

## On a new predictor affecting ice formation in the Sea of Okhotsk

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**Abstract.** Heat exchange between the three media – water, ice and air – must be taken into account when predicting the ice dynamics, drift and redistribution. It is known that the components of the heat balance vary quite strongly depending on the boundary of which media they are considered. Evaporation and turbulent heat exchange with the atmosphere are great in the areas of pure water, while evaporation from the surface of ice and snow is much less pronounced. To study the appearance of ice, it is necessary to consider only those environments between which intense heat exchange takes place; these environments are water and the atmosphere. This article studies the thermodynamic processes occurring over the seawater area by the statistical method of correlation analysis using the data on air temperature collected at hydrometeorological stations and those on the ice area from open sources. A new predictor is proposed, indicating a high correlation of 0.90–0.95 between the sum of degrees of daily temperature difference at the hydrometeorological stations of Okha and Oymyakon and the data on the area of the sea ice in the northwestern region of the Sea of Okhotsk on the last day of the month.

*Keywords:*

**hydrometeorological stations, accumulated freezing degree-days, correlations, sea ice**

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## References

Dumanskaya I.O. **2013**. [Change in climatic ice characteristics of the Sea of Okhotsk in the late XX – early XXI century]. *Trudy Gidromettsentra Rossii [Proceedings of the Hydrometcenter of Russia]*, 350: 110–141.

Dumanskaya I.O., Kotilevskaya A.M. **2009**. [Estimation of possibility of the use of forecasting methods of the 20<sup>th</sup> century in contemporary practice of the ice service of navigation in non-arctic seas of Russia]. *Trudy Gidromettsentra Rossii [Proceedings of the Hydrometcenter of Russia]*, 343: 67–88.

Minervin I.G., Romanyuk V.A., Pishchalnik V.M., Truskov P.A., Pokrashenko S.A. **2015**. Zoning of the ice cover of the Sea of Okhotsk and the Sea of Japan. *Vestnik Rossiyskoy akademii nauk = Herald of the Russian Academy of Sciences*, 85: 132–139.

Pishchalnik V.M., Romanyuk V.A., Minervin I.G., Batuhtina A.S. **2016**. Analysis of dynamics for anomalies of the ice cover in the Okhotsk Sea in the period from 1882 to 2015. *Izvestiya TINRO*, 185: 228–239. (In Russ.).

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