



Edge waves along gradient of depths: field observation and numerical modelling

Anton Chernov, Georgy Shevchenko, and Peter Kovalev

Institute of Marine Geology and Geophysics, FEB RAS, Yuzhno-Sakhalinsk, Russia (tme-nn@yandex.ru)

The network of autonomous water level recorders are developed near the Sakhalin Island and South Kuril's Islands in 2006 - 2009. The data which is acquired from this gauges allows to study long waves processes for variety of weather conditions including strong storm and calm sea, record tsunamies and long and wind waves.

Stable low-frequency free oscillations with a period about 80 minutes (and 0.5-fold with a period of 40 min) and amplitude of 10 cm near Svobodnyi and Terpeniya capes were distinguished using spectral analysis of synchronous sea fluctuation records from autonomous bottom gauges which placed in the Terpeniya Bay. Numerical modeling allows to find spatial structure of this waves and comparison of spectral estimations shows good agreement between observation and modeling frequencies.

The analysis of spatial structure and synchronous of measured data shows that this free oscillations is an edge waves which propagate between two capes (Svobodny and Terpeniya) along gradient of depth for a 200 kilometers. The results of numerical modeling shows that maximum amplitudes places near the capes and the node line is just in the middle of the bay.