Developing Multi-Layer and Single-Layer Urban Canopy Models and Urban Climate Simulation by WRF with UCM

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Abstract

Regional Climate Models (RCMs) with less than 10-km resolution have been recently used to predict future climate of Japan islands in the big projects of Japan (e.g., KAKUSHIN and S-5-3). In the project S-5-3, the Weather Research and Forecasting (WRF) model is used as one of the RCMs. Considering the current situation, the basic performance of the WRF model for local-scale climate simulation should be evaluated before the future climate prediction.

My talk consists of four topics regarding the effort of the S-5-3 group of the University of Tsukuba, (i) the basic performance of the WRF for the urban climate simulation (4-km horizontal resolution and 5-year time integration), (ii) the future summertime urban climate prediction in 2070's using the WRF model with 3-km horizontal resolution, (iii) development of the single-layer and multi-layer urban canopy models, (iv) the impact of single-layer urban canopy model on the summertime urban climate simulation. Results will be presented in the workshop.