



Peculiarities of hydrophysical processes in the vicinity of cape Svobodniy (south-eastern coast of Sakhalin Island) from the data of instrumental measurements

G. V. Shevchenko¹

V. N. Chastikov²

K. V. Kirillov¹

O. V. Kusaylo³

¹*Institute of Marine Geology and Geophysics FEB RAS,
Yuzhno-Sakhalinsk, Russia*

²*Sakhalin Research Institute of Fisheries and Oceanography,
Yuzhno-Sakhalinsk, Russia*

³*The Central Bank of the Russian Federation in the Yuzhno-Sakhalinsk,
Yuzhno-Sakhalinsk, Russia*

Abstract

Materials of natural experiment have been analyzed, which involved installation of mooring with sensors of flow and CTD-sound for the whole year, as well as measuring the wind waves, sea level and water temperature during warm period of 2012 in the coastal zone. It has been revealed that a significant seasonal variability of coastal streams expressed in the consolidation of SSE-directed stream in October–February and an increase in the average velocity of 2 times occurred; significant weakening in this period of tidal stream, as well as increasing the intensity of residual wind-induced streams occurred as well. Sharp increase in water temperature on the horizon 21 m (from 2–3 to 15 °C) and a decrease in salinity (from 32.8 to 30.5 psu) has been remarked during the stream intensification. Effect of low salinity waters caused by the Amur River discharge takes place in the period from 20 September 2012 till 10 March 2013. Anomalous large temperature variations (up to 10 °C) and salinity variations (up to 0.7 psu, in the opposite with temperature) of water have been found in the period from 14 to 20 July. Their diurnal periodicity is in the relevant to the manifestation of internal Kelvin wave.

Keywords

Temperature, Salinity, Current, Sea level, Sea ice,
Wind, Storm, Internal Kelvin wave

References



For citation: Shevchenko G.V., Chastikov V.N., Kirillov K.V., Kusaylo O.V. Peculiarities of hydrophysical processes in the vicinity of cape Svobodniy (south-eastern coast of Sakhalin Island) from the data of instrumental measurements. *Geosystems of Transition Zones*, 2018, vol. 2, N 2, p. 81–91. (In Russian). doi:10.30730/2541-8912. 2018.2.2.081-091