

# **Supplement of: The North American CORDEX-CMIP6 WRF evaluation run: comparing historical simulations from 25 km to convection-permitting scales**

Jacob Stuienvolt-Allen<sup>1</sup>, Trude Eidhammer<sup>1</sup>, Rachel McCrary<sup>1</sup>, Melissa Bukovsky<sup>2</sup>, Stefan Rahimi<sup>3</sup>, Hsin-I Chang<sup>4</sup>, and Seth McGinnis<sup>1</sup>

<sup>1</sup>National Center for Atmospheric Research, Boulder, CO 80301

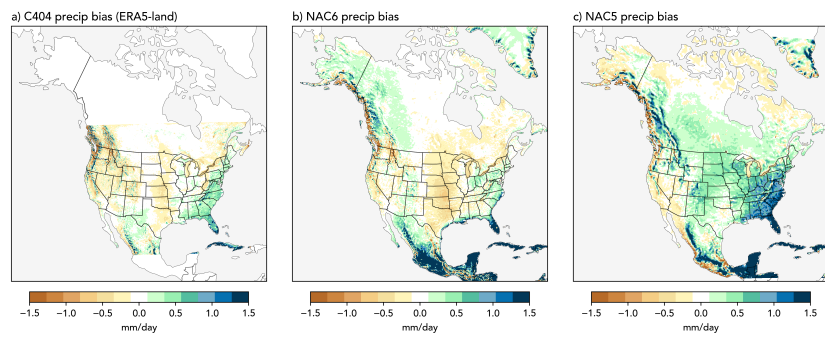
<sup>2</sup>Haub School of Environment and Natural Resources, University of Wyoming, Laramie, WY 82070

<sup>3</sup>Department of Atmospheric Science, University of Wyoming, Laramie, WY 82070

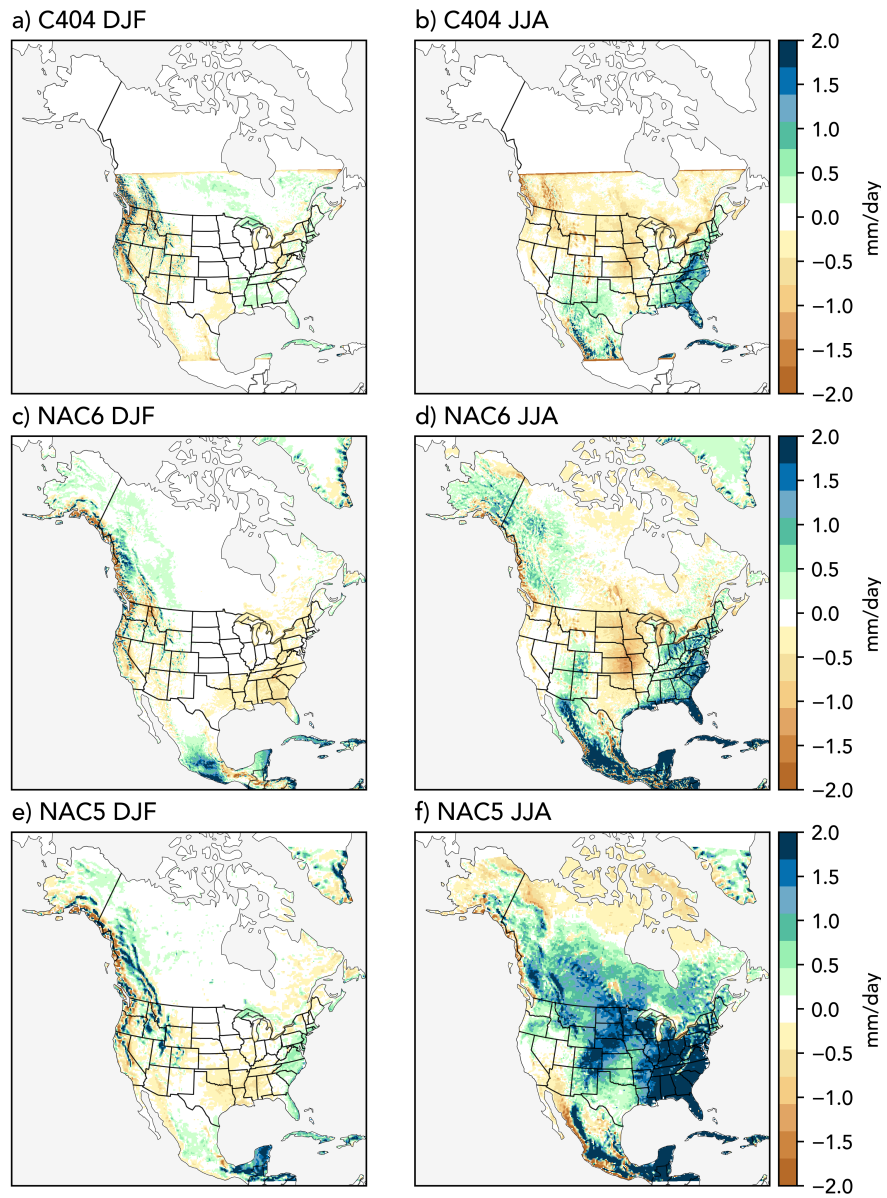
<sup>4</sup>Department of Hydrology and Atmospheric Science, University of Arizona, Tucson, AZ 85721

**Correspondence:** Jacob Stuienvolt-Allen (jsallen@ucar.edu)

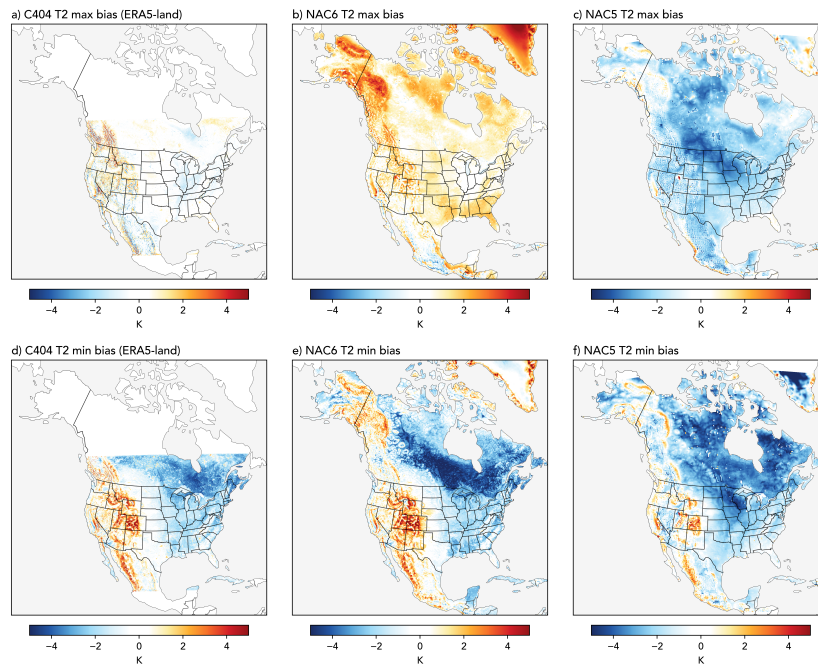
## **1 Supporting Figures S1-S5**



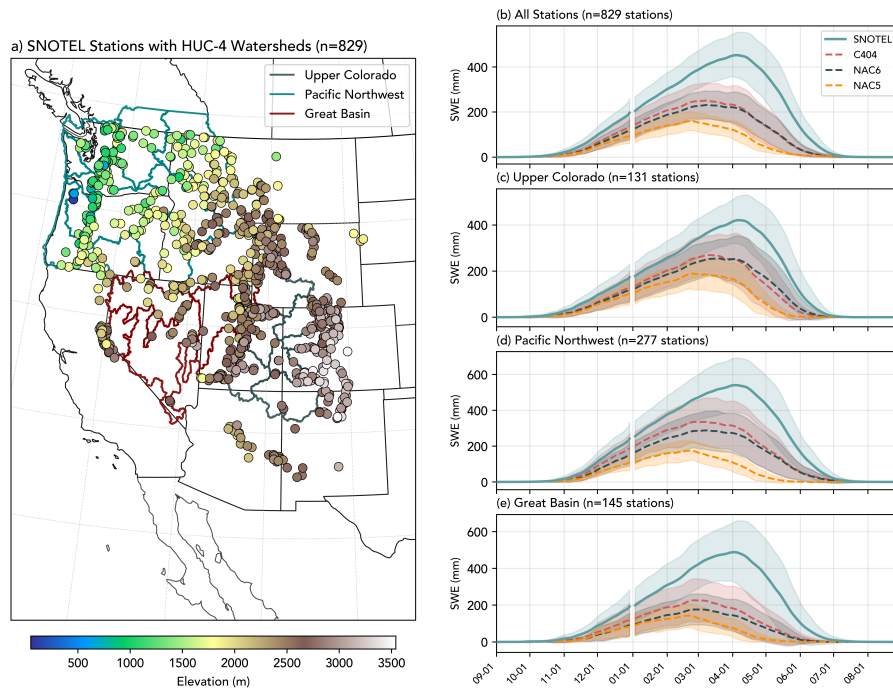
**Figure S1.** Climatological bias of precipitation for C404 (a), NAC6 (b), and NAC5 (c) using ERA5-Land as a reference dataset from 1980-2010.



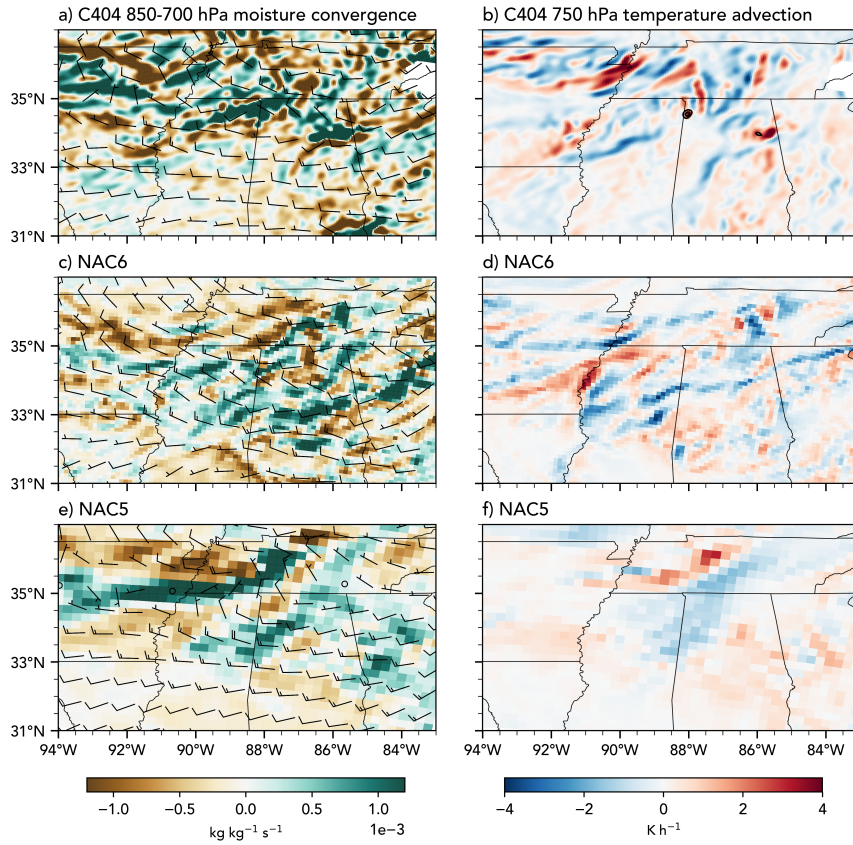
**Figure S2.** Winter (DJF) and Summer (JJA) climatological bias of precipitation for C404 (a,b), NAC6 (c,d), and NAC5 (e,f) using ERA5-Land as a reference dataset.



**Figure S3.** Climatological bias of maximum and minimum daily 2-meter air temperature for C404 (a,d), NAC6 (b,e), and NAC5 (c,f) using ERA5-Land as a reference dataset from 1980-2010



**Figure S4.** Spatial location and elevation of SNOTEL sites used as reference data for station-based SWE overlaid with Hydrologic Unit Code 8 (HUC8) watersheds (a). Comparison of daily-mean SWE (with 14-day rolling mean applied) at the gridpoints in closest proximity to the SNOTEL sites for all SNOTEL stations (b) and three HUC-4 watersheds: the Upper Colorado River (c), the Pacific Northwest (d), and the Great Basin (e). Shading represents the year-to-year variability expressed as the standard deviation of the smoothed daily-mean values for the analysis period (1980-2010).



**Figure S5.** 925-700 hPa moisture convergence and 850 hPa temperature advection across the southern Great Plains on July 22, 2003 at 18z.