Geophysical Research Abstracts
Vol. 16, EGU2014-1341, 2014
EGU General Assembly 2014

Extreme tsunami runup simulation at Babi Island due to 1992 Flores tsunami and Okushiri due to 1993 Hokkido tsunami

Dong Chule Kim (1), Byung Ho Choi (2), Kyeong Ok Kim (3), Efim Pelinovsky (4,5,6)

(1) Technology R&D Institute Hyein E&C Co., Ltd, Seoul, Korea (skkkdc@chol.com), (2) Sungkyunkwan University, Suwon, Korea (bhchoi.skku@gmail.com), (3) Korea Institute of Ocean Science & Technology, Ansan, Korea (kyeongok.kim@gmail.com), (4) Institute of Applied Physics, Nizhny Novgorod, Russia (pelinovsky@hydro.appl.sci-nnov.ru), (5) Nizhny Novgorod State Technical University, Nizhny Novgorod, Russia, (6) Special Research Bureau for Automation of Marine Research, Yuzhno-Sakhalinsk, Russia

This study is based on a series of three dimensional numerical modeling experiments to understand the tsunami run-up and inundation process at the circular shape Babi Island in the Indonesia caused by 1992 Flores earthquake tsunami and at Monai valley in Okushiri Island, west part of East (Japan) Sea caused by the 1993 Hokkaido Nansei-Oki earthquake. The wave field in the coastal area is modeled within the framework of fully nonlinear dispersive Reynolds-averaged Navier–Stokes (RANS) equations solved using the FLOW3D code. Boundary conditions for this model were extracted from computed wave characteristics obtained from the 2D tsunami propagation model based on the shallow water equations. This model has shown it effectivity to explain extreme runup characteristics during the 2004 Indian Ocean tsunami and 2011 Japan tsunami (Kim et al, 2013). In case of the 1992 Flores Island tsunami the results of numerical simulation run-up results are compared with field measured run-up heights. It has good agreement with measurement and computational run-up heights. The particle velocity distribution is also computed. In the case of 1993 Okushiri tsunami the numerical simulation reproduces extreme run-up at the Monai valley (31.7 m).