

ANUGA in Action: Tsunami Impact Modelling for Australia

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Tsunami are long period waves with typical wavelengths of the order of kilometres. This feature means that the nonlinear shallow water wave equations are suitable for modelling tsunami propagation. To understand tsunami inundation and develop impact assessments, a tool that can easily model the flow of water across the wet-dry interface is required.

Geoscience Australia has validated ANUGA for use in tsunami inundation modelling and has conducted a number of tsunami impact assessments to Australian coastal communities. The methodology follows the standard risk process of understanding the hazard, exposure and vulnerability to ultimately determine an impact and risk assessment.

Due to the distance of tsunami-genic sources of concern to Australia, the hazard component of the process is split into two distinct processes. These processes define the offshore and onshore hazard respectively with different tools used for each process. ANUGA is used for the onshore component and has therefore required the development of a method to use model results from the offshore hazard model as a boundary condition for ANUGA inundation models.

The aim of this presentation is to outline the methodology in developing tsunami impact and risk assessments at Geoscience Australia, focussing on the critical interface between the offshore and onshore hazard.