Supplemental Figures for Indices of Extremes: Geographic patterns of change in extremes and associated vegetation impacts under climate intervention

Mari R. Tye[1], Katherine Dagon[1], Maria J. Molina[1], Jadwiga H. Richter[1], Daniele Visioni[2], Ben Kravitz[3,4], Simone Tilmes[5]

[1] Climate Global Dynamics Laboratory, National Center for Atmospheric Research, Boulder, CO

[2] Sibley School for Mechanical and Aerospace Engineering, Cornell University, Ithaca, NY

[3] Department of Earth and Atmospheric Sciences, Indiana University, Bloomington, IN

[4] Atmospheric Sciences and Global Change Division, Pacific Northwest National Laboratory, Richland, WA

[5] Atmospheric Chemistry, Observations, and Modeling Laboratory, National Center for Atmospheric Research, Boulder, CO

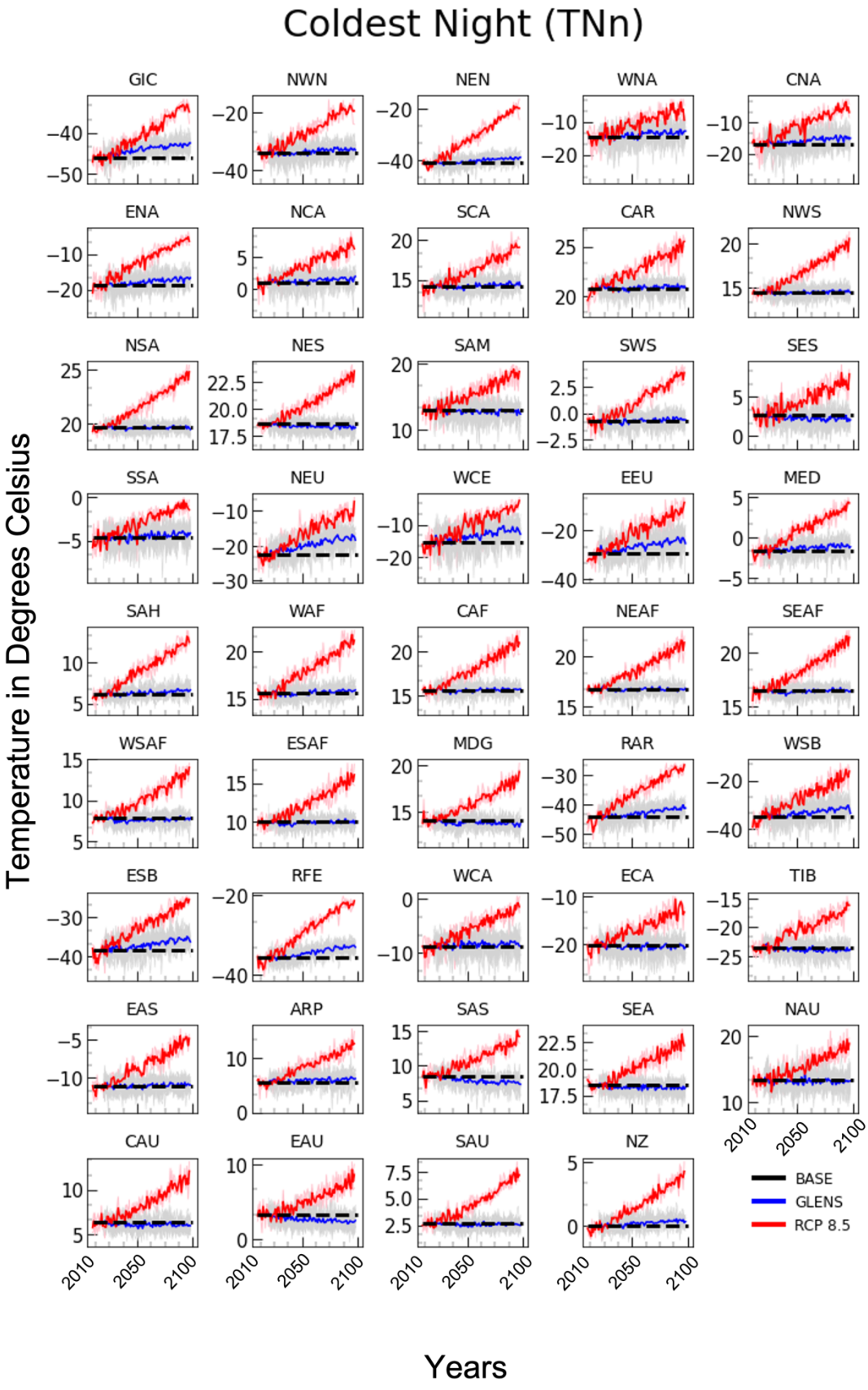


Figure S1: Projected Changes in Annual Minimum Temperatures (Coldest Night; TNN) Regional Mean Time Series Comparing the ensemble mean from RCP8.5 (2010-2097; red), BASE (2010-2030, black dash), and GLENS (2020-

2099; blue). Individual member lines for RCP8.5 in pink and for GLENS in grey. Companion to Figure 2a, Figure 3 and Figure 12. Showing the AR6 Land Regions (Iturbide et al., 2020) Greenland/Iceland (GIC), N.W. North-America (NWN), N.E. North-America (NEN); W. North-America (WNA); C. North-America (CNA); E. North-America (ENA); N. Central-America (NCA); S. Central-America (SCA); Caribbean (CAR); N.W. South-America (NWS); N. South-America (NSA); N.E. South-America (NES); South-American Monsoon (SAM); S.W. South-America (SWS); S.E. South-America (SES); S. South-America (SSA); N. Europe (NEU); Western & Central Europe (WCE); E. Europe (EEU); Mediterranean (MED); Sahara (SAH); Western Africa (WAF); Central-Africa (CAF); N.Eastern-Africa (NEAF); S.Eastern-Africa (SEAF); W.Southern-Africa(WSAF); E.Southern-Africa (ESAF); Madagascar (MDG); Russian-Arctic (RAR); W.Siberia (WSB); Eastern Siberia (ESB); Russian-Far-East (RFE); W.C. Asia (WCA); E.C.Asia (ECA); Tibetan Plateau (TIB); E.Asia (EAS); Arabian Peninsula (ARP); S. Asia (SAS); S.E. Asia (SEA); N. Australia (NAU); C.Australia (CAU); E.Australia (EAU); S.Australia (SAU); New Zealand (NZ).

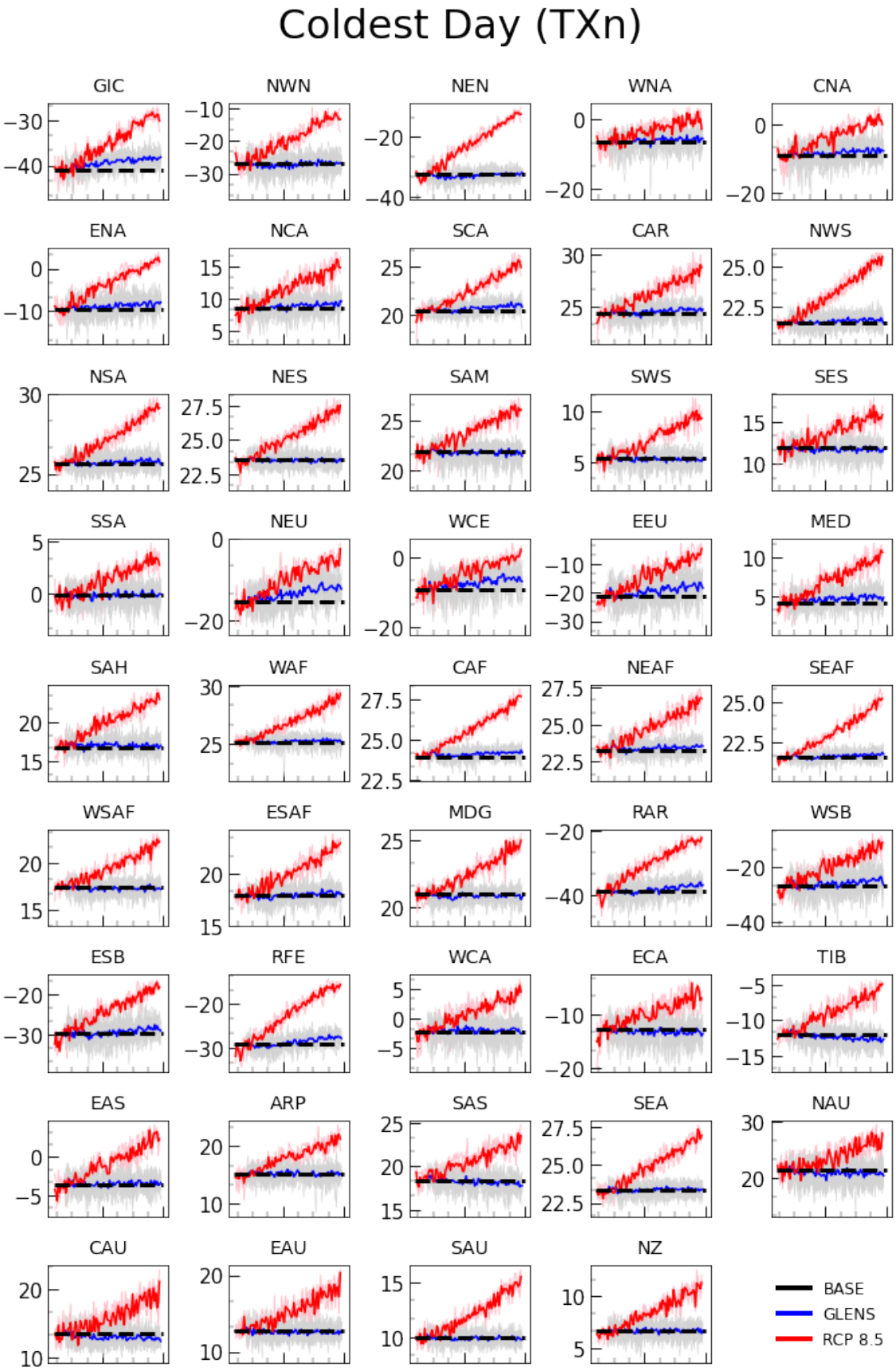


Figure S2. Projected Changes in Annual Minimum Daily Maximum Temperatures (TXN, Coldest Day). Details as for Figure S1. Companion to Figure 2b and Figure 12

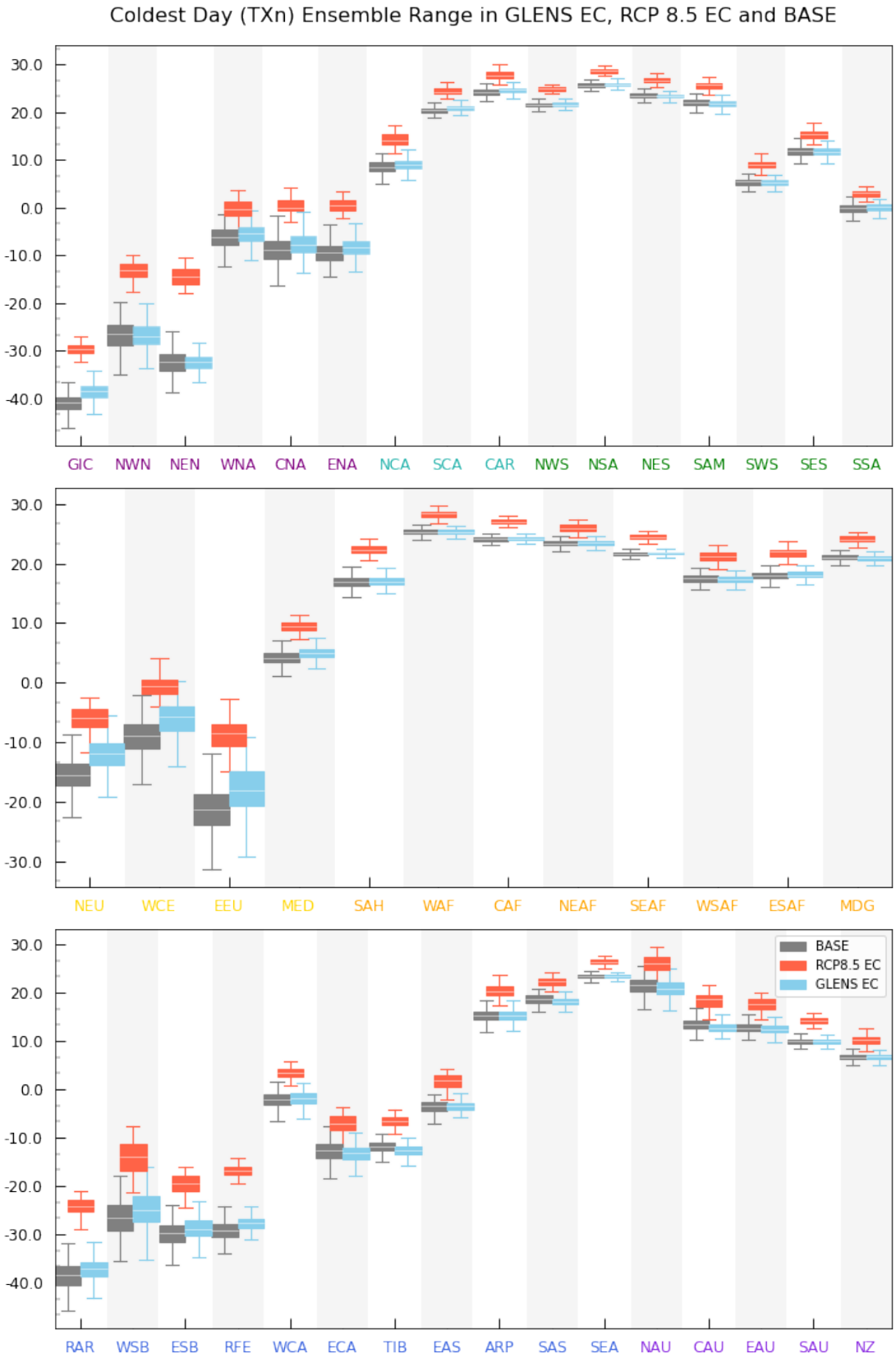


Figure S3: Boxplots of Annual Coldest Day TXn for: BASE (2010-2029) in grey, GLENS End of Century (EC; 2075-2095) in blue and RCP8.5 EC in red in each of the AR6 regions except Antarctica. Boxes show ensemble mean in

white with the limits set at 25% and 75% of the ensemble spread; whiskers denote 5% and 95% ensemble spread. Companion to Figure 2b, Figure 5 and Figure 12

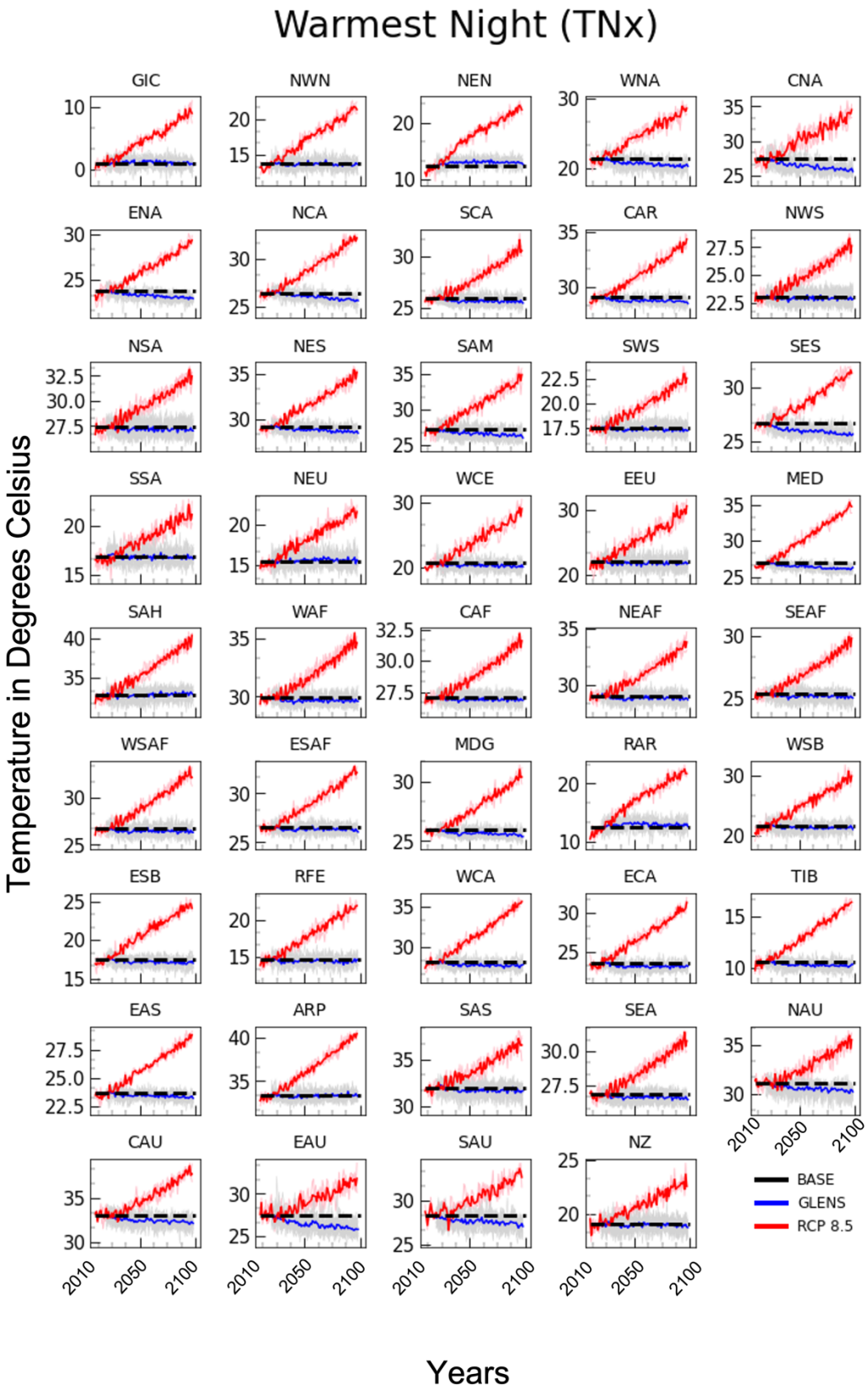


Figure S4: Projected Changes in Annual Maximum Daily Minimum Temperatures (TNx, Warmest Night). Details as for Figure S1. Companion to Figure 2c and Figure 12

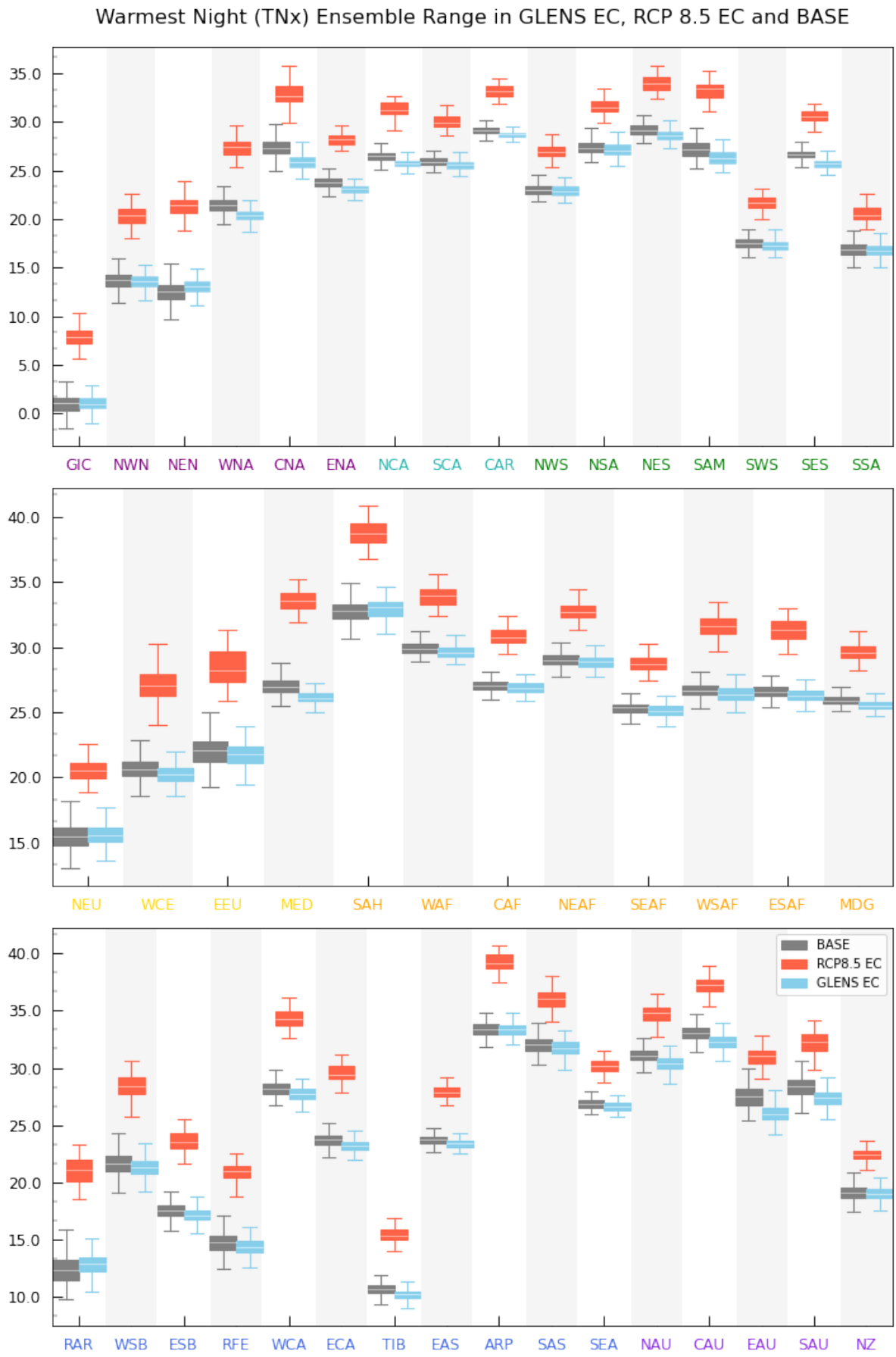


Figure S5: Box Plots of Warmest Night (TNX). Details as for Figure S3. Companion to Figure 2c and Figure 12

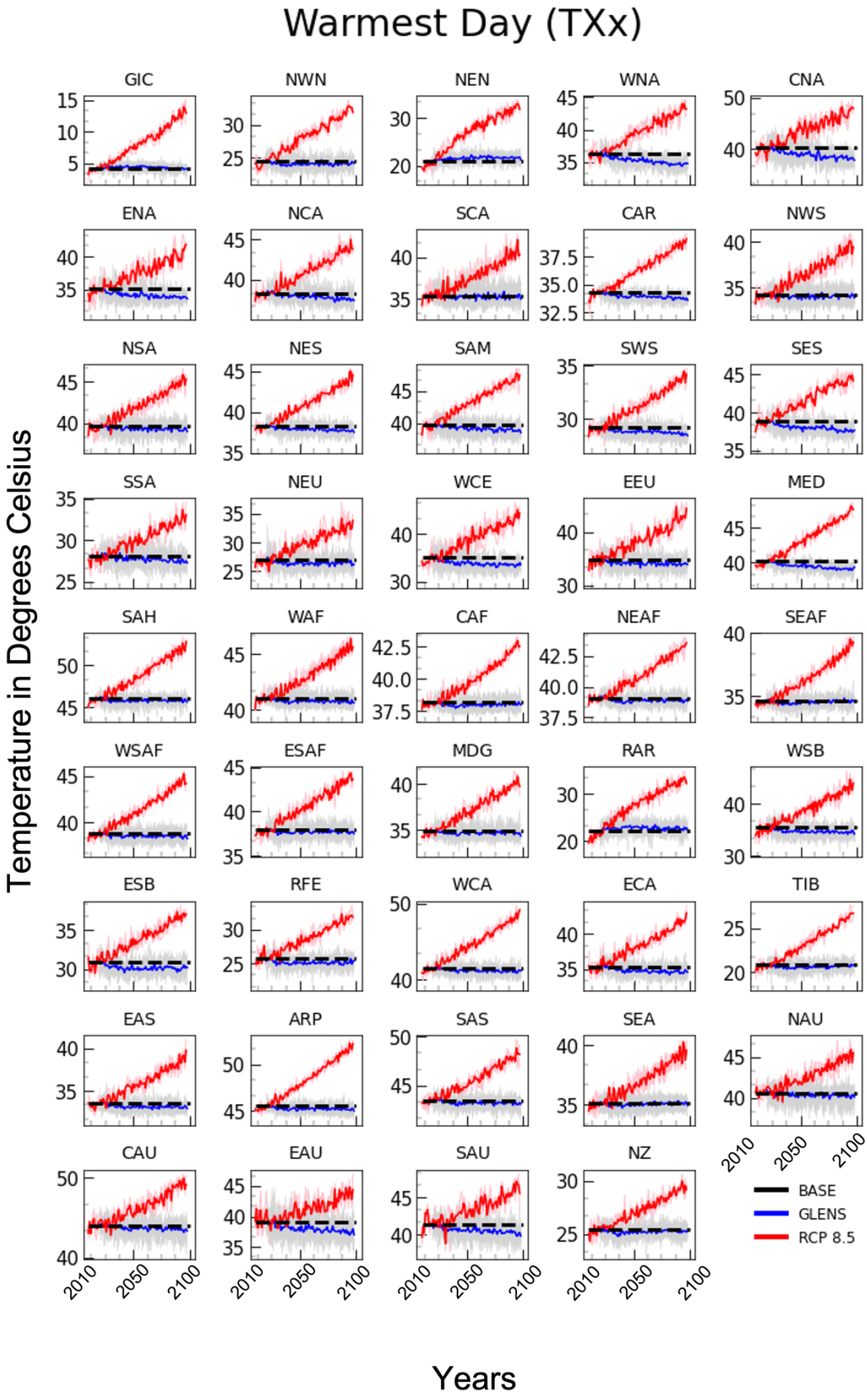


Figure S6: Projected Changes in Warmest Day (TXx). Details as for Figure S1. Companion to Figure 2d and Figure 12

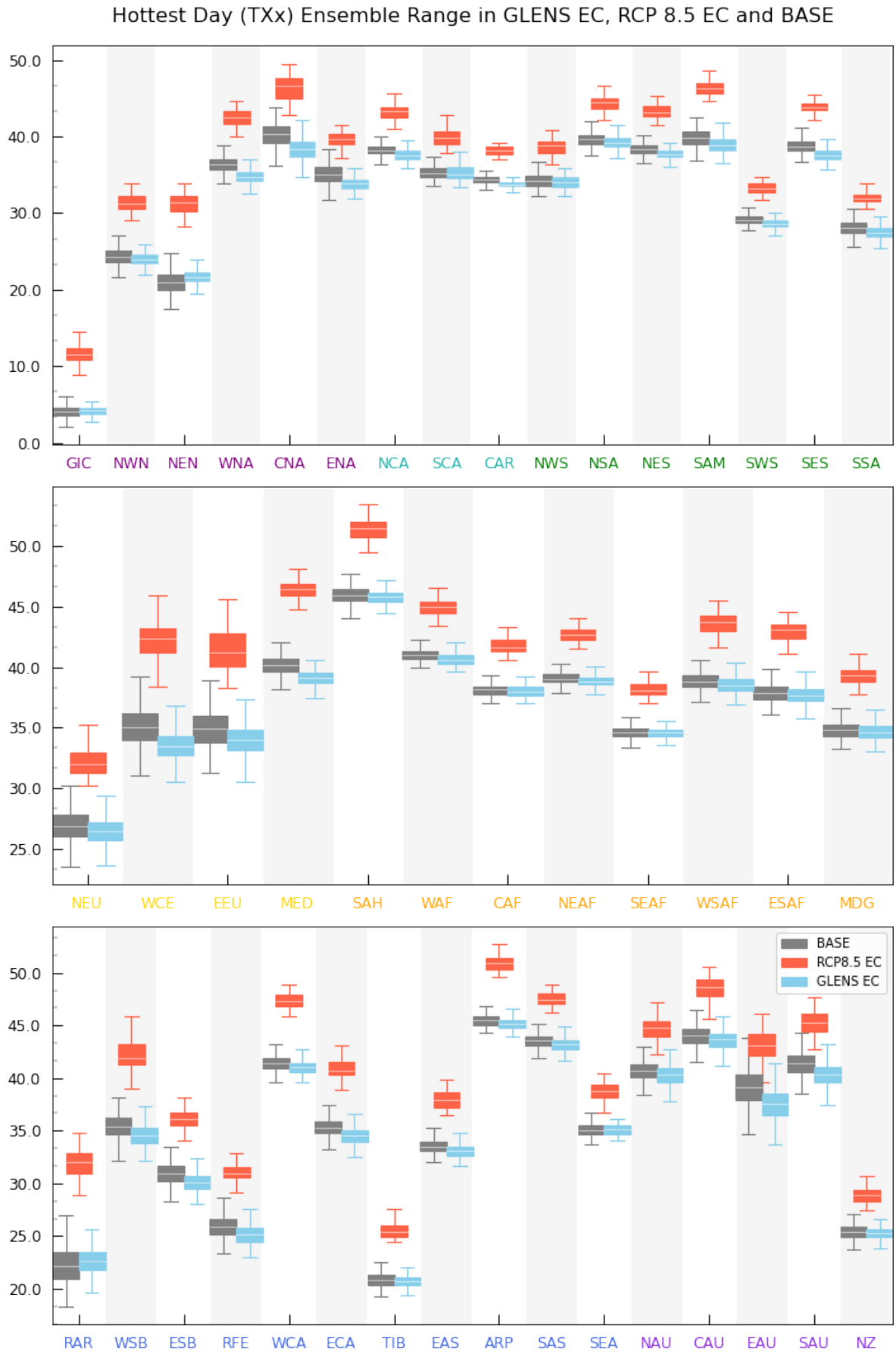


Figure S7: Box Plots of Warmest Day (TXx). Details as for Figure S3. Companion to Figure 2d and Figure 12

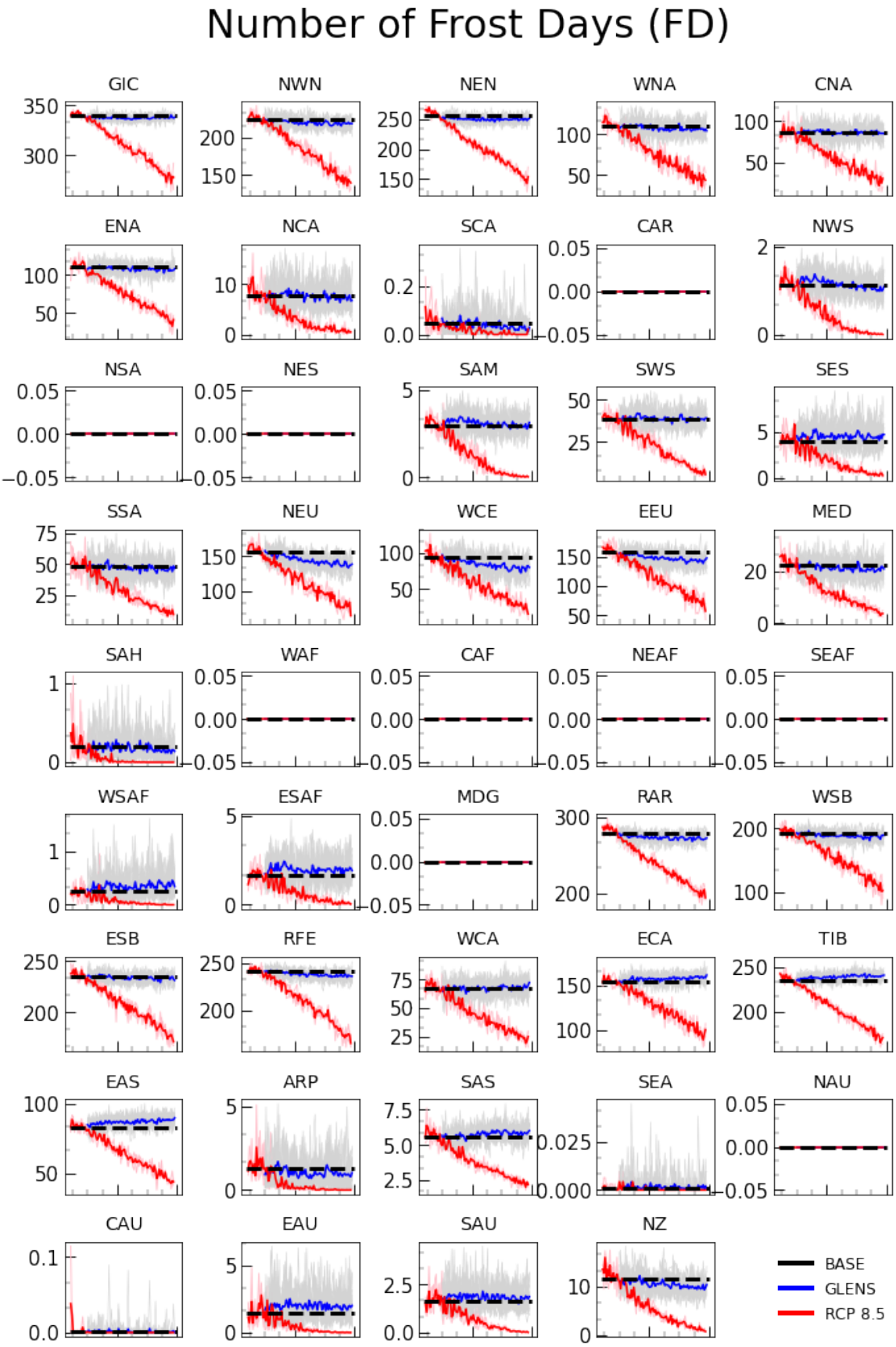


Figure S8: Projected Changes in Number of nights below 0C (FD). Details as for Figure S1.
Companion to Figure 4a

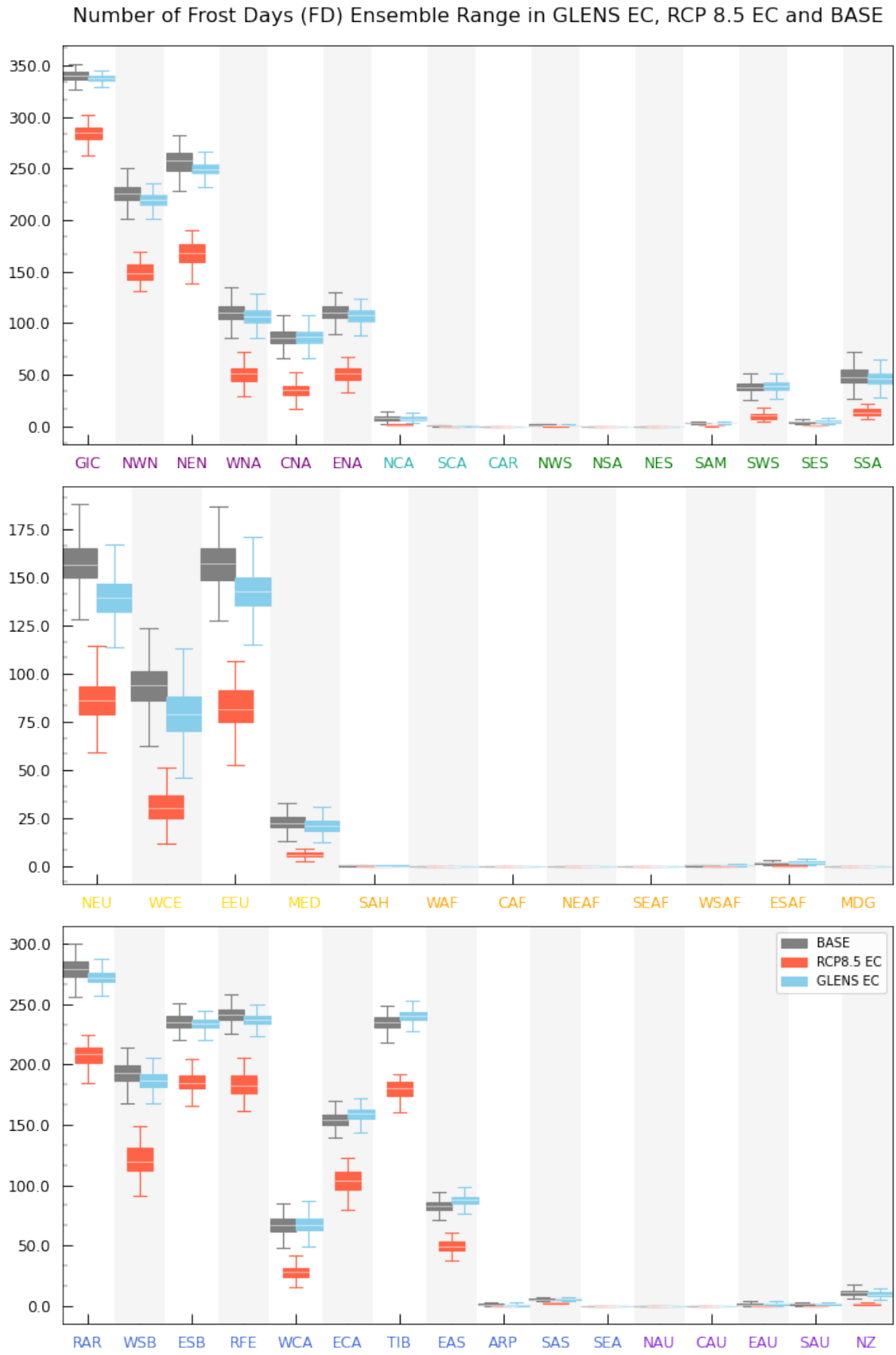


Figure S9: Box Plots of Frost Days. Details as for Figure S3. Companion to Figure 4a

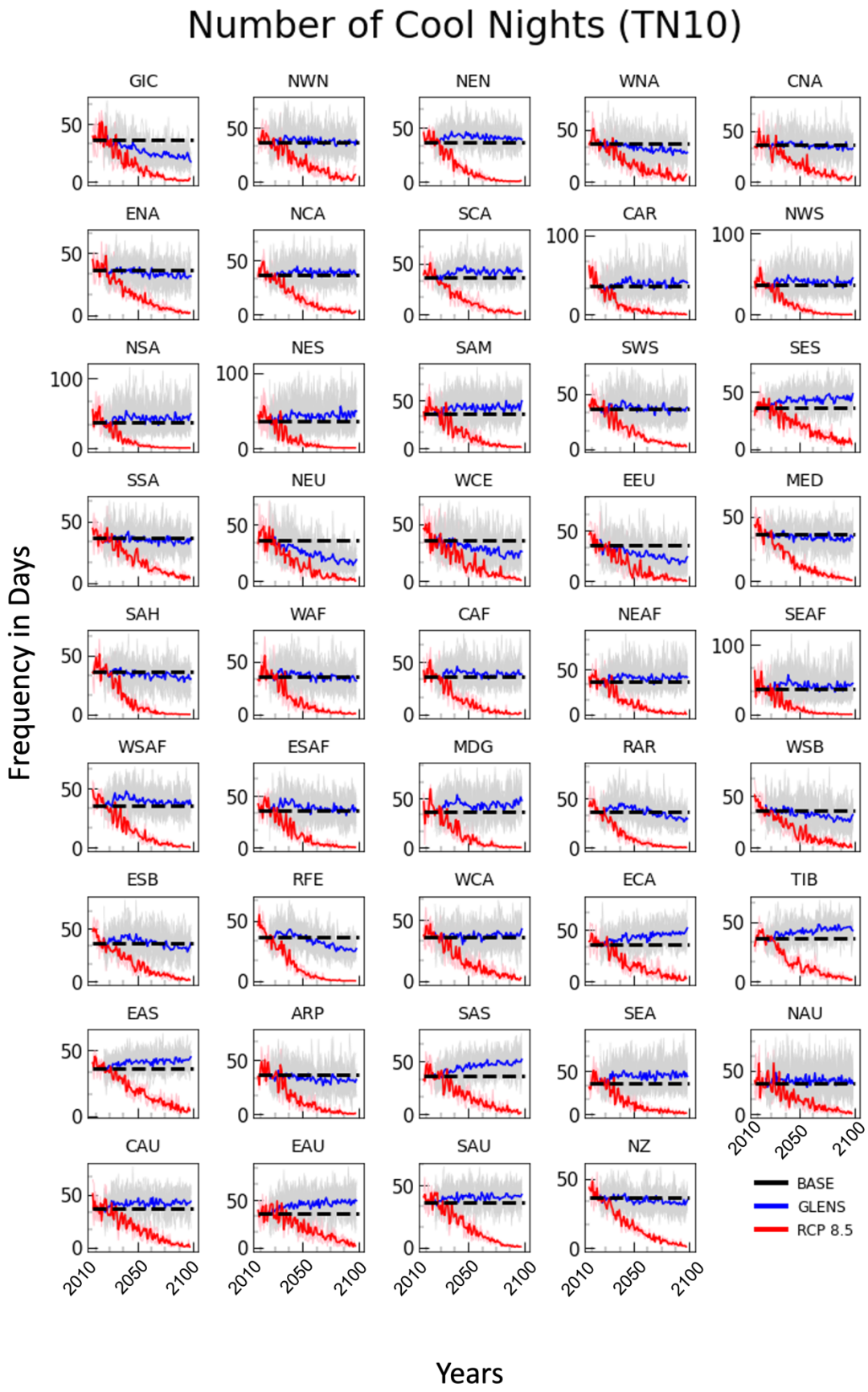


Figure S10: Projected Changes in Number of nights below 10th percentile (TN10; Cool Nights). Details as for Figure S1.

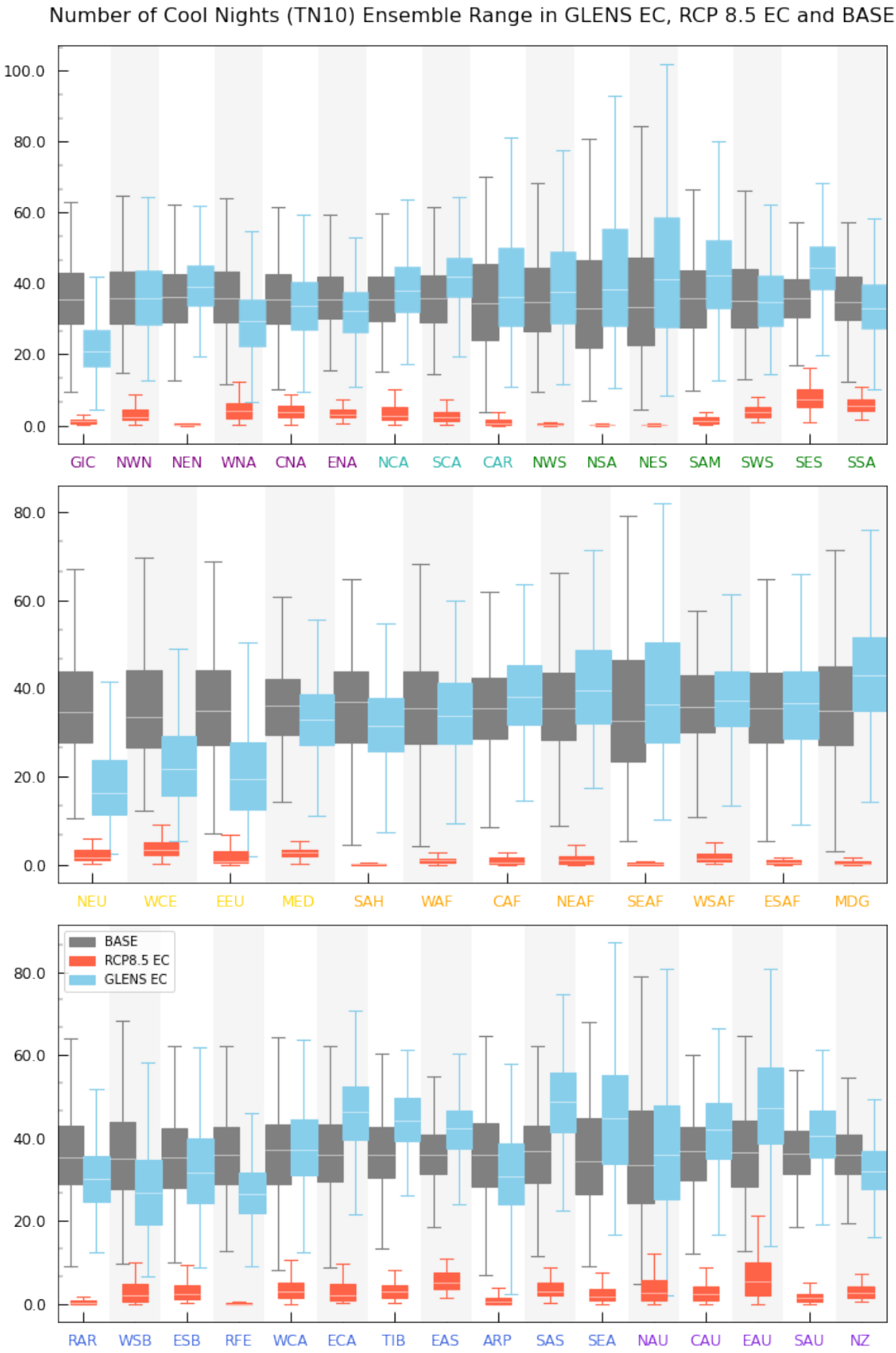


Figure S11: Box Plots for Cool Nights. Details as for Figure S3.

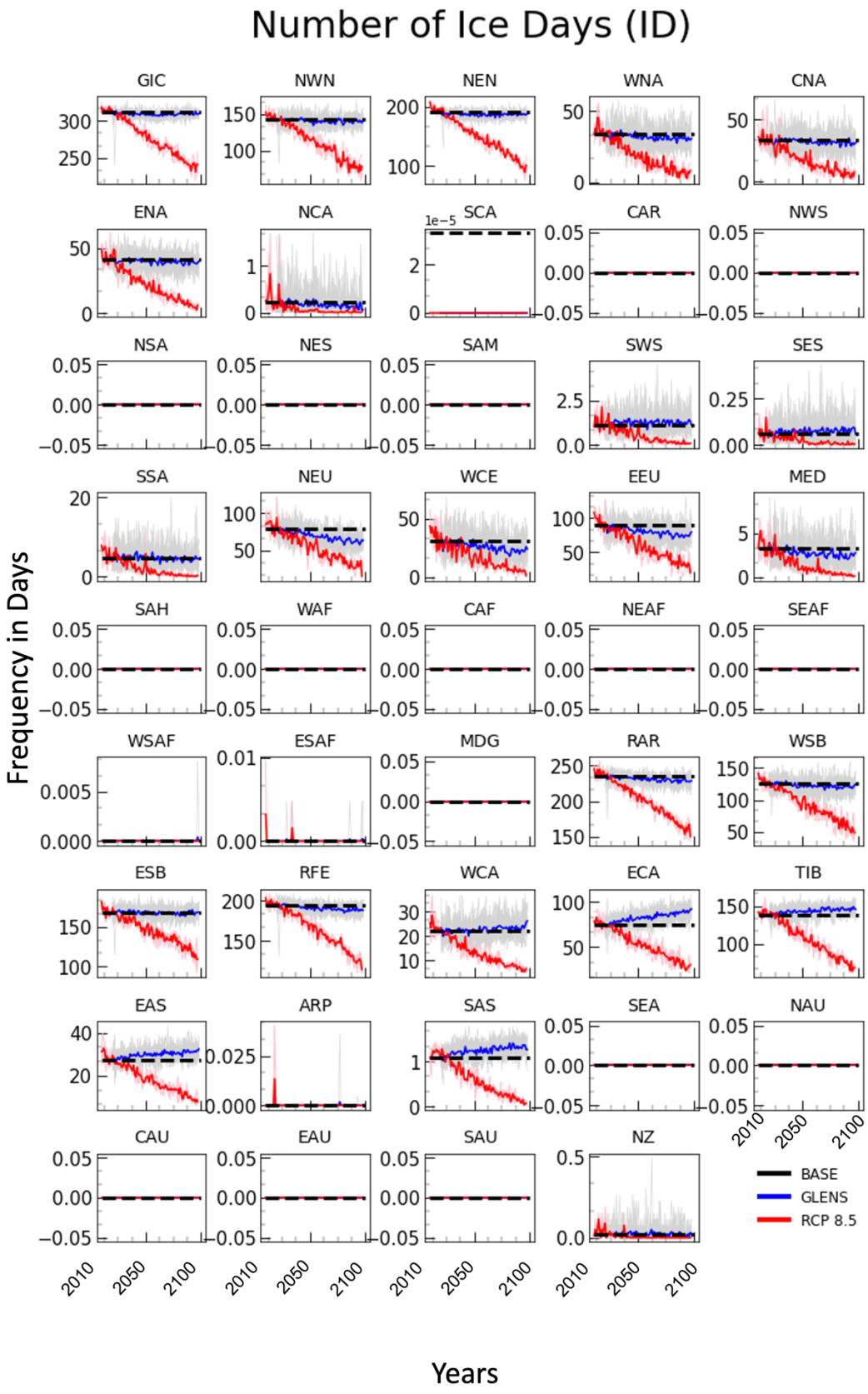


Figure S12: Projected Changes in Number of days below 0C (ID; Ice Days). Details as for Figure S1. Companion to Figure 4b

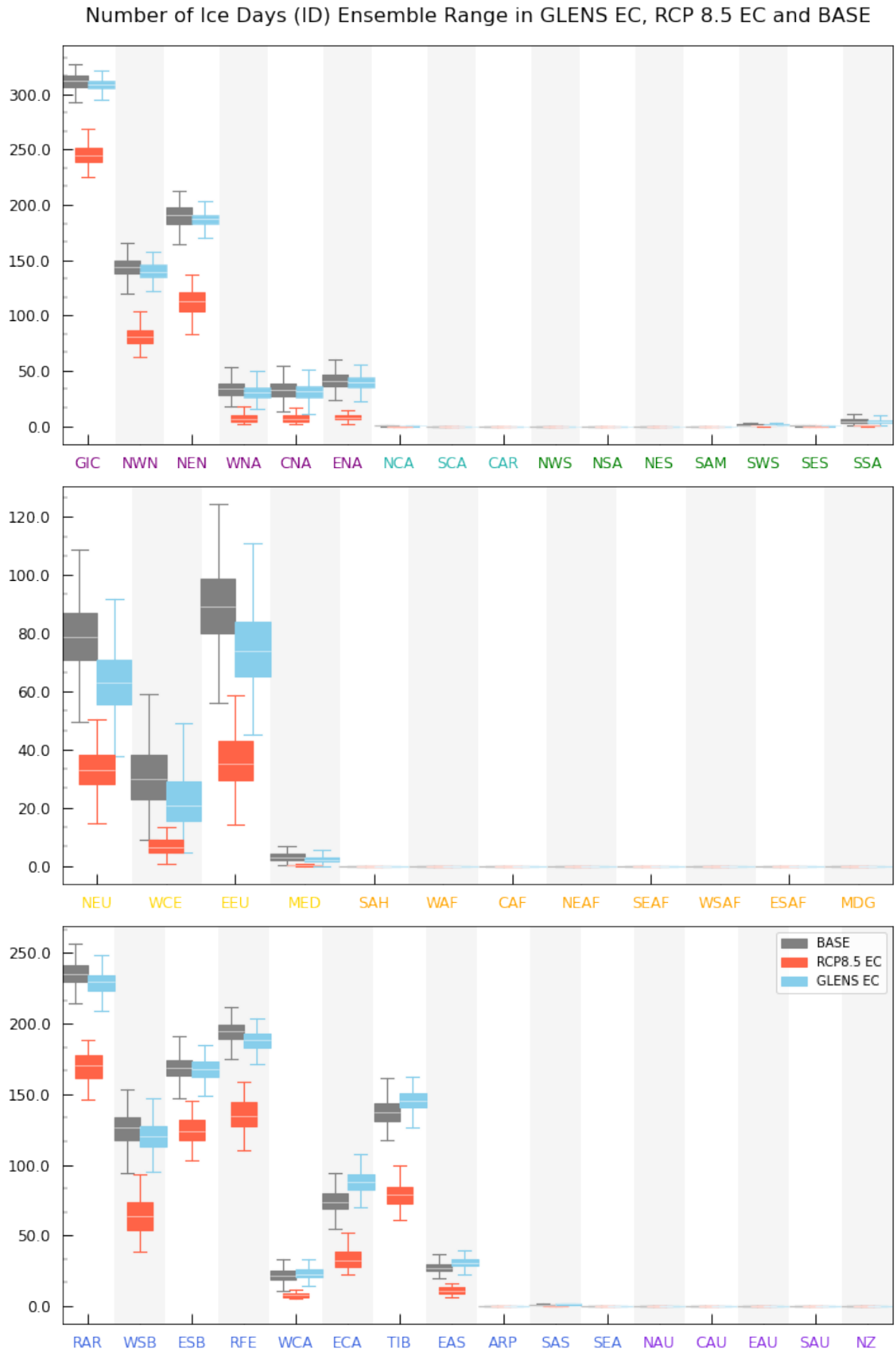


Figure S13: Box Plots of Number of Ice Days (ID). Details as for Figure S3. Companion to Figure 4b

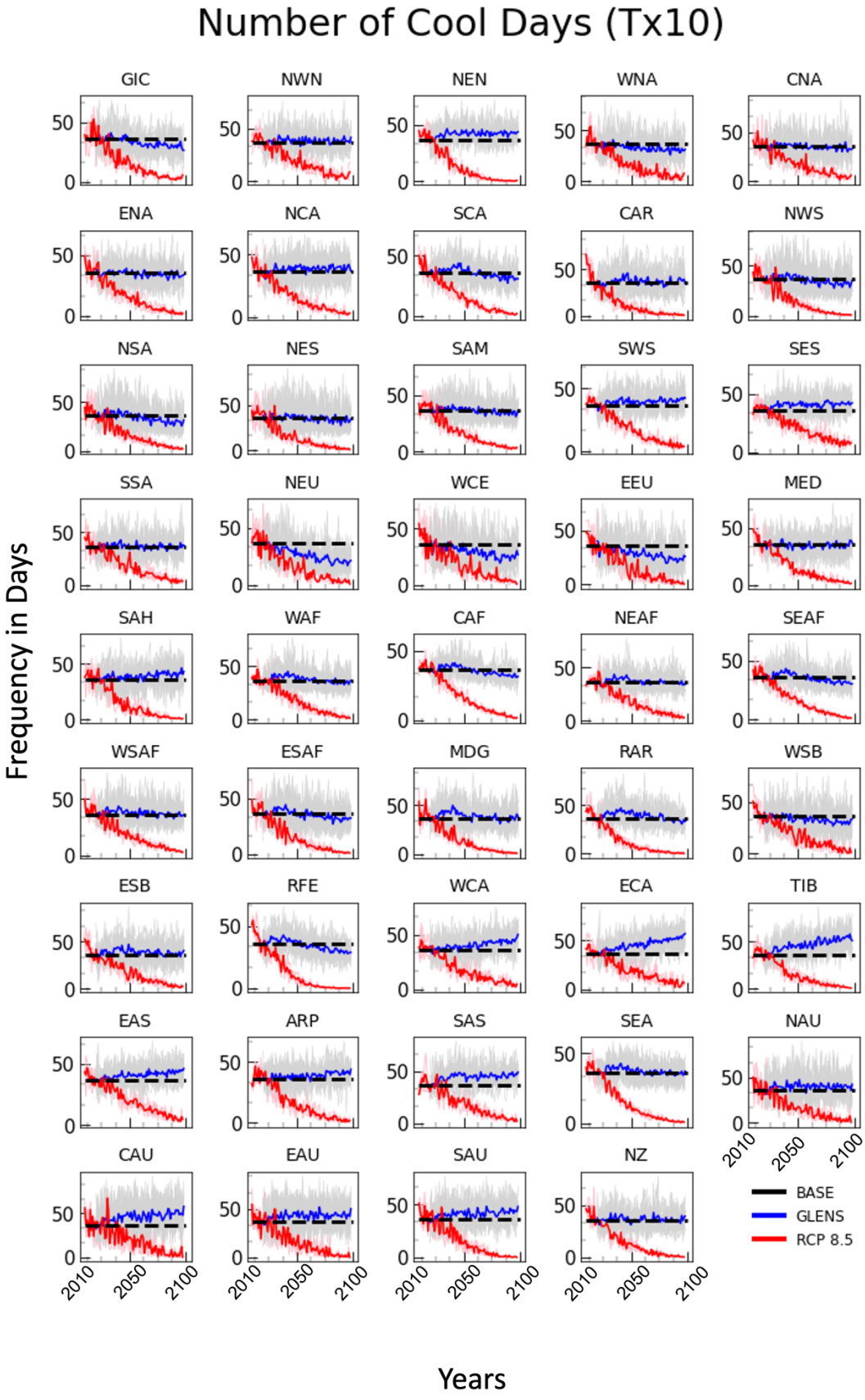


Figure S14: Projected Changes in Number of Days with daily maximum temperature below 10th percentile (TX10; Cold Days). Details as for Figure S1.

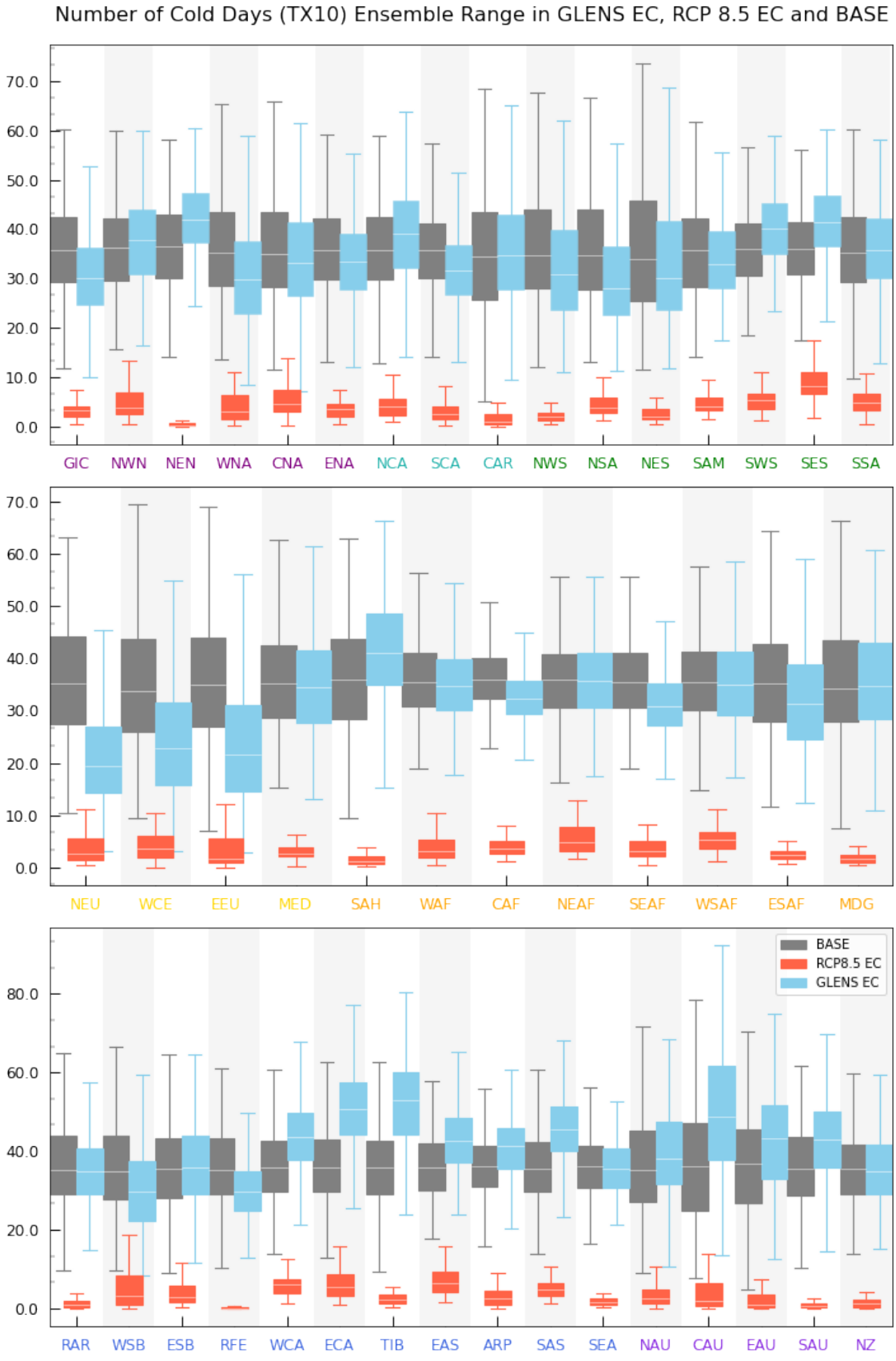


Figure S15: Box Plots for Cool Days. Details as for Figure S3.

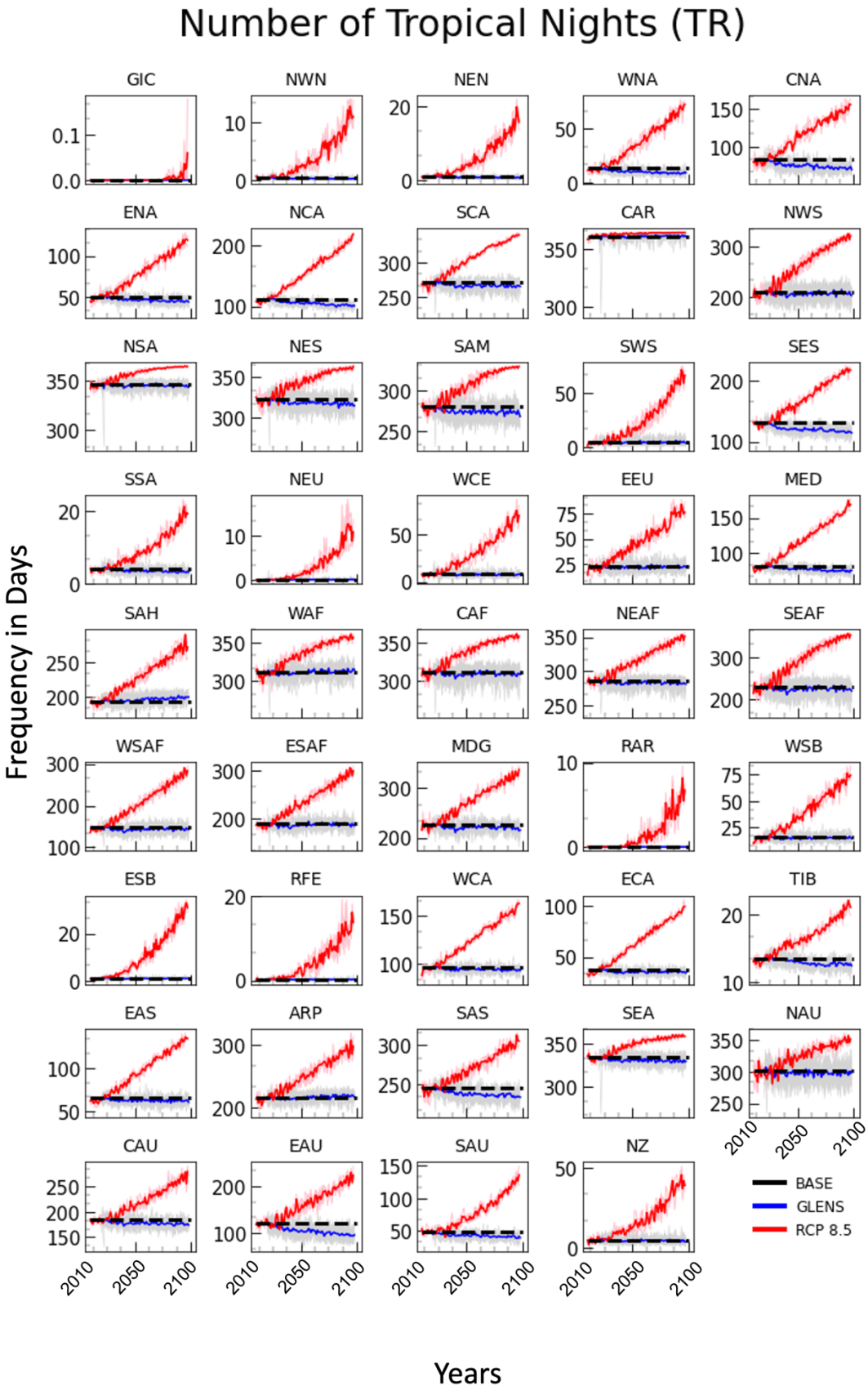


Figure S16: Projected Changes in Number of days with daily minimum temperature above 20C (TR; Tropical Nights). Details as for Figure S1. Companion to Figure 4c

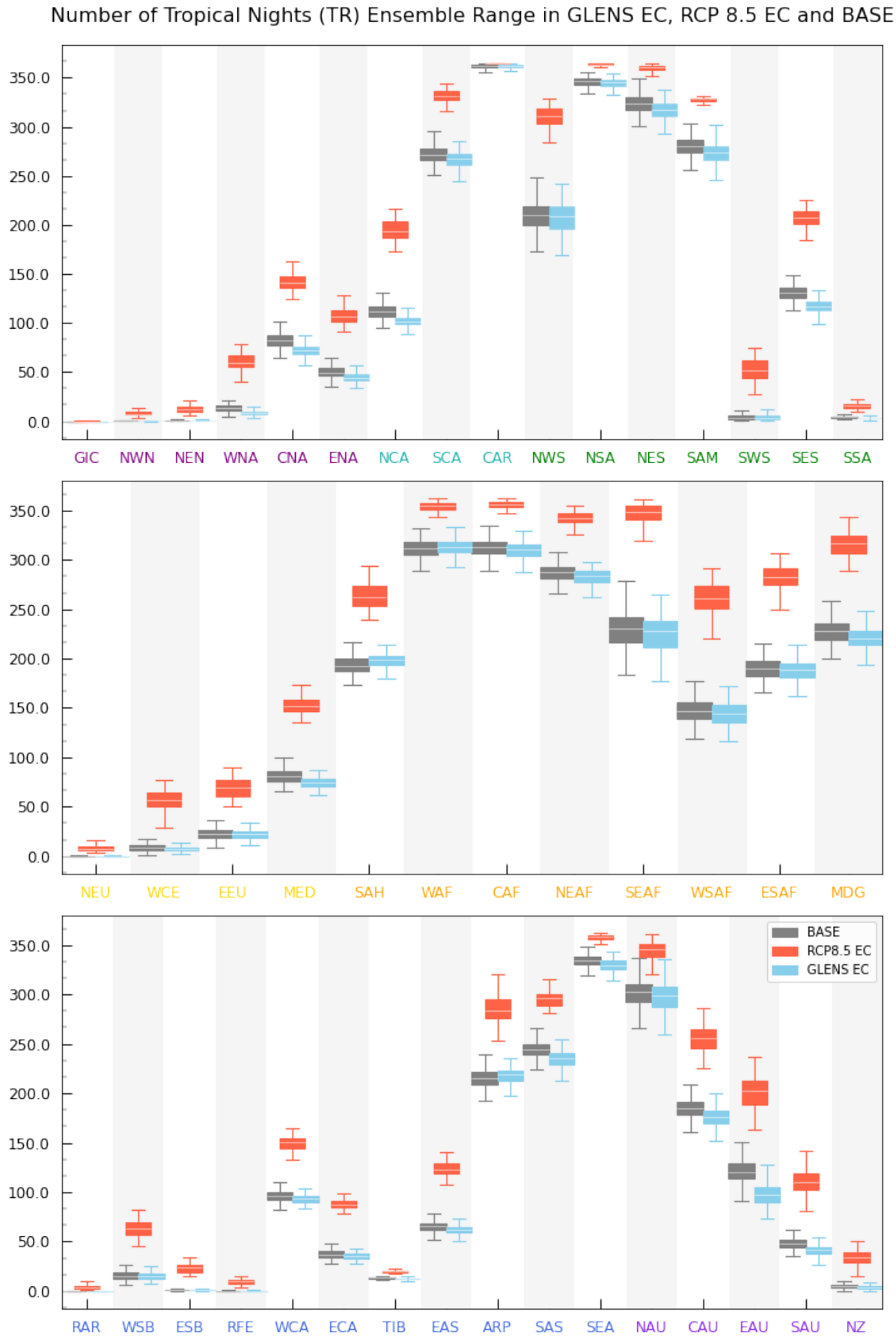


Figure S17: Box Plots of Tropical Nights. Details as for Figure S3. Companion to Figure 4c.

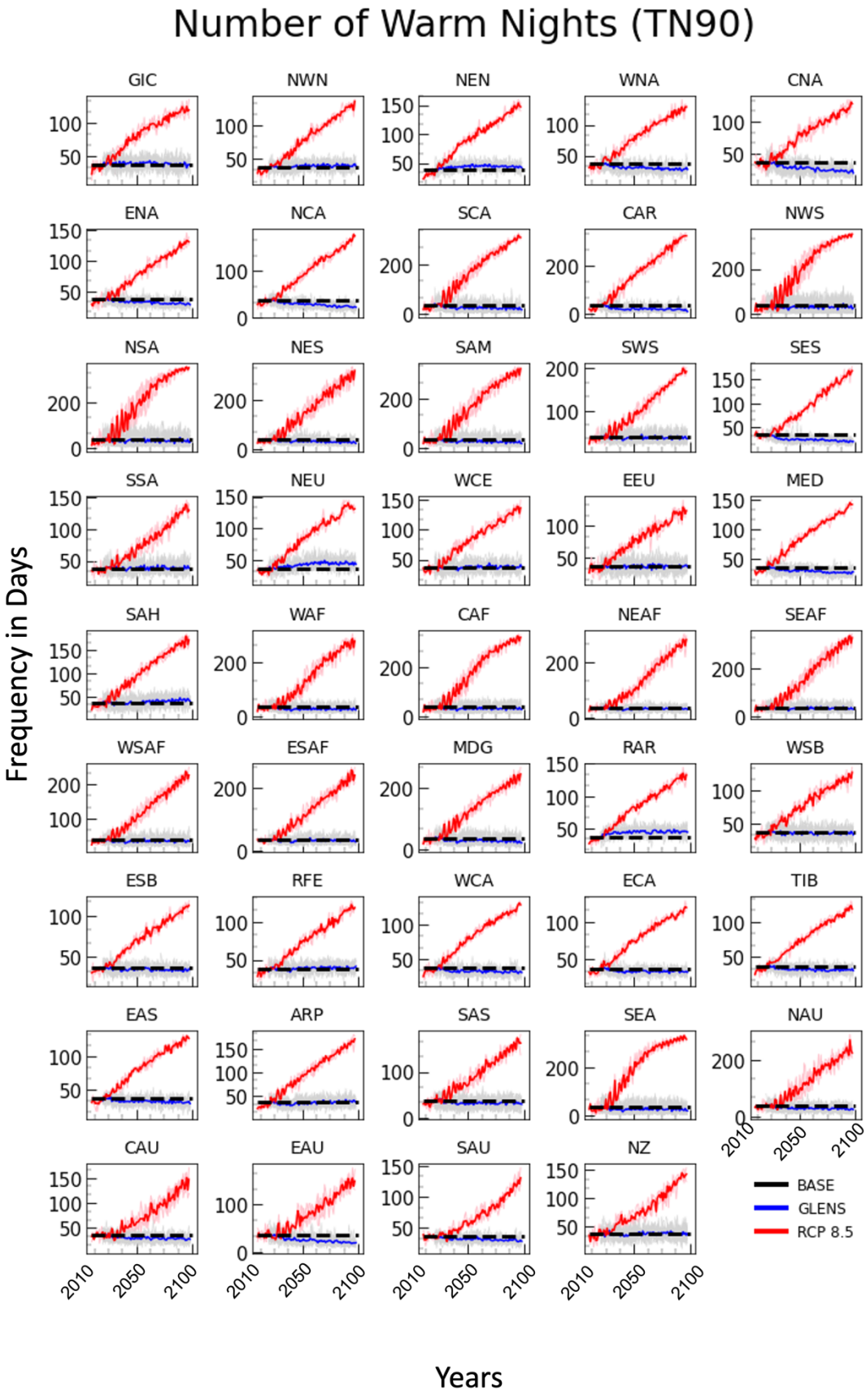


Figure S18: Projected Changes in Number of days with daily minimum temperature above 90th percentile (TN90; Warm Nights). Details as for Figure S1.

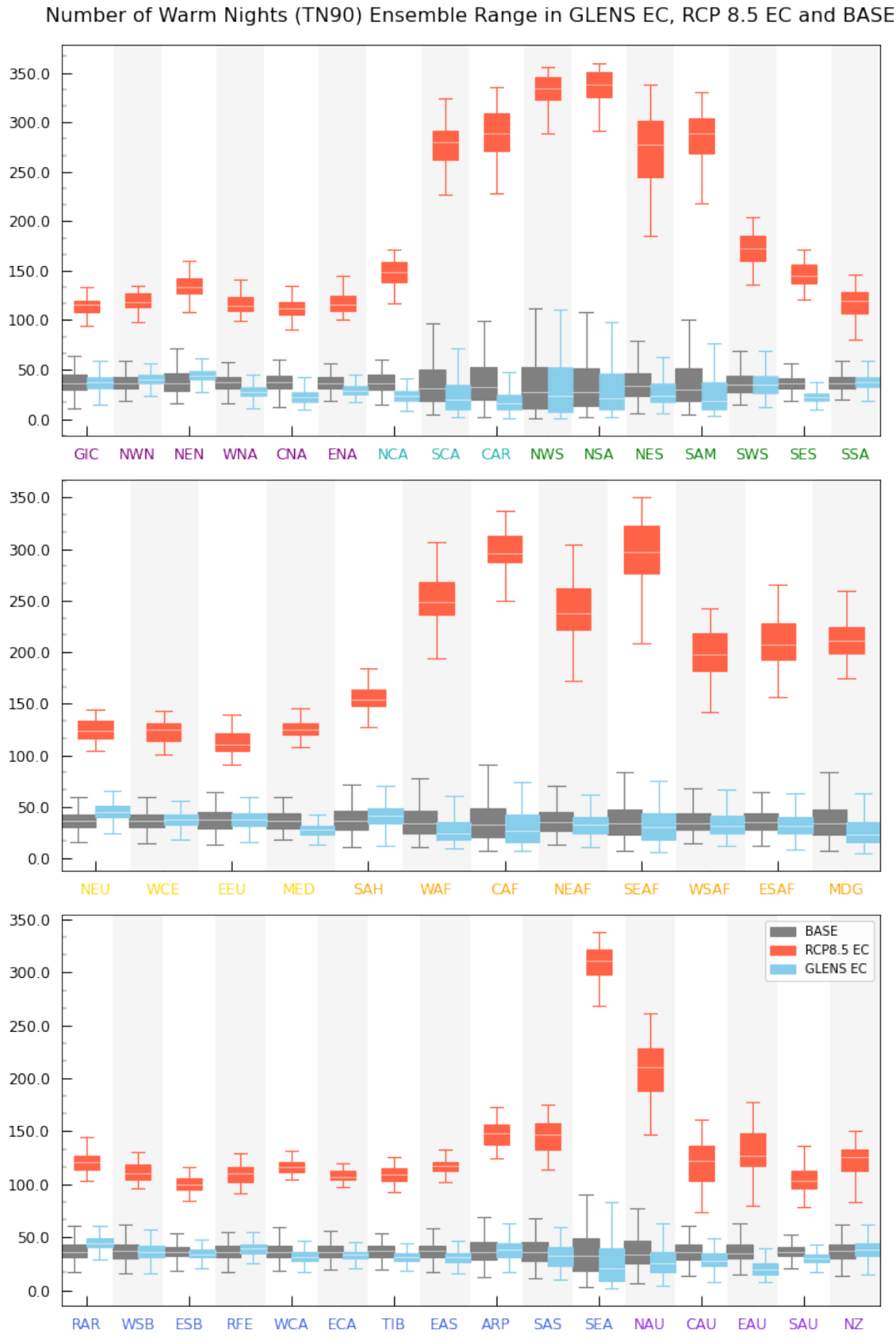


Figure S19: Box Plots for Warm Nights. Details as for Figure S3.

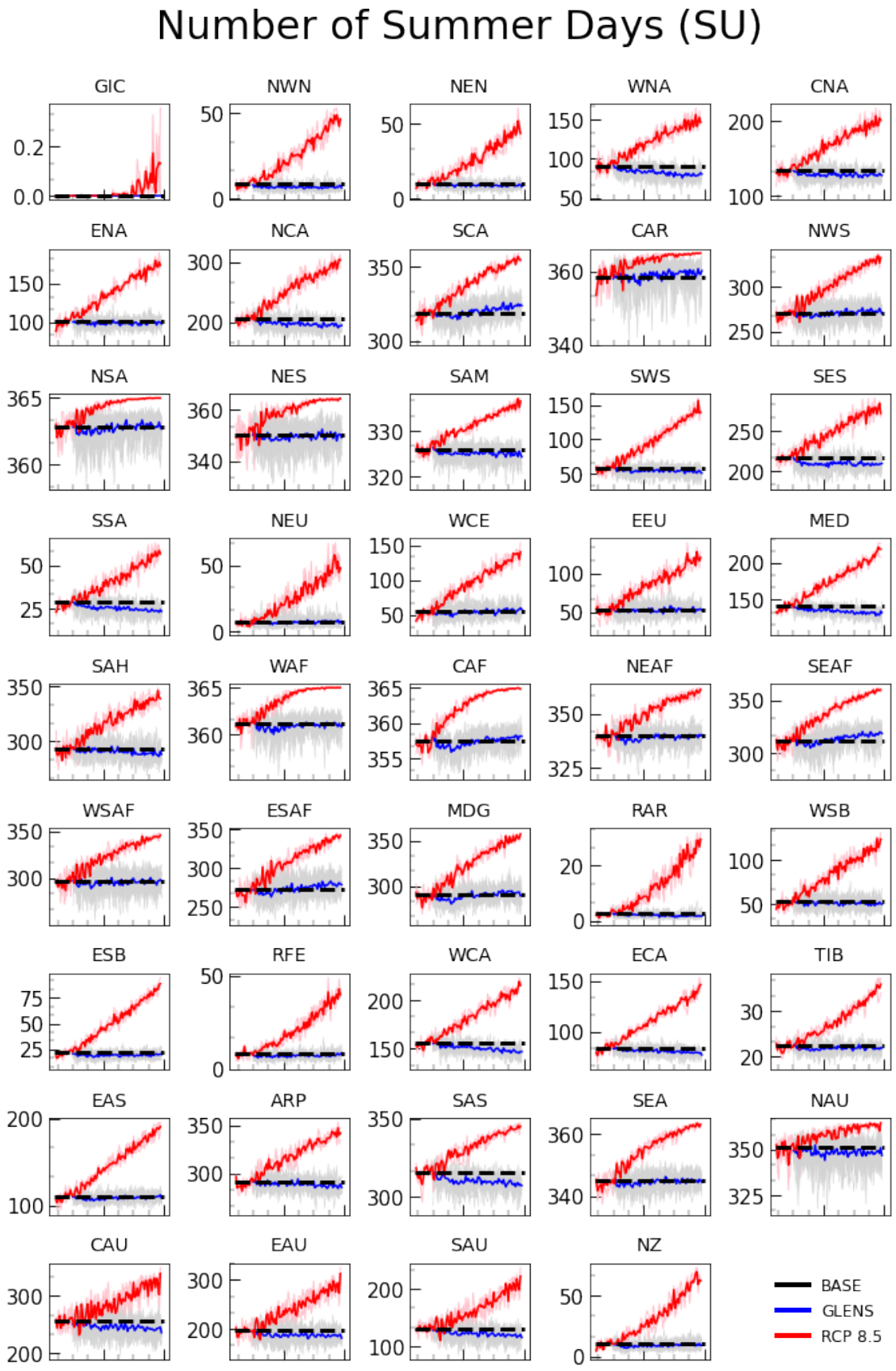


Figure S20: Projected Changes in Number of days with daily maximum temperature above 25C (SU; Summer Days). Details as for Figure S1. Companion to Figure 4d

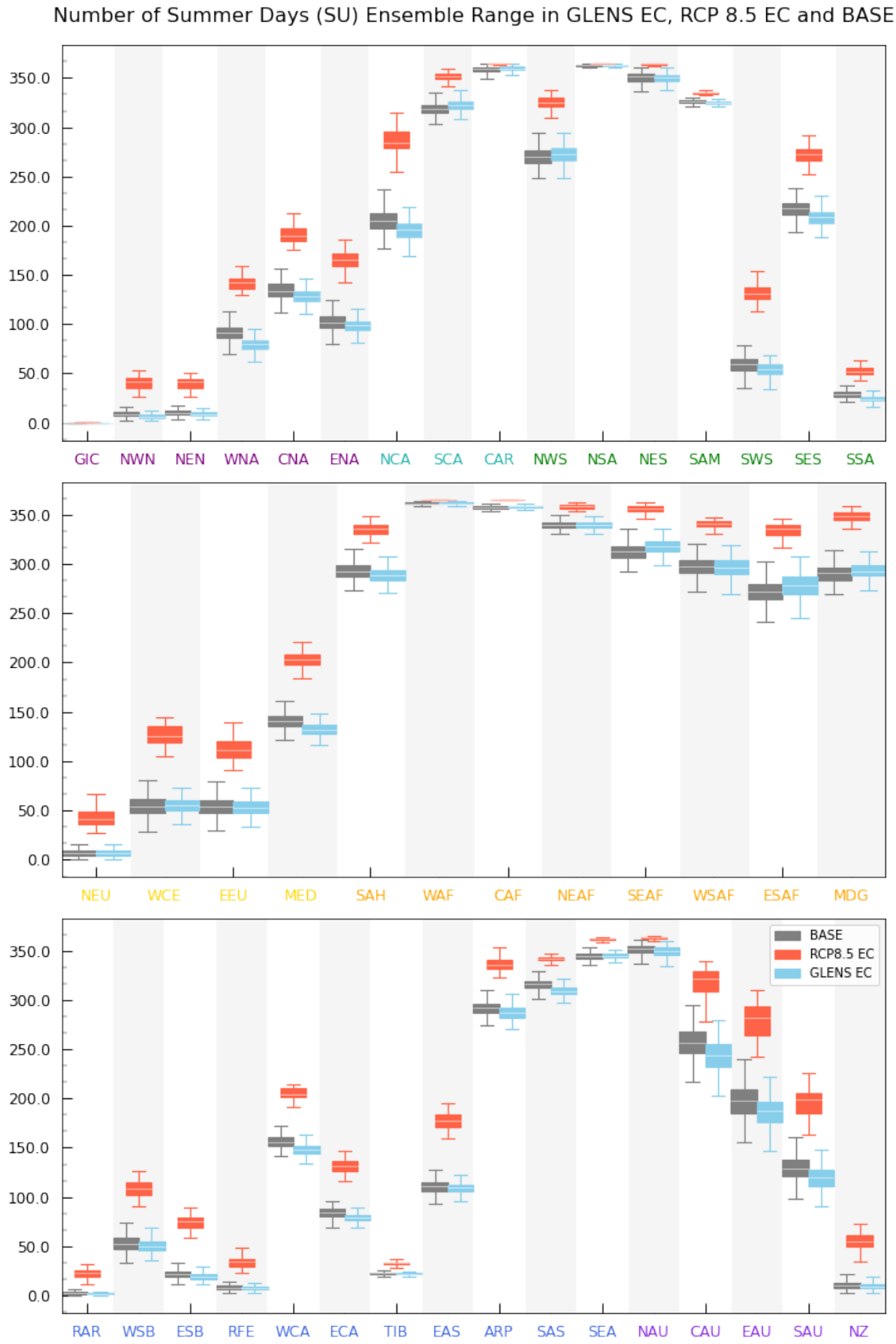


Figure S21: Box Plots of Summer Days. Details as for Figure S3. Companion to Figure 4d.

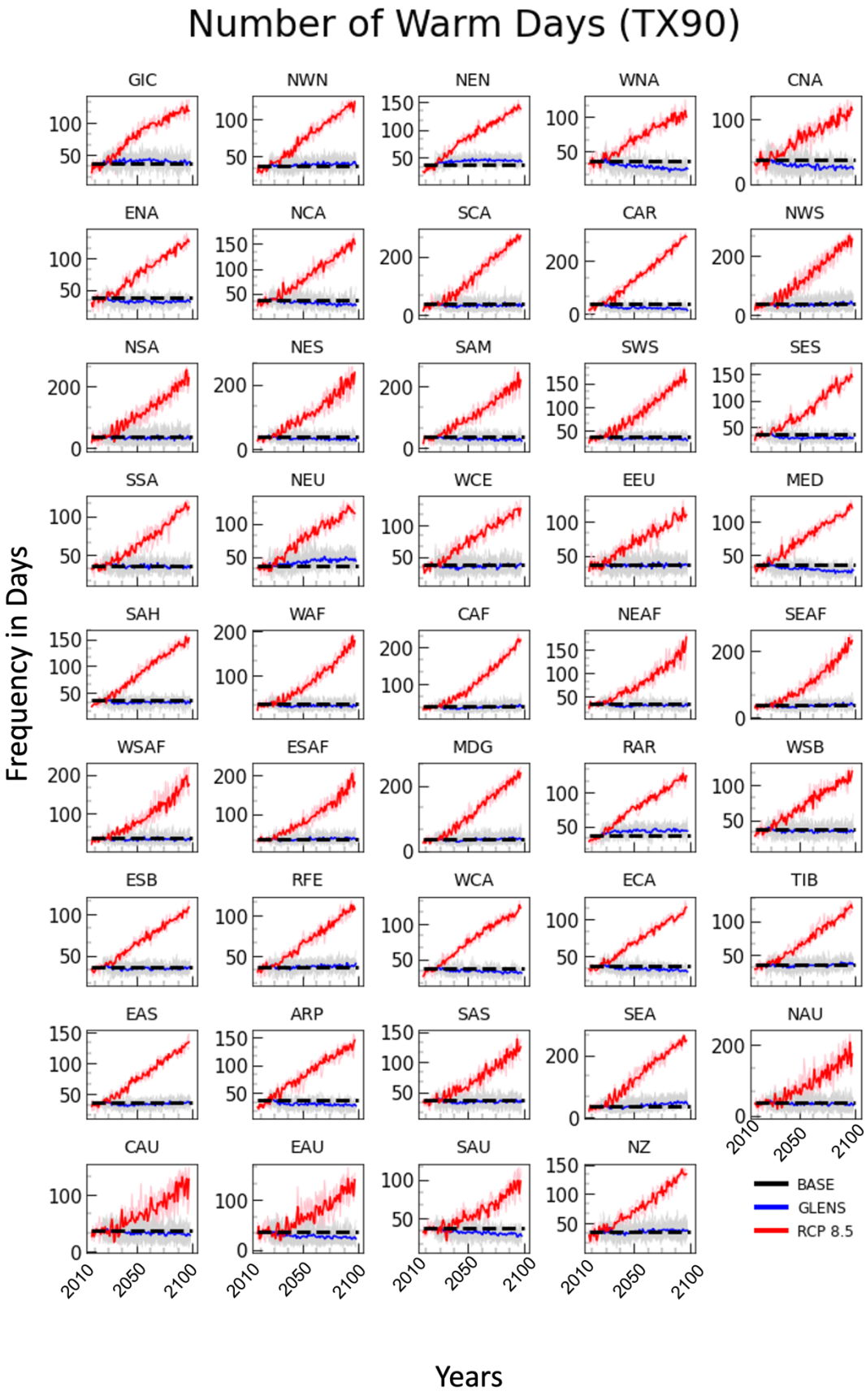


Figure S22: Projected Changes in Number of Days with daily maximum temperature above 90th percentile (TX90; Hot Days). Details as for Figure S1.

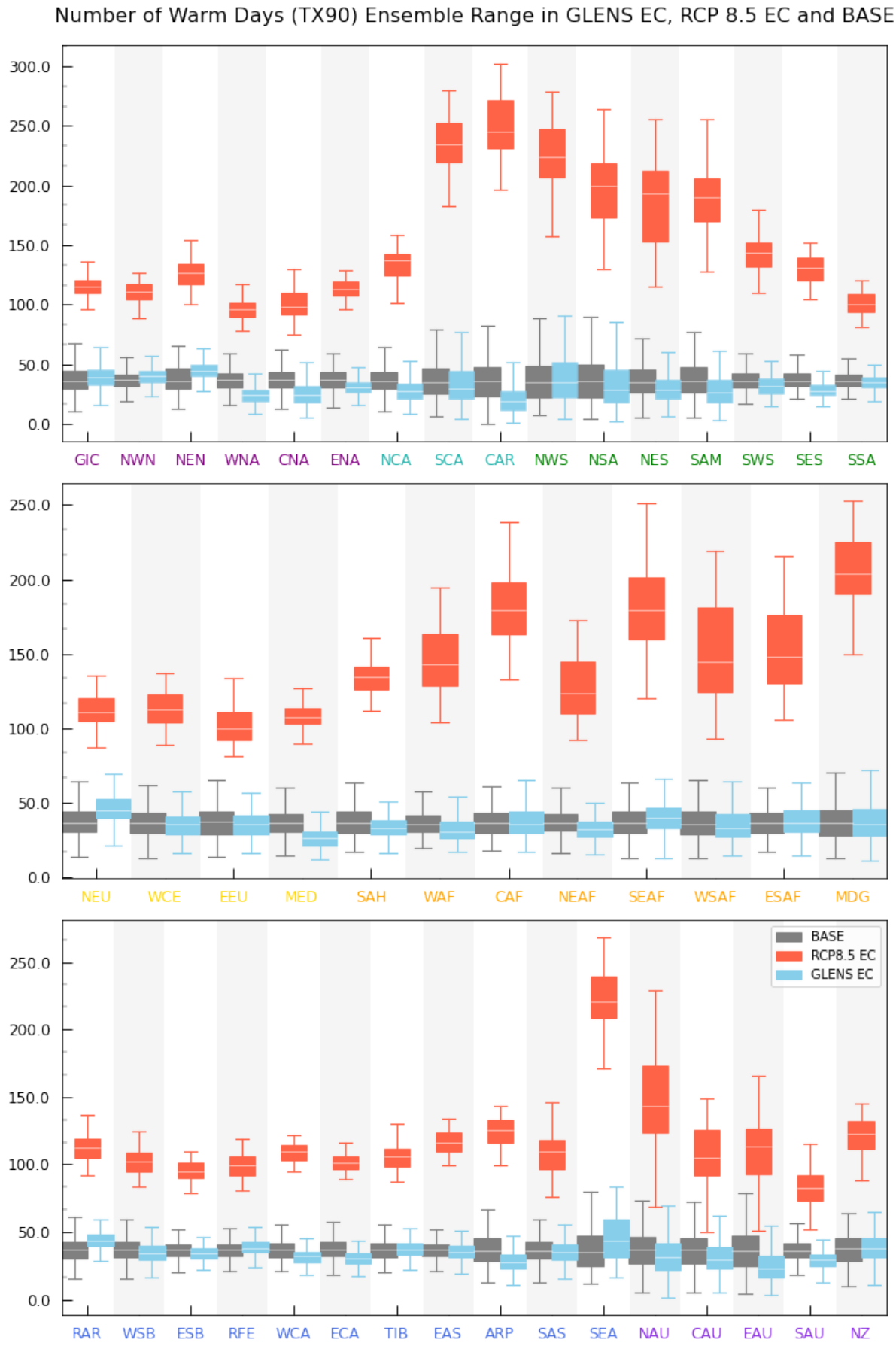


Figure S23: Box Plots for Hot Days. Details as for Figure S3.

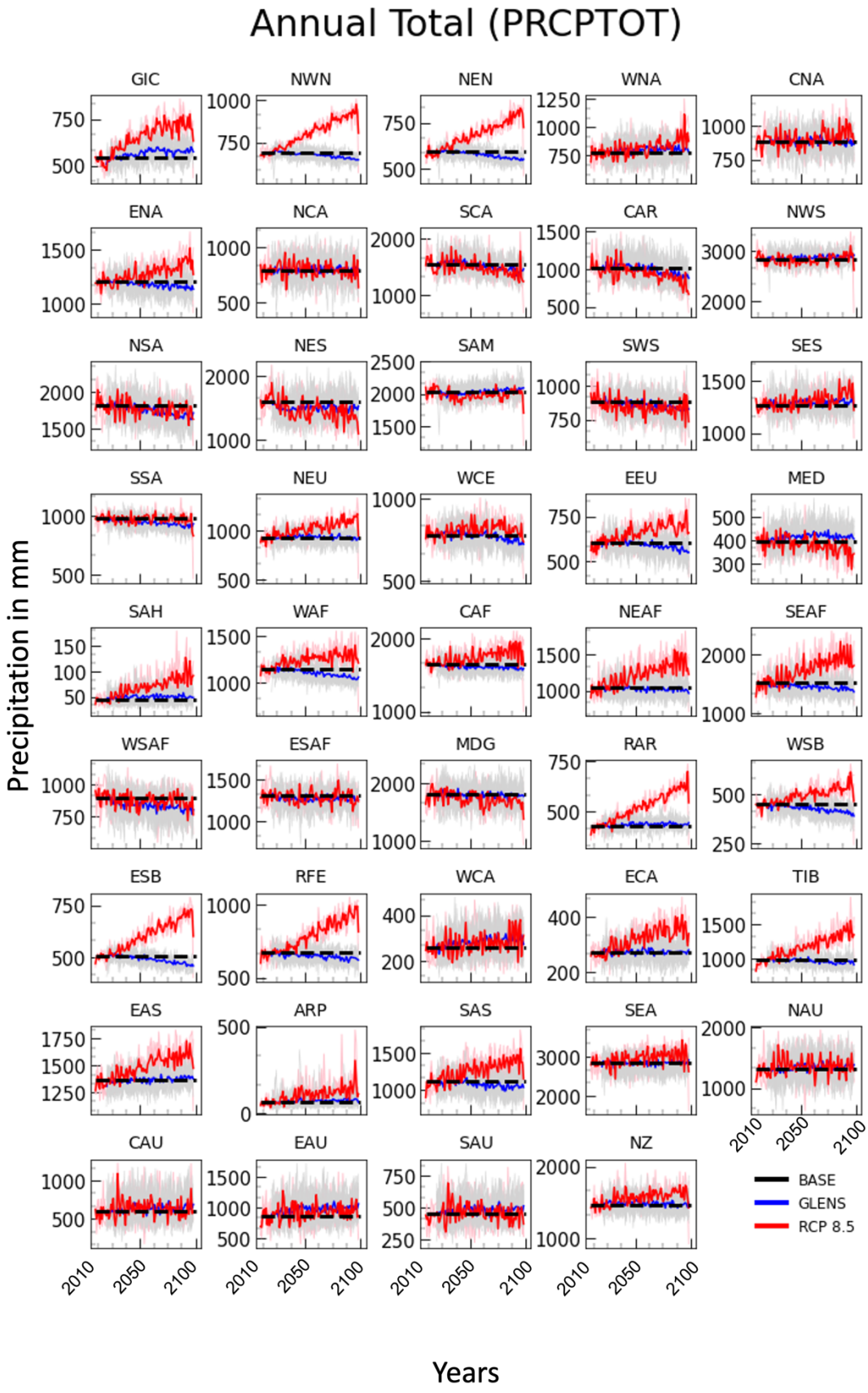


Figure S24: Projected Changes in Annual Total Precipitation (PRCPTOT). Details as for Figure S1. Companion to Figure 6a

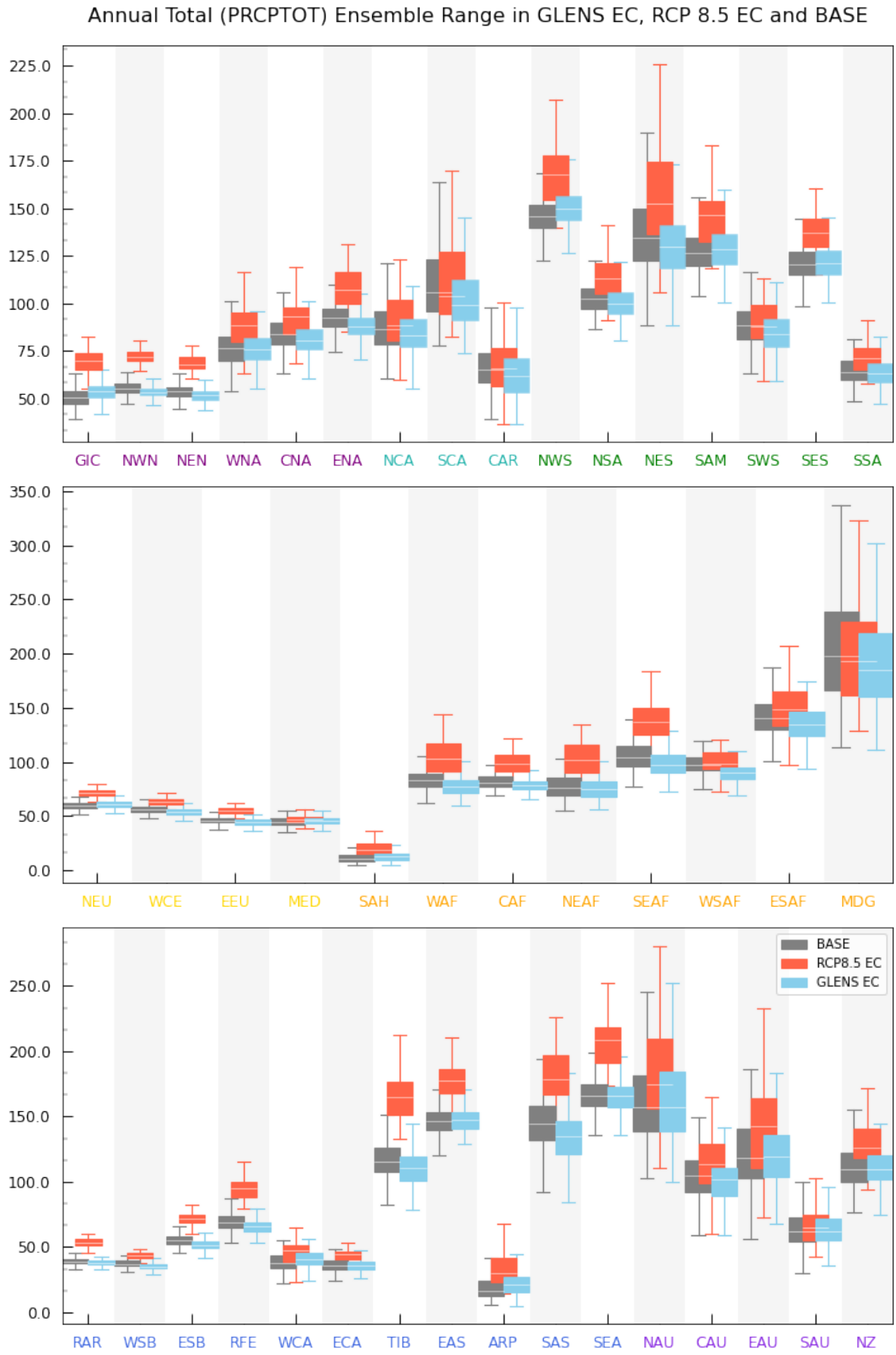


Figure S25: Box Plots for Annual Total Precipitation. Details as for Figure S1. Companion to Figure 6a.

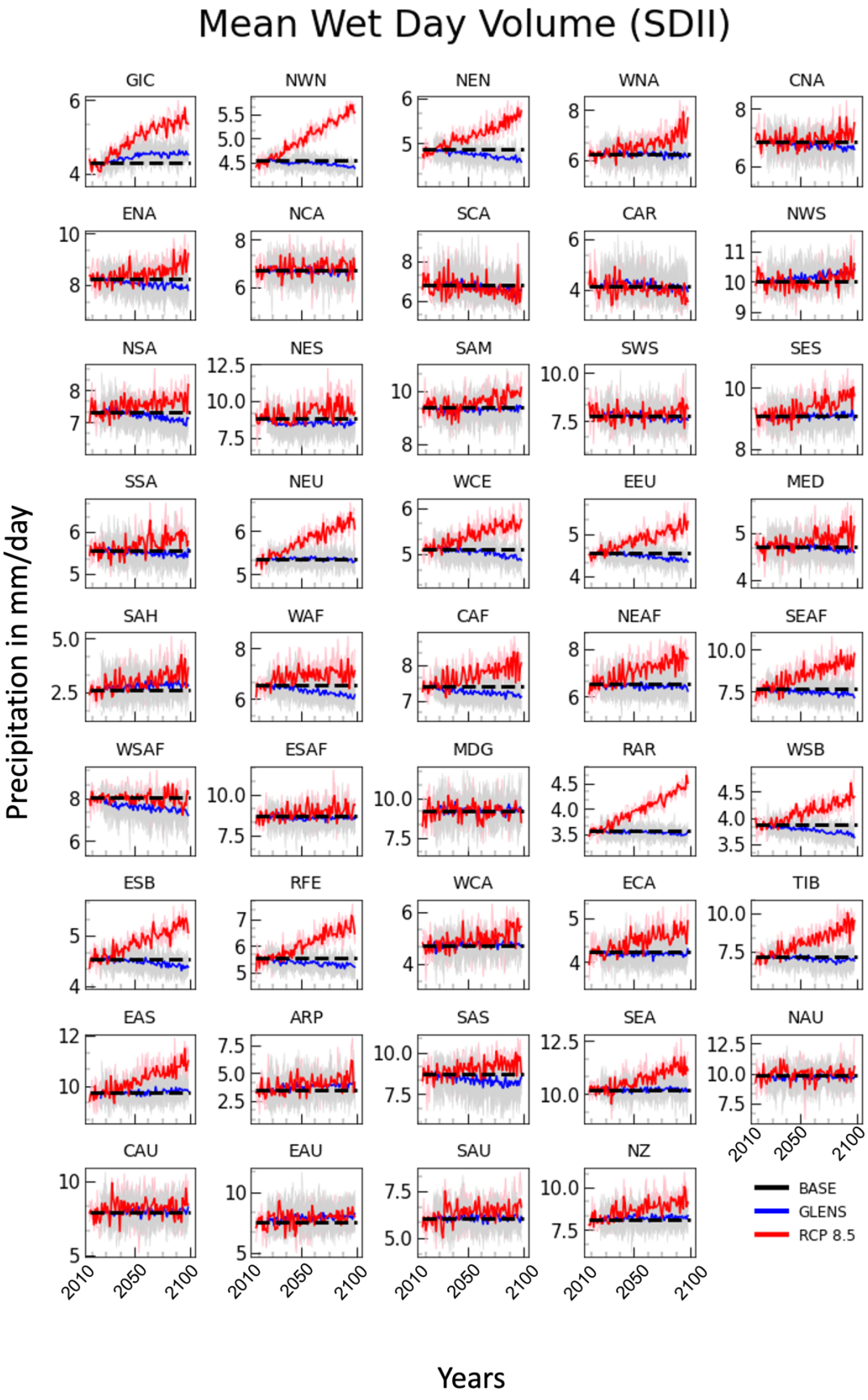


Figure S26: Projected Changes in Simple Daily Intensity (SDII; Mean Wet Day). Details as for Figure S1. Companion to Figure 6b and Figure 14

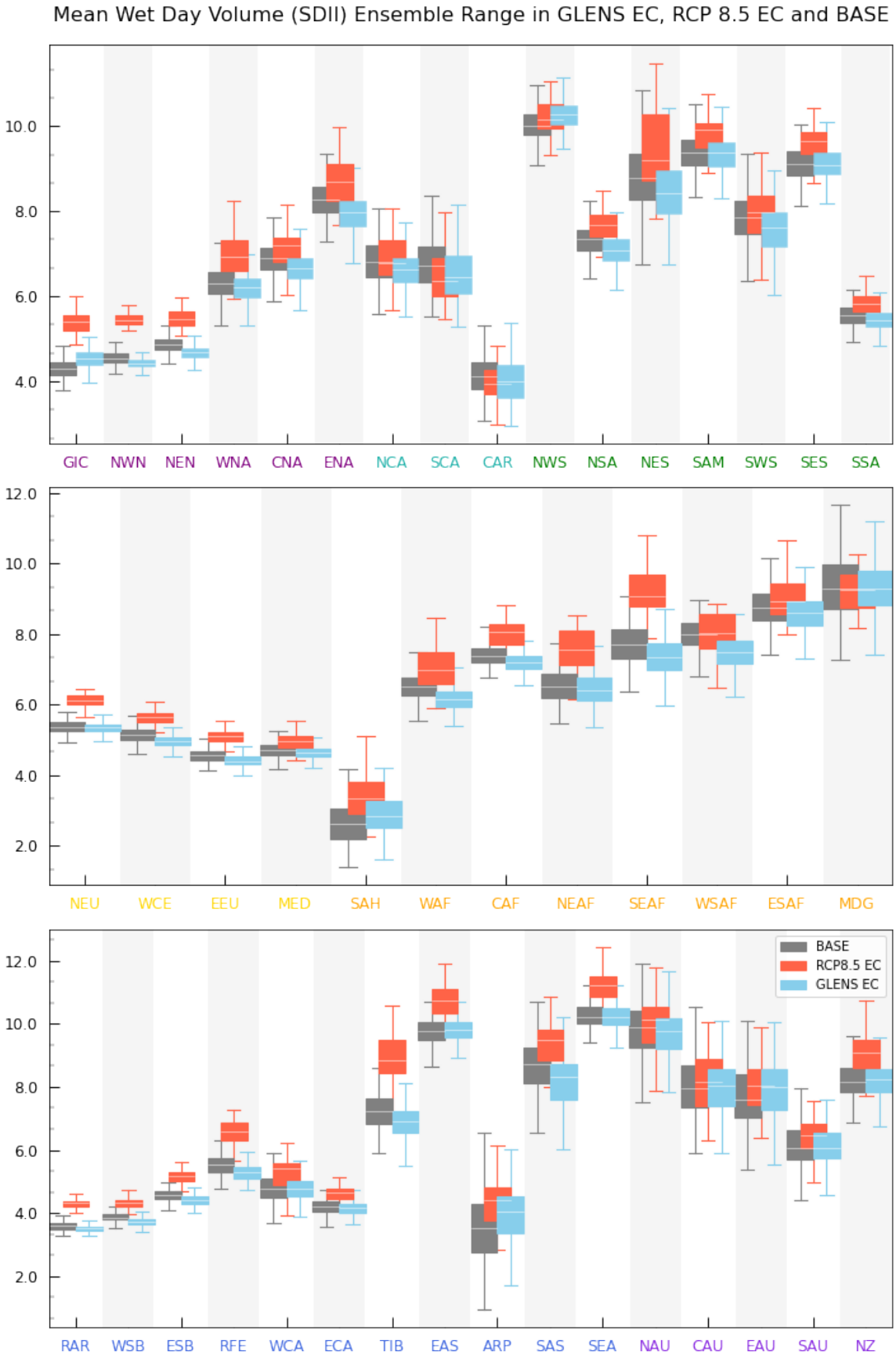


Figure S27: Box Plots of Mean Wet Day. Details as for Figure S3. Companion to Figure 6b and Figure 14

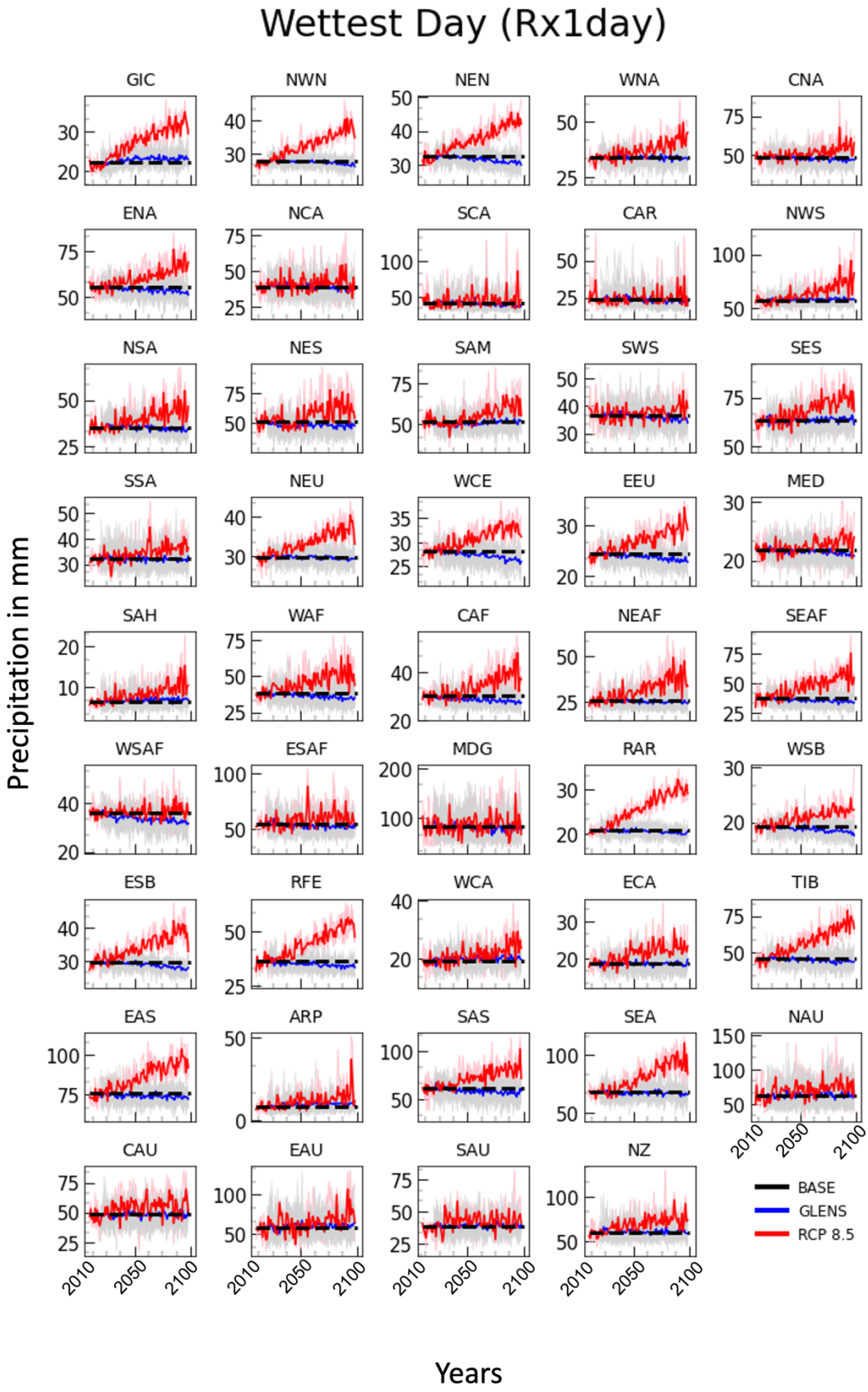


Figure S28: Projected Changes in Annual Maximum 1 Day precipitation (Rx1Day; Wettest Day). Details as for Figure S1. Companion to Figure 6c and Figure 13

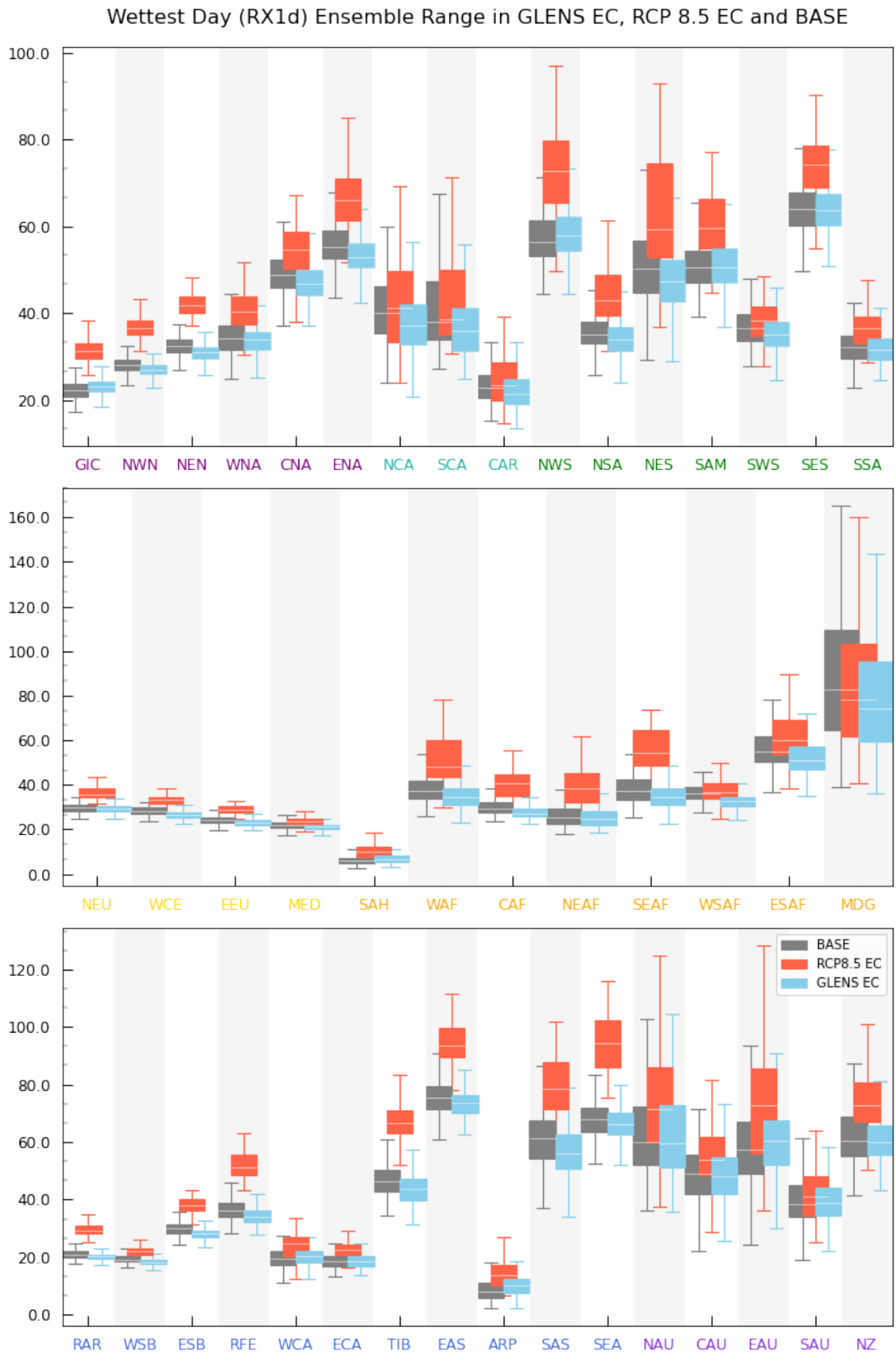


Figure S29: Box Plots of Wettest Day. Details as for Figure S3. Companion to Figure 6c and Figure 13

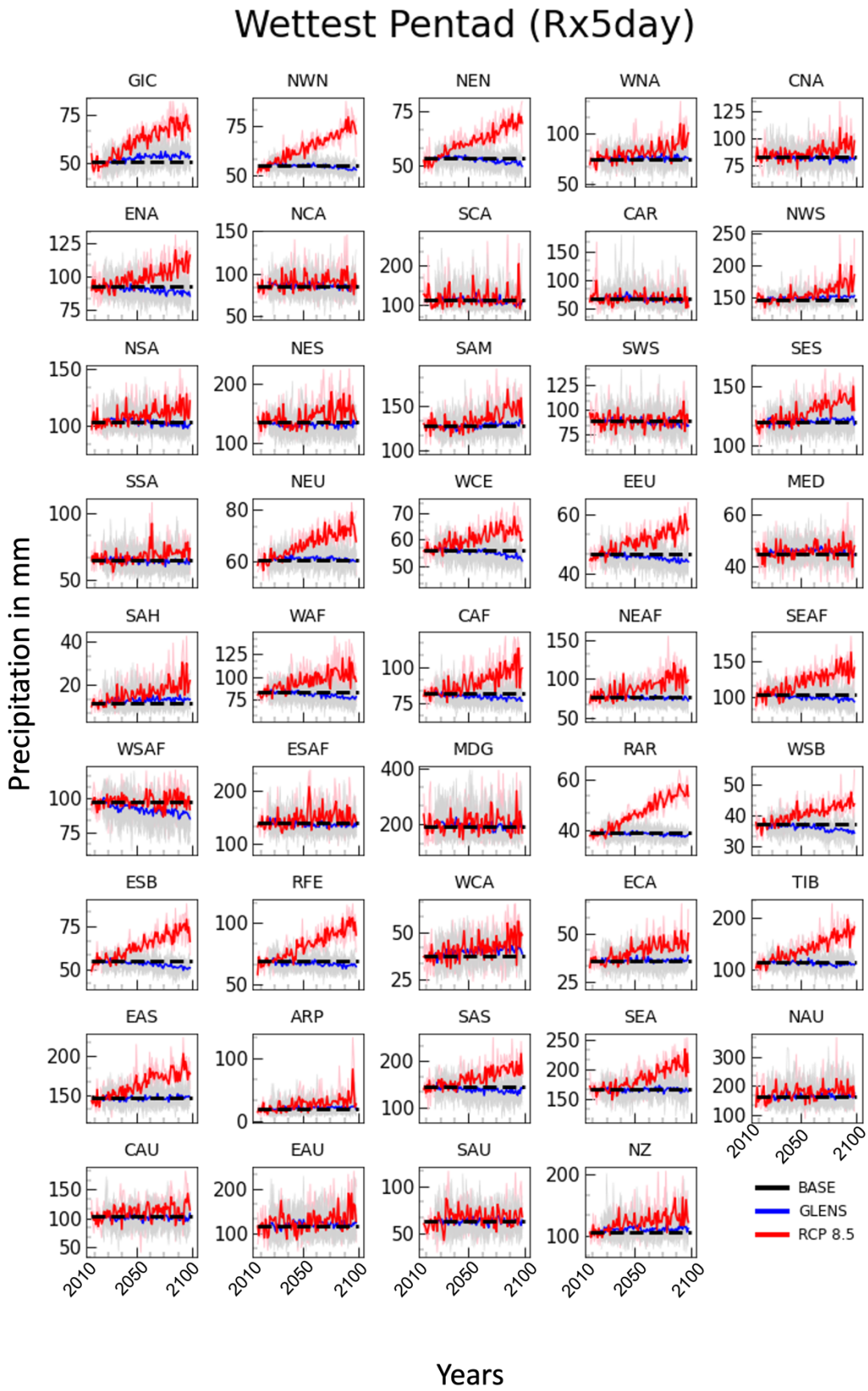


Figure S30: Projected Changes in Intensity of Annual Maximum 5 Day precipitation (Rx5Day; Wettest Pentad). Details as for Figure S1. Companion to Figure 6d

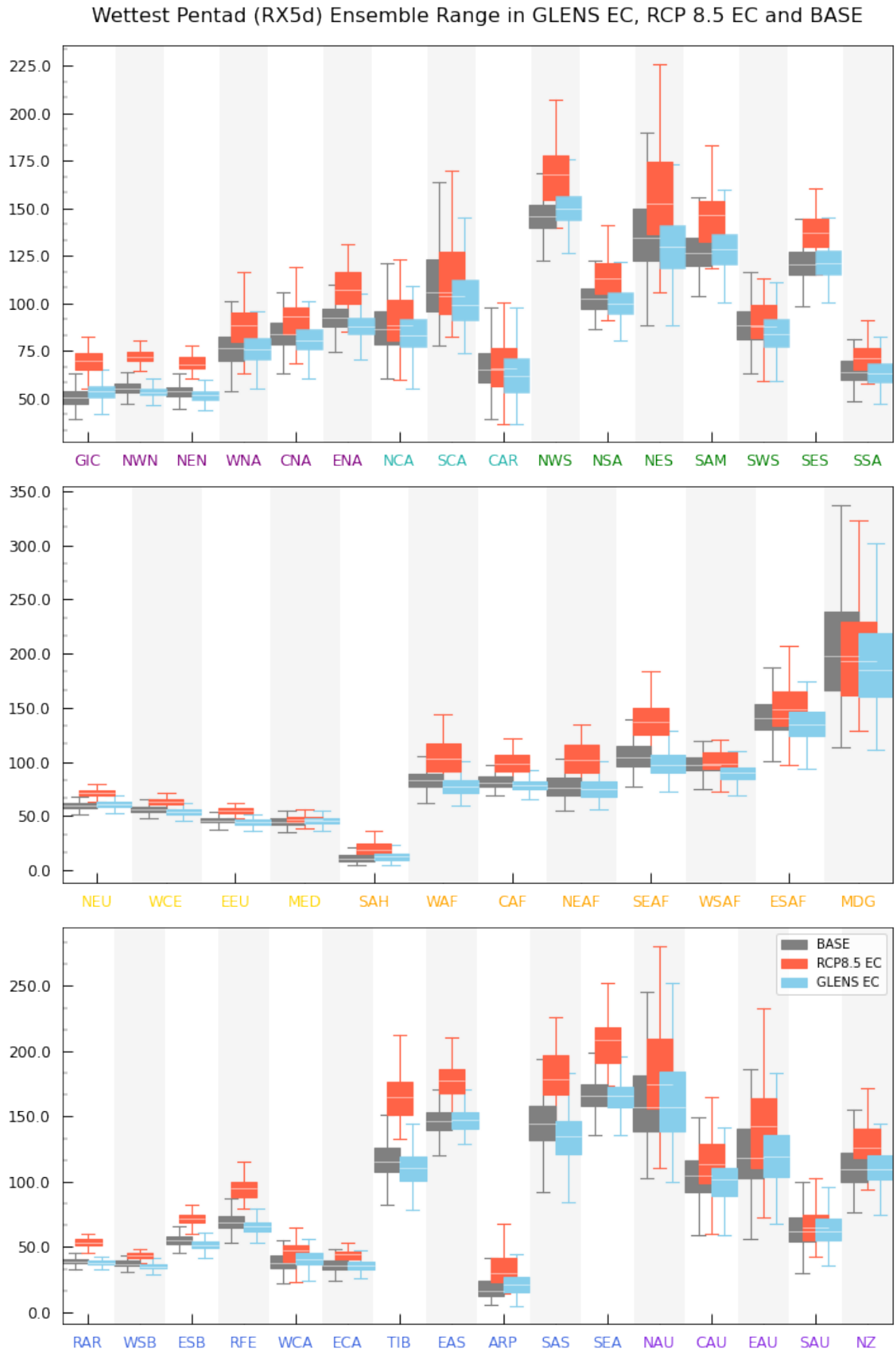


Figure S31: Box Plots for Wettest Pentad. Details as for Figure S3. Companion to Figure 6d.

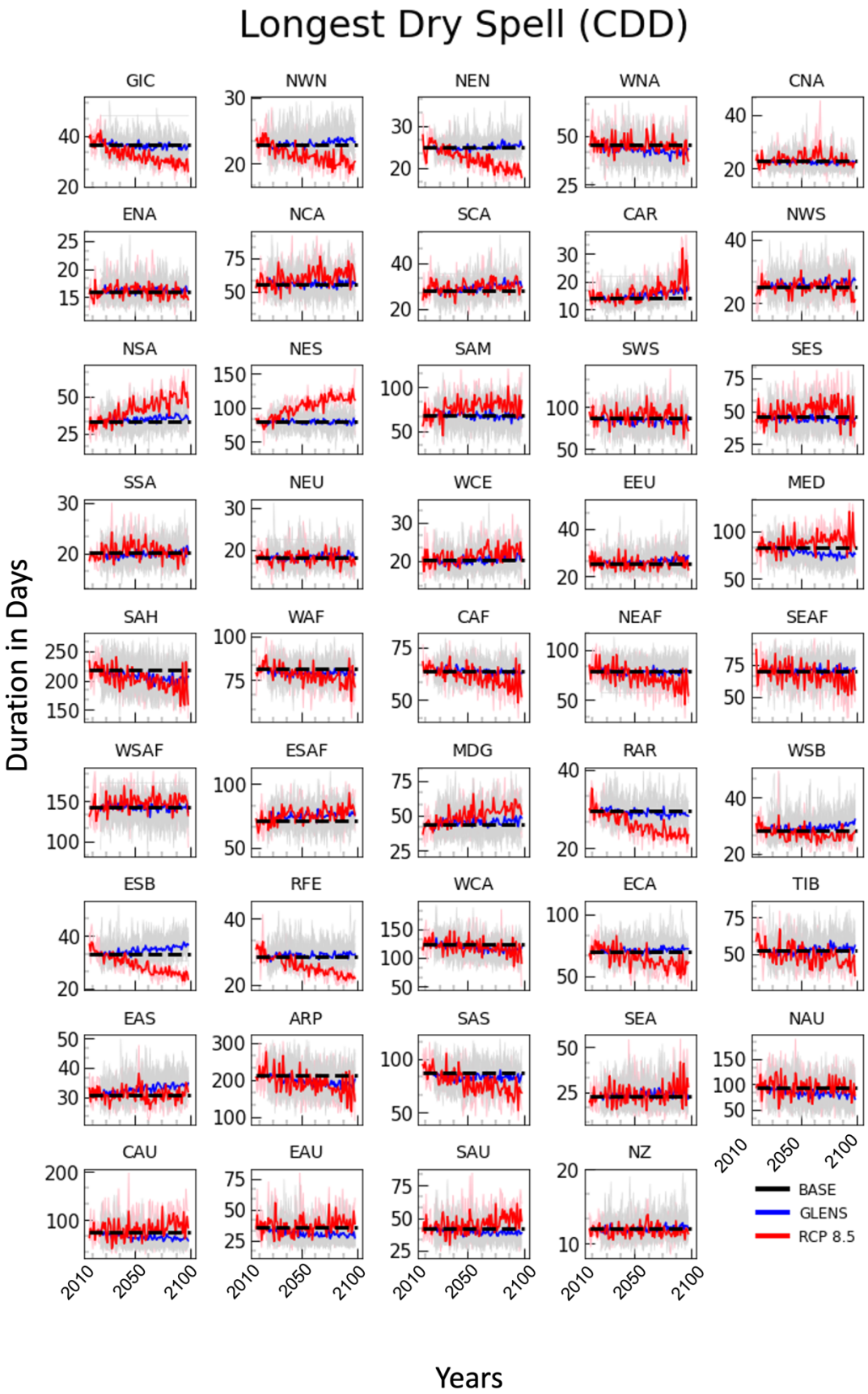


Figure S32: Longest spell of consecutive dry days (CDD; Dry Spell). Details as for Figure S1. Companion to Figure 7b and Figure 13

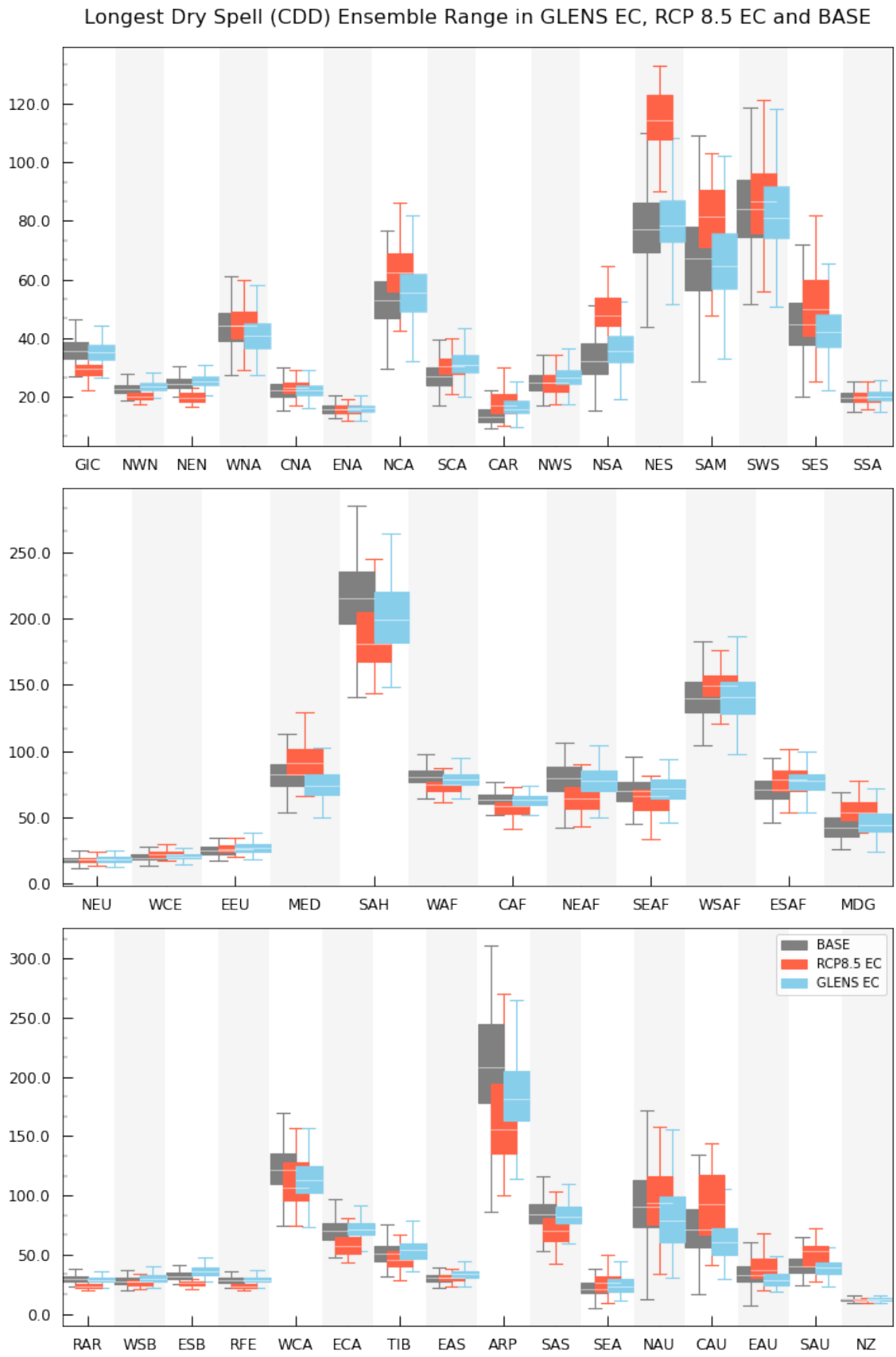


Figure S33: Box Plots for Longest Dry Spell. Details as for Figure S3. Companion to Figure 7a and Figure 13

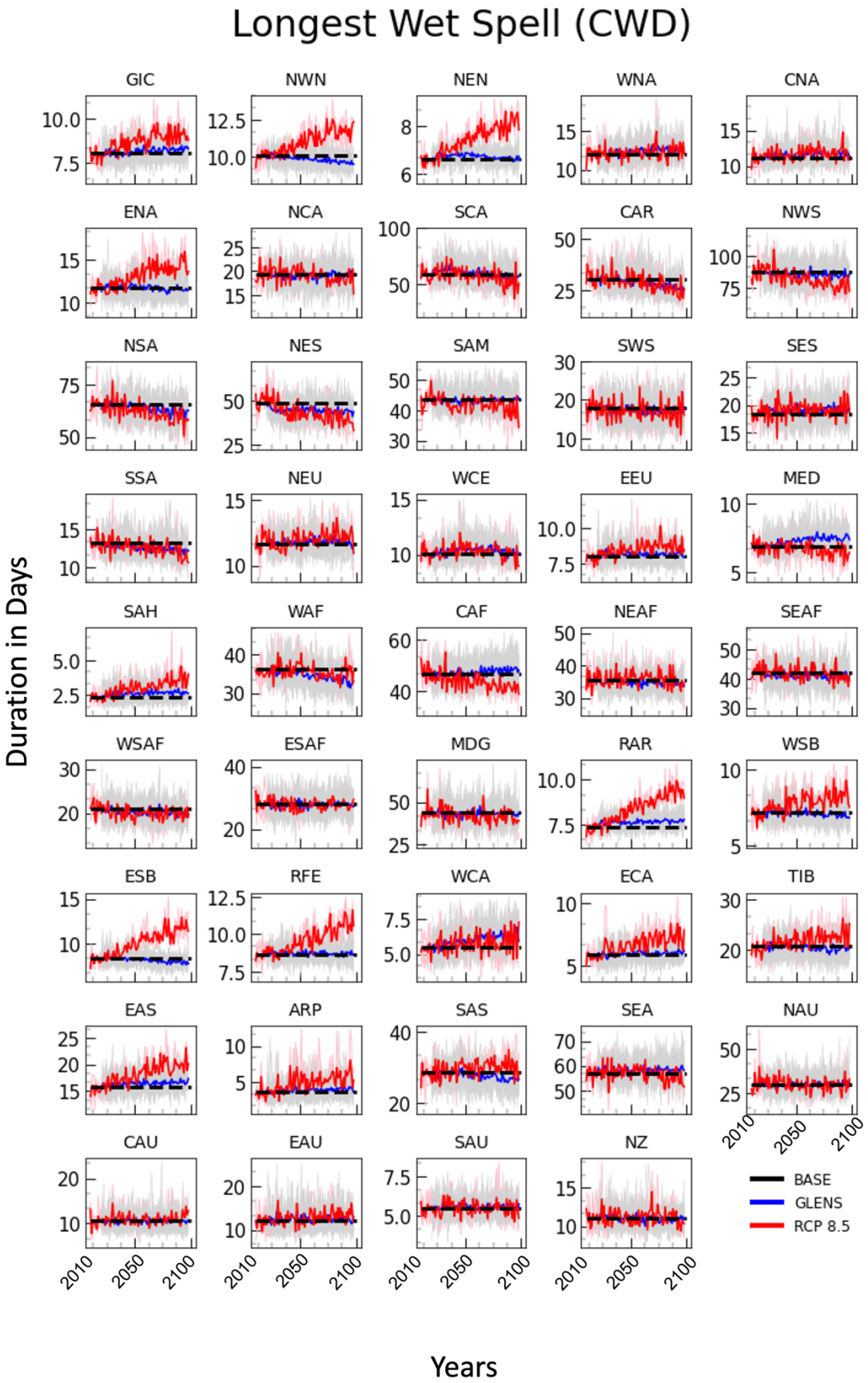


Figure S34: Longest spell of consecutive wet days (CWD; Wet Spell). Details as for Figure S1. Companion to Figure 7b and Figure 13

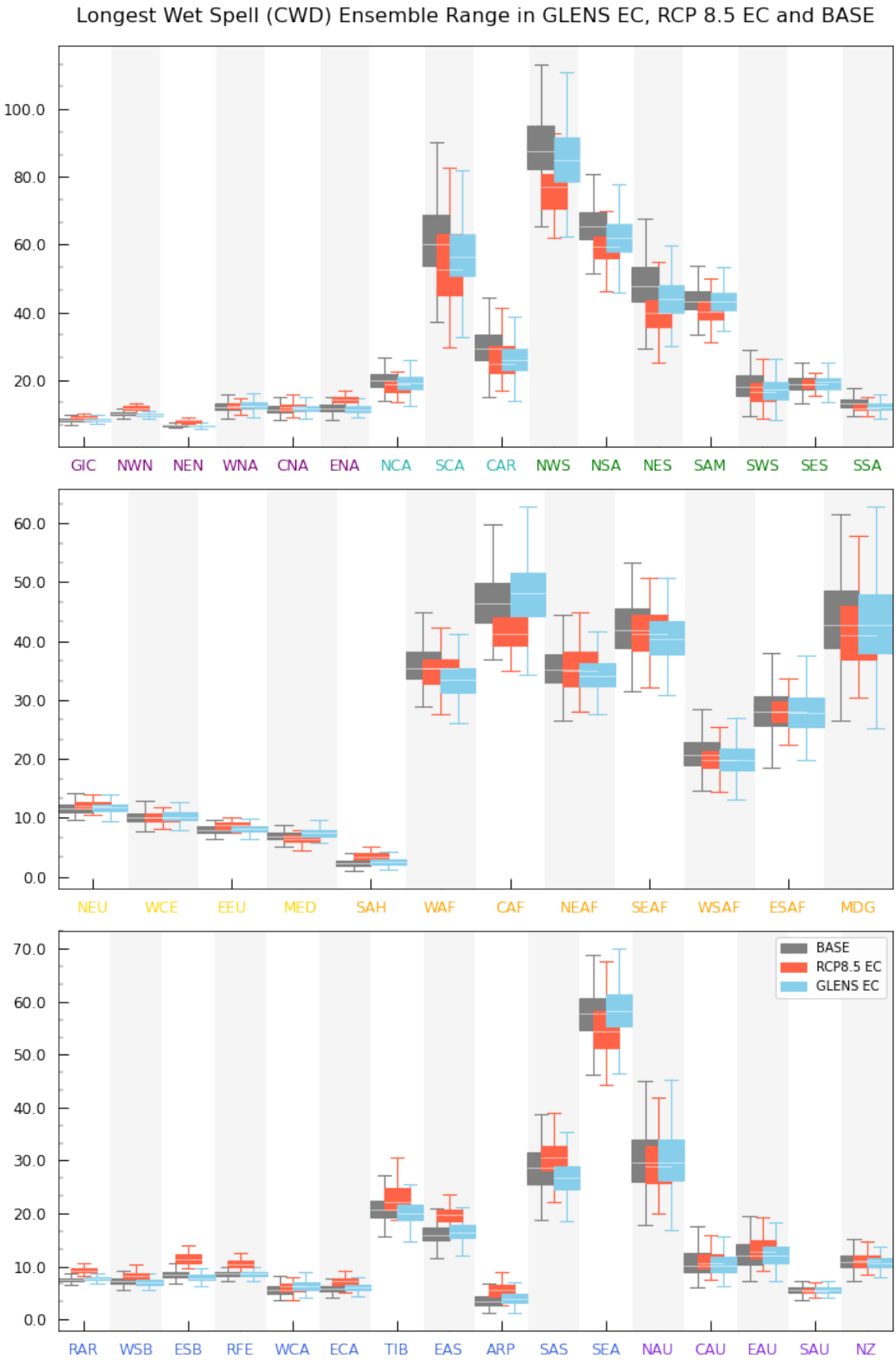


Figure S35: Box Plots for Longest Wet Spell. Details as for Figure S3. Companion to Figure 7b and Figure 13

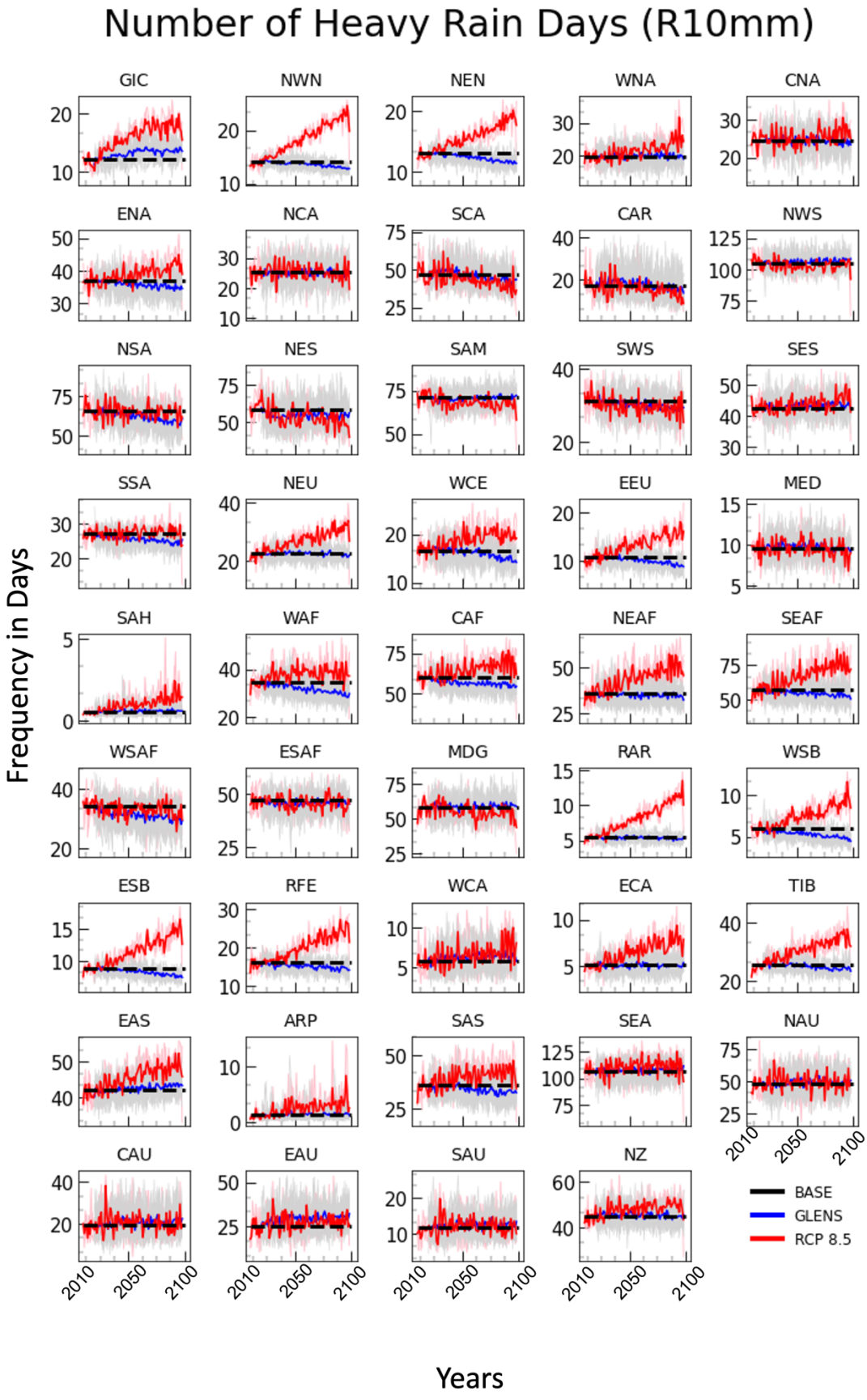


Figure S36: Projected Changes in Number of days exceeding 10mm (R10mm; Heavy Rain Days). Details as for Figure S1. Companion to Figure 8a and Figure 13

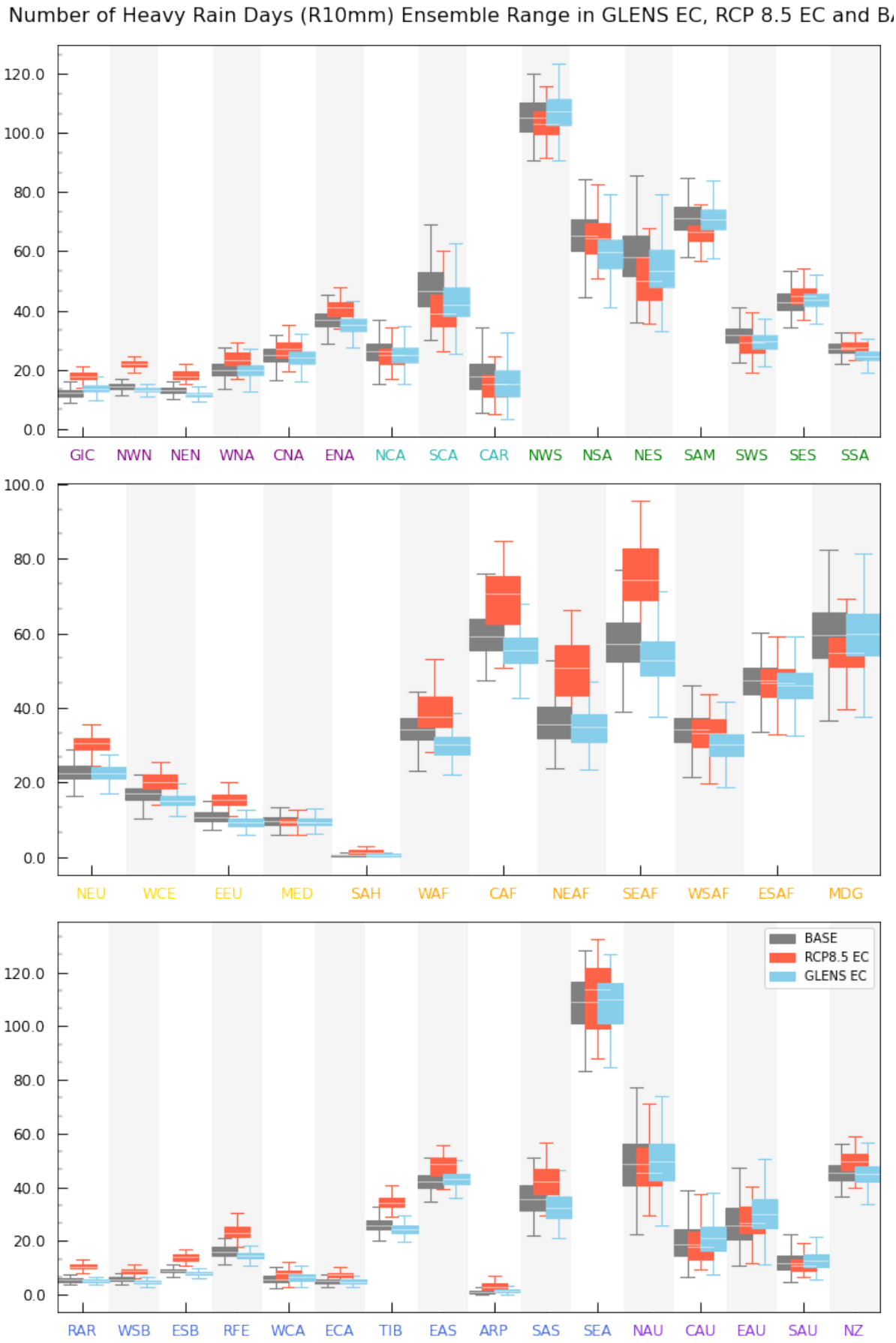


Figure S37: Box Plots for Heavy Rain Days. Details as for Figure S3. Companion to Figure 8a and Figure 13

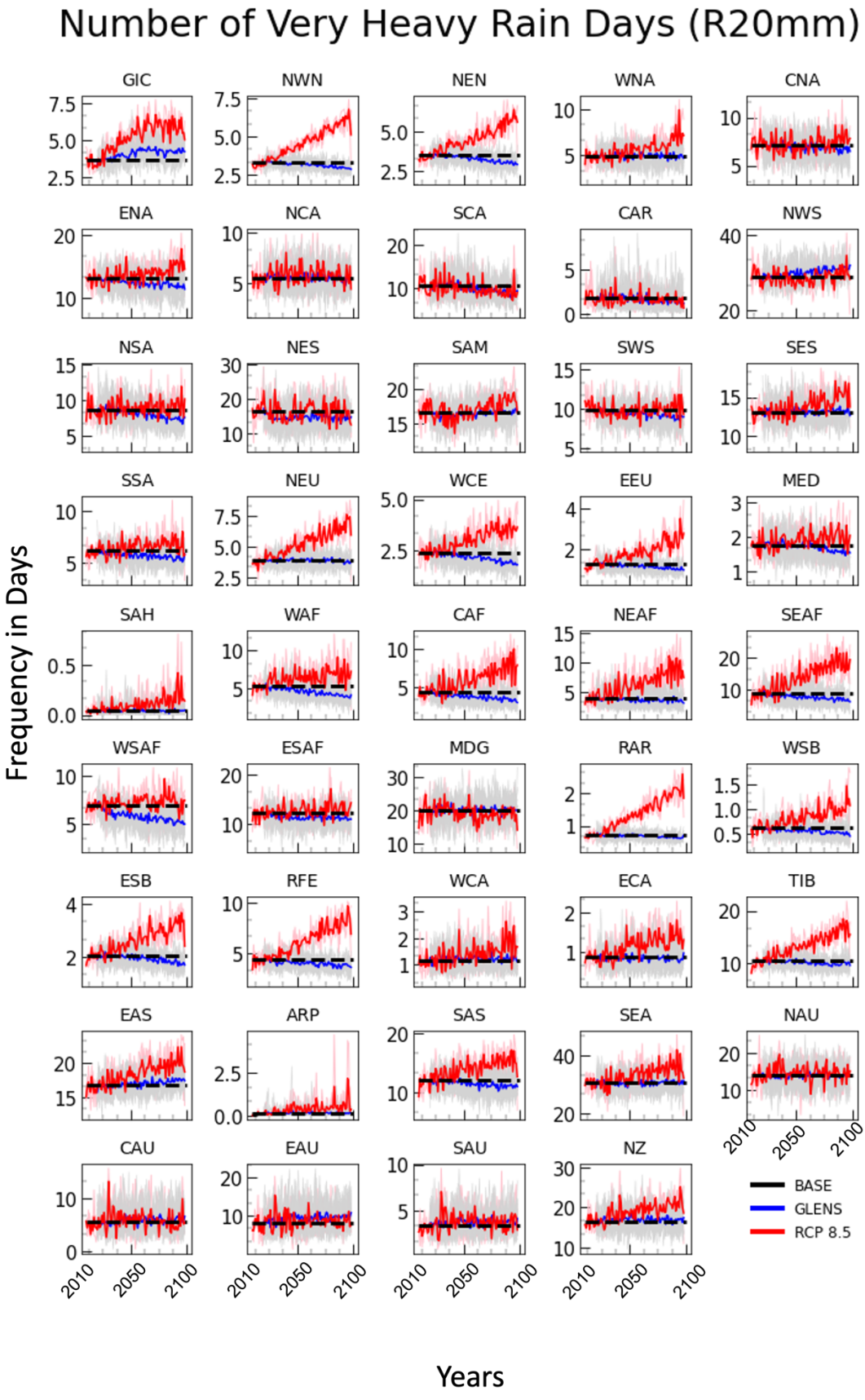


Figure S38: Projected changes in days with >20mm rain (R20mm; Very Heavy Rain Days). Details as for Figure S1. Companion to Figure 8b

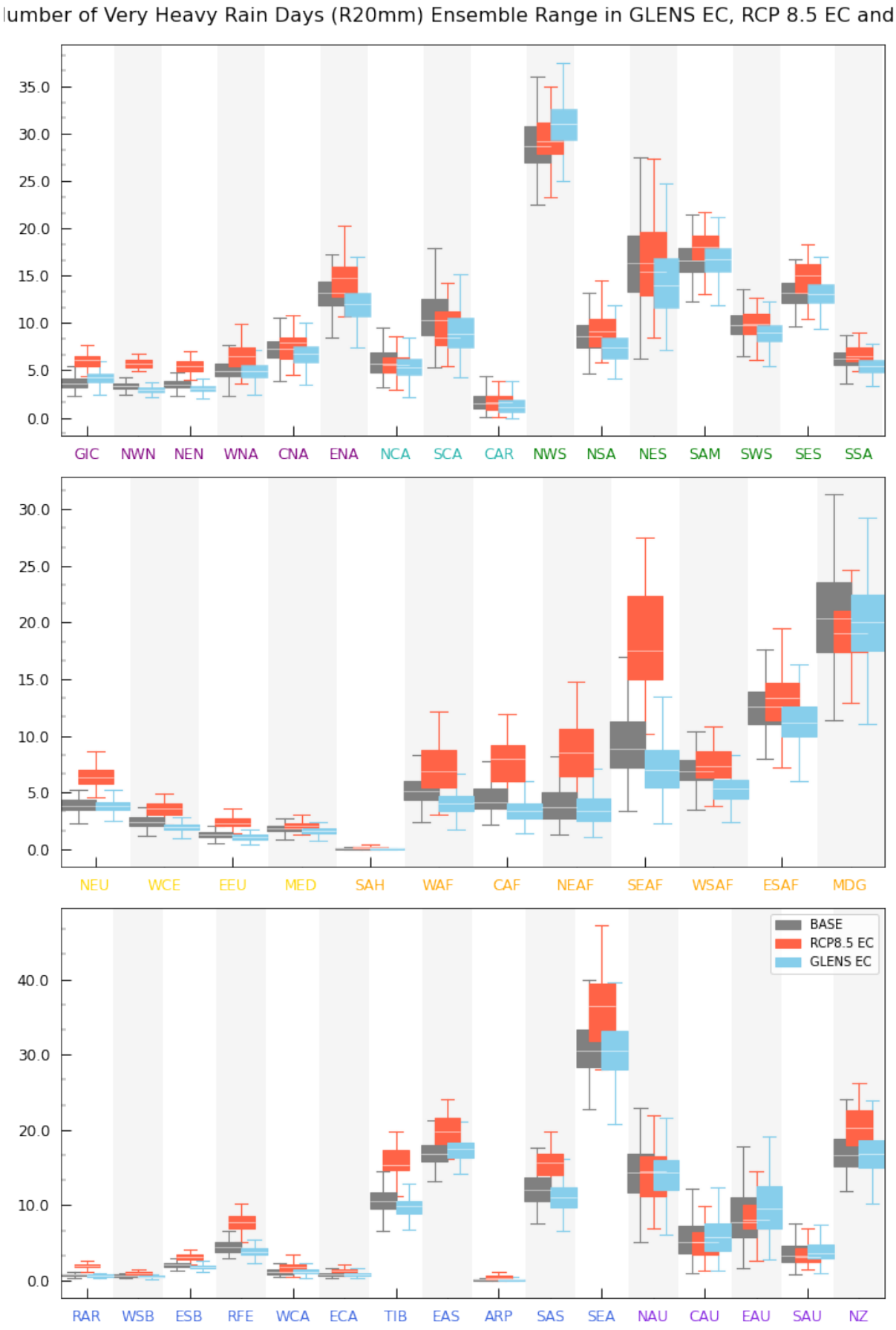


Figure S39: Box Plots for Very Heavy Rain Days. Details as for Figure S3. Companion to Figure 8b