



Tsunami hazard and exposure in South East Asia and the southern Pacific

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The 2004 Indian Ocean Tsunami has led to an increased awareness of tsunamis on a global level, and in particular in the South East Asian region. Emphasis has been on awareness as well as establishing warning system, and to a less degree on tsunami hazard and risk mapping. Notwithstanding, there is a need for quantifying the hazard and risk on a regional basis as an instrument for decision makers on national and regional scales. As such, this study is a first attempt to establish the tsunami hazard and risk for the whole South East Asia and the South Pacific. Previous tsunami hazard studies have been limited to detailed, site-specific or regional studies. Because of the large geographical extent of the study area, the method for quantifying the tsunami hazard has been scenario based, focusing on overall trends rather than details. For this purpose, a simplified method for estimating the run-up over large regions based on a database of fine grid 2D linear simulations have been developed and tested against sophisticated run-up models. Results of the study are a first-pass assessment of the tsunami hazard and population exposure based on today's knowledge. The study considered the tsunamis caused by large earthquakes only, as these events will often contribute more to the risk than the smaller events. The tsunami events in this study have a probability of occurrence of 10% in 50 years. Finally, we find that about 10 million people are exposed to tsunamis within the study region.