Standardisation of tsunami warning message generation in Indonesia: Approach and implementation

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The work presented here is embedded in the German-Indonesian Tsunami Early Warning System (GITEWS) project. GITEWS is funded by the German Federal Ministry of Education and Research (BMBF) to develop a Tsunami Early Warning System for the Indian Ocean in close cooperation with Indonesia. The system integrates terrestrial observation networks of seismology and geodesy with marine measuring sensors, satellite technologies and pre-calculated simulation scenarios.

The GITEWS sensor systems integrate the respective sensor information and process them to aggregated sensor observations in real-time. The processed information from all these sensor systems is transmitted to the GITEWS Decision Support System (DSS) for further processing, analysis and decision support.

Among the main tasks of the GITEWS DSS is the generation of situation awareness (the common operational picture), the generation of decision proposals (if, when and how to warn) and –once the decision to warn has been made– the support of the warning product generation and dissemination process.

The DSS is able to generate situation awareness and individual decision proposals on a very detailed level, considering so called warning segments as homogeneous parts of the coastline to which warnings can be addressed.

The requirements regarding product generation and dissemination include:

- The generation of warning segment specific messages, focussing on the situation in the respective warning segment, and
- The generation of so-called aggregated messages that combine information for many, if not all, warning segments.

In addition,

- as different dissemination channels need to be adressed, the messages mentioned above need be formated according to the needs of the specific dissemination channels, usually resulting in versions like “long”, “short”, “text-only”.

Furthermore,

- in order to adress national and international target groups, multi-lingual versions of the above mentioned messages need to be provided.

The recipients of these messages need to be able to decode all this information, and the chosen format of the DSS products must allow for regionalized and target group specific dissemination.

The paper describes how the GITEWS DSS makes use of the Common Alerting Protocol (CAP) standard in order to adress the above mentioned requirements.

Among the dissemination systems registered with the GITEWS DSS in Jakarta is the 2wcom FM-RDS-based message dissemination system which implements the DSS CAP dissemination interface.

The paper presents the CAP-based warning product dissemination process between the DSS and the 2wcom FM-RDS system, refers to other standard based message dissemination options and gives an outlook on future extensions of the DSS dissemination interface.

Literature

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