

Quantitative Daily Precipitation Forecasting for Integrated Real-Time Basin Water Management System

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Our main goal is to establish the forecast system for daily precipitation as a part of the real-time basin water management system. At present, we are mainly dependent on the several statistical methods for long-range rainfall forecast. But these statistical methods cannot reflect the dynamical changes of the atmospheric motion. In this study, we implement the numerical forecast technique as well as statistical methods to generate the daily precipitation. QPM is a diagnostic model which calculates the precipitation by considering the effect of small scale topography. QPM has capability to provide high resolution precipitation information in terms of accuracy and computational efficiency. Two types of global and regional forecasts are produced at Korea Metrological Administration, RDAPS (Regional Data Assimilation and Prediction System) of 48 hours forecasting fields and GDAPS (Global Data Assimilation and Prediction System) of 10 days forecasting fields. For the numerical forecast technique, we use RDAPS data for the first 2 days precipitation forecast of QPM (Quantitative Precipitation Model). And then, for the next 8 days forecast QPM utilizes GDAPS data. This method can predict precipitation only for 10 days. For the rest of the month (next 20 days) forecast, we apply statistical method. In this statistical method observed rainfall tendency of the past 20 years have been introduced based on updated KMA observed dataset. Overall Quantitative Daily Precipitation Forecasting using numerical and statistical method is the most suitable for the real-time basin water management system.