AOGS 2005

Impacts of Land Surface Conditions on the Simulation of Heavy Rainfalls over Korean Peninsula

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Impacts of land surface conditions, such as the prescription of land cover and topography, on the numerical simulation of heavy rainfalls over Korean peninsula are investigated using meso-scale model (MM5). Five types of experiment are performed using the different land surface conditions in order to examine the impacts of land surface conditions, for the 7 selected heavy rainfall cases. The spatial resolutions of 3-step nested model domains are 54km, 18km, and 6 km, respectively. The initial and boundary conditions used in this simulation are NCEP/NCAR reanalysis data with 6 hour intervals and 1^o x 1^o resolutions. As in the previous studies, the skills of MM5 for the precipitation are clearly lowered as the precipitation intensity increased. The modifications of land cover and topography change the simulated rainfalls considerably not only the amount/locations but also the onset/cease of rainfalls.