

Quasar VLBI network
Stations report for the TOG meeting
2015 June 26 – Robledo, Spain

Period 2014/10 – 2015/06

1. General Information

Quasar VLBI network is a part of the Institute of Applied Astronomy (IAA) and includes three stations: Badary (Bd), Svetloe (Sv) and Zelenchukskaya (Zc). These stations are equipped with a 32-m fully steerable radiotelescopes RT-32. During the reporting period in all Quasar stations the standard maintenance work with antennas, servo, receivers and cryogenic systems were carried out. Technical improvements and problems are presented below by topics.

Under the state program of VLBI network Quasar modernization, construction of two 13-m radio telescopes (RT-13) are finished at the Zc and Bd stations for operational and high-precision polar coordinates and Universal Time data support of the GLONASS system, and for communication with the international VLBI network and other international agencies. These new antennas will meet all requirements of the VGOS program. First observations with both new RT-13 participation was successfully conducted in March-April 2015. At present both RT-13 are under setting and testing works.

2. Antenna

Geodetic measurements on local network were conducted in Zc. Geodetic measurements on RT-32 were carried out in Bd (February) and Zc.

The restoration of corrosion-resistant paint on antenna was finished at Zc.

3. Receivers

All RT-32 Quasar radio telescopes are equipped with receivers in the next bands: L, C, S/X and K.

Replacement of K-band one-channel frontend on the new two-channel unit at Sv is finished in 2013 March. Such a new unit waiting in Bd for installation.

At Sv C-band receiver RCP channel was repaired and cooled unit restored in November 2014.

WVRs were put into operation at Zc and Bd.

4. Backends

From 2012 February the IAA data acquisition systems R1002M is fully functional at all Quasar stations and using in all VLBI observations, including IVS, EVN, RadioAstron and domestic programs.

5. Recording system

The Mark5B+ is the data recording system at all Quasar stations. At May 2014 Mark5B+ software was upgraded to SDK 9.3.

6. H-masers

Since July 2011 the new Active Hydrogen Masers VCH-1003M were put into operation in all stations of the Quasar network. The H-maser VCH-1003M is a modern, high-performance maser with low phase noise option. It uses the latest technologies, including Stand-alone Auto Cavity Tuning (no external reference required), remote IP control, monitoring and self-diagnostics.

Another two Active Hydrogen Masers VCH-1005 (old models) are in reserve in Sv and Zc.

7. Disks

IAA provides 160 TB (20 packs of 8TB) for the EVN disk pool. No new disk packs for reporting period.

8. Field System

Release 9.10.4 is used at all Quasar stations.

9. Personnel

EVN VLBI Technical Friend of Quasar stations starting from January 2015 is Andrey Mikhailov (agm@quasar.ipa.nw.ru).

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