

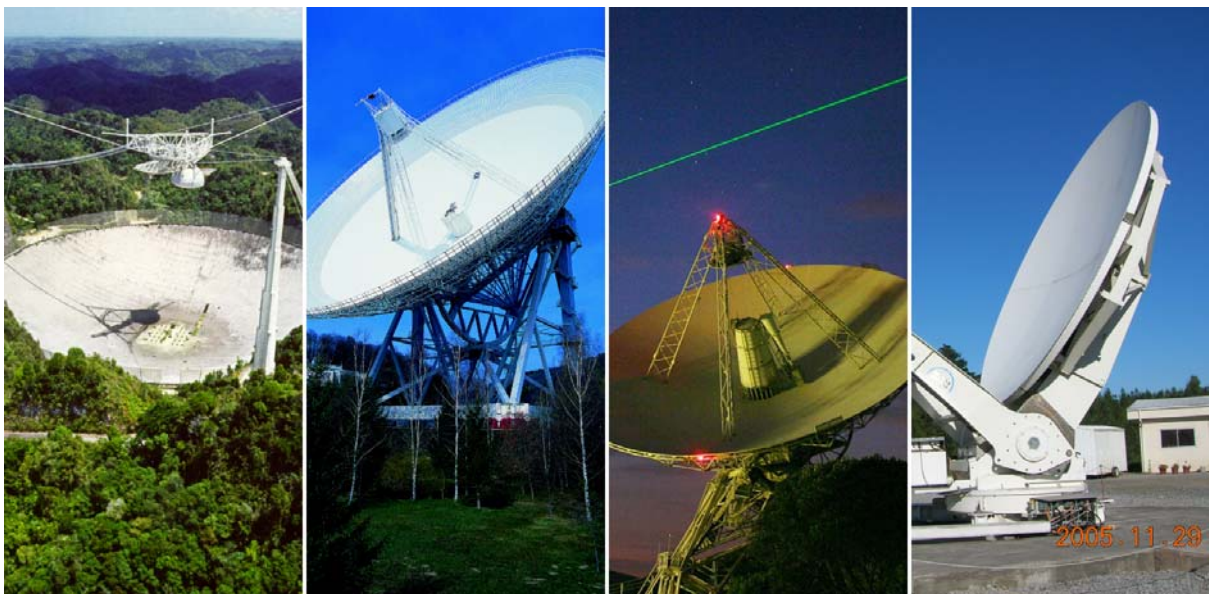


FOR IMMEDIATE RELEASE

## **EXPRoS conducts first real-time e-VLBI observation with telescopes in Africa, Europe, North America and South America**

Dwingeloo, the Netherlands (23 May 2008) - Yesterday, members of the EXPRoS project (Express Production Real-time e-VLBI Service) conducted a live demonstration of the first ever real-time, electronic Very Long Baseline Interferometry (e-VLBI) observations to simultaneously use telescopes in Africa, Europe, North America and South America.

JIVE director Huib Jan van Langevelde was pleased with the milestone in e-VLBI development. "These results are very significant for the advance of radio astronomy; it shows not only that telescopes of the future can be developed in worldwide collaboration, but that they can also be operated as truly global instruments."



*The recent additions of Arecibo (Puerto Rico), Effelsberg (Germany), Hartebeesthoek (South Africa) and TIGO (Chile) telescopes to e-VLBI capabilities of the European VLBI Network means a tremendous improvement in sensitivity for detecting the faintest cosmological sources. Image: JIVE*

The observation of 3C454.3 and other targets included four telescopes new to e-VLBI capabilities of the European VLBI Network (EVN): Arecibo (Puerto Rico), Effelsberg (Germany), Hartebeesthoek (South Africa) and the Transportable Integrated Geodetic Observatory (TIGO, Chile). They were joined in this observation by regular e-EVN participants Medicina (Italy), Onsala (Sweden) and Westerbork (the Netherlands).

Thursday's observation is believed to have used one of the longest baselines ever for e-VLBI. The TIGO to Onsala baseline measures 10,893 km, second only to an observation also conducted by EXPRoS involving telescopes in Australia and Europe in August 2007.

EXPRoS, a three year project funded by the European Commission, aims to connect up to 16 of the world's most sensitive radio telescopes to the central data processor at JIVE in the Netherlands, in order to correlate VLBI data in real-time. This replaces traditional VLBI method of shipping data on disk, providing astronomers with observation data in a matter of hours rather than weeks and allowing them to respond quickly to transient events with follow-up Target of Opportunity observations.

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#### About e-VLBI

e-VLBI is a technique by which remotely located radio telescopes observe the same region of sky simultaneously, and data from each telescope are sampled and sent to a central processor in real-time via high-speed communication networks. This central data processor, a purpose-built supercomputer, decodes, aligns and correlates the data for every possible pair of telescopes and can generate images of cosmic radio sources with up to a hundred times better resolution than images from the best optical telescopes. Traditional VLBI relies on storing data on high-capacity disk arrays that are shipped to the correlator. Through the elimination of the long delay between observations, correlation and subsequent data reduction, electronic real-time VLBI enables astronomers to respond rapidly to so-called transient phenomena, like supernova explosions and gamma ray bursts. The development of e-VLBI also

holds the potential for deeper and more sensitive observations by taking advantage of the explosive growth of internet bandwidth, and will ensure that the European VLBI Network will remain both competitive and complementary to next-generation astronomical observatories.

#### About EXPReS

Express Production Real-time e-VLBI Service (EXPReS, [www.expres-eu.org](http://www.expres-eu.org)) is a three-year project funded by the European Commission with the objective of creating a real-time distributed astronomical instrument of intercontinental dimensions. This electronic Very Long Baseline Interferometer (e-VLBI) is achieved using high-speed communication networks and connecting together some of the largest and most sensitive radio telescopes on the planet. EXPReS is a collaboration of 19 radio astronomy institutes and national research networks in 14 countries and is coordinated by JIVE, the Joint Institute for VLBI in Europe.

#### About JIVE

The Joint Institute for VLBI in Europe (JIVE, [www.jive.nl](http://www.jive.nl)) is a scientific foundation with a mandate to support the operations of the European VLBI Network (EVN). For this purpose it maintains, operates and develops the MKIV EVN Data Processor, a powerful supercomputer that combines the signals from radio telescopes located across the planet. Through this technique, called Very Long Baseline Interferometry (VLBI), astronomers can make detailed images of cosmic radio sources, providing astronomers with the clearest, highest resolution view of some of the most distant and energetic objects in the Universe.

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