

The Western United States Dynamically Downscaled Dataset (WUS-D3)

Objective

Develop a km-scale dynamically downscaled ensemble of CMIP6 GCMs across the western United States that:

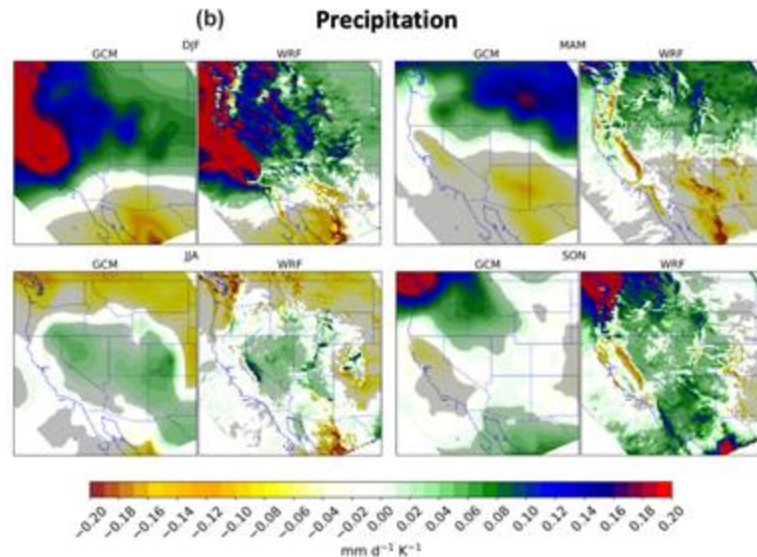
1. Accounts for GCM bias
2. Preserves CMIP6 future changes in precipitation and temperature
3. Candidly presents its own biases and challenges in creation for CMIP7 data providers

Approach

- 16 CMIP6 GCMs were downscaled to 9-km from 1980-2100 with hourly outputs
- Initially in support of California's Fifth Climate Change Assessment, outputs tailored to stakeholder needs

Impact

- Dataset can be used to inform basic science, impacts modeling, and power adaptation planning efforts across the West



Future changes in mean precipitation in 14-GCM mean, normalized by the amount of mean global warming, computed using the 1981-2010 and 2070-2099 time periods by season. Hatching denotes statistical significance.

Rahimi, S., Huang, L., Norris, J., Hall, A., Goldenson, N., Krantz, W., Bass, B., Thackeray, C., Lin, H., Chen, D., Dennis, E., Collins, E., Lebo, Z. J., Slinsky, E., Graves, S., Biyani, S., Wang, B., Cropper, S., and the UCLA Center for Climate Science Team: An overview of the Western United States Dynamically Downscaled Dataset (WUS-D3), *Geoscientific Model Development*, 17, 2265–2286, <https://doi.org/10.5194/gmd-17-2265-2024>.