



Thermal comfort assessment in Moscow during the summer 2010

Elizaveta Malinina and Pavel Konstantinov
Russian Federation (malininaep@gmail.com)

Biometeorological indices are used to assess thermal comfort conditions and evaluate the influence of the weather on the human organism and health. Despite the fact, that some biometeorological indices are already used in weather forecast, the assessment of these indices is especially important during the extreme weather conditions like continuous heat or cold waves. One of the very urgent issues in the applied climatology is the assessment of thermal comfort conditions in the urban areas, because nowadays more than half population of the planet lives there. Especially important is to study thermal comfort conditions in biggest and, thus, densely populated cities, because the effect of heat waves becomes stronger by the urban heat island effect. In July and August 2010 in the biggest city in Russia - Moscow, where more than 11 million people live, the longest and the strongest heat wave as well as the warmest day (29th of July 2010) were recorded since the meteorological observations in Russian capital were started. The main objective of this work is to evaluate the thermal comfort conditions of the warmest day in Moscow. For that purpose several biometeorological indices, particularly PET (physiological equivalent temperature), were analyzed and calculated for the warmest day in Russian capital. The calculations were done for the certain city canyon on the territory of the Moscow State University as well as for the places with natural vegetation. The results were compared with each other and, thus, the complex thermal comfort assessment was done. Also, the results of the calculations for the 29th of July 2010 were compared with the mean meteorological data for this period.