

## **Effect of Stochastic Weather Data on Simulation of Crop Growth and Development**

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A crop model - based growth and yield simulation is now a common practice in climate change impact assessment. Since daily weather data are necessary to run most crop models, climate outlooks which are produced on a seasonal or longer time scale, should be converted to daily time step by using weather generators. Ten sets of random estimates for daily temperature and solar radiation were generated from monthly averages of daily observations at 4 crop experiment stations in 2001-2010. CERES-rice tuned for genetic coefficients of domestic cultivars (1 early- and 1 late- maturity group) were run by the observed and the generated weather data to simulate the phenological and growth characteristics during the same period. While the generated temperature data were within the range of the observations, solar radiation was consistently underestimated by the random generation process and smaller in inter-annual variation. Consequently, heading and physiological maturity simulated by the generated weather data were delayed by 4 and 7 days, respectively. The yield and dry matter were increased due possibly to the longer growing period. Results throw a question on the reliability of the crop model based climate change impact study.

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