Range: −1° < Dec < +38°
- 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

Recent History:

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.

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)

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.)