



Urban heat island of Prague in changing climate

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The role of cities is increasing and will continue to increase in future, as the population within the urban areas is growing faster and cities themselves are becoming larger. The artificial urban surfaces are specific by many kind of properties and their complex structures and geometry give rise to specific processes affecting significantly the urban environment. To assess the impact of cities and urban surfaces on climate and weather, the modelling approach is commonly used and the inclusion of urban parameterization in land-surface interactions is of primary importance to capture all the urban effects properly. This is especially important when going to higher resolution, which is common trend both in operational weather prediction and regional climate modeling and which is necessary for proper assessment of potential impacts within the cities as well as of the effectiveness of adaptation and mitigation options cities' authorities can apply. This is extremely important not only in e.g. extreme heat waves impact prediction in urban environment with direct effects on the population, but as well in air-quality prediction and in long term perspective in connection to climate change impacts. However, it is difficult to downscale all the scenarios simulations to assess the full uncertainty. The attempt to use the comparison of high resolution regional simulation and satellite measurement of urban heat island for adjustment method to be applied to the other lower resolution simulation coming both from CMIP and CORDEX simulations for Operational Program Prague - The Pole of Growth entitled Proof of Concept will be presented.

Especially MODIS and LAND-SAF surface temperature satellite data have been used in our study. The results of their analysis provide complex picture of the Prague's urban heat island under different circumstances like daytime, season, weather situation. Various features of the urban heat island like the size, shape and intensity are analysed as well, providing the adjustment option for standard downscaling simulations.