



## **Impact of global warming on rice production in Japan based on five coupled Atmosphere-Ocean GCMs**

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This study updates the projection of global warming impact on rice production in Japan using five coupled Atmosphere-Ocean General Circulation Model (AOGCM) products under the SRES A1B scenario. Projection of daily maximum and minimum temperatures and daily total solar radiation for each AOGCM product are fed to a regional-scale rice model by which the rice heading day and yield are simulated. Most climate model results show that while the heading day becomes significantly earlier, the yield mostly remained in the range of inter-annual variability of the present climate. Projected future yield shows a distinct pattern of increase in the northern Japan and decrease in the southwestern Japan, with exception in parts of Kyushu. Projected yield change in the central Japan differs depending on the location of the prefecture. The trend of change in yield is consistent among simulation years in the northern and central Japan whereas it varies year-to-year in the southwestern Japan. The variance in yield over southwestern Japan possibly becomes larger due to heat stress as a result of global warming.