

LIVE DEMONSTRATION OF DISTANT EARLY WARNING SYSTEM

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ABSTRACT

The DEWS (Distant Early Warning System) [1] project, funded under the 6th Framework Programme of the European Union, has the objective to create a new generation of interoperable early warning systems based on an open sensor platform. This platform integrates OGC [2] SWE [3] compliant sensor systems for the rapid detection of earthquakes, for the monitoring of sea level, ocean floor events, and ground displacements. Based on the upstream information flow DEWS focuses on the improvement of downstream capacities of warning centres especially by improving information logistics for effective and targeted warning message aggregation for a multilingual environment. Multiple telecommunication channels will be used for the dissemination of warning messages.

Wherever possible, existing standards have been integrated. The Command and Control User Interface (CCUI), a rich client application based on Eclipse RCP (Rich Client Platform) [4] and the open source GIS uDig [5], integrates various OGC services. Using WMS (Web Map Service) [6] and WFS (Web Feature Service) [7] spatial data are utilized to depict the situation picture and to integrate a simulation system via WPS (Web Processing Service) [8] to identify affected areas. Warning messages are compiled and transmitted in the OASIS [9] CAP (Common Alerting Protocol) [10] standard together with addressing information defined via EDXL-DE (Emergency Data Exchange Language – Distribution Element) [11]. Internal interfaces are realized with SOAP [12] web services.

Based on results of GITEWS [13] – in particular the GITEWS Tsunami Service Bus [14] – the DEWS approach provides an implementation for tsunami early warning systems.

The introductory part of the demonstration briefly explains the DEWS project, the CCUI in conjunction with operators' workflow, the system architecture, details of information logistics and the virtual scenario of live demonstration. The live demonstration exhibits the CCUI on screen and the service environment of DEWS working in the background. The demonstration runs through a virtual Tsunami threat located in the Andaman Sea in front of Thailand; Beginning with the detection of an earthquake of critical magnitude and the calculation of early Tsunami predictions; Continuing with sea level measurements and the refinement of Tsunami predictions; Finally reaching the dissemination of warning messages via SMS, mail and other channels.

REFERENCES:

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- [3] SWE, www.opengeospatial.org/projects/groups/sensorweb
- [4] Eclipse RCP, www.eclipse.org/home/categories/rcp.php
- [5] uDig, udig.refractor.net
- [6] WMS, www.opengeospatial.org/standards/wms
- [7] WFS, www.opengeospatial.org/standards/wfs
- [8] WPS, www.opengeospatial.org/standards/wps
- [9] OASIS, www.oasis-open.org
- [10] CAP, www.oasis-open.org/specs/#capv1.1
- [11] EDXL-DE, www.oasis-open.org/specs/#edxlde-v1.0
- [12] SOAP, www.w3.org/TR/soap
- [13] GITEWS (German Indonesian Tsunami Early Warning System) is a project of the German Federal Government to aid the reconstruction of the tsunami-prone Indian Ocean region, www.gitews.org
- [14] The Tsunami Service Bus is the GITEWS sensor system integration platform offering standardised services for the detection and monitoring of tsunamis