

Noto Station Activity

G. Tuccari, C. Stanghellini, S. Buttaccio

Abstract

The most important achievements at the Noto station are presented and a status is shown about developments and future plans.

1. Station Activity and Upgrade

1.1. Antenna

The new driving system is now fully operative and a few firmware problems shown by the system have been fixed. A replacement of the antenna control software is now in a testing stage, it will operate within the Field System PC, taking advantage of the finer control now possible with the new ACU.

A correction algorithm acting on the primary mirror active surface has been introduced, to correct the deformations present in the secondary mirror. This correction improves the efficiency for the highest available bands: 22, 43 and 86 GHz.

1.2. Receivers and Microwave Technology

The cooled multifeed SXL receiver, even if completed, suffered for a complex vacuum problem, that delayed its use. Indeed, the large vacuum box chamber, about 800 mm wide on each side, presented a long term leakage due to microscopic fractures on the surface. The problem was solved making use of a particular covering material. Now the receiver is going to be reassembled and hopefully, it will be in use before the summer.

A 86 GHz receiver was kindly given to the Noto station on permanent loan by MPI Bonn. This primary focus receiver has been adapted to be placed in the antenna with a full remotely controlled positioning system. In the first months of 2004, the active surface will be adapted to optimize the efficiency at this 3 mm band.

A new 5 cm receiver is available for VLBI and single dish observations.

A new VHF-UHF receiver has been built, covering the range 250 - 600 MHz, and 600 - 1200 MHz. It will be used primarily in EVN observations.

1.3. Acquisition Terminal and Digital Technology

The Mark 5A recorder has been installed and tested at 256, 512, 1024 Mbit/s; four packs with 8 disks are already available and the acquisition of further packs is expected during the year, in order to switch as soon as possible to disk only recording.

A digital base-band converter prototype with wide and narrow band channels is under development. The full project, financed by the EVN, is expected to provide in two years, a fully digital system to be used with Mark 5 recorder or e-net connection through VSI interface. The first experimental tests will be performed during 2004.

2. Geodetic Experiments in Noto during 2003

During 2003 the Noto radiotelescope participated to the following geodetic experiments: EURO67 (25 MAR), EURO68 (06 MAY), CRF18 (13MAY), T2021 (16 SEP), T2022 (14 OCT), CRF24 (8DEC), EURO70 (16DEC). Noto participated also in EURO69 experiment (23SEP) but data did not show fringes during correlation.