

# SRT station report

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This report covers the period between June '19 - April '20

## Antenna

Regular operation during Covid-19 crisis both as single dish antenna and as VLBI antenna.

The hardware required to implement continuous calibration (80Hz) has been installed at M- and K-band. We used it for the first time in M-band during session 01/2020, more tests were necessary at K-band. We will use it both at M- and at K-band during session 02/2020.

## Receivers

The L/P-band, the K-band, and the M-band receivers are available.

The Sardinia Radio Telescope has been awarded of one of the grants of the Italian Ministry of Education, Universities and Research (MIUR) aimed to enhance research infrastructures, pursuant to Action II.1 of the National Operative Programme – Research and Innovation 2014-2020.

Thanks to this grant Sr will be equipped with new high-frequency receivers and backends within the next 3 years. The new receivers are a simultaneous microwave compact triple-band receiving system, 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). The backend DBBC3 will be purchased and installed at Sr. In addition, a metrology system will also be installed to allow high efficiency performances at the highest operating frequencies. In addition the receivers under development/construction are:

- dual pol, single feed, C band. Advanced status.
- dual pol, 5 feeds, S band. Advanced status.

## VLBI sessions

Sr took partially part to the EVN session 2/2019 due to a problem to the cable wrap system that was repaired after the end of the session. Sr took fully part to the EVN session 03/2019 and 01/2020 with all the available and scheduled receivers (L-, M-, and K-band). Fringes were obtained at all bands during the ftp-fringe tests. Sr also took part to one Out-of-session observations on the 8th of May 2019 (1 exp. at K-band) and to two ToO on the 19th September 2019 (L-band) and on the 17th November 2019 (L-band).

Sr successfully took part to the e-VLBI sessions on the 3rd-4th December 2019 (L-band), on the 21st-22nd January 2020 (L-band), on the 17th-18th March 2020 (L-band), and on 7th-8th April 2020 (L-band) at full data rate. We missed the e-VLBI sessions in June 2019, SRT still had the problem with the cable wrap system; in May, September, October, November 2019, and February 2020 because the sessions were made at C-band (unavailable at SRT).

## VLBI terminal and Field System

Firmware and softwares:

Field System: fs-9.13.1-rc2

DBBC: DDC (v107\_281019), PFB (16)

Fila10G: v4.1\_231118

Jive5ab: 3.1.0

Antabfs: antabfs\_ys

The flexbuff units (one at JIVE and one at SRT, of 360 Tb each) are fully operational.

## Fiber link

The 10 Gbps fiber link works perfectly.