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Design of a multi-sensor enabled simulation module for tsunami early warning

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The German Contribution to the Indian Ocean Tsunami Early Warning System in Indonesia (GITEWS) will comprise a simulation module which will assist the decision making process of disseminating tsunami warnings to the affected regions. This simulation module will mainly rely on pre-computed scenarios for response time optimization. Other than most of the simulation modules in tsunami early warning systems, the design of our system incorporates the utilization of multiple sensor types for continued improvements of scenario quality. Theses sensor types include seismic sensors, deep ocean pressure gauges, coastal water level gauges, and GPS measurements of the rupture.

This contribution covers the design of the system, which will communicate to client applications with OGC compatible web services. Internally, the system is based on indexed data from a large set of scenarios. These indexed data can also be used for rapid risk assessment at selected locations. Selection processes for determining the most likely scenario based on multiple measurements are presented. This is ongoing work and the final system is scheduled to be implemented by end of 2008.