



## **Resonant effects at long wave run-up on a beach of constant slope**

Alexander Ezersky (1), Nizar Abcha (1), Efim Pelinovsky (2,3,4)

(1) UMR CNRS 6143 Morphodynamique Continentale et Côtière, Université Caen Basse, Caen, France, (2) Applied Physics Institute, Department of Nonlinear Geophysical Processes, Nizhny Novgorod, Russian Federation (pelinovsky@hydro.appl.sci-nnov.ru), (3) Nizhny Novgorod State Technical University n.a. Alekseev, Nizhny Novgorod, Russia, (4) Far East Federal University and Special Research Bureau for Automation of Marine Researches, Yuzhno-Sakhalinsk, Russia

Nonlinear wave run-up on the beach caused by harmonic wave maker located at some distance from the shore line is studied experimentally. It is revealed that under certain wave excitation frequencies a significant increase in run-up amplification is observed. It is found that this amplification is due to the excitation of resonant mode in the region between the shoreline and wave maker. Frequency and magnitude of the maximum amplification are in good correlation with the numerical calculation results represented in the paper (Stefanakis et al., 2011)). These effects are very important for understanding the nature of rogue waves in the coastal zone.