

Performance of the WRF model as a high resolution urban climate model

Hiroyuki Kusaka, Fei Chen, Mukul Tewari, Jimy Dudhia, Yukako Miya,
and Yuko Akimoto

Abstract

The Weather Research and Forecasting (WRF) model has been developed as the next generation model after the MM5, which has been widely used globally. The number of urban climatologists who use WRF for urban climate study has been lately increasing. Recently, the performance of the WRF has been confirmed in several case studies with regards to the urban heat islands. However, the results for the climate simulations have not been validated. In this study, we report the performance of the WRF as a regional climate model with high spatial resolution for urban climate study. Numerical integrations of the model are conducted for 7 consecutive years from July 27st to September 1st. Thereafter, the monthly averaged surface air temperature and accumulated precipitation for the 7 years are validated against the observations. Additionally, an inter-comparison study of the land surface model is performed.