



Measuring the thickness of the sea ice with the use of storms waves

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Abstract

The paper gives a new method for estimating the average ice thickness along the wave propagation path. The advantage of the proposed method is simpler implementation, since only one wave meter is used and allows to measure the ice thickness along the wave path by remotely sensed. It is possible to use a cable instrument with installing on the bottom and to transmit information about waves. Based on the observations of waves in ice close to Okhotskoe village (south-western part of Sakhalin Island), obtained during the winter 2009–2017, an experimental study of the measuring possibility the thickness of ice in the scale of fast ice was performed. The results of full-scale observations presented here show that the IG waves with a possible fast ice width in the region of s. Okhotsk, allow to measure the attenuated waves with an accuracy sufficient to estimate the thickness of the ice. To determine the dependence of the arrival time of waves of different periods to the observation point, a theoretical model of P. Wadhams was used, taking into account the improvements given by other authors later performed.

Keywords

Infragravity waves, Ice, Wave velocity

References



For citation: Kovalev P.D., Kovalev D.P. Measuring the thickness of the sea ice with the use of storms waves. *Geosystems of Transition Zones*, 2018, vol. 2, N 3, p. 239–244. (In Russian).
doi:10.30730/2541-8912.2018.2.3.239-244