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# Finding the accurate CMIP6 models to represent the precipitation pattern of Europe

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## Abstract

Recently, studies with several GCM combinations are used for projection has been increased. Important issue in these studies is the selection of representative GCM combinations. This study tries to answer which combinations are more representative to show the monthly precipitation patterns of observed area. The quality of further efforts like future projections, drought and flood calculations depends on the accuracy of GCMs. Researchers focus on the average of the errors (a single value), the absolute values of the difference between models and measurements, and this value symbolizes model's success in representing the observed variable over the focused area. This way, for small portions of the observed regions, shortcomings and major errors of the models are overlooked, since these errors are eliminated by averaging the errors over the observed region. In this study, errors are not neglected by averaging, and the correct GCM combinations are selected by considering all the errors in all grid points. Monthly CMIP6 precipitation data from 1976 to 2005 over Europe were chosen as the model data and the CRU data was chosen as the observation data for the same period. The absolute average errors of these models will be calculated for each season over each grid point. A limit value will be determined by intercomparison of the models, and models with errors less than this limit value will be considered more successful in representing Europe's precipitation.

**Keywords:** CMIP6, precipitation, Europe, climate model

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