

ENVIRONMENTAL AND GEOGRAPHICAL CONSEQUENCES OF GLOBAL WARMING ON THE EAST EUROPEAN AND WESTERN SIBERIA PLAINS DURING XXI CENTURY

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Based on results of the CMIP3, the environmental, geographical and economical consequences of global warming on the East European and Western Siberia Plains during XXI century were investigated. First of all, we analyzed how well climate models reproduce current climate, including both mean values and PDFs. Verification of modeling data has allowed selecting such parameters that can be reproduced with good level of skills. It was estimated the changes of hydroclimate resources; the river runoff response to global warming (including snow cover changes and both annual runoff and high spring water discharge); permafrost changes (taking into account the influence of landscape changes feedback) focusing on building engineering aspects such as changes of the power of the pile frozen into the permafrost soil and change in the forces of the cryogenic swelling; reaction of vegetation cover with accent to climatically-projected changes of geographical distribution of vegetation zones; the response of malaria (probability, intensity, geographical distribution).

Environmental and geographical response to global warming has allowed assessing the changes of the climatically-induced resources. It was explored the wind-power resources and hydro-power resources, changes in specialization of the agriculture (including changes of wood production), duration of the house heating period and so on. After that the status of branches of economy depending on climate were explored.

Principal conclusions are:

- Strong regionally-differentiated response to the global warming (stronger in the Eastern European plain in comparison to Western Siberia region).
- Global warming activates specific geographically-ecological process in the different regions (the destruction of permafrost occurs in the Arctic, desertification occurs in the south part of investigated area, etc).
- Climate variations practically nowhere have a favorable effect, at least, in the immediate future
- Serious reduction of hydrological resources and deterioration of hydro environmental conditions is expected in the south part of the East European plain.

