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Vertical motion modeling as a result of mantle convection on the Sea of Okhotsk profile

Rustam F. Bulgakov, https://orcid.org/0000-0001-9095-3785, r.bulgakov@imgg.ru

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

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Abstract. Vertical motions, especially in the active continental margins such as Kuril-Kamchatka transition zone, are still pure studied. One of the factors significantly affecting the amplitudes and directions of vertical motions is mantle convections. Estimates of the amplitudes of vertical motions in region have been obtained by means of numerical modeling of the mantle convection made by the method of finite elements. The values of emergences in the area of Sakhalin Island and the Kuril Ridge from 0–3 to 13 m were obtained with the accepted rates of mantle convection from 1 to 5 mm/year. The results obtained should be taken into account when reconstructing neotectonic history of the region and assessing the geodynamic situation in the region of the Sea of Okhotsk.

Keywords:

mantle convection, region of the Sea of Okhotsk, vertical motions, method of finite elements, Moho discontinuity

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