

## Noto Station Report

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

24/04/2020

Reference period June 2019 – May 2020

## 1) Antenna.

A failure in the rail of one linear actuator of the sub reflector forced us to stop to move the secondary mirror. Noto was not able to participate to experiments requiring secondary focus receivers (K,C and M band) from July 2019. The issue was eventually repaired in November 2019 and the secondary mirror is now available.

The Active Surface was partially refurbished in November 2019. Some actuators were not working properly so their electric components and their cabling were replaced with new parts. Presently the whole Active Surface System is up and properly running.

During the maintenance of the Active Surface of November, two steel girders composing the reticular structure that supports the counterweights have been found broken. A week later, the same exact damage emerged in the twin telescope of Medicina. For safety reasons our institute decided an immediate stop of the telescope.

A fatigue analysis (based of the Finite Element Model) of the structure was done by an mechanical engineering company. From their report we realised that the stress (during normal working cycles) on the two broken girders was higher than all the other elements of the structure.

In the mean time we prepared a complete inspection of the structure and the maintenance to replace the girders. This maintenance was originally planned in April, but, given the present situation related to the COVID-19 disease and the restrictions imposed by the Italian government, we were forced to postpone it. Timeline is still very uncertain, probably not before the beginning of June.

The installation of the new helium pipes, originally planned for spring 2020 has been delayed.

We are on the verge to migrate our station computer to a newer workstation. The workstation will run the subreflector and the Active Surface control software and the pointing system.

A new weather station was purchased and installed.

## 2) Receivers.

The L-S-X primary focus receiver was installed in June and it's now commissioned and operative.

A new IF distributor to be installed in the control room is under development. The device will automatise and ease the receiver configuration allowing for a better and more reliable setup.

## 3) Developments for higher bit rate.

As reported during last TOG meeting, INAF succeeded a call for fundings (PON) issued by the Ministry of Research. In the framework of the

PON (Programma Operativo Nazionale), Noto will be equipped with a simultaneous 3-bands receiver (18-26, 34-50, 80-116GHz). The receiver will output large bandwidth IFs (K-Band: 8GHz, Q-Band 16GHz and W-Band 16+16GHz) that will be down-converted to tuneable, 2GHz bands.

The receiver will be built by KASI and is planned to be available in 2022.

Also the PON fundings will allow to buy a DBBC version 3. The call for tender is already been issued by INAF.

## 4) VLBI terminal

FS Version: 9.13.1-rc2  
DBBC fw version: DDC V107, PFB V16  
FiLa10G fw version: 4.1  
Flexbuff sw version: 2.8.1  
Flexbuff disk space: 360 TB

## 5) VLBI sessions

Session 3-2019: Due to the reported failure on subreflector, only primary focus receiver was available (L-S-X bands). SX- and L-band NME did show fringes.

Session 1-2020: Due to the damage on the reported mechanical structure, Noto did not observed.