



Reconstruction of a coastal raised bog development in the Curonian spit (Baltic Sea coast, Kaliningrad Region, Russia)

Tatiana Napreenko-Dorokhova (1,2), Maxim Napreenko (1,2), and Dmitry Subetto (3)

(1) Shirshov Institute of Oceanology, Russian Academy of Sciences, Moscow, Russian Federation (tnapdor@gmail.com), (2) Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation (maxnapr@gmail.com), (3) Herzen State Pedagogical University of Russia, Saint Petersburg, Russian Federation (subetto@mail.ru)

The deposits of a bog Svinoye were investigated in order to define main development stages of a peculiar coastal mire located in the proximal part of the Curonian spit, the UNESCO World Heritage Site in the South-Eastern Baltic. The height of the sediment core studied is 1000 cm, its major part consists of different types of peat (0-860 cm), the lower part (860-895 cm) is represented by gyttja which gradually change into clay with sand at the bottom sector (895-1000 cm). The analysis of the taxonomic diversity of plant macro-remnants in peat and the palynological analysis as well as radiocarbon dating were performed. The leveling of the bog surface and the manual peat bed probing were carried out along the axis running across mire area from the Baltic Sea shore to the coast of the Curonian Lagoon. A massive peat bed is found to be underlain mostly by gyttja layers of limnic origin. Based on the analysis of plant macro-remnants in peat, a litho-stratigraphic cross-section for the raised bog Svinoye was generated which depicts a structure of the bog and palaeosuccessions of plant communities during the Holocene. It was assigned that mire formation process was launched 7200-7100 cal.yr BP with the development of reed stretches and alder carrs. These habitats appeared to undergo inundation during the second Littorina transgression which resulted into deposition of heavily-watered fen peat layers. Around 5700 cal.yr BP, a gradual formation of a transition mire started, initially with the development of sedge fens, which later (4500 cal.yr BP) changed into communities with domination of *Eriophorum* and *Sphagna*. Unlike most other peatlands in the region, the stage of a transition mire was the most long-lasting having been existed more than 3500 years. A formation of a typical raised bog began around 2000 cal.yr BP. Around 200 years ago, the ecosystem of the Svinoye bog attained a character of the coastal mire with a wide distribution of Atlantic species. At the beginning of the XX century, the ecosystem suffered from a hard draining which caused drastic changes in its structure. Based on results of palynological analysis, a pollen diagram was plotted which presents a vegetation dynamics in the southern part of the Curonian Spit and adjacent area as well as climatic fluctuations over the past 7500 years. A mean sediment accumulation rate is calculated which was set to 1.2 mm per year.

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