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Corresponding Author : Prof. Jai-Ho Oh (ymmin@climate.pknu.ac.kr)

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Title: Short-Range Rainfall Forecast with Quantitative Precipitation Model over the Korean Peninsula

Abstract: Quantitative rainfall forecasting using rainfall predictions from a mesoscale weather prediction model in combination with a diagnostic rainfall model incorporating small-scale topography variability is demonstrated. Rainfall predicted by the Mesoscale Model 5 (MM5) on a 27 km and 9 km grid is disaggregated onto a 3 km grid using a diagnostic rainfall model which adds the effects of small-scale topography. A heavy rainfall event in Korean peninsula is used to evaluate the model performance. In this study we examine the capability of diagnostic rainfall model in terms of how well represented the observed several rainfall events and which is the most optimistic resolution of the mesoscale model in which diagnostic rainfall model is nested. Also, we examine the integration time to provide reasonable fine-mesh rainfall information. As a result, QPM has a capability to provide fine-mesh rainfall information in terms of time and accuracy compared to full dynamical fine-mesh mesoscale model.

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Co-Authors

No.	Title	First Name	Family Name	Organization
1	Prof.	Jai-Ho	Oh	Pukyong National Univ.
2	Mr.	Hanse	Yi	Pukyong National Univ.
3	Mr.	Tae-Kook	Kim	Water Resources Management Center
4	Ms.	Ok-Yeon	Kim	Pukyong National Univ.

