

SUPPLEMENTARY MATERIAL: The Canadian Surface Reanalysis (CaSR) v3.2 precipitation dataset: A 45-year high-resolution analysis for North America (1980–2024)

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S1 Verification network in the LOO framework

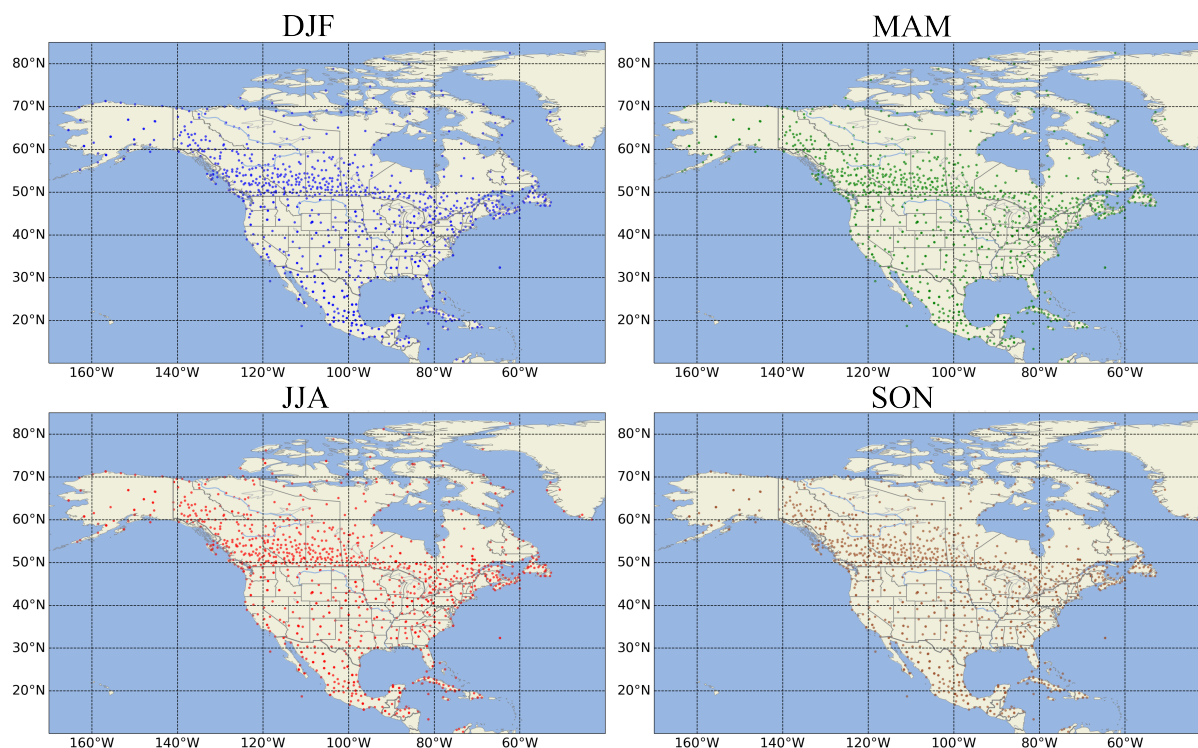


Figure S1. Location of the stations retained for evaluation after spatial thinning to a $0.1^\circ \times 0.1^\circ$ grid, shown separately for each season. Winter and spring (DJF and MAM) include adjusted daily and hourly networks together with manual synoptic stations, while summer and autumn (JJA and SON) also include automatic stations in addition to the adjusted networks.

S2 Comparison of gridded datasets

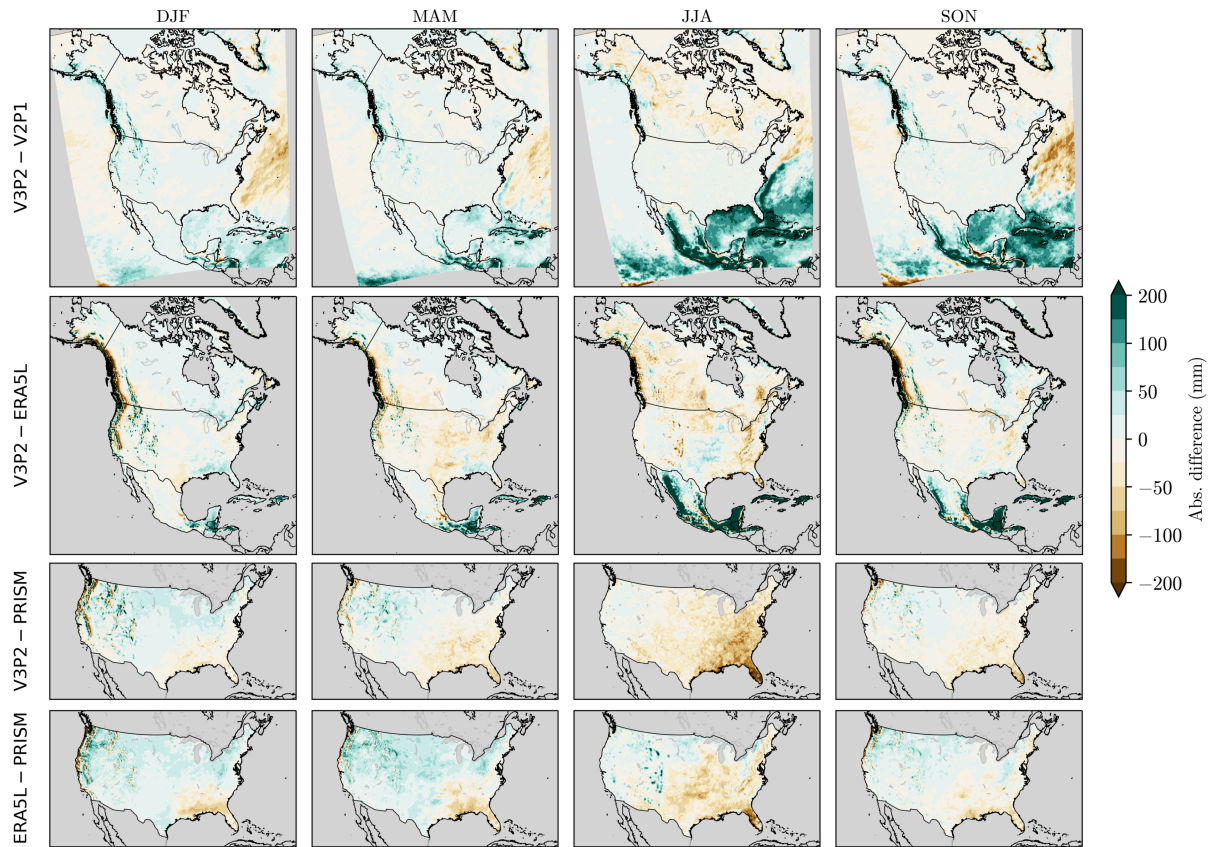


Figure S2. Mean differences over 2002–2018 in seasonal accumulation between (from top to bottom): CaPA-24h v3.2 and v2.1, CaPA-24h v3.2 and ERA5-Land, CaPA-24h v3.2 and PRISM, and ERA5-Land and PRISM. Each column corresponds to a season: winter (DJF), spring (MAM), summer (JJA), and autumn (SON).

S3 KGE scores for Rx5Day and R99pTOT

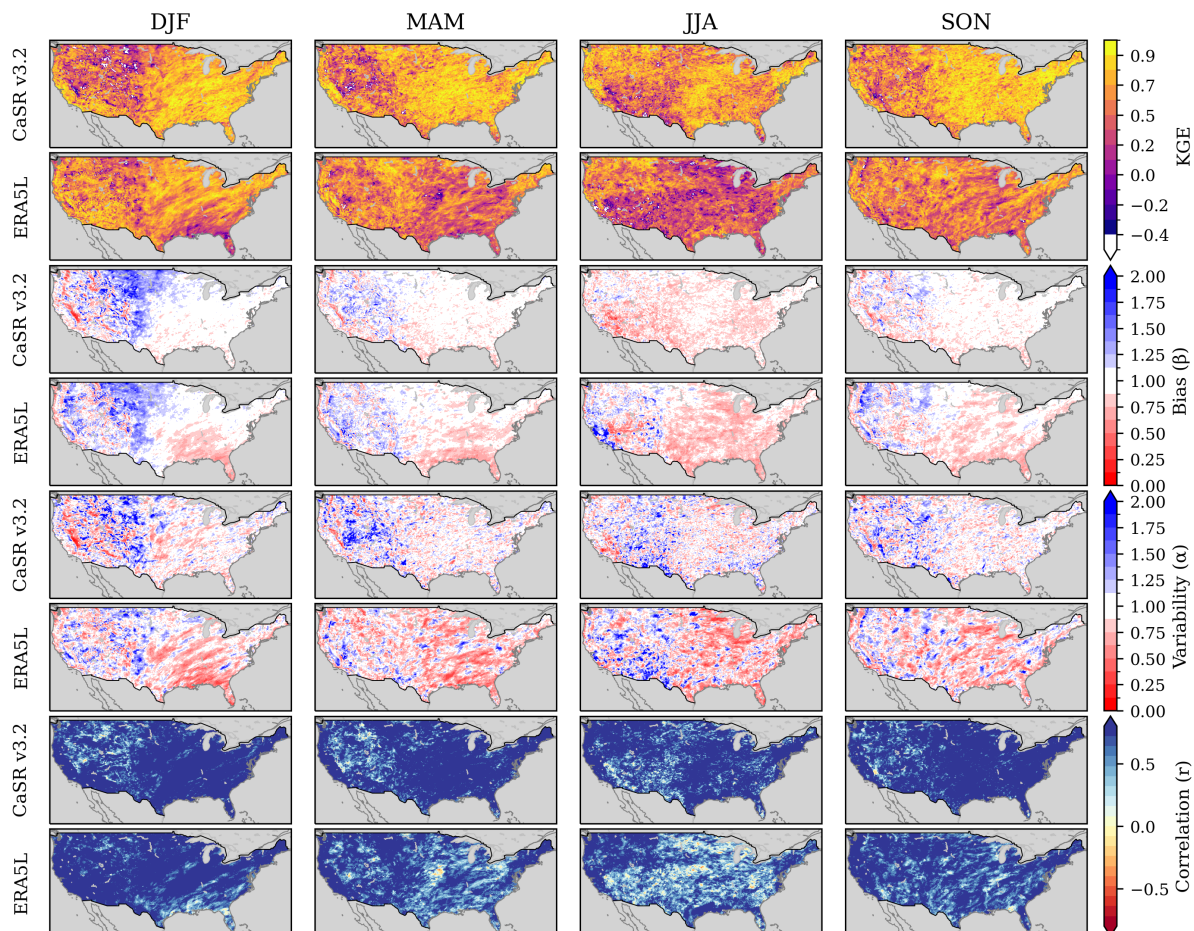


Figure S3. Kling–Gupta Efficiency (KGE) and its three components – bias ratio (β), variability ratio (α), and correlation (r) – for the annual **Rx5Day** index, computed separately for each season (columns) and for the 2002-2018 period. Every other row corresponds to a different reanalysis, with CaPA-24h v3.2 and ERA5-Land evaluated against PRISM. The y-axis labels indicate the reanalysis product being compared. For all four metrics, a value of one represents a perfect match with PRISM.

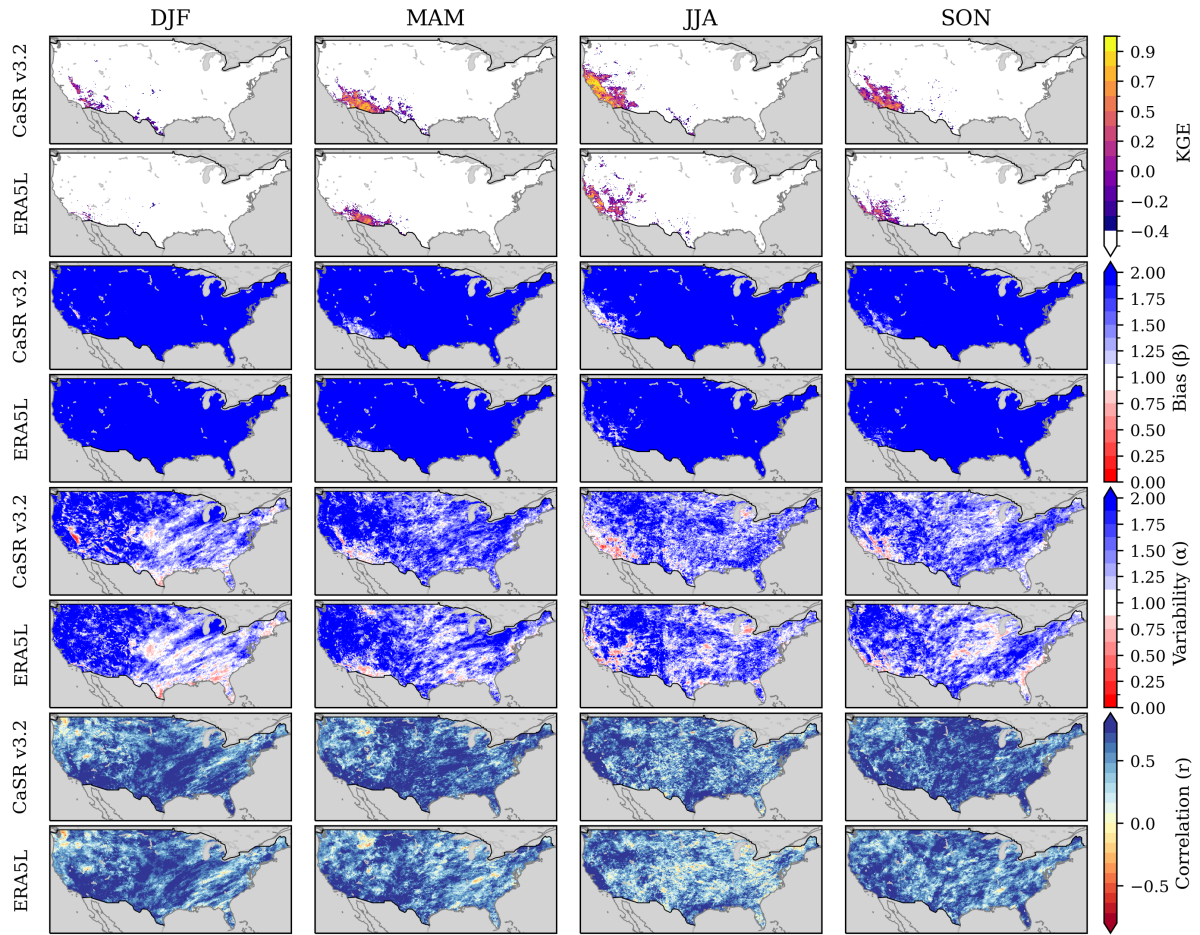


Figure S4. Kling–Gupta Efficiency (KGE) and its three components – bias ratio (β), variability ratio (α), and correlation (r) – for the annual **R95pTOT** index, computed separately for each season (columns) and for the 2002-2018 period. Every other row corresponds to a different reanalysis, with CaPA-24h v3.2 and ERA5-Land evaluated against PRISM. The y-axis labels indicate the reanalysis product being compared. For all four metrics, a value of one represents a perfect match with PRISM.