PREDICTION OF IMPACT OF CLIMATE CHANGES ON GROUND WATER

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The changes in the global air temperatures, the rainfall rates, evaporation, and evaporativity, which are predicted by climatologists all over the world, will not fail to affect the hydrosphere, as a whole, including the ground water, as well as the related environment and social conditions. The predicted changes in the ground-water regime and reserves will inevitably affect the environment. For example, a rise in the carbon dioxide in the atmosphere will promote an increase in the crop yield (up to 20%, according to some estimates). The warming will move the zones of sustainable farming 5-7oC to the north, thus enlarging the productive lands in Russia. Simultaneously, the irrigated-zone boundaries will move to the north. The areas occupied by the permafrost are expected to reduce by 30-40%, with thus increasing the extra squares for farming and husbandry. The energy expenses for heating will be cut, which is of great importance for Russia.An increase in the surface and subsurface drainage will rise the low-water discharge in rivers, which will both improve the navigation conditions and contribute to the energy production in minor rivers. The water supply of population will become safer in the low-water periods. All this will promote the population migration to the north. In addition, though insignificant, a rise in the ground-water recharge and level will cause town underflooding, land overmoistening and swamping, intensification of some geodynamic processes (landslides, mudflows, collapses, solifluction, and karst), gleying, a decrease in the bearing capacity of soils and rocks, a decrease in ground-water protection from contamination, worsening the sanitary conditions, etc. in the northern areas.