



Modeling of summer thermal comfort conditions of Arctic city on microscale

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In this study, we consider the results of the modeling research of the thermal comfort of Apatity town with population about 57 000 inhabitants (the fifth among the biggest cities, located to the north from the Arctic circle), located in Murmansk region of Russia. In 2016 we performed here first constant measurements of UHI (Urban Heat Island)'s intensity by automatic weather stations during winter 2015- spring 2017 (Konstantinov et.al, 2016). Received data of this measurements network allows us to simulate thermal comfort conditions in «Apatity's science campus» - central district of city.

The main goal of this investigation is deep analysis of spatial and temporal characteristics of PET (physiological equivalent temperature) for 500 m² populated area in central part of Kola Peninsula during short Arctic summer.

PET index and radiation fields is calculated using RayMan model (Matzarakis et al, 2007). This model calculates the radiation temperature, average radiation fluxes and biometeorological indices (PET, PMV, SET) at a particular point at a particular time.