

Quasar VLBI network

Stations report for the TOG meeting

2019 June, Jodrell Bank Observatory

Period 2018/11 – 2019/06

General Information

Quasar VLBI network is a part of the Institute of Applied Astronomy (IAA) and includes three stations: Badary, Svetloe and Zelenchukskaya. These stations are equipped with a 32-m fully steerable radiotelescopes RT-32 marked as Bd, Sv and Zc respectively. IAA stations are also equipped with a 13-m VGOS radiotelescopes marked as Zv, Bv and Sw, which at present are in test operation.

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.

EVN session 3 in 2018/10/19-11/08

Quasar participated in 31 experiments at C, S/X, L and K-bands. All experiments were successful. The only one hour pause during EVN experiment EP106D was planned because of priority IAA intensive experiments Ru-I.

EVN session 1 in 2019/02/21-03/12

Quasar successfully participated in 32 experiments at S/X, C, L and K-bands. An hour pause during EVN experiment EB072 was planned because of priority IAA intensive experiments Ru-I.

EVN session 2 in 2019/05/23-06/13

Quasar successfully participated in 32 experiments at S/X, C, L and K-bands. An hour pause during EVN experiment EG100D, EM137, RA003 was planned because of priority IAA intensive experiments Ru-I. Station Sv was canceled of experiments EH036B, EK040A and EH036C because of problem with elevation bearing.

Out of Session experiments

Quasar supported three EVN OoS experiments : Test v107 (+ZcBd), GA042 (+SvZcBd) and GG085G (+SvZc).

Also we participated in several e-VLBI EVN OoS experiments : EM135B (+Zc), Test (+SvZcBd) on May 14, EG102I (+SvZcBd), ET042A (+SvZcBd)

Antenna

Bd antenna stopped from April 6 because of azimuth wheel breakage.

Receivers *(no changes)*

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

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 and domestic programs.

Recording system *(no changes)*

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

H-masers *(no changes)*

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.

Disks *(no changes)*

IAA provides 160 TB (8TB×20) for the EVN disk pool and 80 TB (10TB×8) for the Flexbuff for JIVE correlator.

Field System *(no changes)*

Release 9.10.4 is used at all Quasar stations.

Personnel

Director:	Dmitry Ivanov,	dvi@iaaras.ru
VLBI friend:	Mikhail Kharinov,	kharinov@iaaras.ru
Technical friend:	Andrey Mikhailov,	agm@iaaras.ru
Scheduler:	Mikhail Kharinov,	kharinov@iaaras.ru
PC member:	Alexey Melnikov,	aem@iaaras.ru
Disk module shipments:	Svetlana Akkuzina,	sveta24@inbox.ru

M.A. Kharinov (2019/06/20)