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Palaeoclimates, vegetation and geochronology of landscape-climatic evolution on the coast of the southwestern margin of Sakhalin in the Middle–Late Holocene

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Abstract. A comprehensive study of lacustrine-swamp sediments made it possible to clarify the landscape and climatic changes on the sea coast of southwestern Sakhalin from the end of the Atlantic Period of Holocene to the present time. The end of Period (5400–5300 Cal.yrBP) is reflected whith the sediments of a small freshwater lake in the mouth zone of river, which arose during the transgressive phase of the Sea of Japan, the level of which was 2–2.5 m higher than the present day. The climate was much warmer than the present one, and only slightly inferior to Holocene optimum conditions. The vegetation cover consisted of broad-leaved forests with oak predominance and mixed associations. The Subboreal Period was recorded by two events warmer than the present climate. The first of them corresponded to the early thermal maximum of the period (4100–3600 Cal.yrBP), close in terms of heat supply to the final of Atlantic Period. Its relative aridity determined the insignificant participation of dark coniferous species (*Picea, Abies*) in the vegetation, which was dominated by broad-leaved forests with oak predominance. The second event (3500–2900? Cal.yrBP) corresponded to the late thermal maximum of the Period, with a cooler and more humid climate. It led to a weakening of the significance of broad-leaved forests in the vegetation cover and the appearance of dark coniferous taiga massifs. In the middle of the Subatlantic Period (1700–1450 Cal.yrBP), a climate developed that determined the predominance of the modern taiga landscape, without the participation of the hemlock (*Tsuga diversifolia*). For the first time, an episode warmer than the current climate was discovered, which most likely corresponded to the relative cooling of the IX – early Xth centuries observed in Japan during the period of the “Medieval Warm Period”. Broad-leaved trees in the forests then met more often than during the warming of the second half of the XIV–XVth centuries and modernity. Anthropogenic changes in the XXth century led to the spread of open landscapes with bamboo thickets in southwestern Sakhalin and the predominance of birch in the vegetation cover.

Keywords:

landscape-climatic change, radiocarbon dating, pollen assemblage, diatoms, sea coast, lacustrine sediments, peat bog

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