



Mantle anomalies of gravitational and “free surface” kind, and their relationship with the deep processes

V. N. Senachin

O. V. Veselov

M. V. Senachin

*Institute of Marine Geology and Geophysics of the Far Eastern Branch
of RAS Yuzhno-Sakhalinsk, Russia*

Abstract

The calculation of the depth of “free surface” of mantle (FSW) has been conducted for the estimate of density of the lithosphere of the Okhotomorsky region and the north-western part of the Pacific Ocean. The paper also represents the method of estimates and the accuracy of the estimated data. The reasons of beginning of FSW anomalies have been analyzed by the example of the Sea of Okhotsk, in a comparison with the data of the region crust composition and his shortening. It is concluded that the most probable reason of the reduction of the isostatic anomalies is the extension of the sea bottom. The Kurile abyssal trough opened according to the spreading mechanism. The FSW level of abyssal depressions of the north-western part of the Pacific Ocean comes nearer to the normal. Whereas the FSW deepening in the Sea of Okhotsk may denote on the presense of the material packing in the deep upper mantle of the Okhotomorsky region.

Keywords

“Free surface” of mantle, Thermal generation, Conductivity,
Moho boundary, Okhotomorsky region, Anomalies, Spreading

References



For citation: Senachin V.N., Veselov O.V., Senachin M.V. Mantle anomalies of gravitational and “free surface” kind, and their relationship with the deep processes. *Geosystems of Transition Zones*, 2018, vol. 2, N 3, p. 196–224. (In Russian). doi:10.30730/2541-8912.2018.2.2.196-224