



Dealing with uncertainty in the simulation-based situation assessment of the GITEWS tsunami early warning system

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The hazard assessment in the simulation-based German-Indonesian Tsunami Early Warning System (GITEWS) relies on a novel multi-sensor quick assimilation technique, and a large number of detailed pre-computed tsunami scenarios. In order to obtain reliable and accurate information about the hazard situation, thorough evaluation of uncertainty is necessary. We present a rational methodology to evaluate and propagate uncertainty through the diverse steps of the early warning process. First, we propose a scheme for quantifying uncertainty from data, we then propagate this uncertainty through the modelling and simulation phase, and finally add several uncertainty measures for the assimilation phase. It turns out that quantitative uncertainty measures may help in the decision making process.