SRT station report

Gabriele Surcis (gabriele.surcis@inaf.it)
Carlo Migoni (carlo.migoni@inaf.it)
Sergio Poppi (sergio.poppi@inaf.it)

This report covers the period between February ‘22 - January ‘23

Antenna

SRT cannot be offered during semester 2023A (1st January - 31st June 2023) and semester 2023B (1st July - 31st December 2023) due to the planned work for its upgrade at higher frequency (see https://sites.google.com/a/inaf.it/pon-srt/home). These civil works, which imply the suspension of the observations, are expected to be completed by the end of 2023. However, few observing slots to observe/test with the K- and the new low C-band receivers might be available in the second half of 2023, a final decision will be taken in the next months. According to the official guidelines that have been drawn up, concerning commissioning of the new receivers, we expect to be operational again with the previous receivers (P-, L-, M-, and K-band) by the first semester of 2024. In the first half of 2024, we also plan to start the scientific validation of the triple-band receiver in VLBI mode. New updates to the schedule will be presented in the next station reports.

Receivers

P-, L-, M- and K- band receivers are all available. The hardware required to implement continuous calibration (80Hz) is installed at L-, M-, and K-band. We use it regularly at M-band, L-band, and K-band since session 01/2021.

We remind that the Sardinia Radio Telescope was awarded of one of the grants announced by the Italian Ministry of Education, Universities and Research (MIUR) aimed to enhance research infrastructures, pursuant to Action II.1 of the National Operative Programme (PON)– Research and Innovation 2014-2020.

Thanks to this grant Sr is being equipped with new high-frequency receivers and backends. The new receivers are a simultaneous microwave compact triple-band receiving system (K/Q/W), a multi-beam cryogenic receiver in W Band (75 – 116 GHz), a multi-beam cryogenic receiver in Q Band (33 – 50 GHz), and a millimetre camera (80 – 116 GHz). In addition, a metrology system is also being installed to allow high efficiency performances at the highest operating frequencies. In addition the receivers under development/construction are:

- dual pol, single feed, low C band. Delivery expected by the end of March.
- dual pol, 7 feeds, S band.

The DBBC3 was delivered at Sr at the beginning of October 2021. The new flexbuff of 512 TB was delivered at the end of September 2022 and it has been installed at SRT.

VLBI sessions

Sr did not participate in the session 01/2022, 02/2022, 03/2022 and the e-VLBI sessions of 2022 due to the aforementioned upgrade phase.

VLBI terminal and Field System

Firmware and softwares:

Field System: 10.0.0 at 64 bit

DBBC: DDC (v107_281019), PFB (16)

Fila10G: v4.1_231118

Jive5ab: 3.1.0

Antabfs: antabfs.py

Fiber link

The 10 Gbps fiber link works perfectly.