

Quasar VLBI network

Stations report for the TOG meeting

Bad Kotzting/Wetzell ,Germany, 2014 January 23-24

Period 2013/03 - 2014/01

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. During the reporting period in all Quasar stations the standard maintenance work with servo, receivers and cryogenic systems were carried out. Technical improvements and problems are presented below by topics.

2. Antenna

A number of tasks to improve the antenna design were carried out at all Quasar radio telescopes.

The center sector of antenna sub-reflector was replaced at all Quasar radio telescopes during the 2013 April 22-25 (Zc), June 18-19 (Sv) and August 4-5 (Bd). It improves the antenna efficiency till the 0.4 as maximum for K-band.

All tachogenerators was replaced on the new generation ones during the 2103 April 2-4 (Sv), October 4 (Bd) and November 5-8 (Zc).

3. Receivers

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

Replacement of K-band one-channel cryogenic receivers on the new two-channel unit at Sv is finished in 2013 March. Such a new units for Bd and Zc will be constructed in January. One is planned to replace the old at Bd during this year. Replacement of receivers at Zc is not planned for now due to their good enough state.

During the EVN 2013 Session 2 there was a problem with C-band cryogenic system at Sv station, so the experiments were carried out with warm receivers. It was repaired but its state is still unstable. C-band receivers at Sv is planned to replace by a new uncooled unit with LNA.

4. Backends *(no changes)*

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 *(no changes)*

The Mark5B+ is the data recording system at all Quasar stations.

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, developed by "VREMYA-CH" JS company, 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 *(no changes)*

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.

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