

Station report for EVN TOG meeting,

December 13-14, 2023.

Irbene station, Ventspils.

Irbene Ir – RT-32 radio telescope

In this year major radio telescope RT-32 improvements started March 2022, including a new, expanded receiver cabin and automated controlled secondary mirror positioning system, are continued. After improvements, and repair RT-32 starts observations on 9 November 2023. The calibration and mirror alignment sessions still not done and are scheduled for second half of 2024.

Irbene Ib – RT-16 radio telescope

In 2023, RT-16 radio telescope serves as a main instrument for VLBI and single dish observations at C/M/X bands. Should be noted that the L band receiver is not suitable for VLBI observations. Due to other commitments, not all EVL observation were conducted in full length. On the 13 of November 2023, on RT-16 we start receiver reconstruction works and telescope stopped for observations until February 2024. Planned to equip antenna with S band transmitter for European Space Agency tasks.

Developments

On RT-32 new vertex room is installed. Enhanced vertex room, located in the secondary focus, will allow simultaneous installation of several cryogenic receivers in offset positions. It is planned to develop a new cryogenic L-S band receiver with horn (design of horn and dewar is completed, we are waiting for funds for CNC works, receiver will be ready approximately 2024 Q2-Q3). In the new vertex room, the space for future developments will be allocated, possibly for a 22 GHz cryogenic receiver.

In parallel with vertex room modernization, the secondary mirror was equipped with a movable automatic positioning system. In the future, it is planned to align and improve accuracy of the main mirror (Q3-4 2024).

New T4Science H-maser expanded with White Rabbit solution. Since October 2023 both antennas connected to H-maser synchronisation.

VLBI equipment status

RT-32:

Field System: 9.13.2 (Debian Wheezy).

DBBC: 4xADB3L, Internal Fila10g, DDC v107;

Continuous calibration: implemented on RT-32 C/M/X band receiver.

RT-16:

Field System: 9.13.2 (Debian Wheezy).

DBBC: 4xADB2, External Fila10g (only one VSI connection right now), DDC v107

Flexbuffs:

1. Capacity: 32 TB, jive5ab: 3.1.0 64bit on Ubuntu 20.04.1 LTS

2. Capacity: 288 TB (36x8TB), jive5ab: 3.1.0 64bit on Debian 9.13 Stretch.

All EVN recordings are done with Flexbuffs and data transfer to Irbene Flexbuff at JIVE works fine.

Backup units: two Mark5c+ Glapper, jive5ab: 2.8.1 64bit, AMAZON,10GbE;

If there is no space left on Flexbuffs, older recordings can be transferred to the LOFAR data server (~39 TB HDD, up to 2 PB magnetic tapes) and kept there until transfer to JIVE is done.

Vladislavs Bezrukovs, on behalf of the VIRAC VLBI group.

Irbene 2023.12.11.