



AARNet Lightpath Puts Scientists on the Right Path to Real-Time Data Access

Successful demonstration delivers first real-time e-VLBI correlation results from China, Australia and Europe baselines

AARNet broke new ground at the APAN24 (Asia-Pacific Advanced Network) meeting in Xi'an, China today by setting up and successfully linking Astronomers across the world via "lightpath". The demonstration involving collaborators of the EXPReS project (Express Production Real-time e-VLBI Service) conducted the first successful e-VLBI observations to jointly use telescopes in China and Australia, China and Europe.

The demonstration covered an impressive 41,000kms in total with consistent data transfer rates of 250 Mbps. The data was transferred from Mopra to Sydney over AARNet lightpath, then on to AARNet's lightpath along Southern Cross Cable Network (SCCN) SXTTransport South to Los Angeles, then by CENIC to Seattle, CaNet to Chicago and then via SurfNet to Amsterdam and then on to Jive. The other route involved Shanghai via CSTNet and the across ORIENT to Copenhagen, GEANT to Netherlands and SURFNet then on to Jive.

Chris Hancock, CEO of AARNet said "Today was a first for researchers and the astronomy community in Australia and it demonstrates the real value of investing in high-speed infrastructure. To connect across such a vast area via dedicated lightpaths to such far-away telescopes is a phenomenal achievement";

A lightpath is a direct network path from telescope to computer for which a permanent or temporary connection of fibre-optic cables is configured without using routers. There is no competing traffic on a lightpath therefore the data reaches its destination without congestion and enables real-time transfer. e-VLBI is a technique by which widely separated radio telescopes simultaneously observe the same region of sky, and data from each telescope are sampled and sent to a central processor via high-speed communication networks operating in real-time.

"Traditionally, VLBI has been done by recording the data as observed at each telescope onto a magnetic disc or tape and shipping those recordings to a central location — this could take months. What was achieved yesterday allows scientists to have immediate access to data in real time, even while experiments are in progress," said Chris Hancock.

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About AARNet

AARNet Pty Ltd (APL) is the company that operates Australia's Academic and Research Network (AARNet). It is a not-for-profit company limited by shares. The shareholders are 37 Australian universities and the CSIRO. AARNet provides high-capacity leading edge Internet services for the tertiary education and research sector communities and their research partners. AARNet serves more than one million end users who access the network through local area networks at member institutions. For further information, please visit: www.aarnet.edu.au.

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