



Investigating uncertainty of average and extremes for projections of future daily precipitation

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Climate change affects both the average and extreme states of the variables that describe atmosphere circulation. However, there is a significant disagreement between projections of future daily precipitation depending on the climate models used. This study considers the spread of projections of daily precipitation around the mean to quantify uncertainty. This measure allows assessment of model uncertainty, scenario uncertainty, ensemble uncertainty expressed as the Square Root of Error Variance (SREV). The influence of each source of uncertainty on the spatiotemporal distribution of mean uncertainty over the globe is investigated. Additionally, uncertainty of mean precipitation is compared with the uncertainty of extremes. It is found that uncertainty of mean daily precipitation and uncertainty of its extremes have different spatial distributions and behaviors at the regional scale. For example, in Australia, there is less agreement between climate models in simulating mean daily precipitation than its extremes.