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Short-Term Rainfall Prediction Methods with Weather Radar and Numerical Atmospheric Model

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First, current status of short-term rainfall prediction using weather radar will be briefly reviewed. Second, effects of 4DD assimilation of three-dimensional distributions of radar echo and Doppler velocity by a hydrostatic atmospheric model will be presented. The 4DD assimilation is realized by the variational method for Doppler velocity and the extended Kalman filter for radar echo. Final, effects in rainfall prediction of coupling an advanced land surface process model with a nonhydrostatic atmospheric model will be presented. Especially effects of surface process through forest and urbanization will be shown based on two case studies.