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Simulation of Prague urban area with the integrated WRF/urban modelling system

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Simulations of urban weather for Prague urban area have been performed using the WRF/urban modellling system with urban surface parametrized by the BEM (Building Energy Model).

The simulation has been performed for the whole calendar year 2010 on five nested domains, with horizontal resolution of the two finest domains 1 km and 333 m. High resolution data of the urban canopy and statistical properties of buildings, streets and other objects used by the BEM submodel were developed from the detailed GIS data supplied by City Development Authority of Prague.

The results of the simulation will be presented in comparison with the model without urbanized meteorology and in comparison with measurement data. The results show significant differences in various meteorological variables and we will concentrate on the quantities which have high impact on the heat comfort during hot summer periods. This means that both traditional meteorological variables (temperature at 2 m, wind speed, humidity) as well as subjective variables (physiological equivalent temperature) will be investigated. Statistical overview for the whole year as well as the results from hot summer episodes will be presented.