

Medicina Station Status Report

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Abstract General information about the Medicina Radio Astronomy Station, the 32-m antenna status, and the VLBI observations are provided. Updates to the hardware were performed and are briefly described.

1 The Medicina 32-m Antenna: General Information

The Medicina 32-m antenna is located at the Medicina Radio Astronomy Station. The station is run by the Istituto di Radioastronomia and is located approximately 33 km east of Bologna. The Consiglio Nazionale delle Ricerche was the funding agency of the Istituto di Radioastronomia until the end of 2004. Since January 1, 2005, the funding agency has been the Istituto Nazionale di Astrofisica (INAF). The antenna, which was inaugurated in 1983, has regularly taken part in IVS observations since 1987 and is an element of the European VLBI Network.

A permanent GPS station (MEDI), which is a part of the IGS network, is installed in the vicinity. Another GPS system (MSEL) is installed near the VLBI telescope and is part of the EUREF network.

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Medicina Network Station

IVS 2017+2018 Biennial Report

2 Current Status and Activities

- Antenna – In the two year period 2017–2018, antenna maintenance has been carried out by painting the panels of the primary mirror (see Figure 1) and by replacing the rail track. Preventive maintenance has also been done on the second driving wheel, the same maintenance having been done in 2014 on the first wheel. At the same time, the air conditioning system of the rooms located on the antenna was replaced, and the control rooms were completely renovated.
- Receivers – Medicina routinely makes observations in the 18, 21, 6, 5, 3.6, and 1.3 cm bands. A dual-feed receiver is under construction in the 13.5–18 GHz band (2 cm band).
- VLBI back-end – The DBBC firmware version is currently DDC V106 and V106E, PFB v16_1. The release 2.8.1-p of jiveab is currently installed. The Flexbuff system of Medicina has been upgraded with new disks. The capacity available is 360 TB. Medicina has also provided the same amount of TB for the JIVE correlator.
- e-VLBI – Medicina routinely ran e-VLBI experiments and EVN sessions.
- Space VLBI – Medicina continued to participate in Radioastron observations (on average 24 experiments/month).
- Field System – i) The workstation has been upgraded to FSL9. We are running FS 9.11.19. ii) The Continuous_cal system is working for the Cassegrain receivers (6, 5, and 1.3 cm). It was not possible to complete the same job for the Primary focus (21, 18, 13, and 3.6 cm); it will be done in 2019.



Fig. 1 A recent photo of the 32-m Medicina antenna (October 2017).

3 Geodetic VLBI Observations

Despite long periods of maintenance in both 2017 and 2018, Medicina participated in 67 regular 24-hour geodetic sessions: 15 CONT17, ten IVS-R1, 22 IVS-R4, three IVS-T2, six EUROPE, seven R&D, two RDV, and two VITA experiments.