



Transformation of tsunami waves passing through the Straits of the Kuril Islands

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Pacific ocean and themselves Kuril Islands are located in the zone of high seismic activity, where underwater earthquakes cause tsunamis. They propagate across Pacific ocean and penetrates into the Okhotsk sea. It is natural to expect that the Kuril Islands reflect the Okhotsk sea from the Pacific tsunami waves. It has long been noted that the historical tsunami appeared less intense in the sea of Okhotsk in comparison with the Pacific coast of the Kuril Islands. Despite the fact that in the area of the Kuril Islands and in the Pacific ocean earthquakes with magnitude more than 8 occur, in the entire history of observations on the Okhotsk sea coast catastrophic tsunami was not registered.

The study of the peculiarities of the propagation of historical and hypothetical tsunami in the North-Eastern part of the Pacific ocean was carried out in order to identify level of effect of the Kuril Islands and Straits on them. Tsunami sources were located in the Okhotsk sea and in the Pacific ocean. For this purpose, we performed a series of computational experiments using two bathymetries: 1) with use Kuril Islands; 2) without Kuril Islands. Magnitude and intensity of the tsunami, obtained during numerical simulation of height, were analyzed. The simulation results are compared with the observations. Numerical experiments have shown that in the simulation without the Kuril Islands tsunamis in the Okhotsk sea have higher waves, and in the Central part of the sea relatively quickly damped than in fact.

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