



Reflection of the Holocene events in coastal mire deposits in the South-Eastern Baltic region: a case study in the Russian part of the Neman Delta area

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According to a multi-proxy survey conducted in the coastal raised bog Koz'ye in the Russian part of the Neman Delta, the Holocene history of forest and mire formation in this landscape area was reconstructed. The analysis of plant macro-remnants in peat (botanical composition), the pollen analysis and the radiocarbon dating were carried out for a 700-cm peat bed, and their results were then integrated and interpreted having been compared with the data for Lithuanian part the Delta.

The age of lower layers was dated as 9750 cal. yr BP which provides an opportunity to reveal the environmental events since the Early Boreal. The obtained data enable to assume an occurrence of a permanent transition from the Late Glacial cryophilic vegetation to open pine and birch forests during that time. Nevertheless, it has been established that the cryophilic tundra-like vegetation, which were a character for the previous colder Pre-Boreal period, remained here up to the second half of the Boreal. A 200-800-year delay in expansion of thermophilic broad-leaved species (*Quercus*, *Ulmus*, *Tilia*) was also recorded. Several temporal delays were revealed here in the course of vegetation formation while they had not been reported for the other landscapes in the Kaliningrad Region.

During the second Littorina transgression (L2, 7500-7000 cal. yr BP), a vast coastal area in the study region was likely submerged by waters of the forming Baltic which led to a widespread distribution of the alder carrs. A peak expansion of *Alnus* communities occurred here only in the second half of the Sub-Boreal (around 3600-2600 cal. yr BP), while in adjacent areas it reached its maximum as early as in the Atlantic.

The general Holocene vegetation dynamics in this area could be referred to a transition from the pine forest dominance to a wide-spread dispersal of the alder carr communities. This environmental shift was caused both by climatic factors and transformation of the hilly coastal terrace into low-lying plain morainic landscape after flooding during the second Littorina transgression.

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