

# New Tsunami Scenarios for Indonesian Early Warning System



The recent earthquake and tsunami in Chile showed once again how important a precise early warning system is. Scientists of the Alfred Wegener Institute are supporting Indonesians in creating new tsunami scenarios for the northeast of the archipelago. The Australian-Indonesian Facility for Disaster Reduction initiated the project and provides a Linux cluster with 212 compute cores for the simulations in the Indonesian capital of Jakarta. This corresponds to the computing power of 50-100 typical workstation PCs.

The Indonesian early warning system was developed and installed by a team of German scientists, led by the German Research Centre for Geosciences (GFZ), after the devastating tsunami of 2004. First of all the most vulnerable and densely populated coast areas of Sumatra, Java and Bali should be considered.

At the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (AWI) a simulation code "TsunAWI" and also a database of 4,400 detailed scenarios for possible earthquakes with magnitudes from 7.2 to 9.0 in the Sunda Trench were developed. Right after an earthquake measuring, the estimated wave heights along the coasts can be expected. The scenarios are also suitable for preparation because they also contain a simulation of the flooding.

Many coasts in the northeast of Indonesia are also threatened by tsunami. In case of a warning there is access to a very fast and simple real-time simulation which estimates the warning level well. However, this simulation is much coarser and doesn't allow for example a detailed look at individual stretches of coastline or the possible flooding.

This gap is now closed in a cooperation with Indonesian and German scientists with Australian support. While in the past, the scenarios and warning products were created by the tsunami modeling group at the AWI, now the Indonesian scientists at the early warning centre in Jakarta are taking over this task. They have been trained in six workshops.

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