

Network Coordinator Report

Ed Himwich

Abstract

A brief report on network performance is presented. Most of network operations went well. Some positive developments are identified. There were a few significant problems, mostly with antennas. New antennas have been or are being built by Australia, New Zealand, and the USA. There are prospects for Korea, India, and Saudi Arabia to start contributing to IVS.

1. Network Performance

The overall network performance was for the most part good. This year's report does not include the usual detailed assessment of overall network performance. However, the usual average single station loss of 10-20% probably occurred again this year.

One of several positive developments this year was the increased usage of e-transfer. This speeds data transfer and reduces shipping costs. Another positive development was that Mark 5B recorders were installed at several stations. This will improve correlator efficiency. A third development is that digital back-ends are starting to be used for operations. The DBBC developed by the EVN is being used at Hobart in Australia (which in another positive development has just started observing) and will be used at Katherine and Yarragadee as well and in New Zealand. The Haystack/NRAO developed RDBE is nearing readiness for observations and is expected to start being used in 2011.

Overall, while the network operated well for the most part, there are a few notable issues (in alphabetical order):

- Fortaleza was down with antenna problems the whole year. They are expected to begin observing again in spring 2011.
- Kokee Park is operating on a single (damaged) azimuth gearbox while the other one is repaired. The repair is expected to be completed in 2011, and then the other azimuth gearbox will be repaired.
- The HartRAO 26-m antenna started observing again in August after being off-line almost two years due to a bearing problem.
- Matera had a warm X-band receiver all year. It is expected to be repaired in spring 2011.
- The receiver at Medicina warmed up in November. It is not clear when it will be repaired.
- Noto suffered a bearing failure and was unable to observe from April onward. Repair is expected to be completed no sooner than fall 2011.
- Ny-Ålesund has had higher than normal SEFDs since about May 2011. The cause of this is being investigated.
- The O'Higgins burst had to be canceled due to illness.
- TIGO had been having a significant number of quality factor zero scans. This was traced to a source modeling problem on baselines involving TIGO in the scheduling process, and the problem was corrected. TIGO has for several years had higher than normal SEFDs. There has been no success in resolving this issue.

- Svetloe has antenna problems dating from the previous year but began observing again in July.
- The Tsukuba antenna was damaged by a lightning strike and missed observing from approximately August through September.
- Wettzell required antenna repairs, and they were out of operation from September through November. They also had a reduced observing load for the months of April through August while waiting for the repairs.

2. New Stations

There are prospects for new stations on several fronts. These include (in approximate order of how soon they will start regular observations):

- In Australia, the new 12-m antenna at Hobart has been completed and started initial observations. New antennas at Katherine and Yarragadee are under construction. It is expected that all three of these antennas will be contributing to IVS in 2011.
- In New Zealand, the station at Warkworth has its antenna in place. It is expected that this antenna will start observing for IVS in 2011.
- At GSFC in the USA, a new 12-m antenna has been erected and is undergoing testing. While this antenna is primarily for use in the development of the VLBI2010 systems, it is expected that it will eventually join the network for regular observing.
- At Arecibo in Puerto Rico a new 12-m antenna has been erected and is expected to be used for geodetic observing.
- At Wettzell in Germany, construction of the new Twin Telescope Wettzell (TTW) for VLBI2010 is underway.
- In Spain/Portugal, the RAEGE (Atlantic Network of Geodynamical and Space Stations) project aims to establish a network of four fundamental geodetic stations including radio telescopes that will fulfill the VLBI2010 specifications: Yebes (1), Canary Islands (1), and Azores (2).
- In Norway, the Norwegian Mapping Authority (NMA) has applied for a project to establish a fundamental station at Ny-Ålesund, which will include a twin telescope of the Wettzell type.
- Onsala is also applying for funds for a twin telescope system.
- In Russia, an effort is underway to get 12-m VLBI2010 antennas at some of the QUASAR network sites.
- Korea is planning to build one antenna primarily for geodesy (Korea VLBI system for Geodesy, KVG) at Sejong with construction to be completed in 2011. There is also interest in geodetic use of the Korean VLBI Network (KVN), which will consist of three stations intended primarily for astronomy.
- There is interest in India in building a network of four telescopes that would be useful for geodesy.

- Saudi Arabia is investigating having a combined geodetic observatory, which would presumably include a VLBI antenna.
- Colombia is investigating having a combined geodetic observatory, which would presumably include a VLBI antenna.

Many of these antennas may become available for use in the next few years. Efforts are being made to ensure that these antennas will be compatible with VLBI2010.