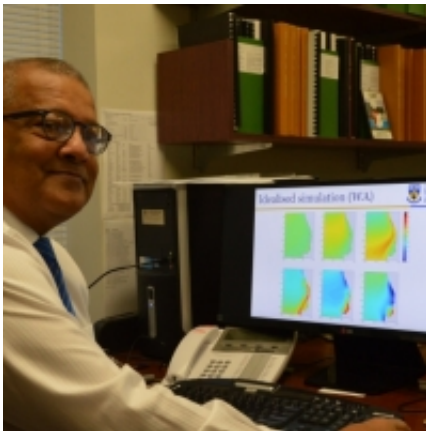


Fremantle found to be a 'global hot spot' for meteotsunamis

September 22 2015, by Jess Reid



Oceanographers from The University of Western Australia have discovered Fremantle has one of the highest occurrences of meteorological tsunamis (meteotsunamis) in the world.

Meteotsunamis are waves caused by moving atmospheric pressure disturbances, such as cold fronts and thunderstorms. In cases of powerful meteotsunamis, significant natural disasters have resulted from their impact.

The discovery was made after UWA researchers analysed high frequency sea level data and combined it with meteorological activity in Fremantle during 2014. The results were then compared with previous

research carried out across Australia and in other parts of the world.

UWA Oceanographer and lead author of the study Professor Charitha Pattiaratchi said the research team discovered 25 meteotsunami events had occurred off the coast of Fremantle in 2014, compared to less than 10 events occurring across the rest of Australia in the same year. The number was also high compared to activity in other parts of the world.

"Although most of the events were relatively small, several had wave heights of more than half a metre - larger than those recorded in Fremantle during the Indian Ocean Boxing Day tsunami of 2004," Professor Pattiaratchi said.

"Two events we studied resulted in ships breaking moorings inside the Fremantle Port, including an incident in August 2014 where we discovered the strong force of a meteotsunami had caused a large cargo ship to hit the Fremantle Bridge, causing damage to the bridge and resulting in it being closed for two weeks."

Professor Pattiaratchi said in Western Australia, meteotsunamis reaching a metre in height were becoming more common along the coast between Geraldton and Esperance, with the potential to cause significant impact.

"One incident in January 2013 saw a meteotsunami travel more than 500 kilometres along the coast from Geraldton to Busselton," he said.

"To put the force of these waves into perspective, a meteotsunami in June 2012 contributed to the highest ever water level recorded in Fremantle in more than 115 years and widespread flooding along Riverside Drive and the Kwinana Freeway."

Dr Sarath Wijeratne, a co-author of the paper, said he hoped the research would help authorities better understand meteotsunami activity

in WA and the rest of Australia.

"This will allow us to prepare for and respond to natural disasters in the future and protect people and infrastructure," he said.

The research was published this week in the journal *Philosophical Transactions of the Royal Society* London and is part of the Bushfire Natural Hazards Cooperative Research Centre project to estimate extreme water levels around Australia.

More information: "Are meteotsunamis an underrated hazard?" *Phil. Trans. R. Soc. A* 373: 20140377. [dx.doi.org/10.1098/rsta.2014.0377](https://doi.org/10.1098/rsta.2014.0377)

Provided by University of Western Australia

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