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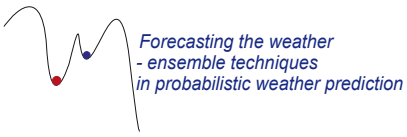

Urban climate model of Vienna - a sensitivity study

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In cooperation with the German Meteorological Service (DWD) we applied the dynamical urban climate model MUKLIMO_3 to simulate the local scale circulation across the Vienna urban area. The study intend to evaluate the impact of the climate change on the urban heat stress and the efficiency of adaptation strategies in the city planning of Vienna. The urban model simulations have been based on the topography and land use data provided by the Vienna city administration with the resolution of 10-100 m. In order to investigate efficiency of proposed adaptation strategies such as changing the composition and structure of the build-up areas or enlarging green and water surfaces, it is necessary to establish a reference model simulation which is validated against observations.
In this presentation we show the ability of the MUKLIMO_3 to simulate features of the local circulation which include typical urban-suburban-rural thermal gradients, the influence of the nearby forest areas and effects on the wind field. Additionally, we perform a number of model test runs by changing the input parameters to assess the sensitivity of the temperature distribution in the model simulations to different parameterizations. The model sensitivity simulations are conducted for a daily cycle of hypothetical summer days in Vienna and the parameters include initial temperature inside buildings, soil and water temperature, the K-value and the mean vertical temperature profile.