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## **The global warming impact on the North Eurasian ecosystems, retroanalysis for the projection**

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The paleogeographic analog method has been applied to estimate future changes in the state of the main components of the environment of the East European Plain at three time intervals within the 21<sup>st</sup> century (the 2030s, 2050s and 2080s). Two warm epochs of the past, the Holocene optimum (c.5.5 kyr BP) and the Mikulino (Eemian) interglacial optimum (c.125 kyr BP) have been chosen as paleoanalog. In the first decades of the 21<sup>st</sup> century the most probable changes involve herbaceous plants and tree regrowth. It will only be by the end of the century that tree-species penetration of new area and shifts of zonal boundaries may be expected. The predicted increase in potential evaporation may result in a reduction of wetland areas and slower peat formation. In the north of the plain, soil-forming processes will presumably respond to warming mainly via accelerated humification. Somewhat enhanced leaching would be typical for the subzone of podzolic soils at the end of century, thus bringing about the initial phase of sod-podzolic soil formation. The area of chestnut soils will show a tendency to decrease as compared with the present day. Some undesirable geomorphological processes and natural hazards are also considered. In the first decades the decay of permafrost would result in solifluction processes, and ice wedge thawing would enhance linear erosion and the development of gullies: on the whole, the land surface will be less stable. Other effects are a higher frequency of dust storm and an increase of solid runoff. Those processes may be stimulated by large topographic features (the Central Russian Upland).

### **Biography**

Velichko Andrey A has completed his PhD in 1957 and in 1969 was awarded the degree of Doctor of Science, both at the Institute of Geography Russian Academy of Sciences. From 1972 he is the director of Laboratory of the evolutionary geography at the same Institute. He has published more than 300 papers and books in reputed Russians and international editions.

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