

## Noto Station Report

From Noto staff (INAF-Institute of Radioastronomy)  
To EVN-TOG

Reference period: January 2023 - December 2023

09/12/2023

## 1) Antenna and station

Just before the beginning of the 2023, session 2, we had a severe problem with one of the elevation servo amplifiers. Investigating the issue and providing a fix took more than two weeks so Noto could not observe for the larger part of the Session. The damaged servo drivers were sent to the supplier workshop for a complete repair and are now available.

From the beginning of July we started a major maintenance aimed at refurbish the telescope infrastructure. Particularly the areas of interventions are:

- a) Optical fibre cabled laying for both digital and analog signal transmission, getting rid of all coaxial cables;
- b) Main servo system drivers cabins and Antenna Control Unit (ACU) moved to a dedicated shelter installed on the telescope;
- c) A new power distribution system, serving all the telescope areas;
- d) A new air cooling system, serving the azimuth shelters, the Vertex cabin and the cryogenic compressors;
- e) New cables wraps for both azimuth and elevation;
- f) New LAN switches, signal and time reference distributors, optical RF transmitters made available;
- g) New cryogenic lines serving the Vertex cabin for secondary focus receivers. A new cryogenic compressor will be installed as well;
- h) Vertex cabin completely cleaned and refurbished;

The interventions were planned to complete by the end of October. Unfortunately, delays in the delivery of some components and materials forced us to postpone some activities. The telescope is partially operational from mid November, only primary focus frequency will be available (L, S, X). Starting from mid of January 2024 we plan another two weeks of idle time to conclude the maintenance and the installation of the new air cooling system.

## 2) VLBI terminal

FS Version: 10.1.0  
DBBC fw version: DDC V108, PFB V16  
FiLa10G fw version: 4.1  
Flexbuff sw version: 2.8.1  
Flexbuff1 disk space: 360 TB  
FlexBuff2 disk space: 512 TB

## 3) Receivers

The K-band will be replaced by the new tri-band (K,Q and W) receiver. The receiver was delivered in August 2022, our plan is to install and then start the commissioning as soon as the refurbishment of the Vertex Room is completed as well as the new air cooling system is installed. February 2024 is probably the safest guess.

For this preliminary stage only a 400MHz, frequency tuneable, full circular polarisation, band could be exploitable. Only the K-band will be available as well.

C- and M- band receivers have both electronic problems in the RF chains, the issues compromise one of the polarisations. We decided not to operate both those frontends until a proper repair is complete. A procurement order to replace the C-band electronic components (included cryogenic LNAs) have been already issued. We expect to complete the repair and install again the C-band receiver within may 2024. The schedule for the M-band is still uncertain.

## 3) VLBI sessions

Session 1-2023: Parts of user experiments (C-band) lost, due to station software problems. First FTP test failed, the problem was identified and fixed for the rest of the NME  
Session 2-2023: Problems with servo amplifiers did not allow us to observe. We managed to join only the X-band part.  
Session 3-2023: Noto did not participating due to the reported major maintenance