

The European VLBI Network (EVN) carries out VLBI observations which typically involve 9 telescopes from 6 European countries plus China. This array has a maximum baseline length of over 9000km, but is often used in conjunction with 10 or more other telescopes around the world to provide a Global Array with milliarcsecond resolution and sensitivity capable of imaging μ Jy radio sources.

The National Facility plays a key role in the EVN, with the Lovell Telescope providing one of its cornerstone large telescopes. Since all the telescopes are permanently staffed, the EVN can sustain the highest data-rate of any VLBI array, which in conjunction with its large telescopes makes it the most sensitive VLBI network in the world.

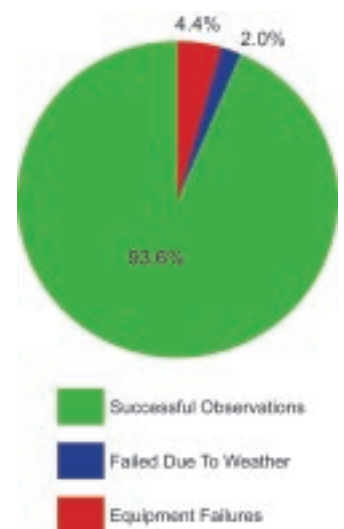
The EVN observations of the Hubble Deep Field (Garrett et al. 2001), carried out in November 1999, detected, for the first time, distant μ Jy radio galaxies with 20mas resolution.

In 1999 and 2000, the EVN operated four sessions per year, each for three to four weeks. National Facility telescopes participate in the vast majority of observations, except those at 7mm and 3.6/13cm. Except for the September sessions (when MERLIN is undergoing maintenance/development) all EVN sessions now include some joint MERLIN+EVN observations. Data from the Cambridge telescope are recorded on a second VLBI terminal, which results in the shortest EVN baseline between Jodrell Bank and Cambridge and also provides a common baseline between the two arrays. The combined array provides a unique capability in the world for imaging intermediate-sized sources (0.05 - 5 arcsec) at milliarcsecond resolution.

The EVN Program Committee received 135 proposals in this period, of which 21 had UK PIs and a further 20 had UK co-Is. Twenty-five of the EVN proposals requested joint MERLIN+EVN observations. The oversubscription factor for the EVN is close to 2.

Due to fixed scheduling, and because there is no real-time feedback indicating that fringes will be found at correlation time, operational reliability is crucial for VLBI. Detailed checks and vigilant observing techniques are thus required. In the past, much of the VLBI observing at Jodrell Bank has been carried out by experienced staff and students, but during 2000 all of the MERLIN Telescope Array Controllers have been trained to carry out VLBI observations. The introduction of automated control and checking of almost all of the VLBI 'back-end' equipment has had a significant positive impact on the reliability of VLBI observations.

The EVN correlator at JIVE in Dwingeloo, formally opened in October 1998, produced its first scientific results in 1999, the detection of HI absorption in NGC 4261 on the Jodrell-WSRT baseline. The EVN correlator now correlates almost all EVN observations.



Above: Operational statistics for VLBI observations carried out by the National Facility.