



## Nonlinear transformation of wind waves and swell under ice

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### Abstract

Sea surface vibrations were measured at a close distance from the shore in the ladle of Okhotsk (Sakhalin Island) at a depth of 2 meters under the ice using autonomous wave recorders ARV-14 with one second discretization. The obtained data were used to calculate the oscillation spectra of the sea level in the range of periods from 2 to 120 seconds. Spectra showed the presence of peaks in the periods from 2 to 15 seconds for cases of heavy swell, which are generated due to the nonlinear transformation of the incoming swell. The changes in wave periods under ice as well as the conclusions of model for own liquid oscillations were taken into consideration. The analysis showed that the generation of a longitudinal mode seiches is described properly by the expression obtained F. Raichlen, L. Cherkesov and Y. Maniluk for rectangular pool. In this case, the fundamental mode match to the period of swell.

### Keywords

Wind waves, Swell, Ice, Seiches

### References



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