Geophysical Research Abstracts,
Vol. 11, EGU2009-9479, 2009
EGU General Assembly 2009

New measuring and evaluation procedures for Tsunami Early Warning

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The Tsunami Early Warning System for the Indian Ocean just recently went into operation in Indonesia. The different sensor stations have, for the most part, been installed and now deliver respective data either online or upon request to the Warning Centre in Jakarta. Before March 2010, however, the interaction between the different component parts must be improved and optimized, personnel needs to be trained and eventual problems in the daily operation have to be dealt with.

This current system differs from previous Tsunami Warning Systems through the application of modern scientific methods and technologies. New procedures for the fast and reliable determination of strong earthquakes, the modelling of tsunamis and the assessment of the situation have been implemented in the Warning System. In particular, the direct incorporation of a broad variety of different sensors provides for information from a number of sources thus resulting in a stable system and minimizing breakdowns. The system includes a seismological network, together with GPS stations and a network of GPS buoys additionally equipped with ocean bottom pressure sensors and a tide gauge network.

The warning system is designed in an open and modular structure based on the most recent developments and standards of information technology. Therefore, the system can easily integrate additional sensor components to be used in other regions such as the Mediterranean Sea and/or for different purposes e.g. storm tides.

Up to now the German Project Group has been cooperating in the Indian Ocean region with Sri Lanka, the Maldives, Yemen, Tanzania and Kenya to build up equipment primarily for seismological monitoring and data evaluation. Close ties have also been established with Australia, South Africa and India for the real-time exchange mainly of seismological, but also of sea level data.