

Paleolake of Shkot Island: natural archive of climatic and landscape changes

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Abstract [Резюме RUS](#)

Results of a biostratigraphic study carried out on a paleolake discovered on Shkot Island in the Eugénie Archipelago within Peter the Great Gulf of the Sea of Japan are presented. The study, which included diatom and pollen analyses, identified the presence of non-pollen palynomorphs and microcharcoal deposited during the formation of the island's tombolo, providing a record of environment changes taking place during the second half of the Middle Holocene. A reconstruction carried out on the basis of this data shows an evolution through the stages of desalinated lagoon and freshwater lake, whose active swamping began around 1240 cal BP, with the formation of a peat bog taking place over the course of around 1000 years. At the base of the peat bog, B-Tm volcanic ash marking the caldera-forming eruption of the Baitoushan volcano was identified. Most of the volcanic glass grains have a trachyte composition. The approximate dates of invasions of sea water in the paleolake having occurred during strong storms or tsunamis were determined. In addition to marine sublittoral diatoms, neritic and silicoflagellate species were found in the sediments. It is shown that the lake was once rich in aquatic vegetation, including rare species. During the Holocene optimum, the island was covered by forests with a large participation of broadleaf tree species, including oak and hornbeam. The degradation of these forests during short-period climate fluctuations with an overall cooling trend was determined along with the main vegetation development phases. Conifers appeared on the island under the cooler conditions of the Late Holocene, with Korean pine being most common in the Medieval Warm Period. Forest vegetation became sparser during the Little Ice Age. The human impact on paleo landscapes, associated with the settlement of the island and the activity of ancient humans, was revealed. Traces of paleo fires were identified along with their age and influence on local vegetation patterns.

Keywords

island landscapes, paleolake, climatic changes, middle-late Holocene,
South Primorye

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