



The global tsunami hazard due to long return period subduction zone earthquakes

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Historical tsunamis and paleotsunami evidence indicate that massive megathrust earthquakes lead to the majority of the losses due to tsunamis. There is a need to quantify the tsunami hazard from megathrust events in order to compare tsunamis with other natural hazards on a global level, as previous attempts have been lacking. The global tsunami hazard induced by earthquakes is therefore computed for a return period of 500 years. To this end, the exposed elements at risk such as population, produced capital, and nuclear power plants are determined. It is shown that populous Asian countries account for the largest absolute number of people living in tsunami prone areas, more than 50% of the total exposed people live in Japan. Smaller nations like Macao and the Maldives are among the most exposed by population count. Exposed nuclear power plants are limited to Japan, China, India, Taiwan, and USA. The methods used to quantify the global hazard are obviously crude, and hence the expected accuracy using global methods are discussed.