

Development of future climate scenario based on multi GCMs of CMIP5 and rain gridded data observed by multi-agencies in Thailand

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A bias-corrected future climate scenario is developed using multiple General Circulation Models (GCMs) outputs of CMIP5 (Coupled Model Intercomparison Project Phase 5) and rain gridded data observed by Thai Meteorological Department (TMD), Royal Irrigation Department (RID), and Department of National Parks, Wildlife and Plant Conservation (DNP) in Thailand during the period from 2080 to 2099. This dataset enabled us to conduct a projection considered spread in projections derived from multiple GCMs. Multiple performance-based projections were obtained using the correlation of monsoon rainfall between GCMs and several agencies observations. Because these three agencies (TMD, RID, and DNP) observation network covered mainly plain, area of along river, and mountainous region, respectively, it could avoid underestimating when we use only TMD and RID dataset as usual. Our results highlight the importance of appropriate evaluation for the performance of GCMs, and the impact assessment on climate change.

Keywords: climate change, general circulation model, driving dataset