Application of urban microclimatic model for simulation of temperature regime of Moscow region.

Pavel I Konstantinov (Lomonossov Moscow State University), Alexander V Kislov.

Abstract

Within the framework of this study the simple model allowing to reproduce climatic conditions of the city was developed. It was applied to predict temperature regime in Moscow region in Russia for the middle and the end of XXI century. It based on the data provided by GCM and RM models and allows to predict meteorological condition with spatial resolution about 0.5 km?0.5 km.

In the study it was shown that the thermal regime of Moscow area as well as Moscow surrounding areas are well reproduced by developed model. The model allows to describe realistically a spatial heterogeneity of temperature in July both under modern and future climatic conditions. It was also shown, that the area of "warm islands" in Moscow is characterized by very high probability of extreme event occurrence. In July 2050 and 2100 the probability of this occurrence will be significantly higher than at present The same thing we can say about the climate of 2100.

Thus, in the near future the climate of Moscow during the summer period will be hotter, and it will result in different environmental problems and increased energy demand.