

5 July 2010

Australian researchers give earthquake science a shake up

Australian researchers have identified a new technique that can better pinpoint the source of earthquakes and improve our understanding of them.

The technique is particularly beneficial for countries that do not invest heavily in earthquake recording stations because the events are relatively rare and typically occur in isolated areas.

Australia experiences about two medium sized earthquakes (magnitude 5) every year and one more severe event (magnitude 6) every five years.

Speaking at the *Australian Earth Sciences Convention* in Canberra, Geoscience Australia and Research School of Earth Sciences seismologist David Robinson said the location of an earthquake's hypocentre was traditionally detected by 'triangulating' data from the arrival of seismic waves at multiple recording stations.

"Australia does not have as many recording stations as seismically active places, such as Japan and California, which makes it more difficult to accurately pinpoint the location of the earthquake," he added.

The new mathematical technique uses data from coda waves - the tail end of the seismic waves from an initial earthquake and its aftershocks.

"Most people only use the first couple of seconds of seismic recordings, but we are able to use much more of the recorded waveform from fewer stations to better pinpoint the hypocentre and our understanding of what's going on," said Mr Robinson.

"Sixty per cent of Australian earthquakes can only be located with an accuracy of about 10km. However we need to reduce that level of uncertainty for any detailed understanding of earthquakes that could help with forecasting and mitigating risk to ultimately reduce losses.

"We know that Australia is moving north towards Indonesia at about 7cm per year and that stresses are transferred deep into the Indo-Australian Plate, but we don't know why areas such as the South West Seismic Zone in Western Australia haven't had quakes for tens of thousands of years and then become very active over the last 50 years.

"Tennant Creek had a sequence of three magnitude 6 quakes in one day in 1988 and the aftershocks are still continuing today in an area that was not previously identified as having any seismic activity at all," he added.

Mr Robinson said better information on earthquakes can also be used in building codes, to influence insurance policy and pricing, and to help test and prepare our emergency management response.

Ends

Issued on behalf of the Geological Society of Australia by Connection Communications. For further information or to arrange an interview with David Robinson, please call Maria Padua on 0419 200 935.