



## **Investigation of detailed spatial structure of the Moscow megacity climate features according to the newest meteorological observations and regional climate modelling with connection to human comfort**

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During the last years, the network of meteorological observation in Moscow megacity and its neighborhoods, forming the biggest urban agglomeration in Europe, was significantly extended. Several new weather stations and completely new dense network of urban air quality monitoring sensors appears during the last decade. These measurements allowed revealing undiscovered features of Moscow megacity climate, including and spatial structure of the urban heat island (UHI) and spatial distribution of human comfort indices within the city and its neighborhood. In our research, based on the data of newest meteorological observations and regional climate modelling with regional climate model COSMO-CLM, coupled with TEB urban scheme (Masson, 2000; Masson, 2000; Trusilova et. al., 2013), we consider detailed spatial structure of the temperature and humidity fields within Moscow megacity, their relationships with building features, such as land use and morphology of the street canyons, obtained by GIS-algorithms according (Samsonov et. al, 2015) and the influence of wind speed and direction of their shape. Evaluation of the human comfort in different parts of the city, based on several indices (WBGT, ET, wind chill, etc.), calculated according to the data of meteorological observations and regional climate modelling, was made for summer heat waves, including famous heat wave of 2010, and for the periods of extreme frost in winter.

### References:

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