



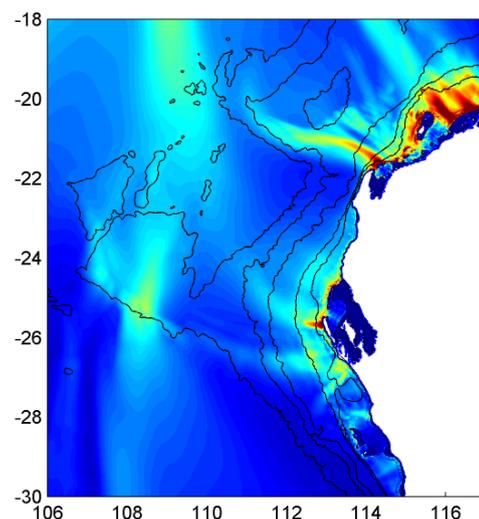
Tsunami Impacts on Western Australia

The Indian Ocean region experienced its most devastating natural disaster through the action of a tsunami, resulting from an earthquake off the coast of Sumatra, on 26th of December 2004. This resulted in widespread damage to property and human lives, with over 250,000 deaths in the region. Western Australia was impacted by the tsunami, with all coastal tide gages recording water level oscillations related to the tsunami but did not result in large scale property damage. Prior to the December 2004 event, tsunamis as a coastal hazard were neglected in coastal management, planning, and development in Australia and many other Indian Ocean countries. Subsequent to the disaster, tsunami mitigation actions are now considered to be a major factor in coastal planning and development.

Western Australia is susceptible to the action of tsunamis generated by earthquakes in the Sunda Arc region. Although there have been many earthquakes in the region, only 3 earthquakes have resulted in tsunamis which have been observed in Australia prior to 2004. Subsequent to the 2004, Western Australia has been impacted by tsunamis on an annual basis with tsunamis occurring in 2004, 2005, 2006 and 2007. Analysis of tide gage data from these tsunami have revealed a similar pattern where

the maximum waves arrive along the coastline up to 18 hours after the earthquake due to primary waves being reflected from as far as the Mascarene ridge and/or Madagascar.

Numerical modelling of tsunami propagation, using idealised tsunamigenic earthquakes reveal that the region to the south of Geraldton has a reduced impact due to dissipation of tsunami wave energy due to topographic features. However, to the north of Geraldton, these topographic effects result in concentration of energy, particularly on Shark Bay and Ningaloo reef.



Contact and links

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