



Evaluation of a new autoconversion parameter in a cumulus parameterization scheme

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A new conversion parameter for convective rain, which is derived based on the results from cloud-resolving model simulations, is implemented in the simplified Arakawa-Schubert scheme (Pan and Wu, 1995) and evaluated for the short-range forecast (for the heavy rainfall event over the Korean peninsula on 27 July 2011) as well as medium-range forecasts (for July 2013) using Global/Regional Integrated Model system (GRIMs). While the old autoconversion parameter is assumed to be constant, the new autoconversion parameter decreases exponentially with decreasing temperature below 0°C. The implementation of the new autoconversion parameter generally leads to the improvement of the medium-range forecast skill such as skill scores for the 500-hPa geopotential height and precipitation, especially over the tropics. For heavy precipitation above 20 mm day⁻¹, however, it is shown that the short- and medium-range forecast experiments with new autoconversion parameter tend to reduce precipitation too much. More detailed results and discussion will be given in the presentation.