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ABSTRACT

Connection between variability of ice drift in Fram strait and structure of drift fields and ice conditions in the Arctic basin at a turn of XX-XXI centuries (*based on satellite datas*)

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In recent years the interest to the Arctic increased due to the offshore energy opportunities, as well as of the possibility of using the Northern Sea Route. Potential growth of business activity in the Arctic and Arctic seas has high requirements for monitoring, diagnostic and forecasting the ice cover as a basical natural element, that limit ecological safety and economic efficiency of economic activity.

The fluctuations in the ice regime of the Arctic Ocean and the Arctic marginal seas and the conditions of navigation along the Northern Sea Route depends on the circulation of the surface waters of the Arctic Basin and the ice drift.

Now we have a huge amount of satellite data and these data were not considered in detail from the perspective of the analysis of the climatic variability of the ice cover of the Arctic Ocean based on changes in the intensity of the large-scale circulation patterns and variability of ice drift fields.

Using the vectorial-algebraical method we can describe fields of statistic characteristics as sets of scalar quantities. Vectorial-algebraical analysis of ice drift speed entertain agregate effects of variability of the module and the direction. The using of variability (*total dispersion, stability, oblongness of an ellipse*) of ice drift fields can give much more information, then only direction and speed of ice drift.

In this presentation we are to characterize connection between ice drift and variability of ice processes in Fram strait and in the Arctic pool at a turn of the XX-XXI centuries. Since 1979 year we classfied a few different types of ice circulation and intensity of drift. We found that there are several stages of development of Anti-cyclonic circulation and Transarctic current, the position of the Transarctic current and the position of the center of Anti-cyclonic circulation connect with each other in different ways. There is also a strong negative correlation between ice area anomalies in the Arctic basin and variability of ice drift in Fram strait. Generally now we can say that the variability of the ice area in the Artic basin depends not only on the temperature anomalies, but also on dynamic characteristics of the basin which are changing from year to year.

