



Freak waves observations in the coastal zone of Okhotsk Sea

Konstantin Kuznetsov (1,2), Andrey Zaytsev (2,3), Irina Kostenko (2,3), Efim Pelinovsky (2,3,4), and Andrey Kurkin (2)

(1) Russian University of Peoples' Friendship, Moscow, Russia (konstantin.kouznetsov@gmail.com), (2) Nizhny Novgorod State Technical University n.a. R.E. Alekseev, Nizhny Novgorod, Russian Federation (aakurkin@gmail.com), (3) Special Research Bureau for Automation of Marine Researches Russian Academy of Sciences, Yuzhno-Sakhalinsk, Russia (aakurkin@gmail.com), (4) Institute of Applied Physics, Nizhny Novgorod, Russia (pelinovsky@hydro.appl.sci-nnov.ru)

Instrumental data of the long-term observation of abnormally large waves (freak waves) on the shelf of Sakhalin Island near the village Vsmorie, cape Ostriy, orifice of the Izmenchivae Lake, cape Svobodniy and cape Aniva since 2007 are adduced. These measurements were made with using bottom stations, measuring variations in bottom pressure, induced by surface waves. These sensors do not interfere with navigation and do not affect the ecology of the area. The important problem of the translation variations of bottom pressure in the vertical oscillations of the sea surface is discussed. The linear theory of water waves used here as a first approximation. About 1,400 waves that are abnormal, and their height twice the height of the background waves (amplitude criterion killer waves) are allocated from the total number of individual waves (several million). About 20 waves have a height greater than the height of the background by 2.7 times. The wave group, which was fixed for the term «three sisters» is typical form of abnormal waves. On average, two or three abnormal waves are recorded per day.