Uncertainty reduction in near-field tsunami warning

Joern Behrens (1), Alexey Androsov (2), Sven Harig (2), Florian Klaschka (2), Lars Mentrup (3), Widodo Pranowo (2,4), and Claudia Wekerle (2)

(1) University of Hamburg, KlimaCampus, Numerical Methods in Geosciences, Hamburg, Germany (joern.behrens@zmaw.de), (2) Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany, (3) GCN Consulting GmbH, Bregenz, Austria, (4) United Nations University - Institute for Environment and Human Security (UNU/EHS), Bonn, Germany

Near-field tsunami behavior depends sensitively on the source of the tsunami. In near-field tsunami warning, this source is hard to assess within short time. Therefore, large uncertainty exists on the potential tsunami behavior and related hazard. In order to reduce uncertainty, a theoretical model of uncertainty is proposed. Following this theory, a method to reduce uncertainty with the help of multiple simultaneous evaluations of independent sensor data is derived. Validation of this method is performed, utilizing artificial (simulated) tsunami data as well as data from historic tsunami events. Remarks on the implementation of the procedure and its application in the operational tsunami warning system InaTEWS conclude the presentation.