



Nuclear Safety and Trends Global River Flood Risk

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The Fukushima accident raised considerable concern around the globe on the overall safety of nuclear power plants against natural hazard induced risks. Since nuclear power-plants are often located near- or in flood zones from rivers, an important question is whether Nuclear facilities will face increased risk from flooding in the future?

IN 2011, the European Nuclear Safety Regulators Group (ENSREG) was invited to provide a stress test, as to whether nuclear installations can withstand the consequences of Natural hazards, including flooding. This paper contributes to the findings of ENSREG by demonstrating how global flood risk may increase in the future using a global hydrological model at a 1 x 1 km² resolution. This information is used to assess the vulnerability of existing and planned nuclear facilities as to whether they (1) are located in flood prone areas (2) are susceptible to an increase in potential flood inundation and (3) are vulnerable to other natural hazards such as earthquake and tsunami. Based on this assessment, a priority ranking can be made showing the potentially most vulnerable nuclear power plants to natural hazards, and in particular flood risk.