



Abstract Details

[AOGS 1st Annual Meeting](#) > [Ocean and Atmospheres](#) > **Numerical Simulation of a Heavy Rainfall Event at a Mountain Area of the Korean Peninsula: Role of Topography and GTS Data** >

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Title: Numerical Simulation of a Heavy Rainfall Event at a Mountain Area of the Korean Peninsula: Role of Topography and GTS Data

Abstract:

The intense precipitation event that occurred on 31 July 1998 caused extensive flooding around Jiri mountain in the southern part of Korea. This precipitation event was simulated using a fine terrain data and NCEP/Reanalysis plus GTS(Global Telecommunication System) as initial data in the MM5 mesoscale model. A control experiment simulates the observed precipitation peaks and the magnitude of the most intense precipitation. The results of the experiment indicate that the precipitation is associated with the convergence of the upstream flow blocked by the mountain. Sensitivity experiments were conducted to investigate the effects of GTS and topography. Even though only one GTS site exists in the model domain, the GTS produced a striking increase of the amount of precipitation compared with the experiment without GTS. The role of the topography is crucial for the determination of the distribution and the amount of precipitation.

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