

MEDIA RELEASE

NEWS FROM THE UNIVERSITY OF TASMANIA

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ATTENTION: Chiefs of Staff, News Directors



Sea level change at Macquarie Island, 100 years after Mawson

Close to a century after Sir Douglas Mawson made his 1911-14 Australasian Antarctic Expedition (AAE), the data collected by his team is being used to help determine sea and land level change at Macquarie Island.

The study has found that not only is sea level rising, the Island is clearly subsiding, most probably still in response to an earthquake in 1924. This has exacerbated the local influence of sea level rise.

In an unexpected twist, a major earthquake located north of the Island in 2004 has been shown to effect the entire south-east portion of the Australian continent – shifting the city of Hobart by a massive 6 mm and slightly changing the direction of Tasmania’s underlying plate motion.

A team led by Dr Christopher Watson, from the Surveying and Spatial Science Group in the UTAS School of Geography and Environmental Studies, has been comparing Mawson’s sea level observations to modern records.

The team has also been using satellite measurements to determine the motion of the land.

“In this case you can’t understand the behaviour of the ocean without also knowing what the land is doing,” Dr Watson said.

“In the northern hemisphere, historic sea level gauges are dotted around the coast. The situation is far more problematic in and around the Southern Ocean. Macquarie Island is a lone data point within a massive void of information.

“That’s one of the reasons why Mawson’s records are such a treasure trove of information.”

“Mawson’s rare and historic records indicate that relative to land, the sea level at Macquarie Island is rising by 4.8mm per year. When subsidence of the Island is taken into consideration, sea level has risen at the 2mm per year level,” Dr Watson said.

Dr Watson believes these data have helped understand the properties of the Earth’s interior and allowed the modelling of deformation induced by large earthquakes.

“It seems that the Australian plate is not as rigid as perhaps first thought,” Dr Watson said.