



## **Evaluation of the Relationship between the Variability in the Water Cycle and the Demand for Water for Food Production in the Northeastern Region of Thailand**

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Variability in the water cycle driven by climate change is considered to significantly impact food production in the near future; hence, government officials are very concerned about this issue for water resources management. The field-scale variability in water resources can be evaluated by several methods; however, the methods suitable for evaluating the regional-scale variability in water resources in order to formulate policy decisions are few in number.

The purpose of this study is to evaluate the variability in the water cycle and its impact on food production, especially rice production in rainfed paddy fields on a regional scale by constructing and developing a hydrological process and crop yield estimation model. Field observations, including interviews with farmers and remote sensing from satellites on flooding and a crop calendar in rainfed paddy fields, were performed to confirm the assumptions and parameters in these models. Within the framework of this study, we obtained good estimation results of the time-scale variability in agricultural water resources and the resultant rice yield in northeastern Thailand.