

Lacustrine paleoarchives of environmental changes of Peschany Peninsula, Sea of Japan (South Primorye)

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Abstract. The stages of evolution of two barrier lakes and vegetation development of the Peschany Peninsula (South Primorye) have been reconstructed on the base of multi-proxy study of the sediment sequences, connected with hydroclimatic changes over the past 6300 years. Tephra of the caldera-forming eruption of Baitoushan volcano (946/947 AD) is one of the chronological markers. The Middle Holocene paleolake existed on the accumulative landform, and the lake on the isthmus connecting the paleoisland with the mainland, was formed at the beginning of the Late Holocene. Several periods of watering due to precipitation increase are distinguished in its development. Redeposited freshwater diatoms from subbasalt deposits are bioindicators of sheet wash activation during heavy rains associated with typhoons. Findings of valves of marine and brackish diatoms indicate the passage of extreme storms. Overgrowing of the paleolake began at the end of the Holocene thermal optimum (~5410 years ago). The periods of dryness are usually associated with cooling and a decrease in the intensity of the summer monsoon. The Little Ice Age is the exception: the flooding of the swamp with a relict lake on the isthmus increased sharply. A change of Korean pine/broad-leaved forests with the participation of fir, birches and polydominant broad-leaved forests was established. It is shown that since the Holocene Optimum there have been ecotopes with contrasting heat and moisture supply. Human impact to geosystems was recorded. Paleolimnological studies made possible to identify the Middle-Late Holocene short-period climatic rhythm on the coast of the Amur Bay. The manifestation of cold and warm events has been established, their correlation with regional data and global events has been carried out, and the connection with ocean anomalies and the intensity of the summer monsoon has been shown.

Keywords:

coastal lakes, vegetation, climatic changes, summer monsoon, cyclogenesis, extremal storms, radiocarbon dating, Baitoushan volcano tephra, South Far East

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