

Changes in precipitation characteristics over North America for doubled CO₂

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We conducted two 10-year climate simulations for North America that correspond to present-day CO₂ (1991–1999) and future conditions with doubled CO₂ (2090–2099). Our study focused on changes in precipitation characteristics using comparisons of model simulations with observations from recent decades exhibiting a predominance of cool and warm periods. The predicted trends were strikingly similar to observations and suggest that heavy precipitation events ($>32 \text{ mm day}^{-1}$) will become more prevalent in the U.S. under increased CO₂. Moreover, precipitation in the future should become more episodic and convectively driven than at present with larger daily amounts. Our results point to an increased prevalence of drying and flooding conditions across the U.S. at the end of the 21st century.

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