

Media Release

Chiefs of Staff, News Directors

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New research reveals Tasmania was once far from mainland Australia

New research published in the international journal *Geology* has found evidence that Antarctica was once linked to North America, with Tasmania tightly sandwiched between the two land masses – and situated a considerable distance from what is now mainland Australia.

The team of scientists included PhD student Jacob Mulder and Dr Jacqueline Halpin from the ARC Centre of Excellence in Ore Deposits (CODES) at the University of Tasmania, and Associate Professor Nathan Daczko from Macquarie University.

The research builds on earlier work by Dr Halpin, which supported a link between sedimentary rocks found in northwest Tasmania and those found in Montana, Idaho and southern British Columbia – the Belt-Purcell Supergroup. Those findings indicated that Tasmania and North America were geographically very close when they formed part of the Nuna supercontinent, 1.4 billion years ago.

“While this new research corroborates the link between Tasmania and North America, it goes further by providing strong evidence that Antarctica was also part of that chain, with Tasmania relatively closely squeezed in between,” said Mr Mulder.

“Importantly, it also indicates that Tasmania was situated a substantial distance away from the land masses that later formed modern day Australia.”

The team made their breakthrough by determining the age, identity and location of the rocks that were the source of the sediment that eroded to form the sedimentary rocks of the Rocky Cape Group in the state’s northwest. They focused on the mineral zircon, because it is a common component of many sedimentary rocks, and is also an extremely robust mineral capable of surviving most weathering processes. This durability enables it to become a geological time capsule, recording a wealth of vital information on the origins and composition of the source rocks.

The research involved determining the age and isotopic composition of zircons from the Rocky Cape Group and comparing this new data with the age and isotopic composition of zircons from potential source rocks around the globe. By using zircon to fingerprint the source rocks that eroded to form the Rocky Cape Group, the researchers were able to position Tasmania within the Nuna Supercontinent. This location was substantiated by the study of paleocurrent

data, such as fossil wave ripples and tide channels, which indicated the direction of the tides and currents transporting the sediment, thereby leading to its source.

While they were not surprised to confirm the link with North America, they also discovered that the zircon samples from Rocky Cape, which they had dated to be from the time of Nuna (1.45 billion years ago), had isotopic compositions that were remarkably similar to zircons of a comparable age found in granites beneath the ice cover in East Antarctica. This provided strong evidence that North America, Tasmania and Antarctica were once extremely close neighbours.

Furthermore, their studies revealed that similar links were not present in rocks found in other parts of the country, which enabled them to conclude that Tasmania was once considerably more remote from mainland Australia than it is today.

To see the paper, visit: <http://geology.gsapubs.org/content/43/9/759.full>

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