Geophysical Research Abstracts
Vol. 15, EGU2013-1761, 2013
EGU General Assembly 2013

Observations of rogue waves in a basin of intermediate depth and discussion on a possibility of their formation due to the modulational instability

Ira Didenkulova (1,2,3), Irina Nikolkina (1,3), Efim Pelinovsky (3,4,5)

(1) Institute of Cybernetics Tallinn University of Technology, Tallinn, Estonia, (2) MARUM – Center for Marine Environmental Sciences, University of Bremen, Bremen, Germany, (3) Nizhny Novgorod State Technical University n.a. Alekseev, Nizhny Novgorod, Russia, (4) Applied Physics Institute, Department of Nonlinear Geophysical Processes, Nizhny Novgorod, Russian Federation (pelinovsky@hydro.appl.sci-nnov.ru), (5) Far East Federal University and Special Research Bureau for Automation of Marine Researches, Yuzhno-Sakhalinsk, Russia

Properties of rogue waves in the basin of intermediate depth are discussed in comparison with known properties of rogue waves in deep waters. Based on observations of rogue waves in the ocean of intermediate depth we demonstrate that the modulational instability can still play a significant role in their formation for basins of 20 m and larger depth. For basins of smaller depth, the influence of modulational instability is less probable. By using the rational solutions of the nonlinear Schrödinger equation (breathers), it is shown that the rogue wave packet becomes wider and contains more individual waves in intermediate rather than in deep waters, which is also confirmed by observations.