Geophysical Research Abstracts
Vol. 14, EGU2012-1273, 2012
EGU General Assembly 2012

Shallow freak event modeling in Taiwanese waters

D-J. Doong (1), T. Talipova (2), E. Pelinovsky (2,3)

(1) Department of Marine Environmental Informatics, National Taiwan Ocean University, Keelung, Taiwan (doong@mail.ntou.edu.tw), (2) Department of Nonlinear Geophysical Processes, Applied Physics Institute, Nizhny Novgorod, Russia (tata@hydro.appl.sci-nnov.ru), (3) Higher School of Economics, Nizhny Novgorod, Russia (pelinovsky@hydro.appl.sci-nnov.ru)

Data of freak waves recorded by buoys (sensor: gyrometer, sampling rate: 2Hz, measurement duration: 10min) in Taiwanese shallow waters are presented. Four events are discussed: 1) January 20, 2010, Abnormality index Ai = 2.56, Hualien buoy, depth 30 m, distance to the shore 1 km; 2) November 11, 2010, Abnormality index 2.53, Eluanbi Buoy, depth 40 m, distance to the shore 3 km; 3) August 9, 2009, Abnormality index 2.23, Hsinchu Buoy, depth 26 m, distance to the shore 2.5 km; and 4) May 4, 2009, Abnormality index 2.26, Longdong Buoy, depth 30 m, distance to the shore 1 km. All freak waves have sign-variable shape. The modeling of the freak waves is performed in the framework of the variable-coefficient Korteweg – de Vries equation taken into account the variability of the water depth in both, onshore and offshore directions. Results of numerical simulations are used to estimate the life-time of freak waves.