



Agro-Meteorological Database for Climate-Smart Rice Production

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Rice productivity and quality in Japan is being impacted by global warming and climate variability, particularly during the heading and ripening periods of rice. To overcome these negative effects, the design of adaptation and mitigation strategies of rice production is imperative. To this end, a Crop-meteorological Database (MeteoCrop DB), integrating agro-meteorological database and crop models, has been developed for assessing the impacts of climate change on rice production in Japan (<http://meteocrop.dc.affrc.go.jp/real>). MeteoCrop DB, currently in Japanese language only, consists of daily meteorological data across Japan from 1980 to 2013. The database consists of air temperature, wind speed, precipitation, sunshine duration, hourly solar radiation, humidity, downward long-wave radiation, potential evaporation and crop evapotranspiration, etc. The models of micro-meteorology in rice canopy and growth are available in combination with the agro-meteorological data to estimate daily mean water temperature in rice paddy during the growth period, diurnal change in rice panicle temperature during the flowering period, and phenological stages of rice cultivar Koshihikari. The meteorological data and the model estimation in MeteoCrop DB facilitate the analysis of the effects of current climate change and variability on rice production, contributing to the risk assessment for future rice production and developing new technologies such as varietal improvement and integrated crop management to adapt to changing climate. The new version of MeteoCrop DB (Version 2) with the latest agro-meteorological data for practical paddy-rice field operations has been released on 13 November 2013. With prior approval, MeteoCrop DB can be emulated and modified for other countries in monsoon Asia.

Reference

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