

21st June 2010 – Helsinki, Finland

Report on VLBI Operations for Jodrell Bank Observatory

1. March 2010 Session

The March 2010 EVN session comprised of 28 experiments: 11 at 18cm, 8 at 5cm and 9 at 6cm and utilised Jodrell Bank's Lovell, Mk2, Cambridge and Knockin antennas. Two experiments at 18cm and two at 6cm were joint MERLIN/VLBI observations. All experiments that included the Cambridge antenna and which had sufficient spare recording bandwidth included the Knockin antenna. This was done for three 18cm experiments (16h), one 5cm experiment (the NME, 4h) and four 6cm experiments (16.5h), giving a total of 36.5h of observing time with the Knockin antenna. There was no reported data loss from the Knockin antenna. At 18cm there were 91.75h of observations scheduled on the Lovell telescope, and 16h on the Cambridge telescope. 1h58m of time was lost on the Lovell (2.1%) due to problems with the Mk5 recorder and 2h15m (14%) on Cambridge due to a failed LO synthesiser discovered during the first fringe test experiment which was rectified for subsequent experiments. At 5cm, 73h were scheduled on the Mk2 antenna and 53h on the Cambridge antenna. Lost time on Mk2 amounted to 1h22m (1.9%) and on Cambridge to 1h6m (2.1%). Both these were due to a serious antenna control computer failure. Finally, at 6cm, 61.5h were scheduled with the Lovell telescope, 16.5h on Cambridge and a single experiment (gb071a) used the Mk2 telescope for 10h. 40m were lost on the Lovell and 10m on Mk2 due to Mk5 recorder problems though no data loss was reported for Cambridge (or Knockin). In conclusion, a total of 358.25h of telescope time was scheduled (153.25 on the Lovell, 83h on the Mk2, 85.5 on Cambridge and 36.5 on Knockin) with a total data loss at the telescope of 7h31m (2.1%), i.e. a success rate of 97.9%. This session the most significant source of failures were Mk5 recorder problems (including failed disk packs) and the faulty LO synthesiser in the Cambridge LO chain.

2. Technical Developments

We have constructed three more 8TB disk packs bringing our total capacity to 24TB - more than our agreed amount. We could probably build another three later this year. The eVLA correlator code is now implementing a single VDIFF/10GE output intended for phased-VLA data to VLBI. We will not be using e-MERLIN in that phased fashion but the output could default to a single station, i.e. Cambridge, and we hope this will resolve the e-MERLIN-to-VLBI data transfer problem. We have had to release the 4Gbps connection to Onsala but have been promised an upgrade to 2.2Mbps on the current 2x1G links. It is not yet clear whether this upgrade applies to both links. During the most recent session (May 2010) we suffered a power supply failure to bank B of one of our Mk5 recorders. The remainder of the session was recorded on a single bank. A replacement PSU is on order and will be fitted during the summer. We are considering a recorder upgrade to Mark5C+ on at least one system sometime next year.

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