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UNIVERSAL THERMAL CLIMATE INDEX IN THE MIDDLE
OF THE 21st CENTURY ACCORDING TO MODEL FORECASTS

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The Universal Thermal Climate Index (UTCI) was used to assess the bioclimatic conditions on the territory of Russia in the middle of the 21st century. Seasonal and regional features of the UTCI were studied under future climate conditions (2040–2059), for “soft” (SSP1-2.6) and “hard” (SSP5-8.5) scenarios. The BioKlima 2.6 software package was used to calculate average daily UTCI values. Daily data from three models participating in CMIP6 (Coupled Model Intercomparison Project) were used for the calculation: the Marchuk Institute of Numerical Mathematics RAS, the Met Office Hadley Centre and the Max Planck Institute for Meteorology. Cold stress conditions will continue to prevail on the territory of Russia under the future climate conditions for both scenarios. In winter (January), cold stress of various gradations will be observed in almost the whole territory. In summer (July), conditions without heat stress will be observed in most of Russia, and comfort in the South. The assessment of possible future changes in bioclimatic conditions in Russia in the middle of the 21st century (2040–2059) showed that for both scenarios there will be a noticeable trend towards a reduction in the number of days with severe cold stress and an increase in the number of days with heat stress in the south of the European territory and in the South and in center of Siberia, especially according to the SSP5-8.5 scenario. The percentage of days with the UTCI “no thermal stress” gradation will increase over most of Russia. The emerging trends will contribute to the improvement of the bioclimate in the regions with the worst conditions, in the North and East of the country, and to the deterioration of conditions in the most favorable regions in the South, due to an increase in the number of days with heat stress.

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