



Late glacial and Holocene paleoenvironments as reflected by lake sediment records on Valday Highland (northwestern Russia)

Grigory Fedorov (1,2), Larisa Savelieva (1), Nikita Bobrov (1), Anna Ludikova (3), Dmitry Bolshiyarov (2), Anna Cherezova (1,2), Anna Starikova (1), Janet Rethemeyer (4), Natalia Kostrimina (1,2), Aleksey Titov (1), and Aleksey Fedorov (1)

(1) St. Petersburg State University, Russia (g.fedorov@spbu.ru), (2) Arctic and Antarctic Research Institute, Russia, (3) Institute of Limnology, Russian Academy of Sciences, Russia, (4) Institute of Geology and Mineralogy, University of Cologne, Germany

Valday Highland is a marginal zone of the Last Valday (Weichselian) glaciation maximum stage. Three lakes inside of this zone have been investigated to understand the paleoenvironmental changes since Late Glacial time.

Lakes Zvan (maximum depth 5 m) and Piros (maximum depth 11.5 m) located on northeastern slope of Valday Highland only 10-20 km to the north from reconstructed maximum ice extend border. Lake Zhizhitskoe (maximum depth 8 m) located 260 km to the south-west on northwestern slope of Valday Highland.

To understand lake basins morphology, sediment thickness and structure, ground-penetrating radar (GPR) survey performed on all the lakes. Sediment cores with length up to 5.5 m collected from lake ice by Russian peat corer. All the cores were subjected to the following analyses: detail lithological description, pollen and diatom analyses, total organic carbon and nitrogen content analysis. In total 21 radiocarbon ages were obtained.

Obtained results allow us to make following conclusions:

All three lake depressions have a karst origin and started to form during Allerod warming.

The sediments of all three lakes reflected significant shallowing or even hiatus during Preboreal and Boreal periods of Holocene. This allow us to suggest that recorded event was not local and driven by climate.

Detailed vegetation character reconstructions in deferent parts of Valday Highland shows clear correlation for Late Glacial time and significant differences for the Holocene part of the record. This illustrate the especially important role of local conditions (elevation, exposition, bedrock characteristics etceteras) under interglacial climate.

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