

25th June 2024 – Onsala, Sweden

Report on VLBI Operations for Jodrell Bank Observatory

1. February/March 2024 Session

The February/March 2024 EVN session for JBO consisted of 34 experiments; 11 at 6cm, 17 at 18cm and 6 at 1.3cm. Twenty-one of these were joint EVN+e-MERLIN observations, 6 of which were at 6cm, 13 at 18cm and 2 at 1.3cm. At 6cm, 74.5h of observations were scheduled on JBO telescopes (64h on the Lovell and 10.5h on the Mk2). There was no data loss reported at 6cm. At 18cm, 140.5h of observations were scheduled on JBO telescopes (138h on the Lovell and 2.5h on the Mk2). About 5h15m (3.8%) of time was lost on the Lovell at 18cm, due entirely to high winds. At 1.3cm, 45h of observations were performed with the Mk2, with no reported data loss. In summary, 260h of observations were scheduled on JBO telescopes (202h on the Lovell and 58h on the Mk2) with 5h15m (2%) data lost, i.e. a success rate of 98%.

2. May/June 2024 Session

The May/June 2024 EVN session was much reduced in length due to the Chinese antennas being unavailable (due to lunar mission involvement). For JBO it consisted of 27 experiments; 19 at 18/21cm, 6 at 6cm, and 2 at 1.3cm. Fifteen of these were joint EVN+e-MERLIN observations, all at 18/21cm. At 18/21cm, 95.5h of observations were scheduled on JBO telescopes (87.5h on the Lovell and 8h on the Mk2). At 18/21cm the reported data loss was 15m (0.3%), entirely due to encoder faults on the Lovell telescope. At 6cm, 30h were scheduled on JBO telescopes (14.5h on the Lovell and 15.5h on the Mk2). At 1.3cm, 21h of observations were performed on the Mk2 telescope. There was no data loss reported at either 6cm or 1.3cm. In summary, 146.5h of observations were scheduled on JBO telescopes (102h on the Lovell and 44.5 on the Mk2) with 15m (0.2%) reported data loss, i.e. a success rate of 99.8%.

3. Technical Developments

Very little has changed in the VLBI equipment setup during the last reporting period. A new Flexbuff has been built for use with the DBBC3 following its commissioning and has been installed in a rack along with the DBBC3 itself. The new Flexbuff4 has 36x16TB disks giving 576TB unformatted disk space. A speed test on this Flexbuff gives in excess of 10Gb/sec. Some parts for Flexbuff5 have been purchased but some still need to be purchased. A Petabuff has been purchased for JIVE to facilitate network transfer of VLBI data from multiple e-MERLIN telescopes. It has 72x18TB SAS drives (maximum number of drives is 90) and so a capacity of 1296TB (unformatted). This is now ready for shipping to JIVE. Integration of the DBBC3 is still ongoing. A 10MHz distribution unit and a 20dB amplifier for the IF inputs are now being constructed. Work is still ongoing to interface the new Field System (FS) computer to the e-MERLIN control system. Protocol buffer software and GRPC, both required for the new e-MERLIN communication software, will be installed shortly.

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