MEDIA RELEASE

NEWS FROM THE UNIVERSITY OF TASMANIA
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ATTENTION: Chiefs of Staff, News Directors

UTAS telescope has great fringe benefits

The UTAS radio telescope located on the Katherine campus of Charles Darwin University in the Northern Territory has reached an important milestone- its first “fringes.”

These “first fringes” mean the telescope is working properly and also communicating with the Mount Pleasant telescope here in Hobart.

The telescopes are part of the AuScope Very Long Baseline Interferometry (VLBI) Project, which comprises the construction and operation of three new radio telescopes by the UTAS School of Maths and Physics.

The other telescopes in the network are located at Mount Pleasant in Hobart and Yarragadee in Western Australia.

VLBI is an astronomical technique that uses widely spaced radio telescopes to create the effect of one huge telescope.

Dr Jim Lovell, Senior Research Fellow in the UTAS School of Maths and Physics, and Project Manager for the AuScope VLBI Project, is very pleased with the Katherine telescope’s performance.

“When you use two or more radio telescopes together, they need to be looking at the same object at the same time.”

“The light from the quasar (very bright distant objects powered by super-massive black-holes) arrives at the Earth in a wave and the two telescopes must both measure the arrival time of that wave,” Dr Lovell said.

Dr Lovell said data from the telescopes are recorded together with a time signal, then the data are sent to a correlator (a smallish supercomputer is used) where the signals are combined.

“If everything has worked then you detect a ‘fringe’ which gives a measurement of the difference in arrival time of the wave at the two telescopes.

“A fringe is the fundamental measurement in VLBI, the technique used by the AuScope telescope network to measure positions on Earth,” Dr Lovell said.

"If you measure the delay in arrival time, you can measure the distance between the telescopes.

"If you get a fringe, you know your telescopes are working from end-to-end, so it's a great system/health check and an important milestone on the way to having an operational array."

For more information/interviews, please contact

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The AuScope VLBI Project and what the completed telescope network will do:

When completed, the three-telescope network will have the strength of a giant telescope the size of Australia.

The network will regularly observe quasars, which are effectively fixed-points on the sky. From these observations it is possible to measure the positions and separations of the telescopes to very high accuracy: about one part in one billion.

The completed network of three radio telescopes and ~100 GPS receivers will span the whole continent, enabling:

- millimetre-accurate positions for real-time vehicle and aircraft positioning and navigation
- techniques to better identify and study regions of seismic risk, especially those associated with populated areas and mining
- precise measurement of variations in sea level

AuScope is an initiative of the Austrlain Government being conducted as part of the National Collaborative Research Infrastructure Strategy (NCRIS) through the Department of Innovation, Industry Science and Research. It involves a collaboration between universities, territory, state and federal governments and Geoscience Australia. For more information see: www.auscope.org.au

Bob Haydon 18/1/11 4:48 PM
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Regular updates on the AuScope VLBI project are published at www.facebook.com/AuScopeVLBI.