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Variability of total currents in the Kara, Laptev, East-Siberian, and Chukchi seas as a result of mooring data analysis / Ipatov A.Yu., Kuzmin S.B.// Hydrometeorological research and forecasts. 2025, no. 3 (397), pp. 101-120.

The results of the statistical analysis of data on the parameters of near-surface currents performed at 690 autonomous and submerged buoy stations in 1956–2015 during the expeditions of the Arctic and Antarctic research Institute in the Arctic seas are presented. The variability of currents was analyzed separately in open water areas and straits. The statistical method of vector-algebraic analysis was applied for the data analysis. Simple statistical characteristics of the variability of currents were calculated: the mean, the median, and, in some cases, the maximum, the minimum, skewness, and kurtosis. Quantitative estimates of the variance of total (measured) currents, their spatial homogeneity, and the direction of variability were obtained. Unevenness of the parameters of currents in different layers from the surface to the depth of 25 m was established: an increase in the variability of the velocity of currents from the surface to the 10–20 m layer followed by a decrease with depth. The linear connectivity of currents decreases from the horizons of 10(12)–25 m. A decrease in the variability of the velocity of currents with depth is accompanied by an increase in their spatial orderliness expressed in a decrease in the anisotropy of variance (in the compression of the variance ellipse). An increase in the variability of currents with depth is characteristic of measurements performed under ice. The relationship with bottom terrain and the areas of distribution of river water in summer is shown. The results of the study are compared with the results for other seas (the Black, Mediterranean, and Caspian seas).

Keywords: vector-algebraic analysis, buoy stations, variability of total currents, static characteristics, variance tensor

Tab. 5. Fig. 3. Ref. 24.