

# Introduction to the Distant Early Warning System (DEWS)

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One of the great scientific, technical and social challenges resulting from the Indian Ocean Tsunami event of 2004 is the development of a cross border regional tsunami warning system in order to enable the nations around the Indian Ocean to improve the disaster resilience of their societies. The DEWS project, partly funded under the 6<sup>th</sup> Framework Programme of the European Union, has the objective to create a new generation of interoperable tsunami early warning systems based on an open sensor platform. This platform integrates sensor systems for the rapid detection of earthquakes, for the monitoring of sea level, ocean floor events, and ground displacements.

Constituting the next generation of interoperable tsunami early warning systems, DEWS will be based on an open sensor platform, integrating sensor systems for

- earthquake - seismic
- sea level - tide gauge, buoys
- ocean floor - pressure sensors
- ground displacement - GPS land stations

monitoring.

Based on improved upstream (sensor) information flow the downstream capacities will be enhanced by sophisticated information logistics and multi-channel warning dissemination. Alongside excellent state-of-the-art sensor instrumentation it is equally important to establish an IT-platform supporting the integration of additional or completely new sensor systems. Standardised interfaces are used to access event and monitoring data of these sensor systems. GI-TEWS and DEWS are based on the Service Oriented Architecture (SOA), an architectural principle which supports the flexible setup of new process chains by orchestrating IT services, e.g. sensor systems. This in turn opens up the possibility for a new generation of future early warning systems able to protect the population against different types of natural hazards, such as volcano eruptions, floods or land slides.

Within DEWS three prototype implementations, a Principal Demonstrator, a National and a Regional Warning Centre, are planned. While the Principal Demonstrator shows the overall feasibility of the method, the National Centre will focus on public warning. It will disseminate warning messages to the different groups of a population adjusted to the specific need of target organisations, e.g. national and local governments, mayors' offices, police and fire brigades, military, search and rescue organisations, broadcasting media and others. The Regional Centre acts as a fallback/standby system in case a National Centre is hindered in the execution of its tasks. Communication paths exist between Regional and National Centres constituting a multilingual environment.

The philosophy and approach of the DEWS project is based on a technical and methodical two-way transfer of knowledge and know-how between partners. The results and experiences will be swiftly transferred to tsunami prone areas in Europe. A long term implementation of a professional education scheme for early warning systems engineering contributes a corner stone in DEWS.

