

Subduction processes related to the Sea of Okhotsk

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It is obviously important to study a role of subduction processes in tectonic activity within the continental margins. They are marked by earthquakes, volcanic eruptions, tsunami and other natural disasters hazardous to the people, plants and animals that inhabit such regions. The northwest part of the Sea of Okhotsk including the northern part of Sakhalin Island and the Deryugin Basin is the area of the recent intensive tectonic movements. The geological and geophysical data have made it possible to construct the geodynamic model of a deep structure of a lithosphere for this region. This geodynamic model has confirmed the existence of the ophiolite complex in the region under consideration. It located between the North Sakhalin sedimentary basin and the Deryugin basin. The Deryugin basin was formed on the side of an ancient deep trench after subducting the Okhotsk Sea Plate under Sakhalin in the Late Cretaceous-Paleogene. The North Sakhalin Basin with oil and gas resources was formed on the side of back-arc basin at that time. Approximately in the Miocene period the subduction process, apparently, has stopped. The remains of the subduction zone in the form of ophiolite complex have been identified according to geological and geophysical data. On a surface the subduction zone is shown as deep faults stretched along Sakhalin.