



Supplement of

Indices of extremes: geographic patterns of change in extremes and associated vegetation impacts under climate intervention

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Coldest Night (TNn)

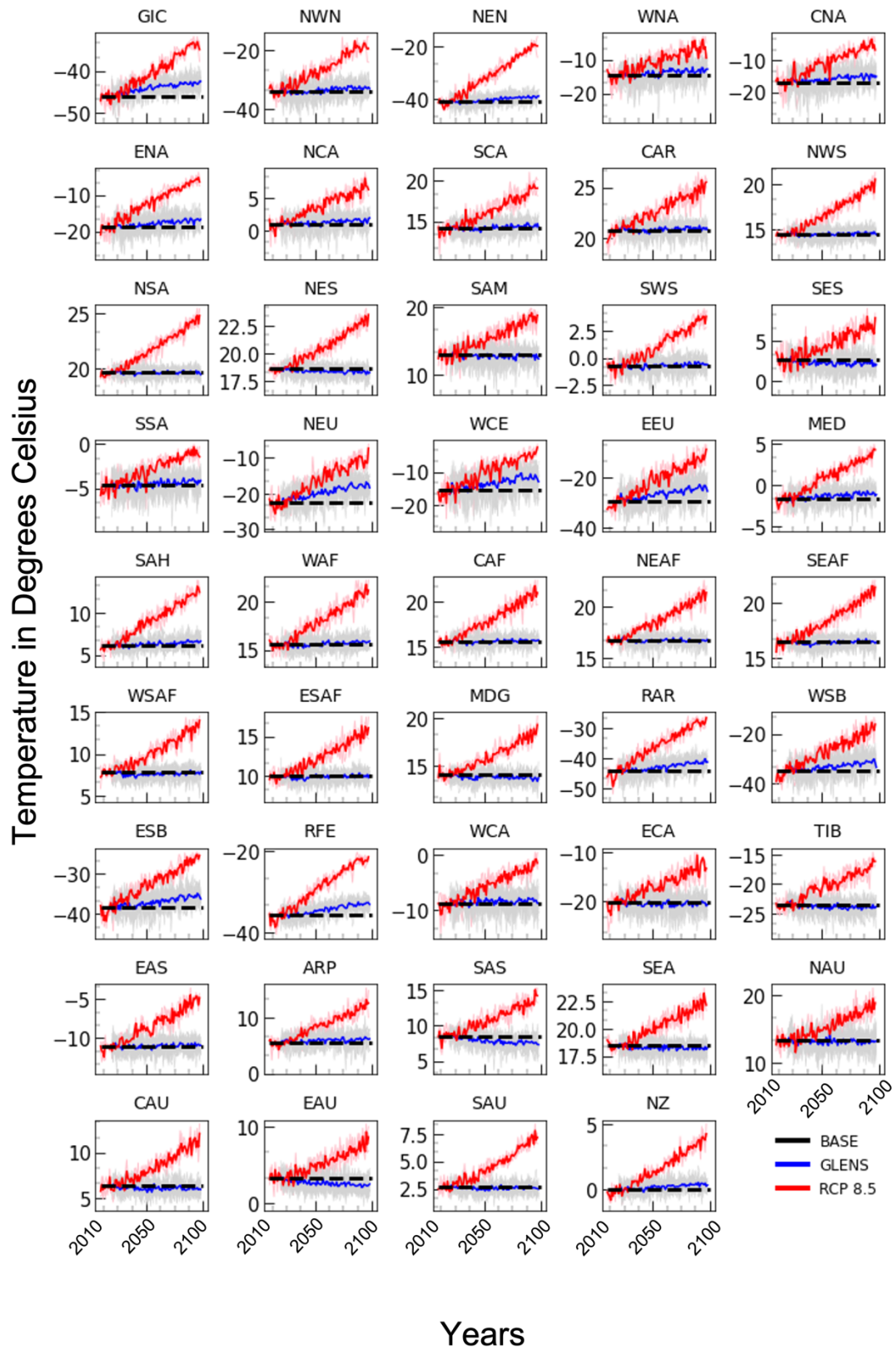


Figure S1: Projected Changes in Annual Minimum Temperatures (Coldest Night; TNN) Regional Mean Time Series Comparing the ensemble mean from RCP8.5 (2010-2097; red), BASE (2010-2030, black dash), and GLENS (2020-

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).

Coldest Day (TXn)

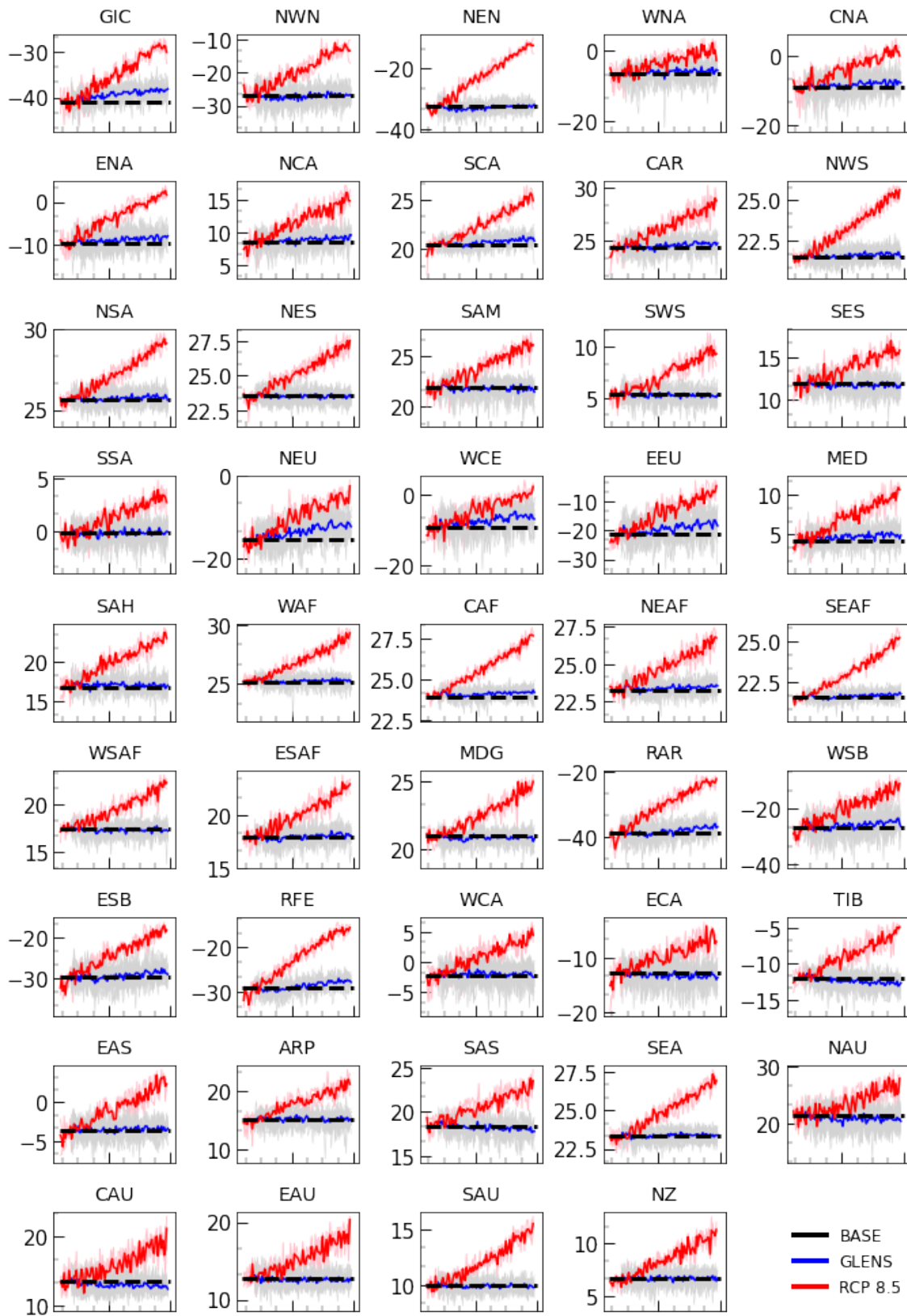


Figure S2. Projected Changes in Annual Minimum Daily Maximum Temperatures (TXn, Coldest Day). Details as for Figure S1. Companion to Figure 2b and Figure 12

Coldest Day (TXn) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

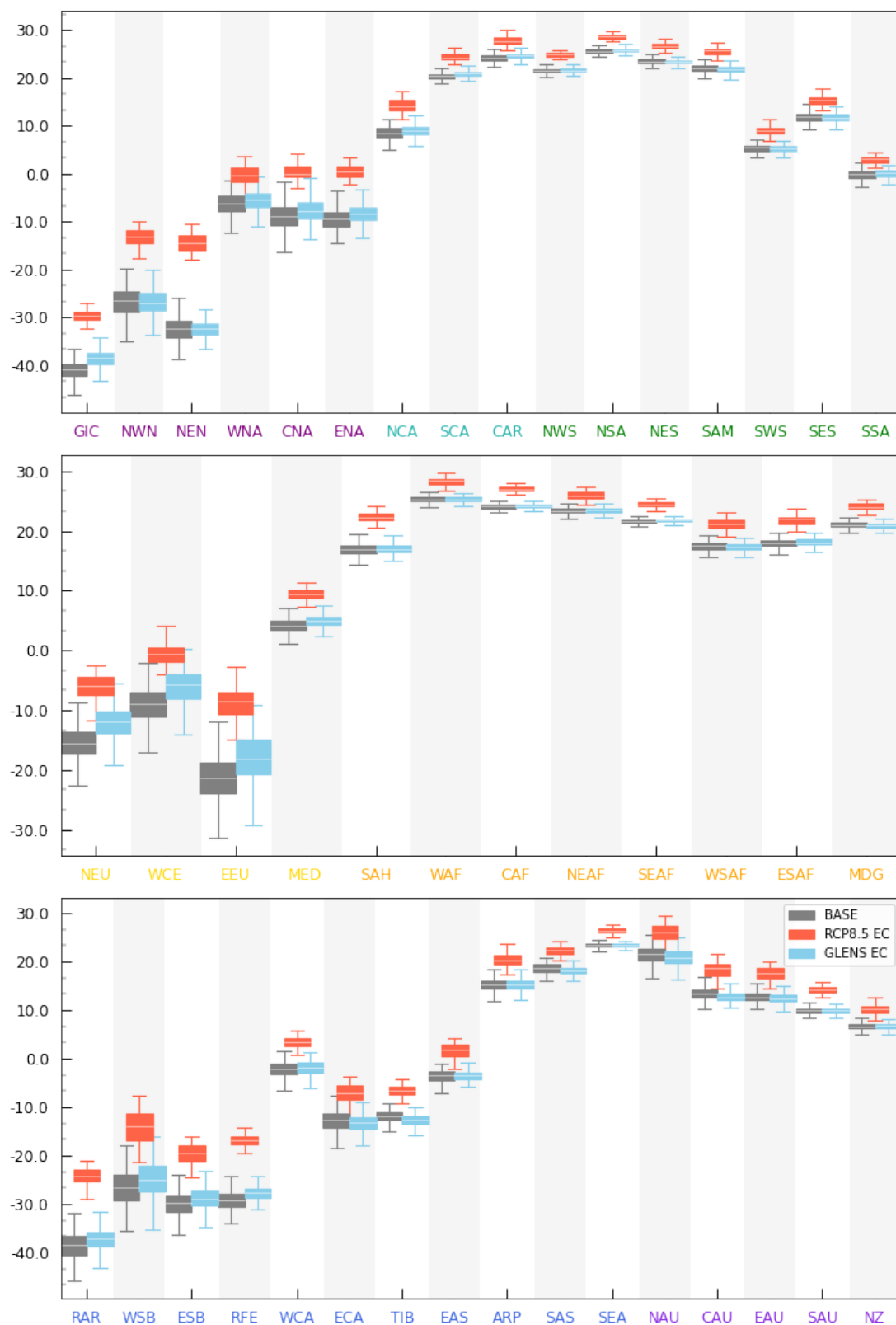


Figure S3: Boxplots of Annual Coldest Day TXn for: BASE (2010-2029) in grey, GLENS End of Century (EC; 2075-2095) in blue and RCP8.5 EC in red in each of the AR6 regions except Antarctica. Boxes show ensemble mean in

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

Warmest Night (TNx)

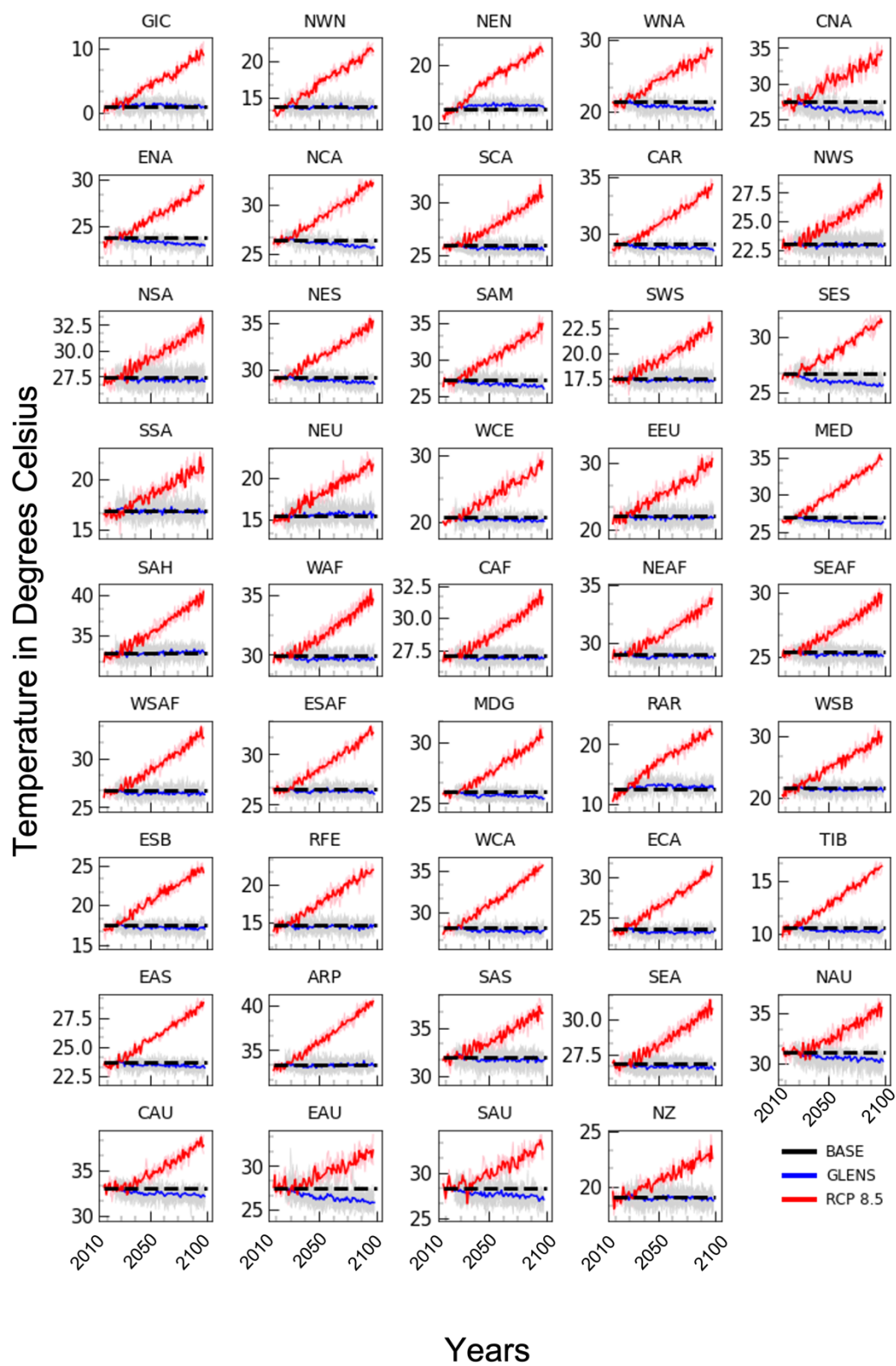


Figure S4: Projected Changes in Annual Maximum Daily Minimum Temperatures (TNx, Warmest Night). Details as for Figure S1. Companion to Figure 2c and Figure 12

Warmest Night (TNx) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

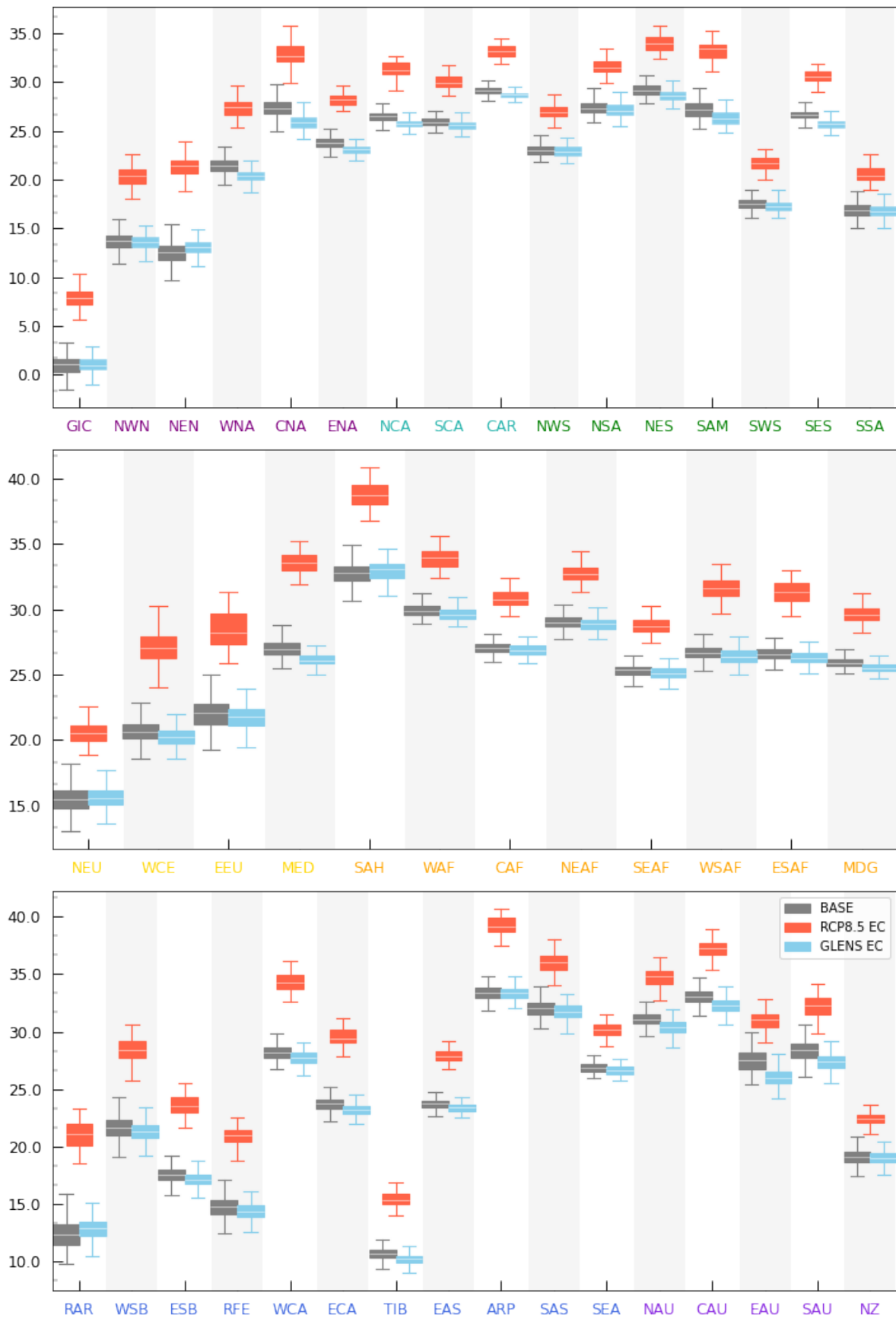


Figure S5: Box Plots of Warmest Night (TNx). Details as for Figure S3. Companion to Figure 2c and Figure 12

Warmest Day (TXx)

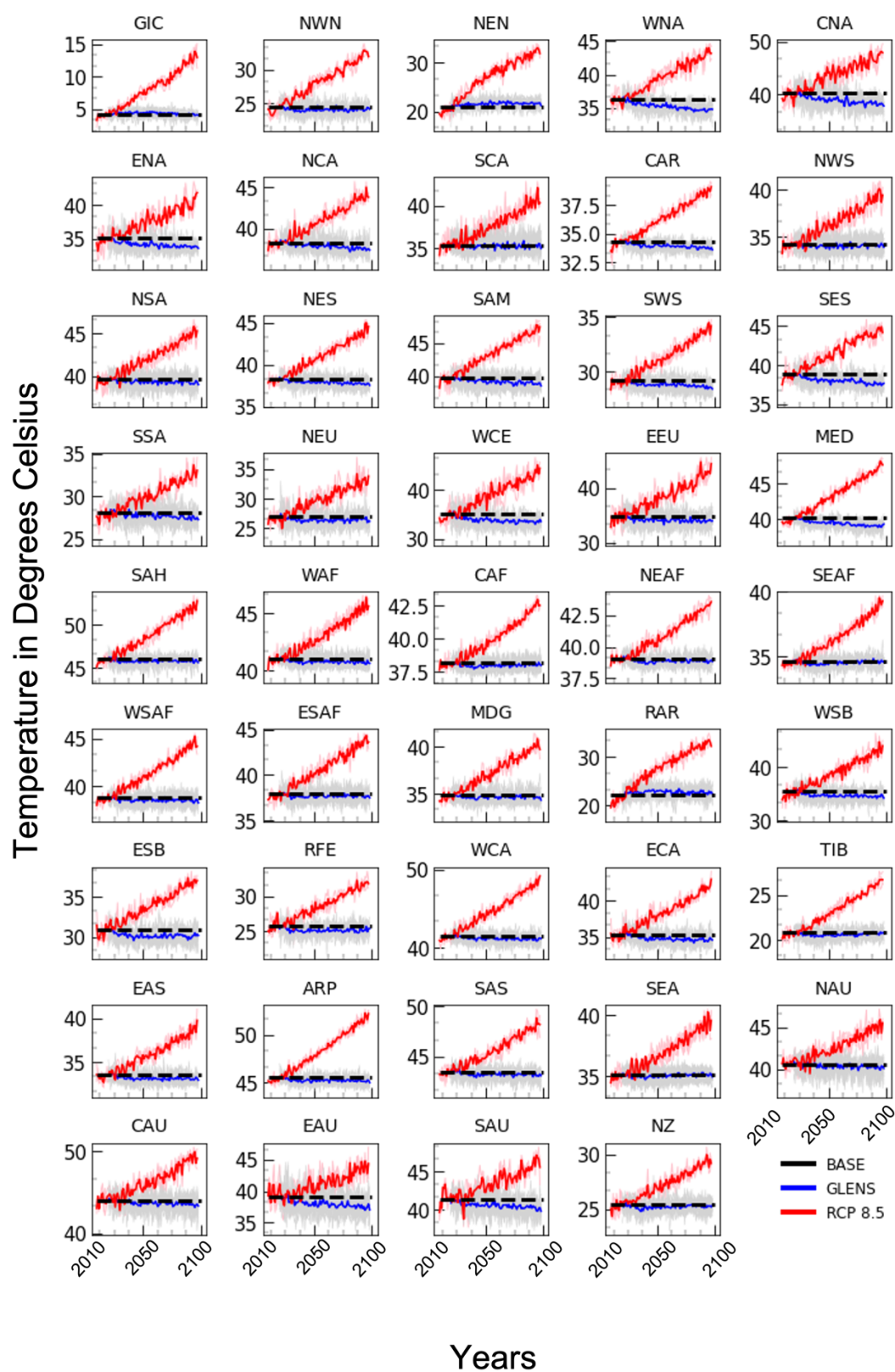


Figure S6: Projected Changes in Warmest Day (TXx). Details as for Figure S1. Companion to Figure 2d and Figure 12

Hottest Day (TXx) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

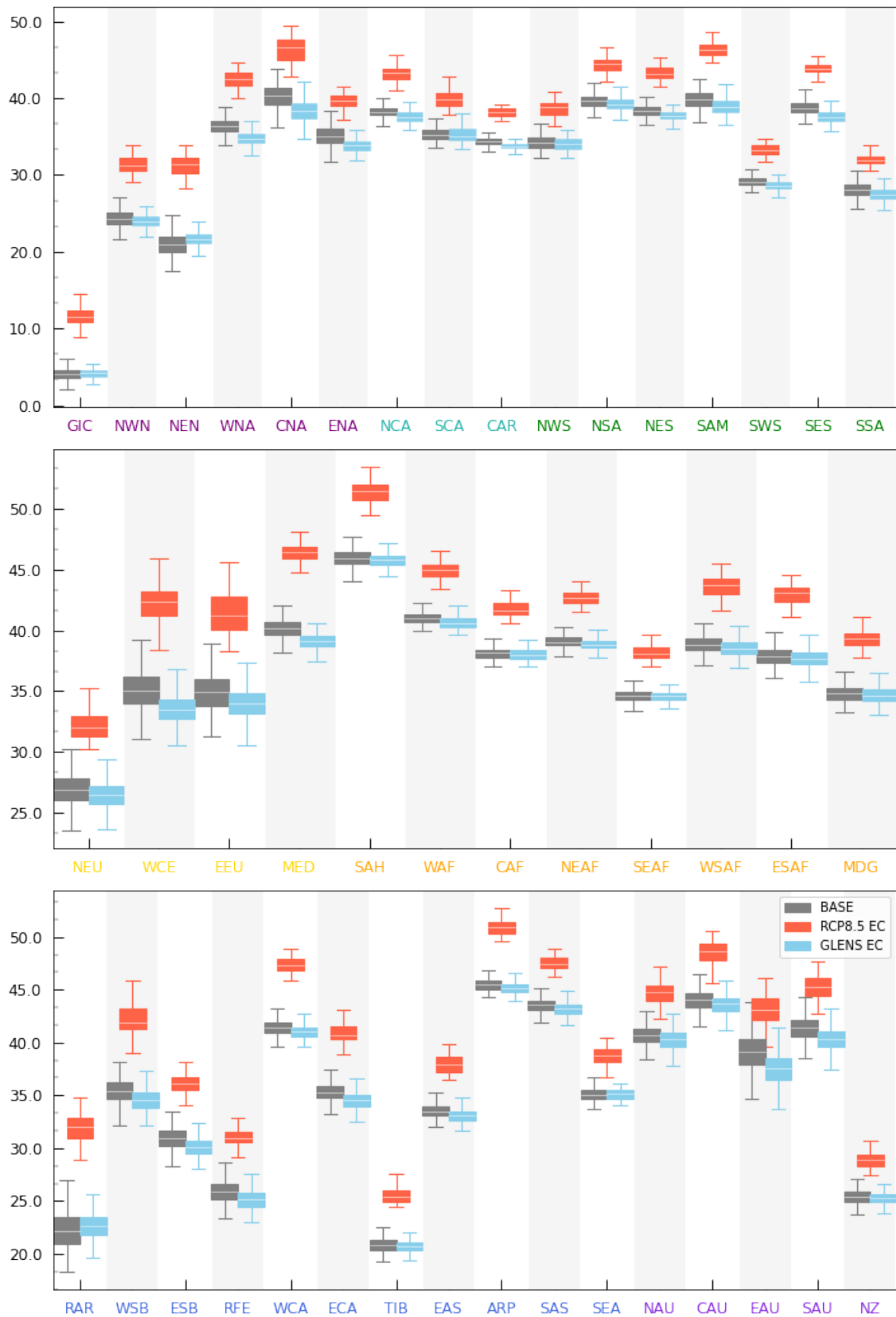


Figure S7: Box Plots of Warmest Day (TXx). Details as for Figure S3. Companion to Figure 2d and Figure 12

Number of Frost Days (FD)

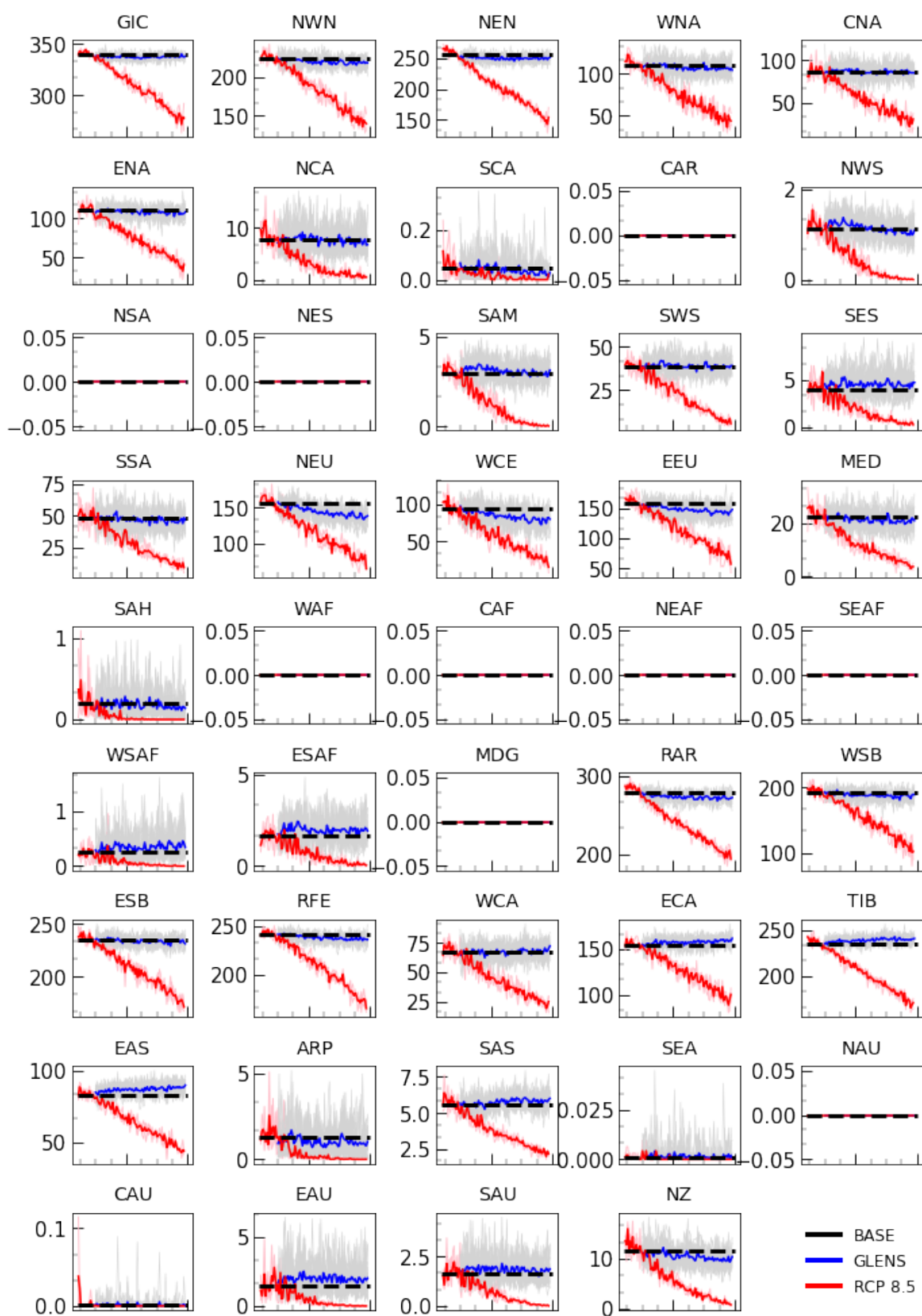


Figure S8: Projected Changes in Number of nights below 0C (FD). Details as for Figure S1.

Companion to Figure 4a

Number of Frost Days (FD) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

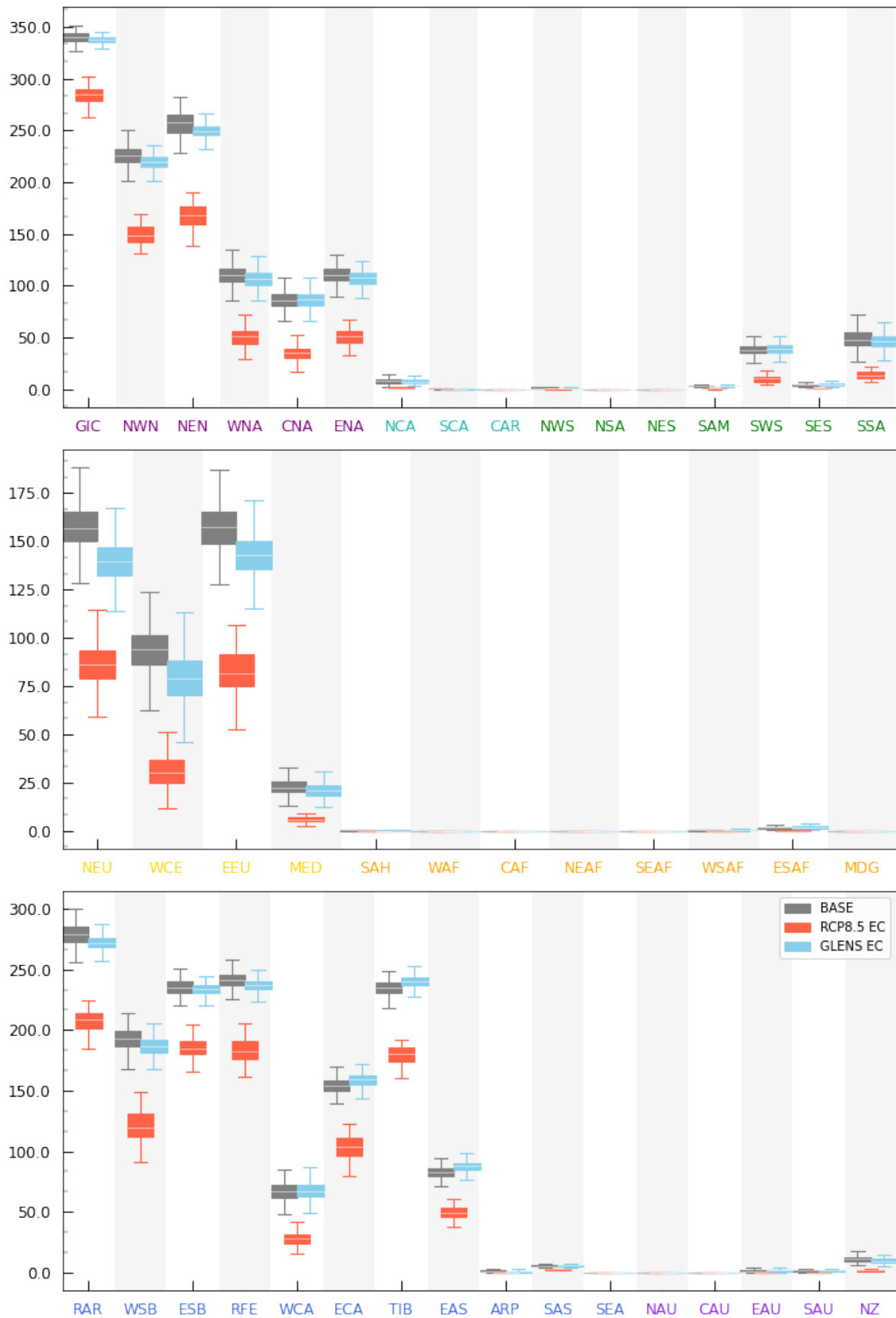


Figure S9: Box Plots of Frost Days. Details as for Figure S3. Companion to Figure 4a

Number of Cool Nights (TN10)

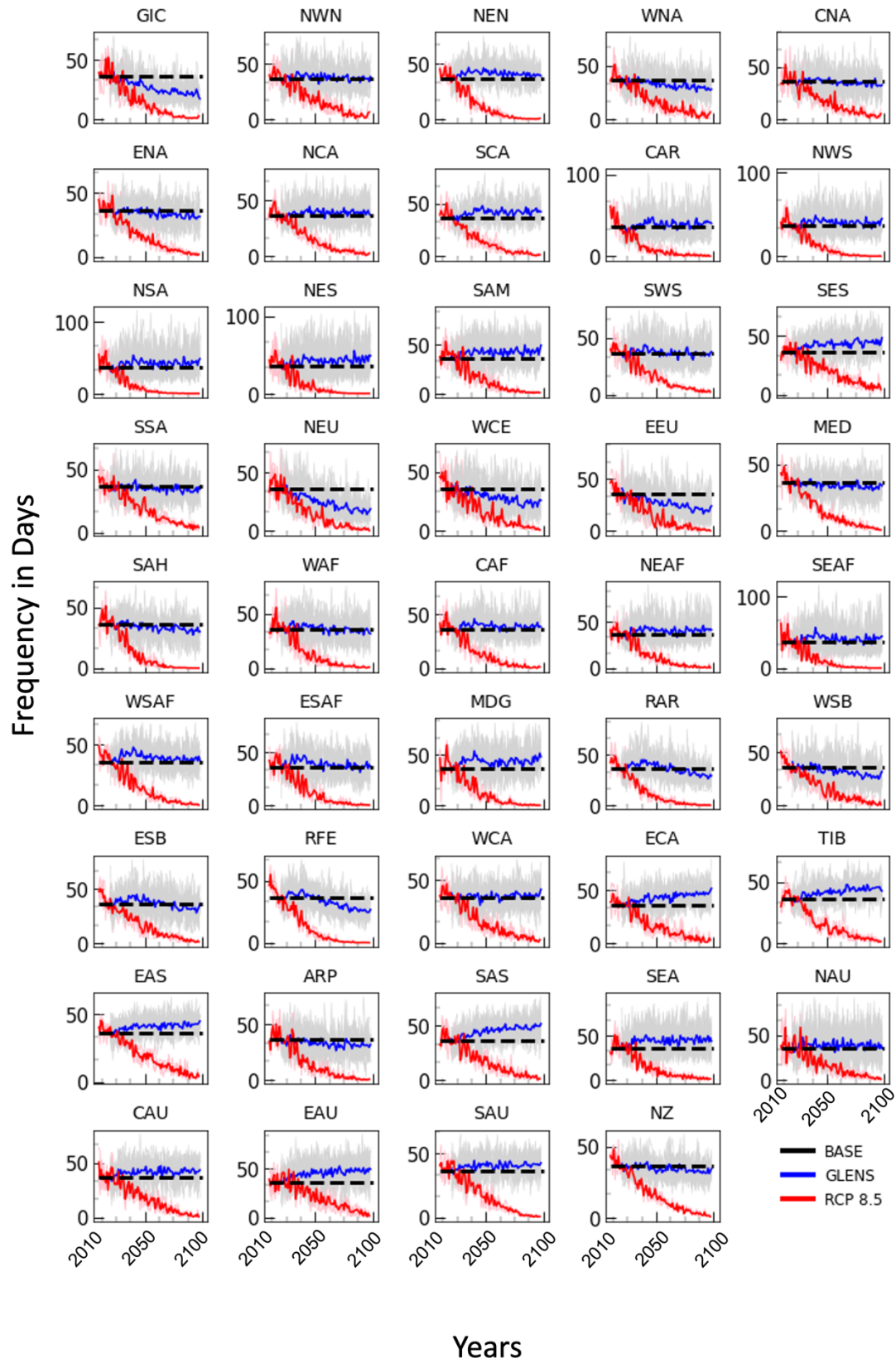


Figure S10: Projected Changes in Number of nights below 10th percentile (TN10; Cool Nights). Details as for Figure S1.

Number of Cool Nights (TN10) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

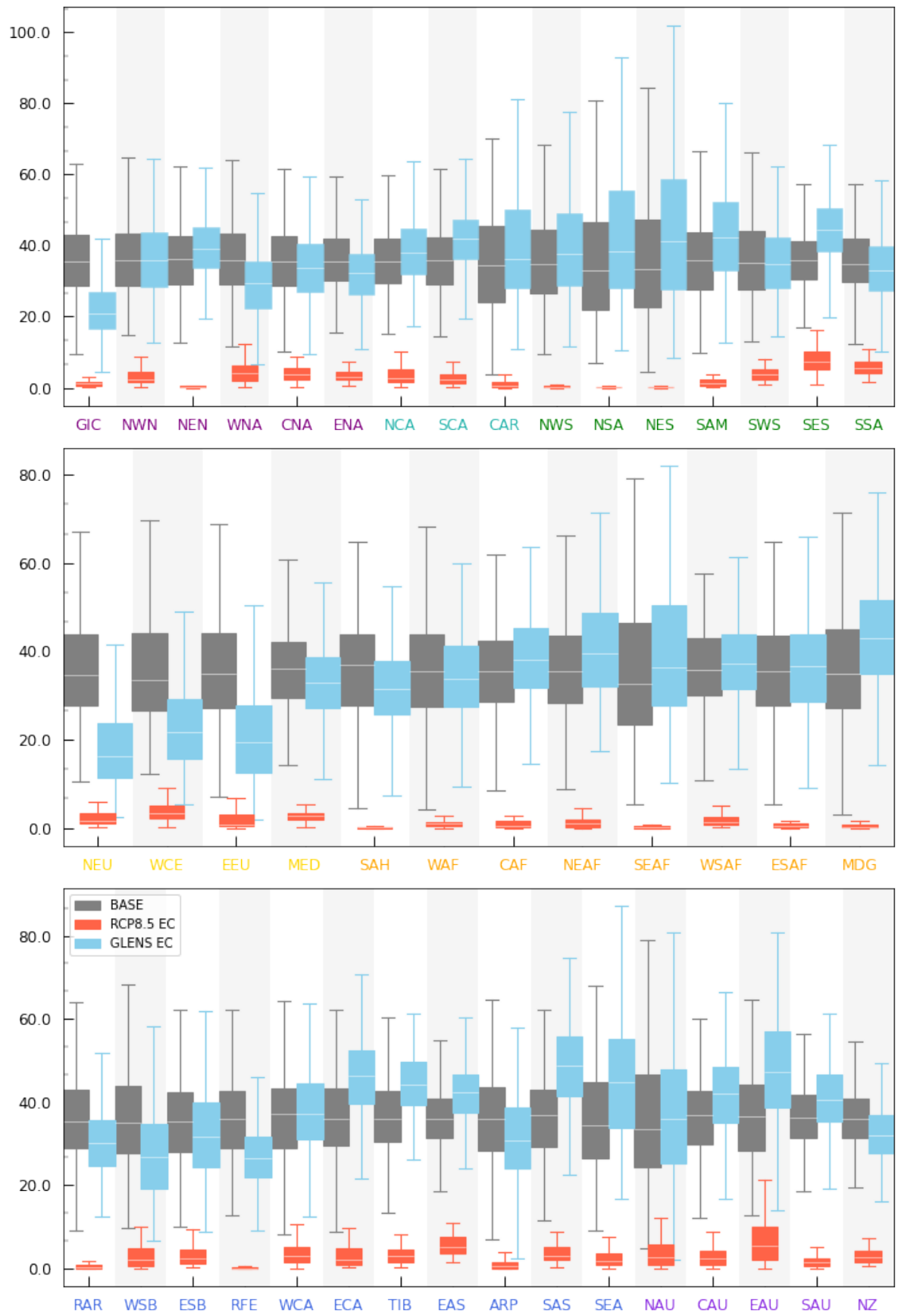


Figure S11: Box Plots for Cool Nights. Details as for Figure S3.

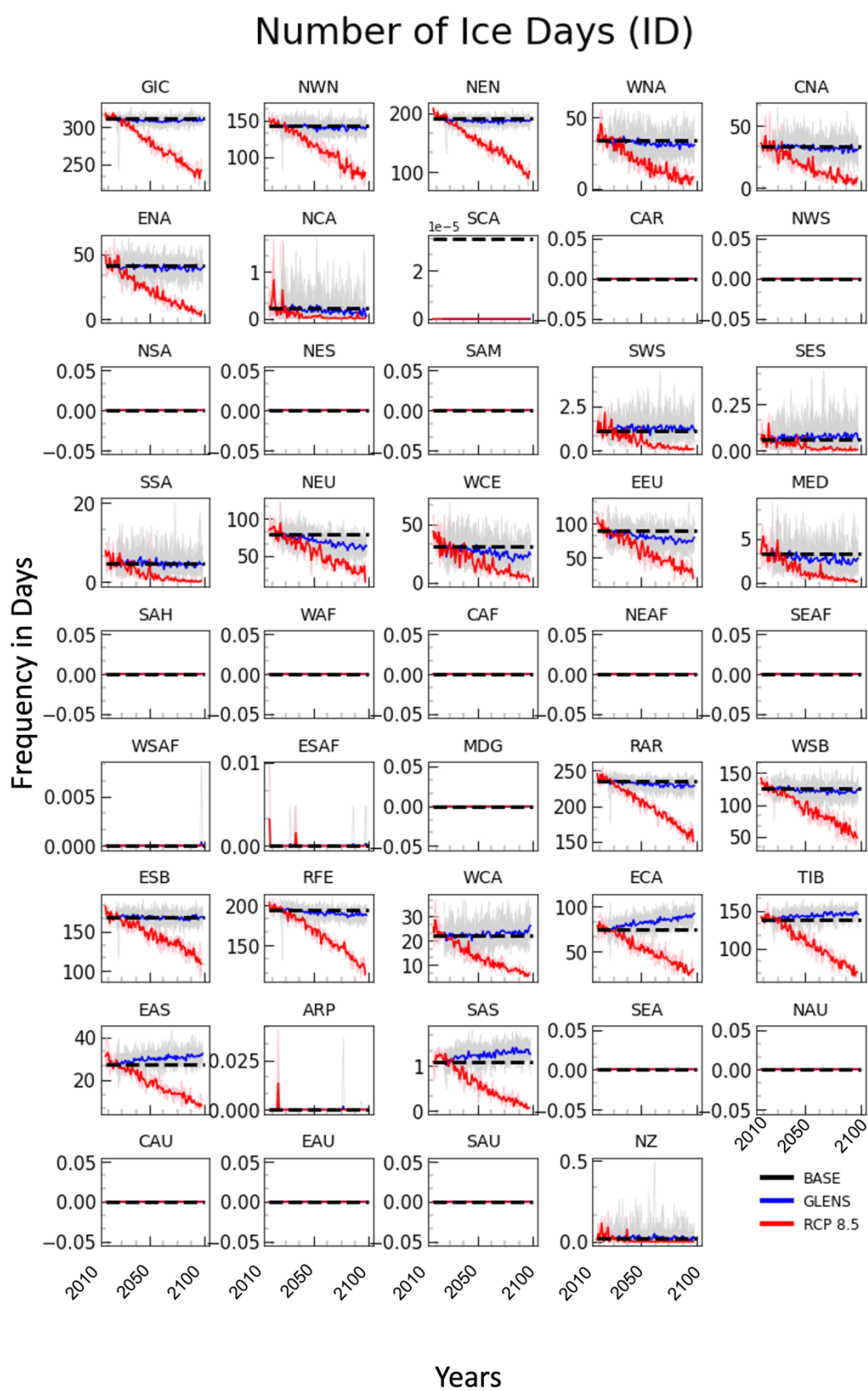


Figure S12: Projected Changes in Number of days below 0C (ID; Ice Days). Details as for Figure S1. Companion to Figure 4b

Number of Ice Days (ID) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

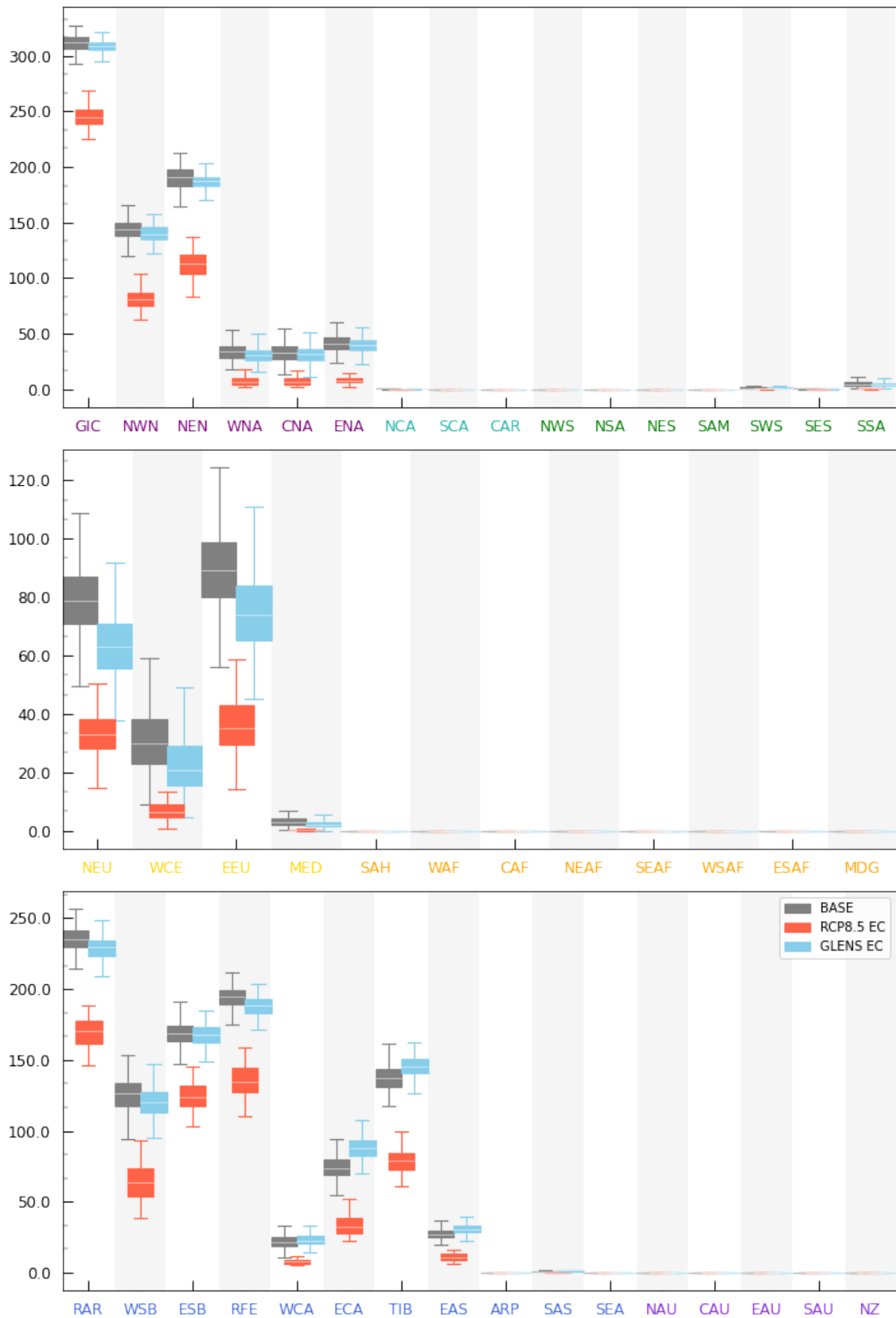


Figure S13: Box Plots of Number of Ice Days (ID). Details as for Figure S3. Companion to Figure 4b

Number of Cool Days (Tx10)

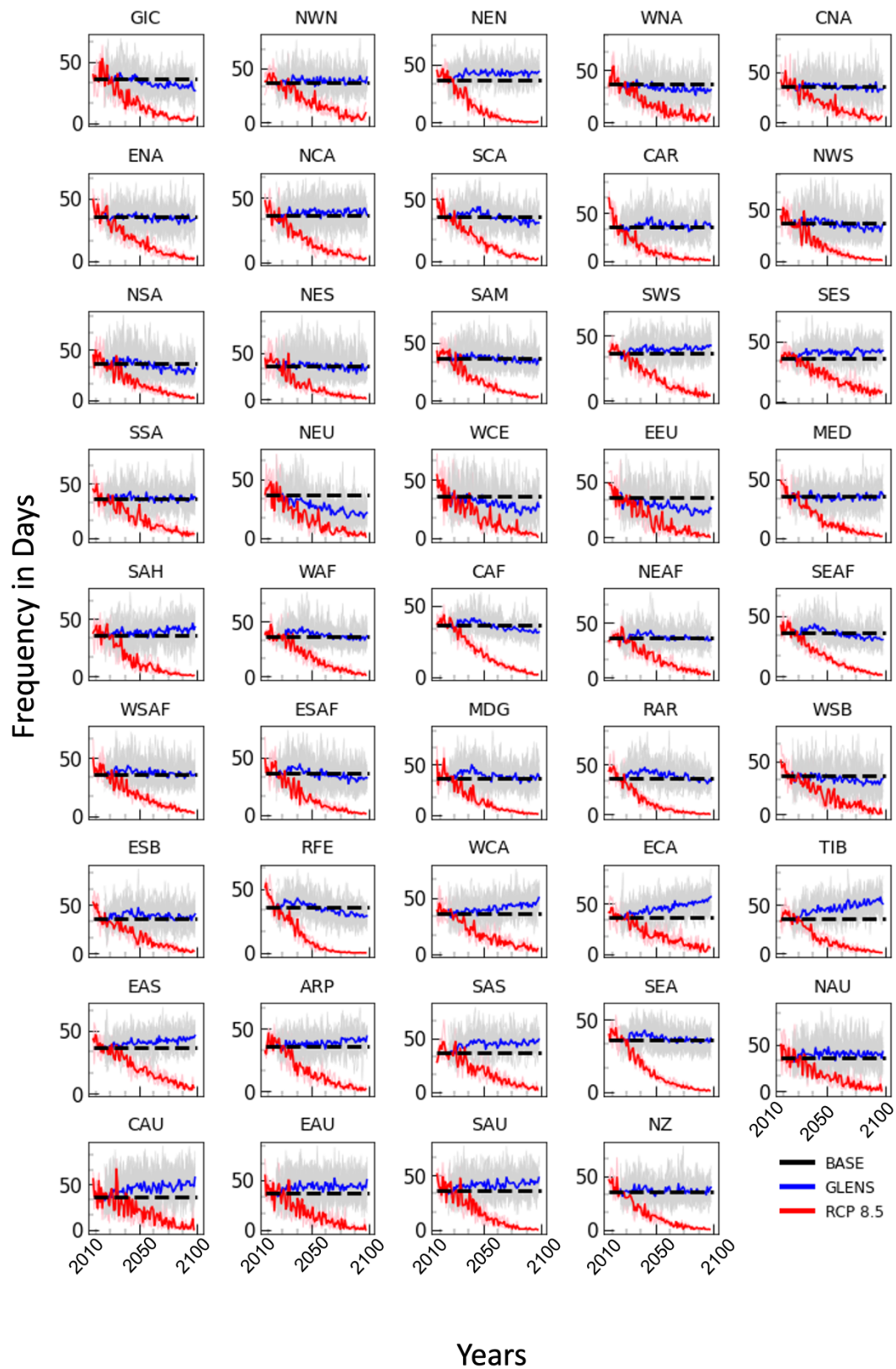


Figure S14: Projected Changes in Number of Days with daily maximum temperature below 10th percentile (TX10; Cold Days). Details as for Figure S1.

Number of Cold Days (TX10) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

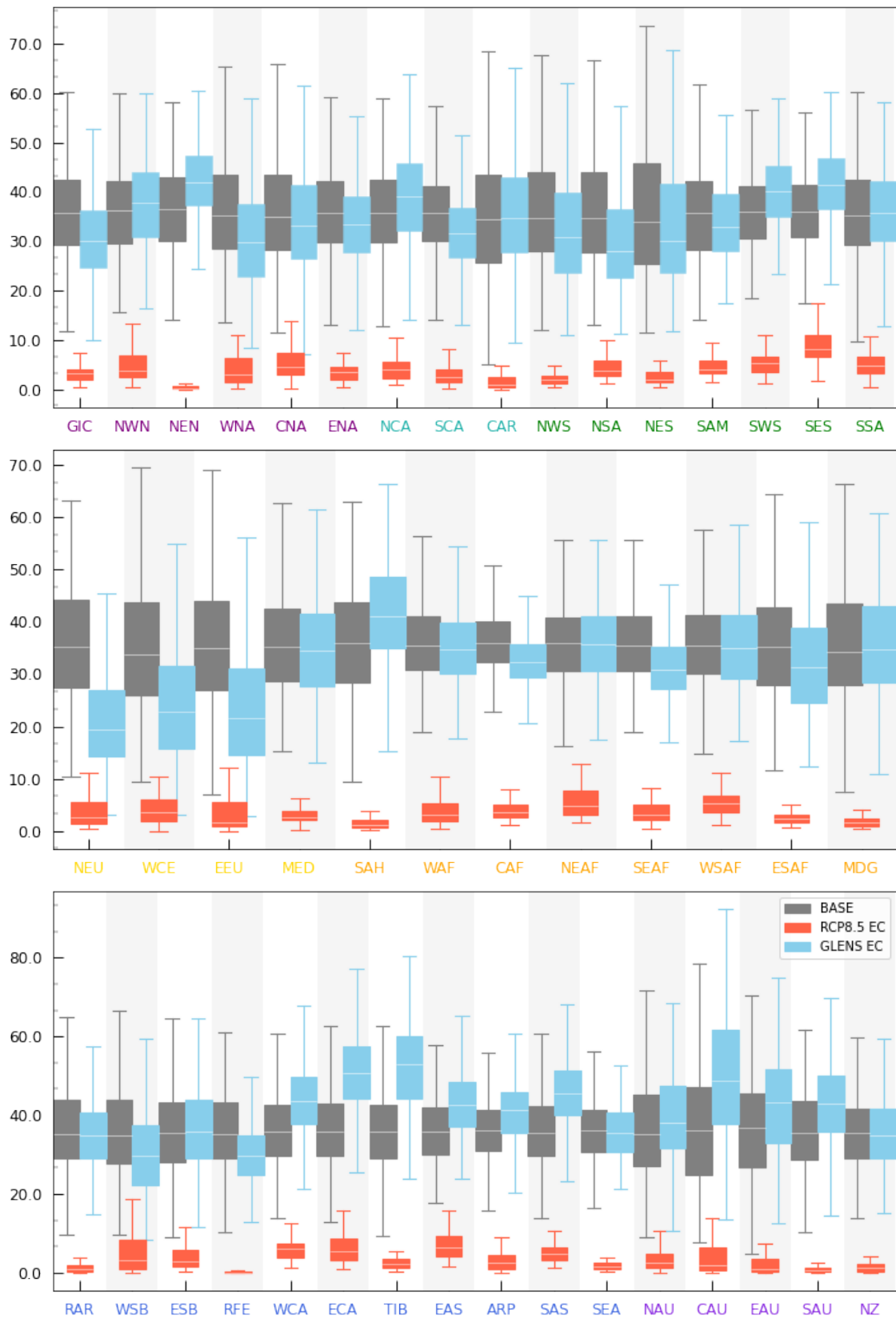


Figure S15: Box Plots for Cool Days. Details as for Figure S3.

Number of Tropical Nights (TR)

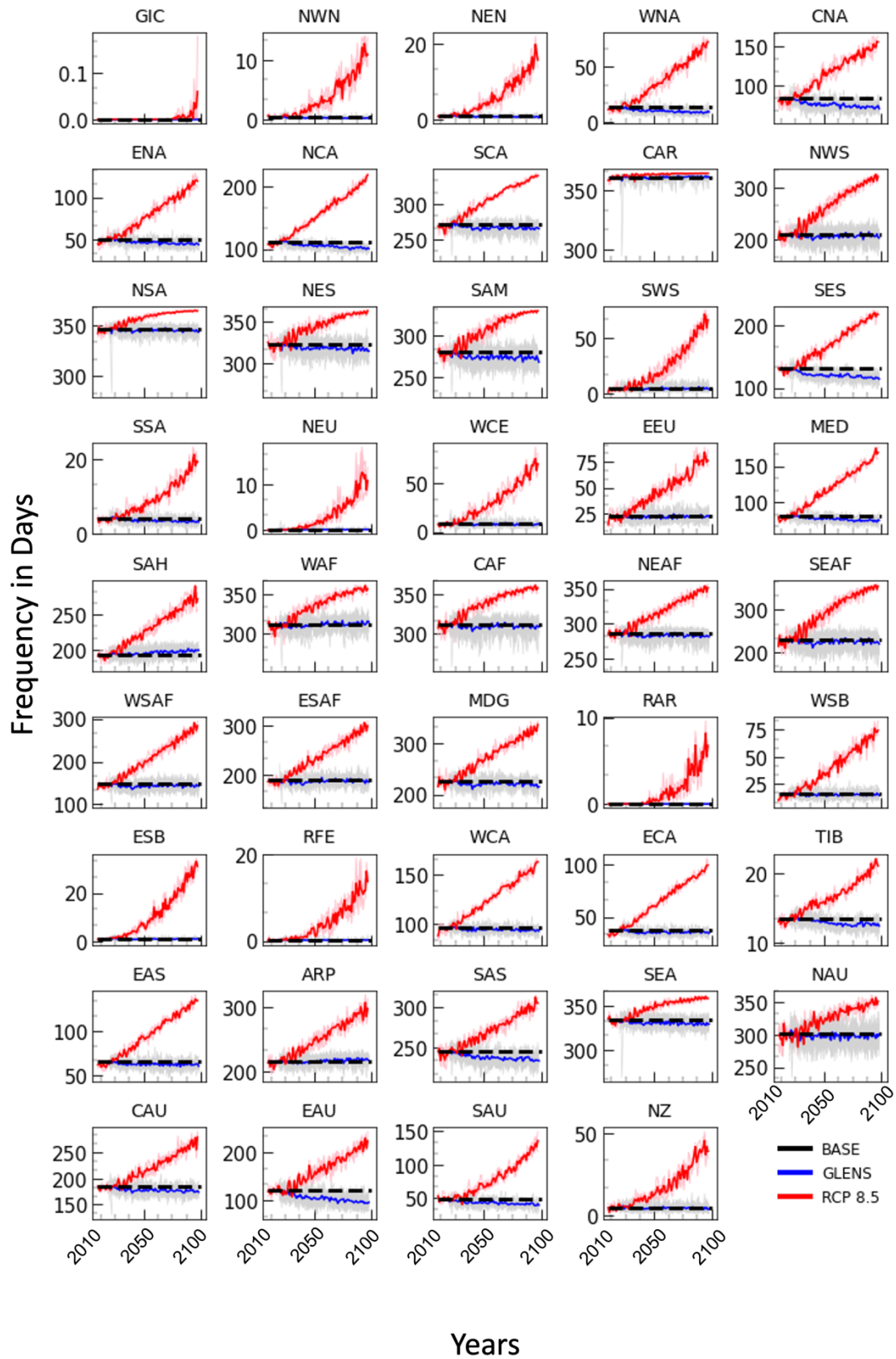


Figure S16: Projected Changes in Number of days with daily minimum temperature above 20C (TR; Tropical Nights). Details as for Figure S1. Companion to Figure 4c

Number of Tropical Nights (TR) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

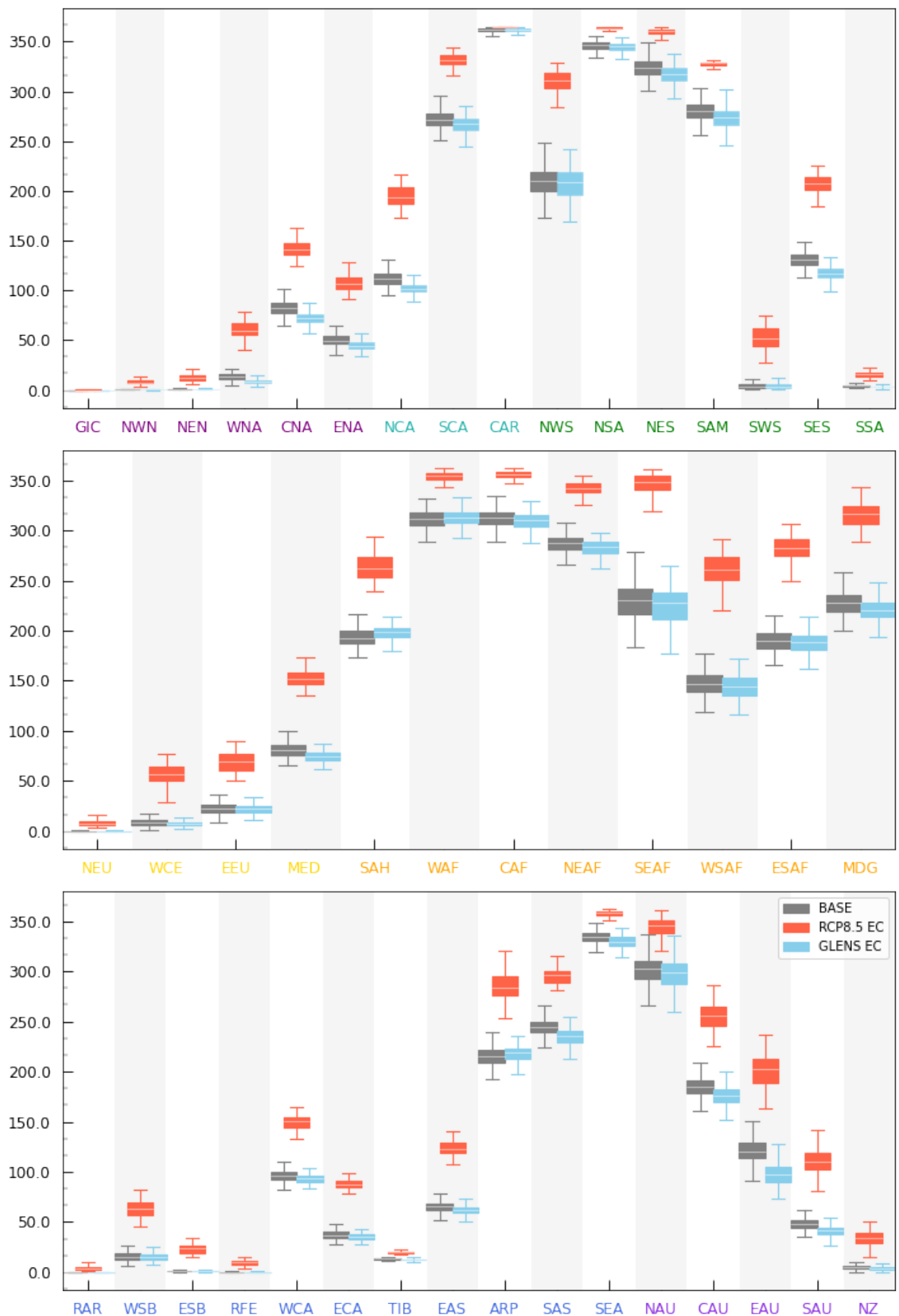


Figure S17: Box Plots of Tropical Nights. Details as for Figure S3. Companion to Figure 4c.

Number of Warm Nights (TN90)

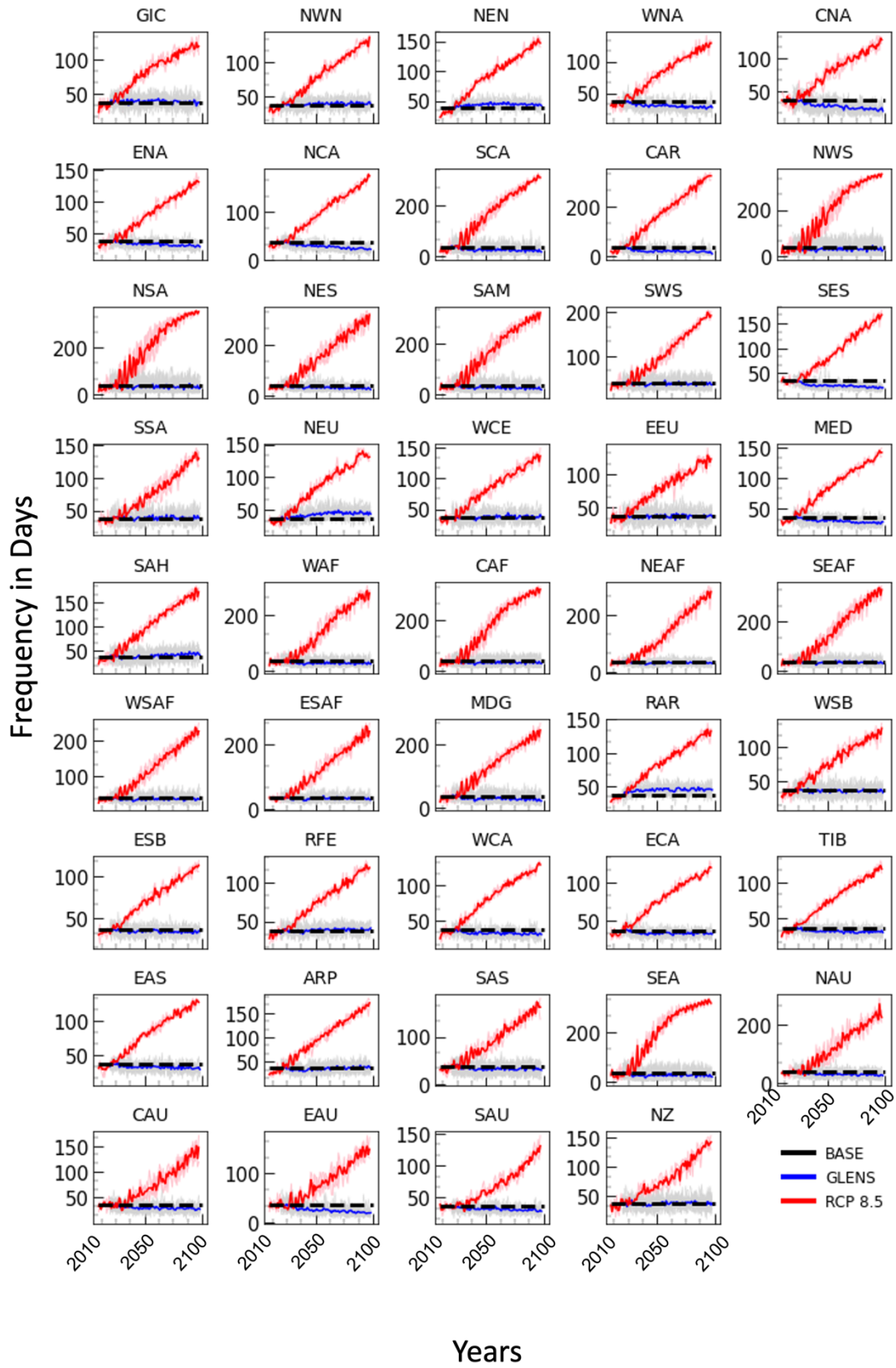


Figure S18: Projected Changes in Number of days with daily minimum temperature above 90th percentile (TN90; Warm Nights). Details as for Figure S1.

Number of Warm Nights (TN90) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

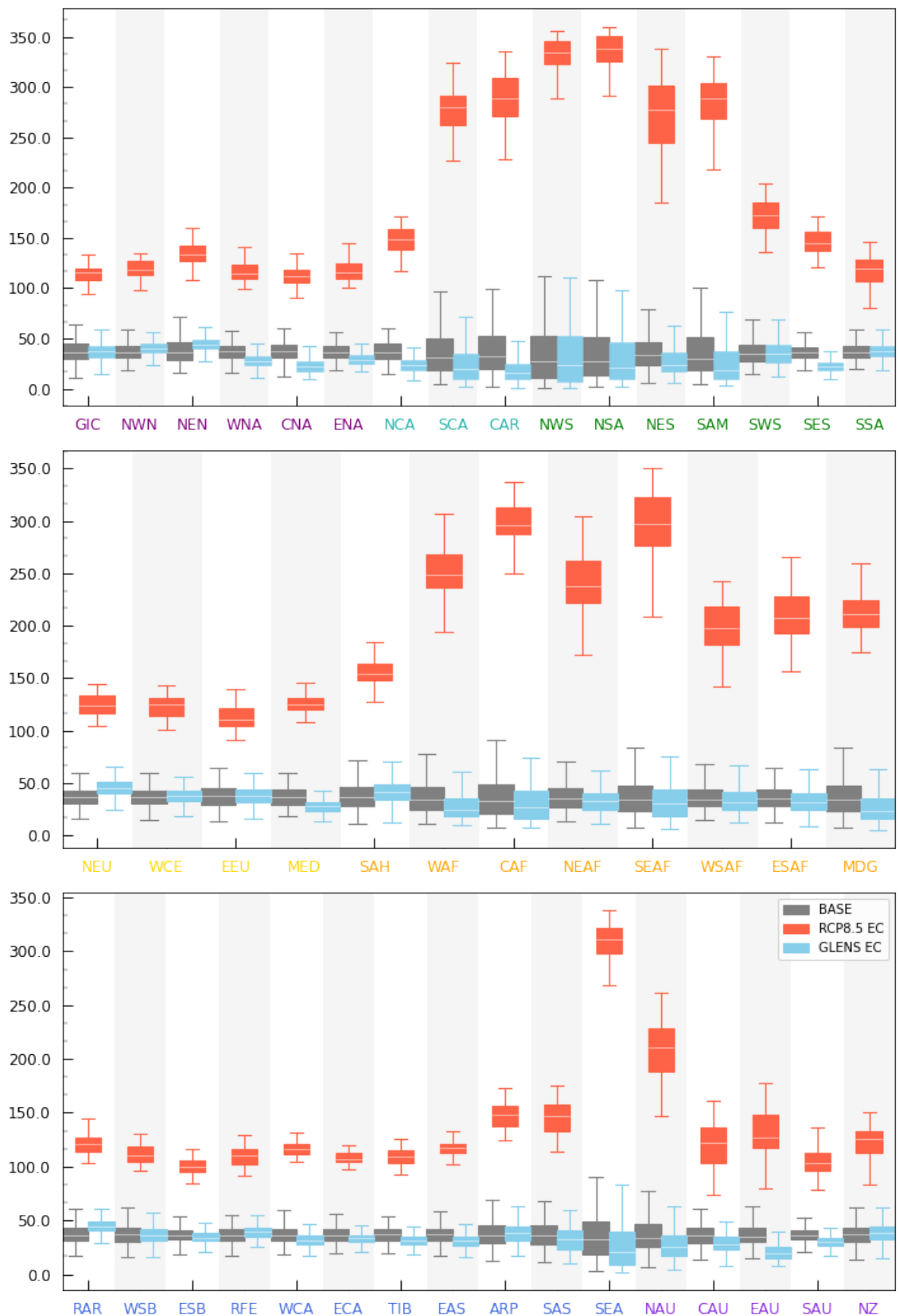


Figure S19: Box Plots for Warm Nights. Details as for Figure S3.

Number of Summer Days (SU)

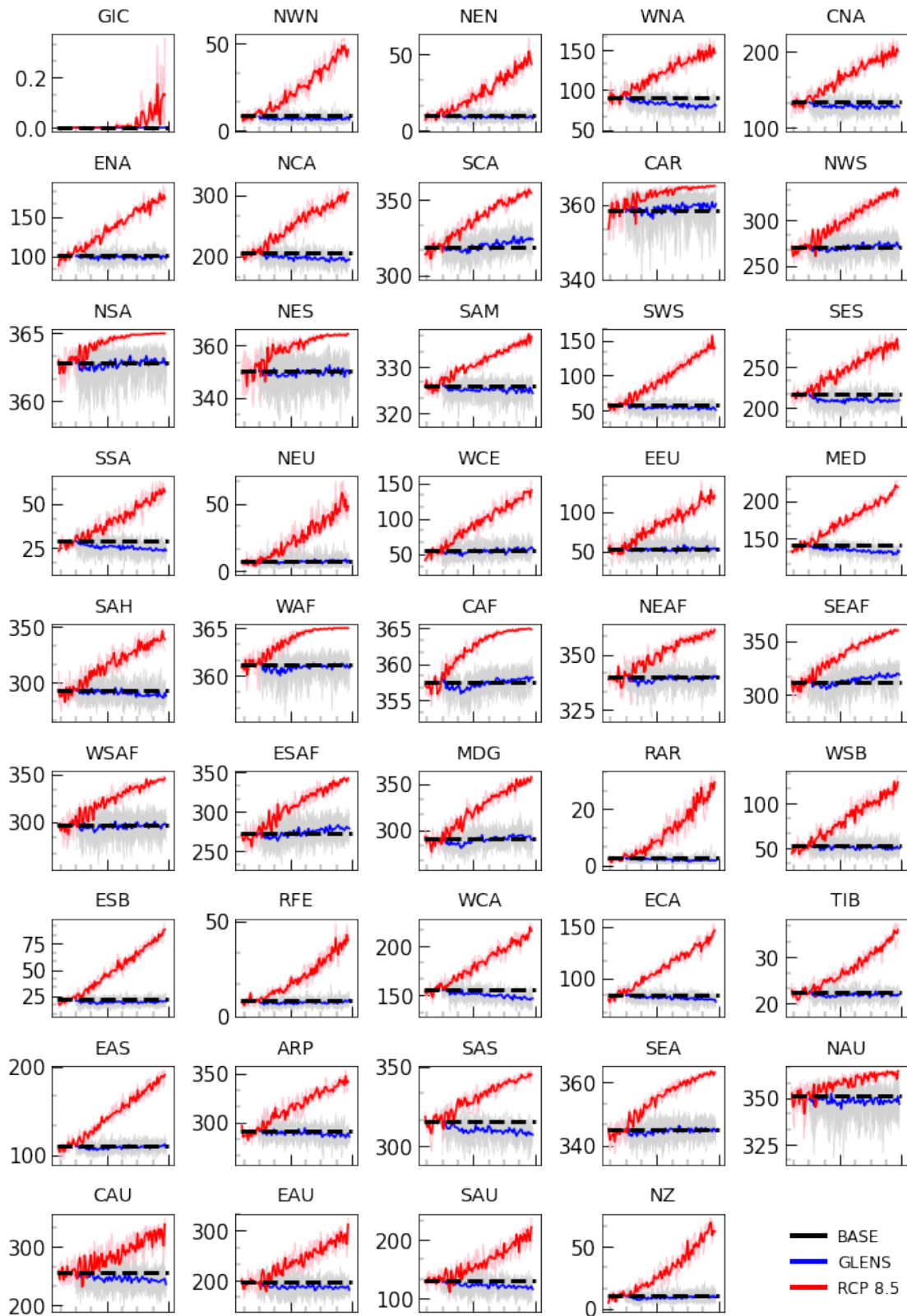


Figure S20: Projected Changes in Number of days with daily maximum temperature above 25C (SU; Summer Days). Details as for Figure S1. Companion to Figure 4d

Number of Summer Days (SU) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

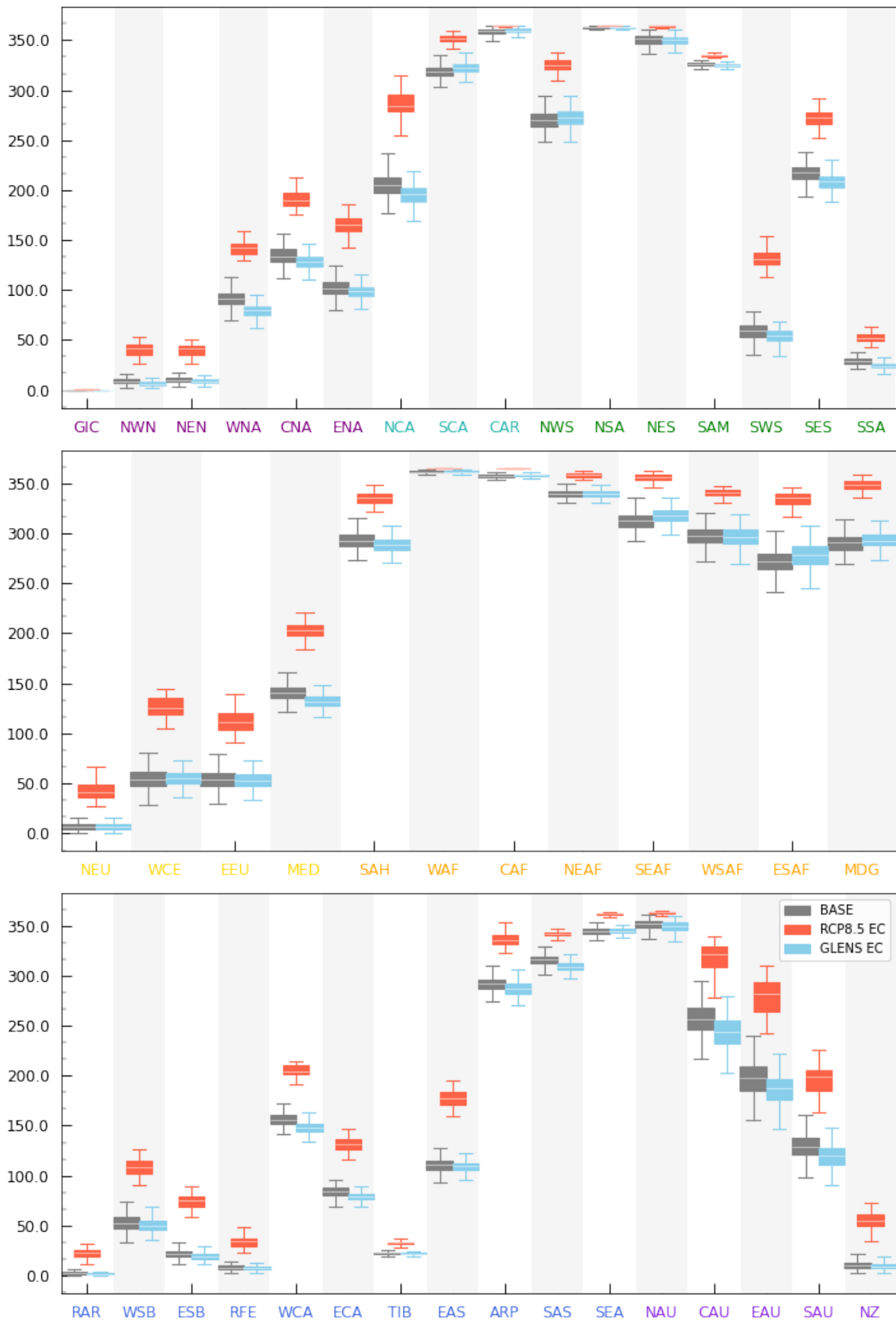


Figure S21: Box Plots of Summer Days. Details as for Figure S3. Companion to Figure 4d.

Number of Warm Days (TX90)

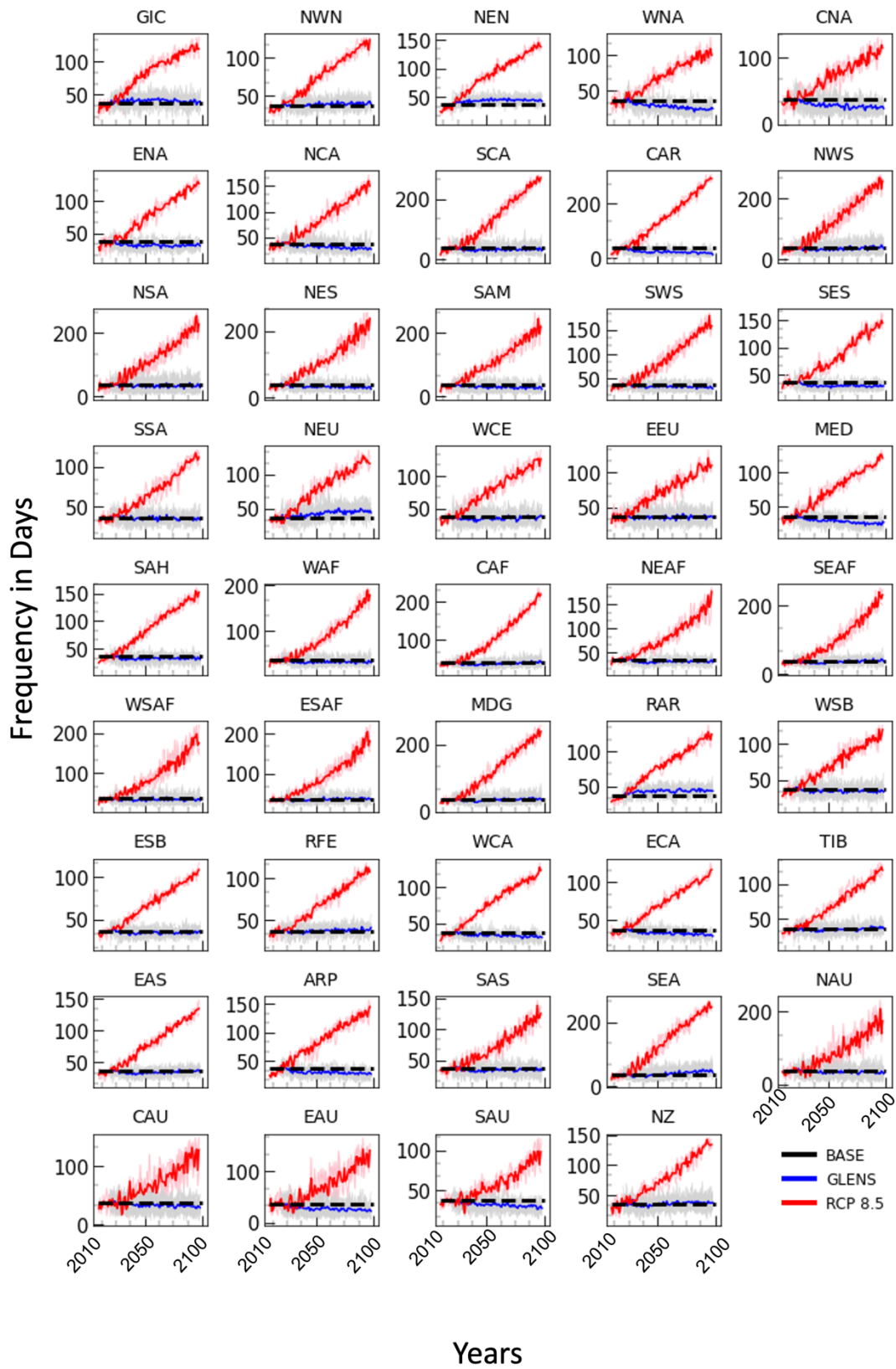


Figure S22: Projected Changes in Number of Days with daily maximum temperature above 90th percentile (TX90; Hot Days). Details as for Figure S1.

Number of Warm Days (TX90) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

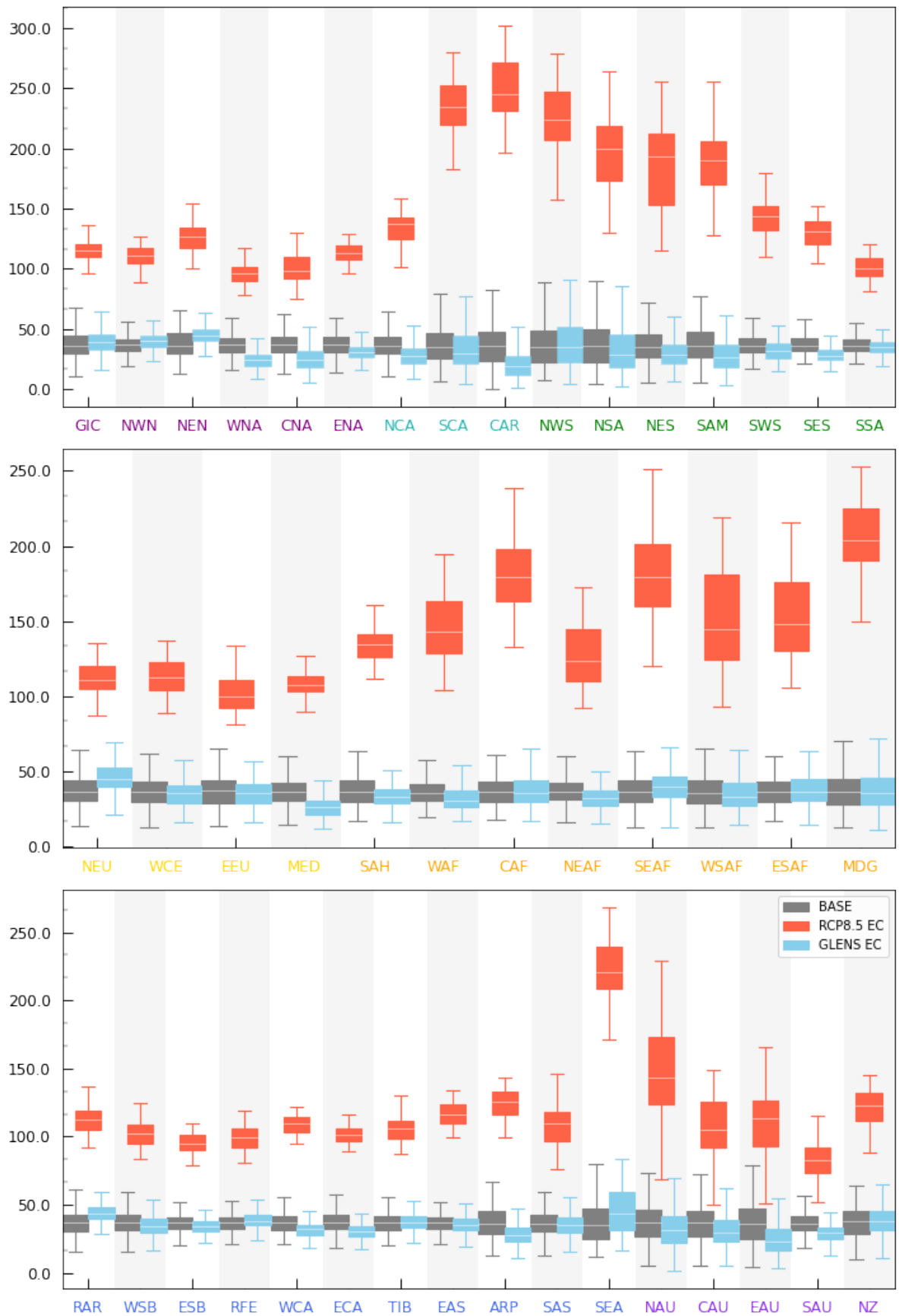


Figure S23: Box Plots for Hot Days. Details as for Figure S3.

Annual Total (PRCPTOT)

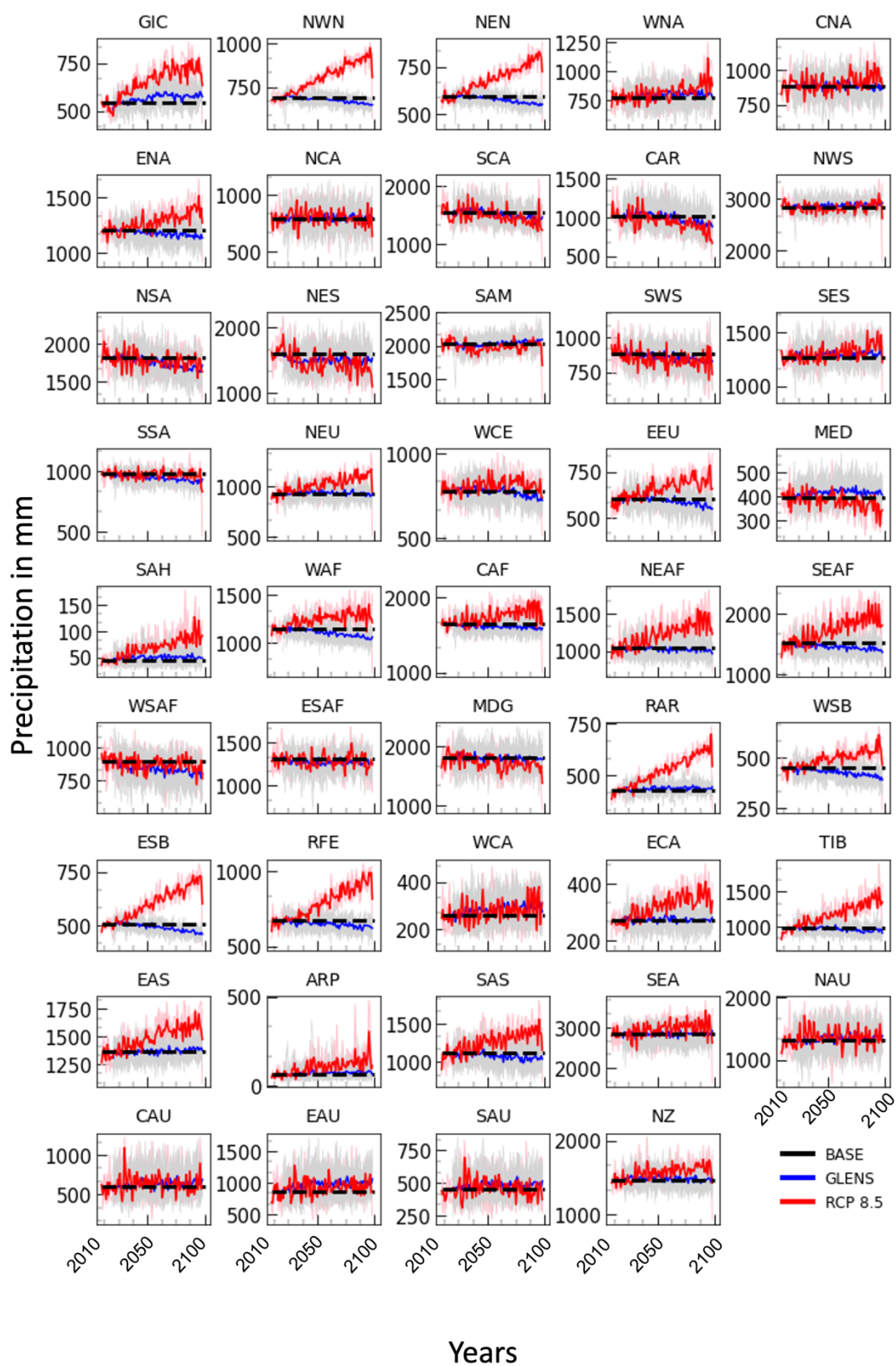


Figure S24: Projected Changes in Annual Total Precipitation (PRCPTOT). Details as for Figure S1. Companion to Figure 6a

Annual Total (PRCPTOT) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

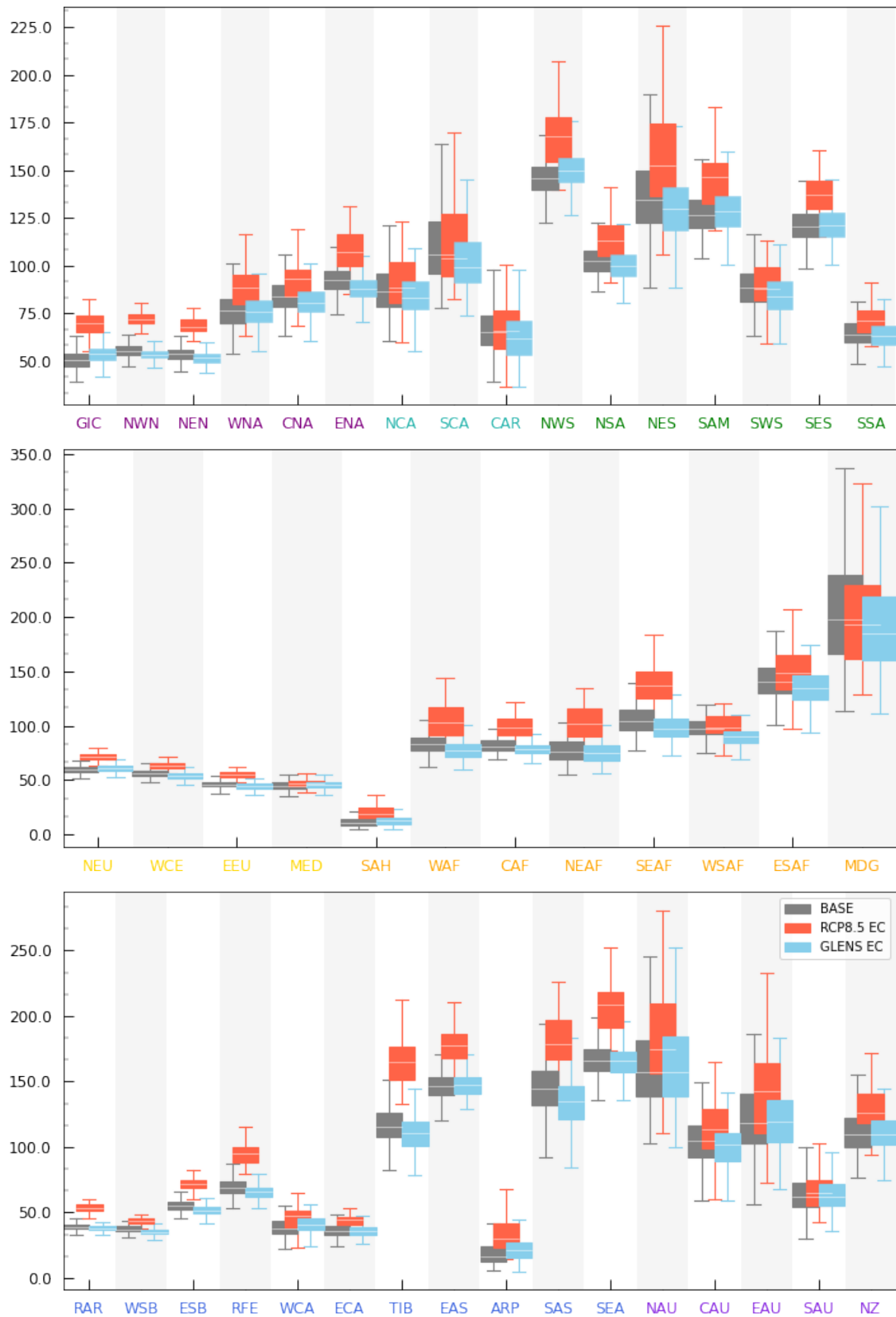


Figure S25: Box Plots for Annual Total Precipitation. Details as for Figure S1. Companion to Figure 6a.

Mean Wet Day Volume (SDII)

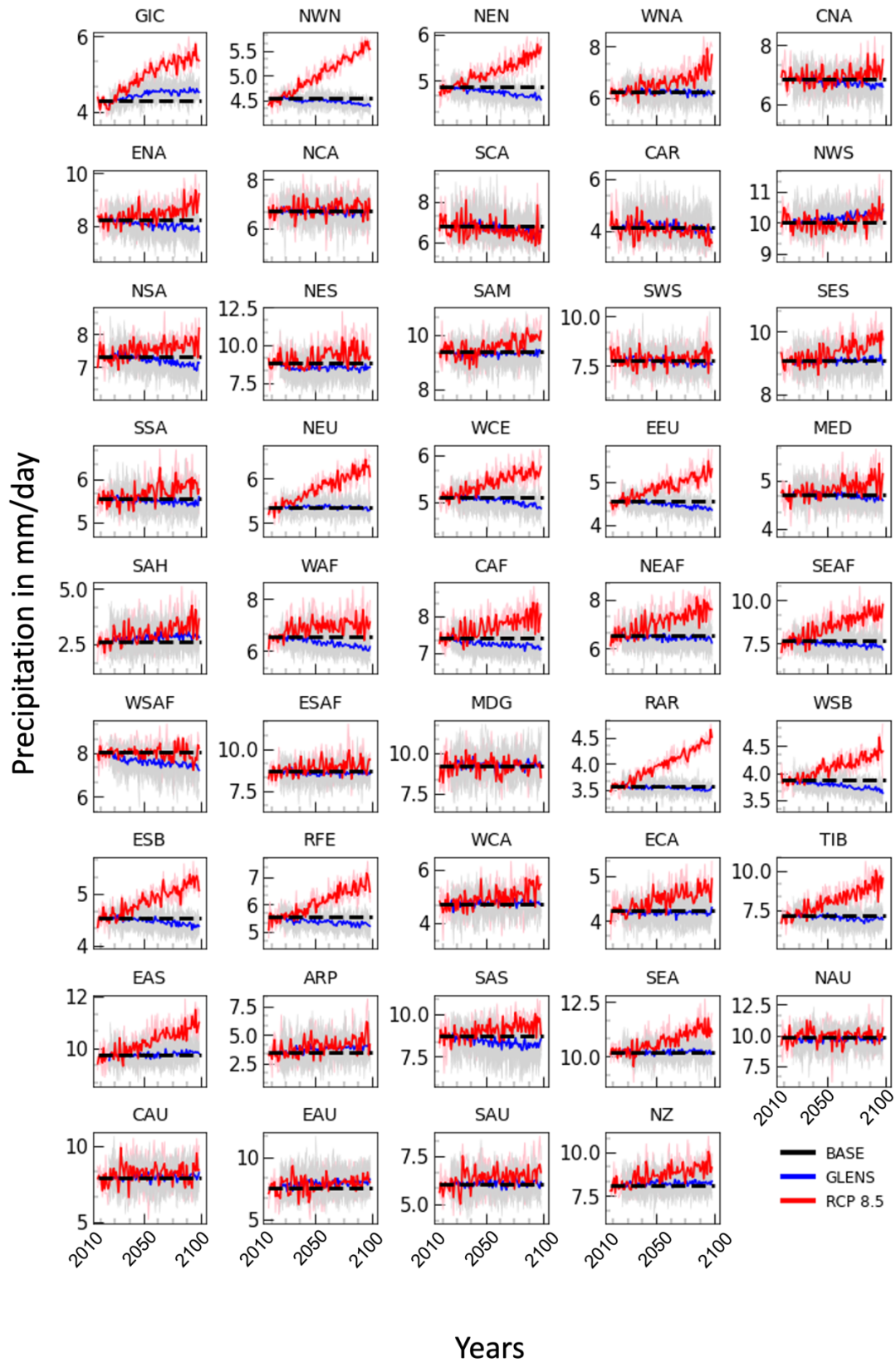


Figure S26: Projected Changes in Simple Daily Intensity (SDII; Mean Wet Day). Details as for Figure S1.
Companion to Figure 6b and Figure 14

Mean Wet Day Volume (SDII) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

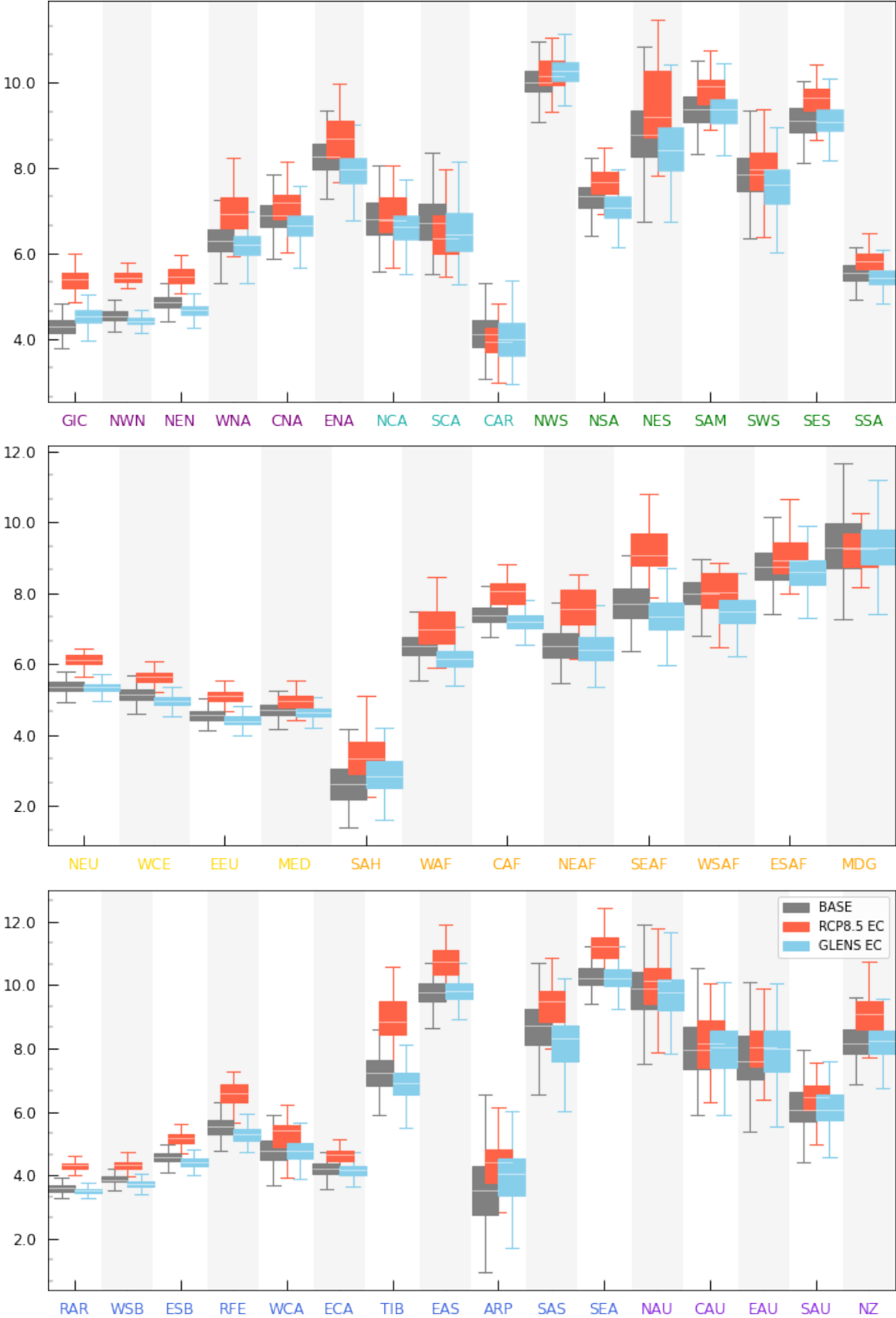


Figure S27: Box Plots of Mean Wet Day. Details as for Figure S3. Companion to Figure 6b and Figure 14

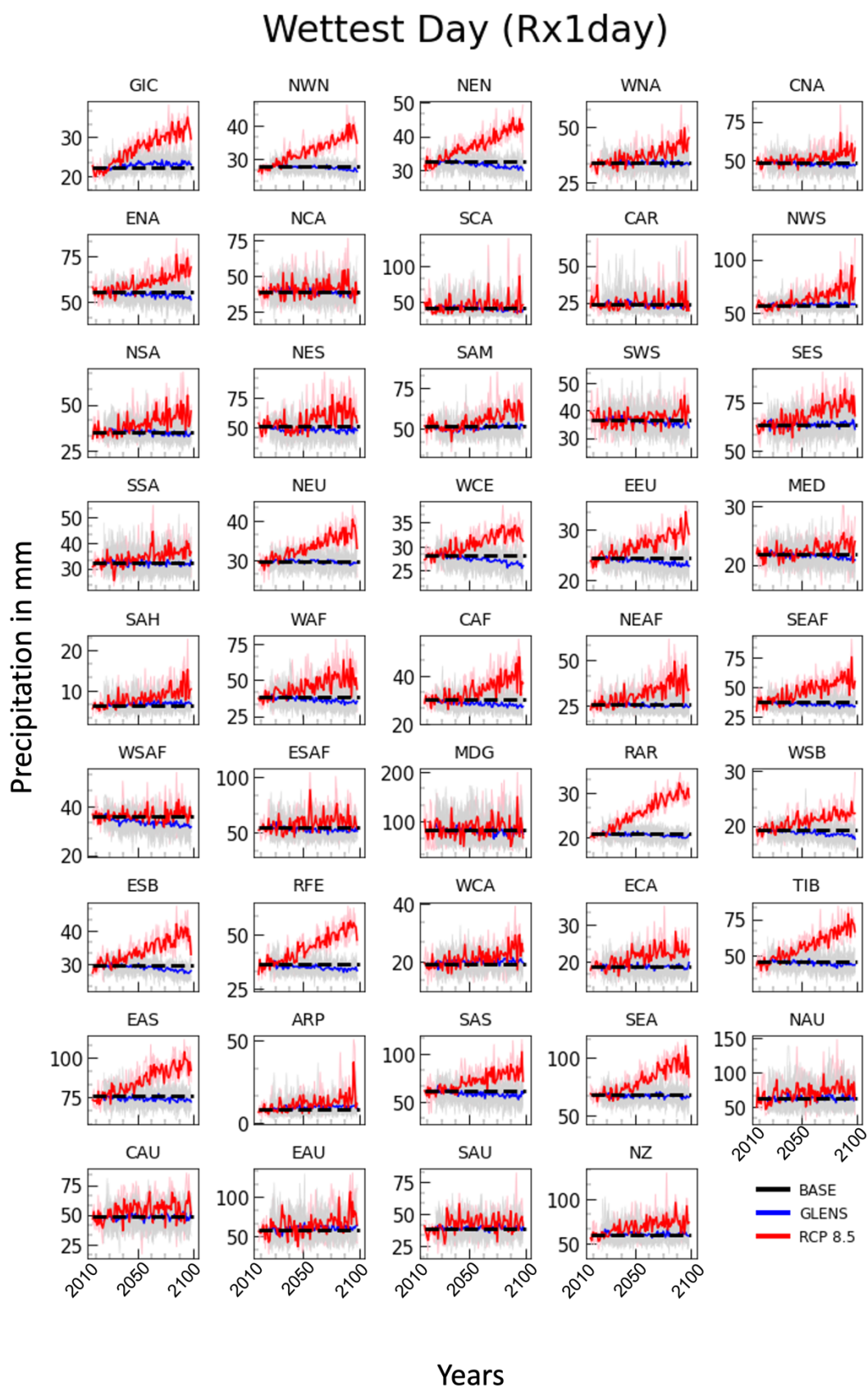


Figure S28: Projected Changes in Annual Maximum 1 Day precipitation (Rx1Day; Wettest Day). Details as for Figure S1. Companion to Figure 6c and Figure 13

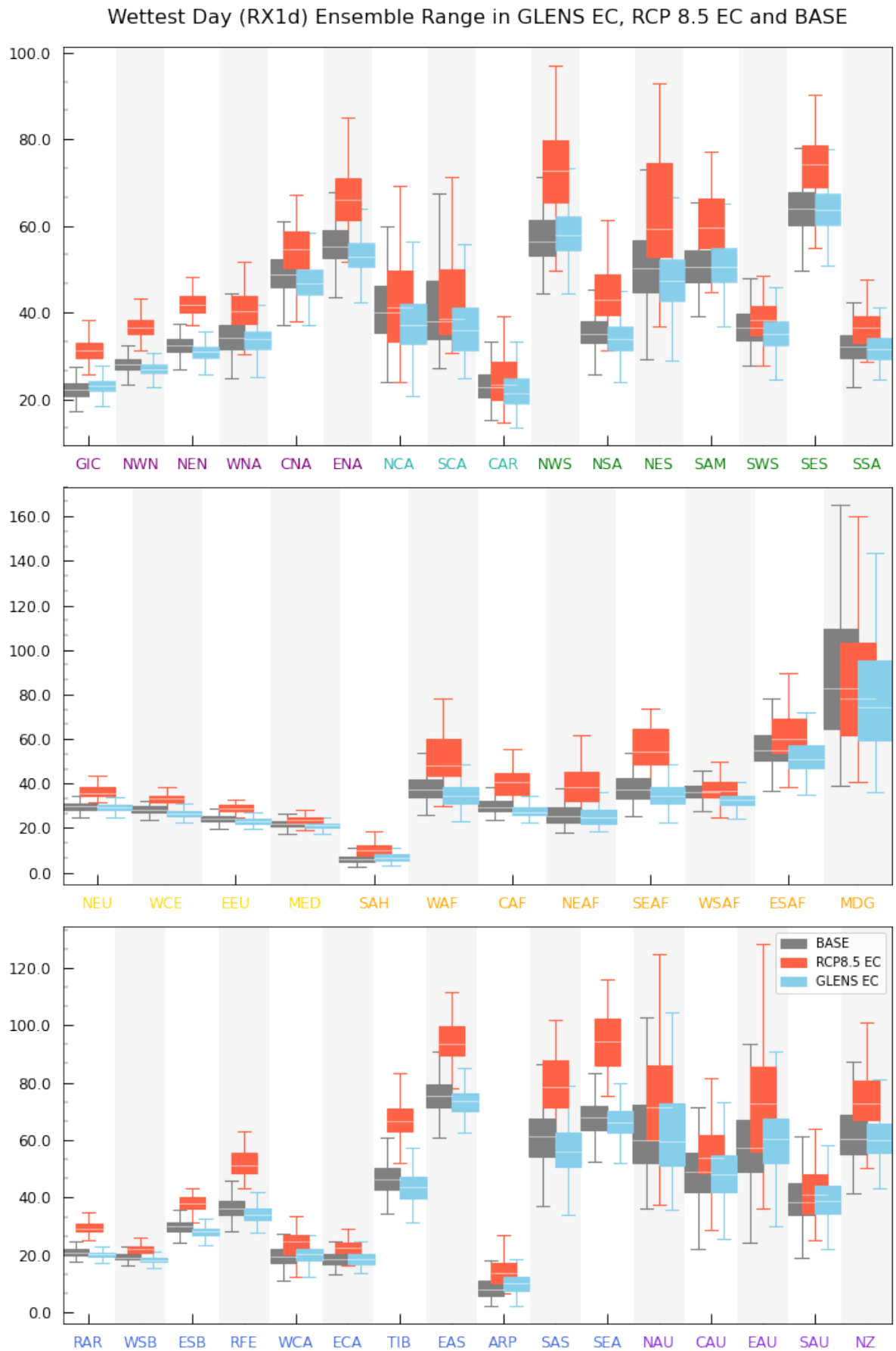


Figure S29: Box Plots of Wettest Day. Details as for Figure S3. Companion to Figure 6c and Figure 13

Wettest Pentad (Rx5day)

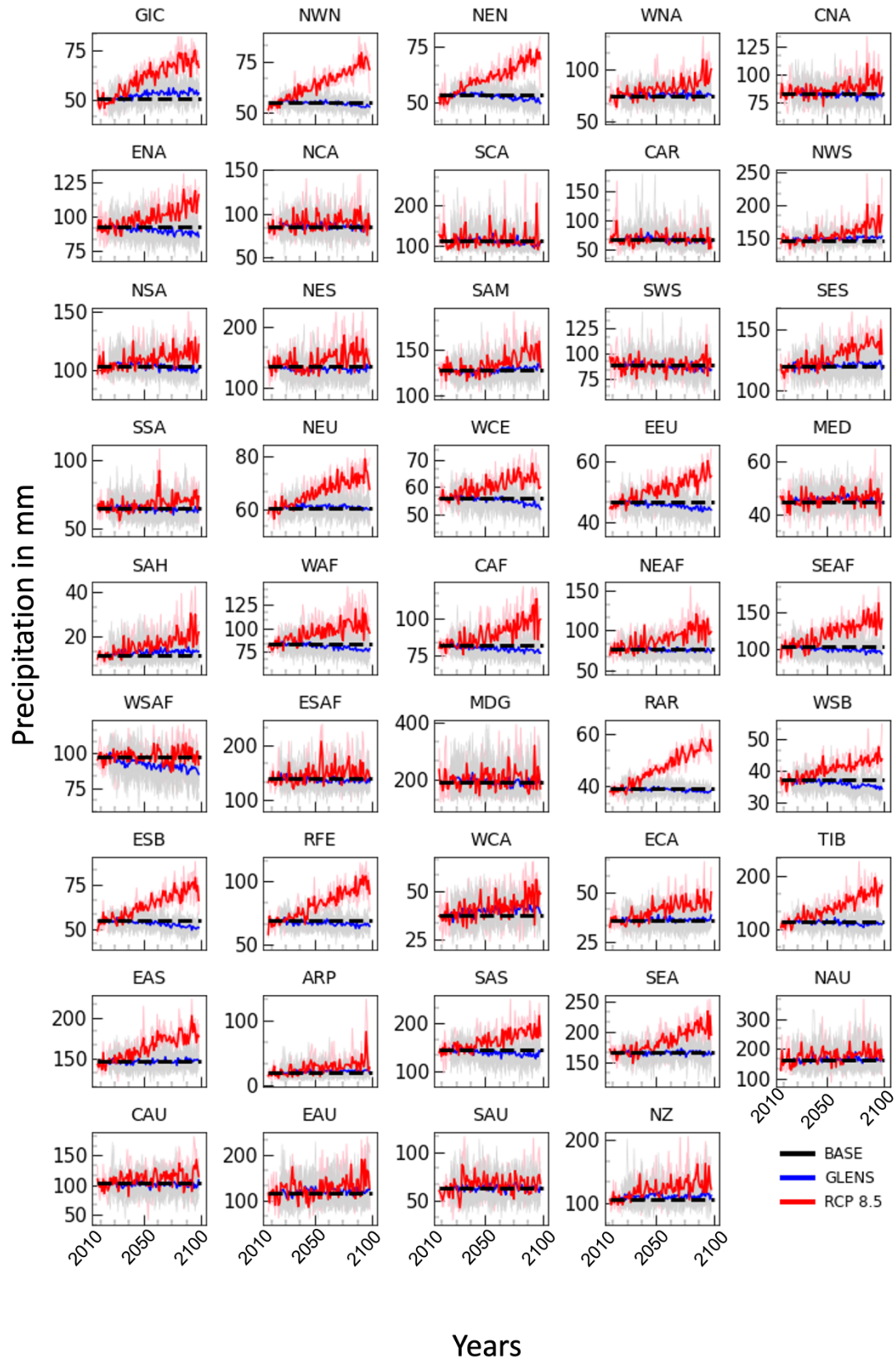


Figure S30: Projected Changes in Intensity of Annual Maximum 5 Day precipitation (Rx5Day; Wettest Pentad).
Details as for Figure S1. Companion to Figure 6d

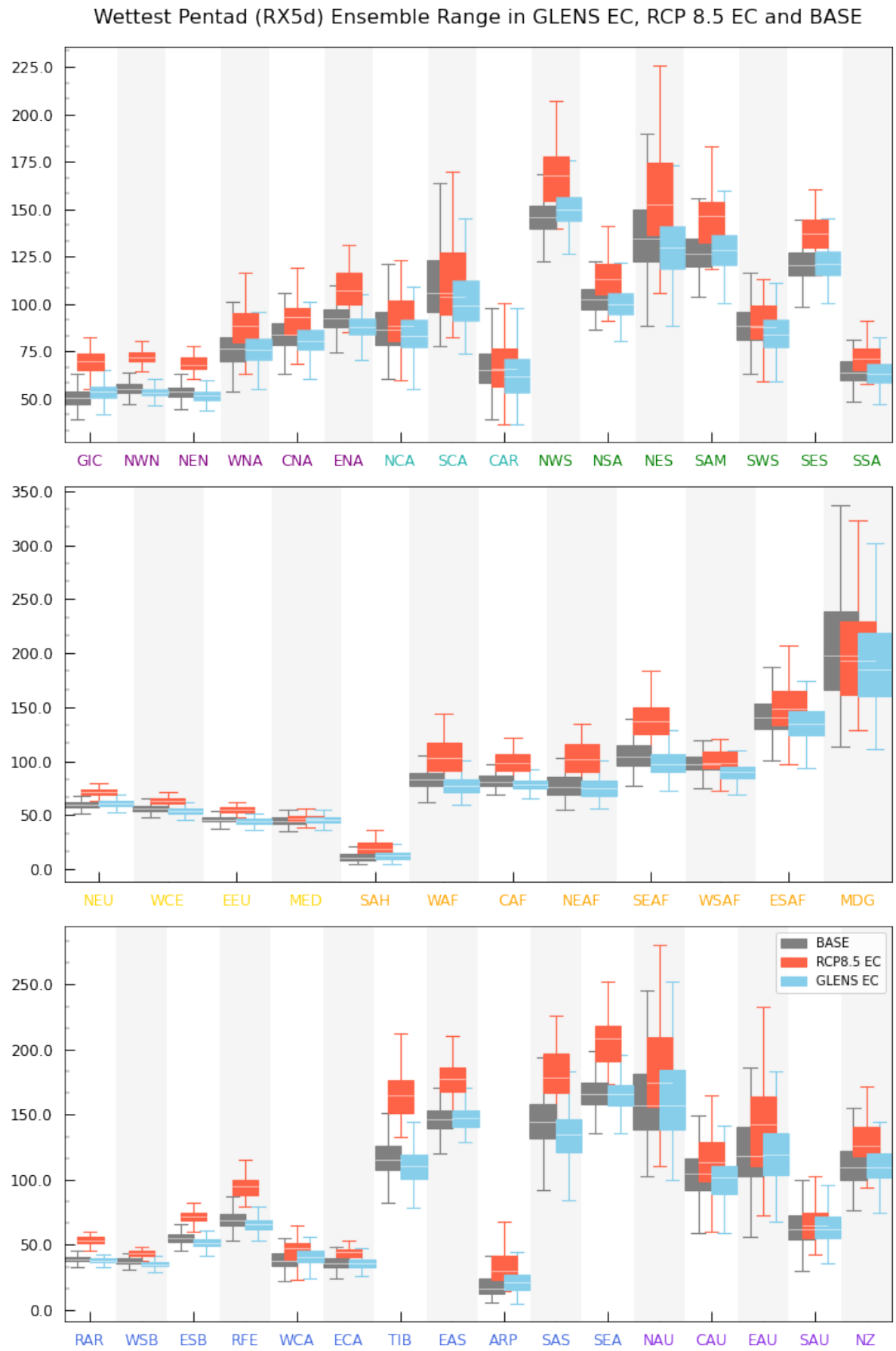


Figure S31: Box Plots for Wettest Pentad. Details as for Figure S3. Companion to Figure 6d.

Longest Dry Spell (CDD)

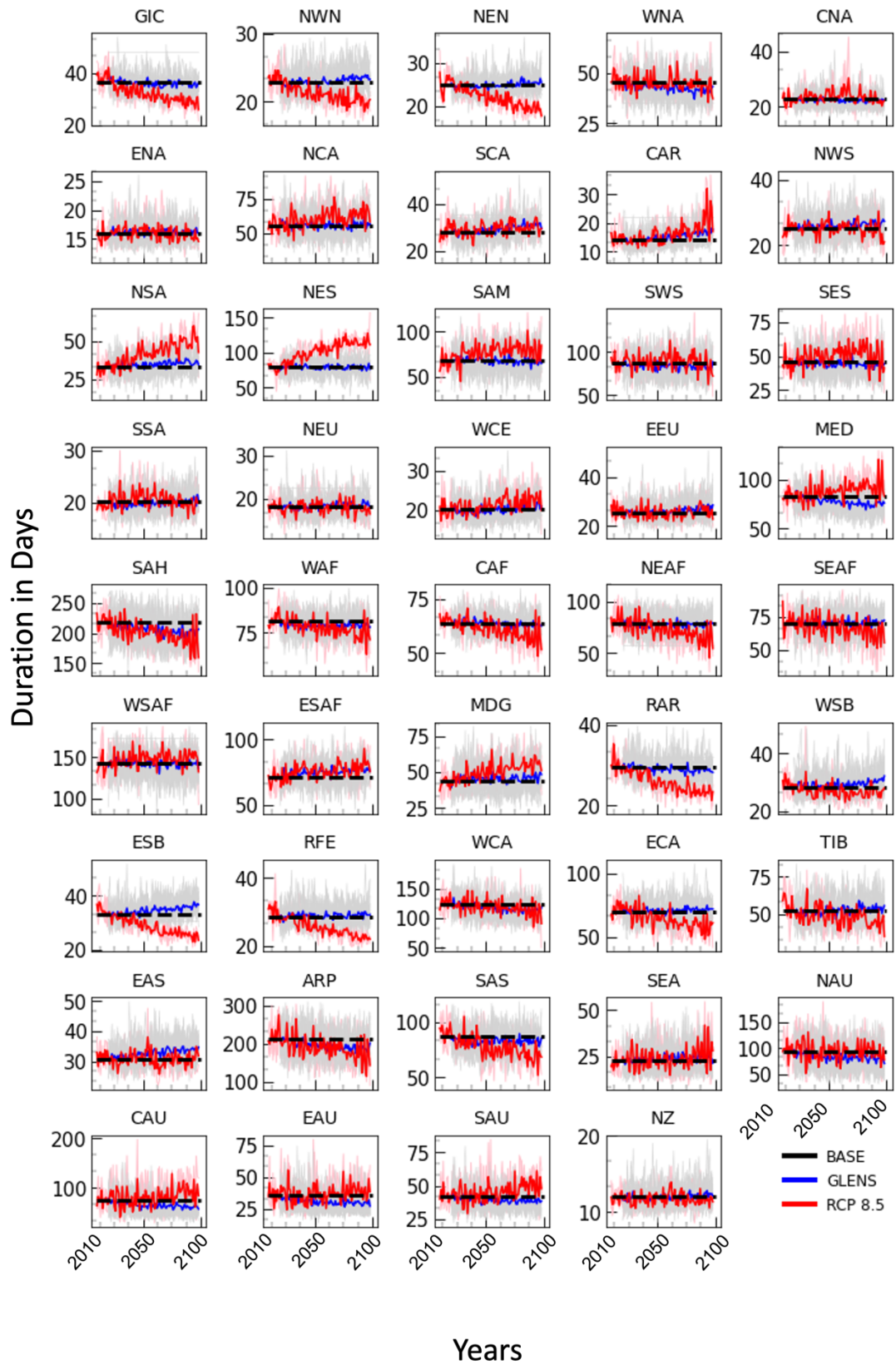


Figure S32: Longest spell of consecutive dry days (CDD; Dry Spell). Details as for Figure S1.
Companion to Figure 7b and Figure 13

Longest Dry Spell (CDD) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

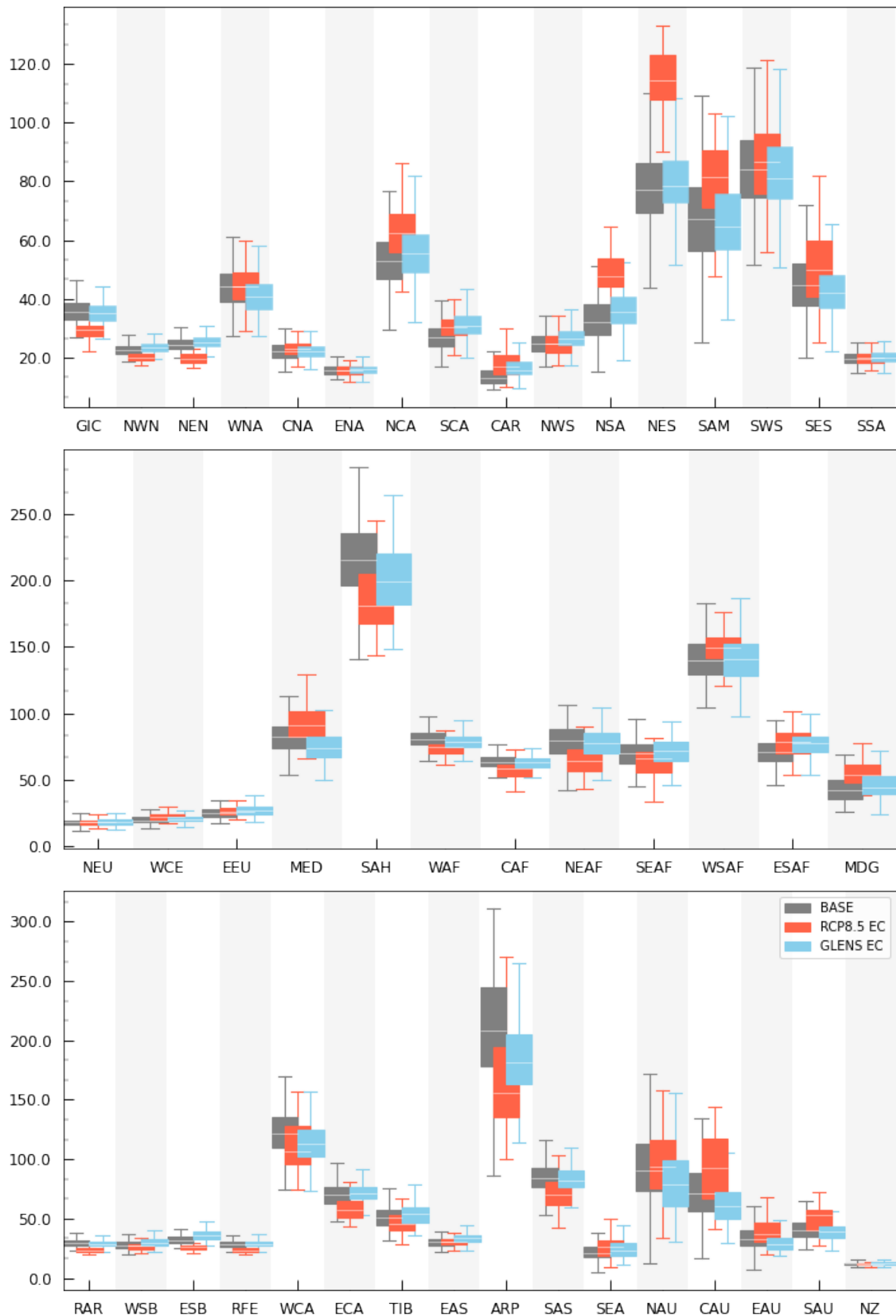


Figure S33: Box Plots for Longest Dry Spell. Details as for Figure S3. Companion to Figure 7a and Figure 13

Longest Wet Spell (CWD)

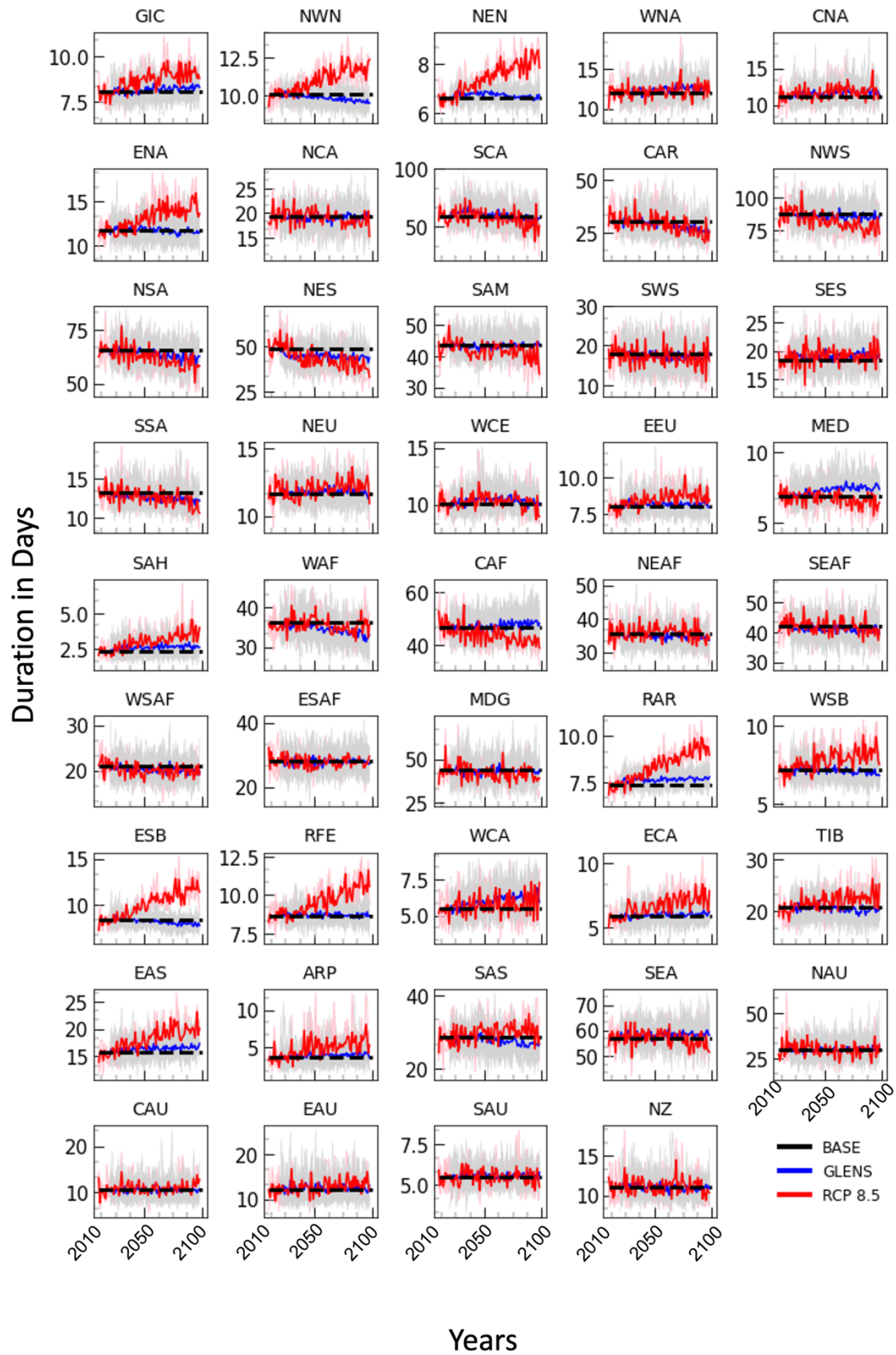


Figure S34: Longest spell of consecutive wet days (CWD; Wet Spell). Details as for Figure S1. Companion to Figure 7b and Figure 13

Longest Wet Spell (CWD) Ensemble Range in GLENS EC, RCP 8.5 EC and BASE

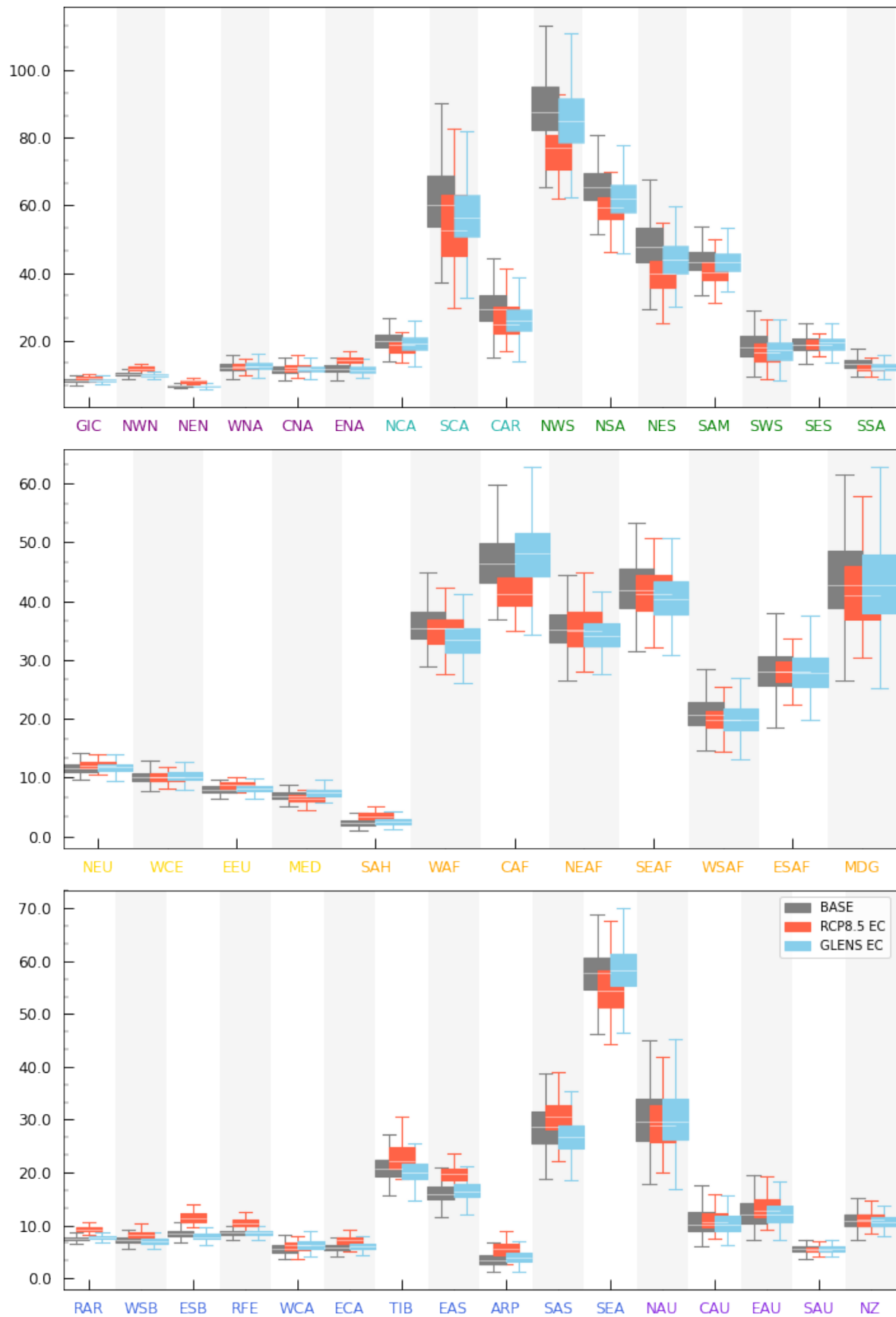


Figure S35: Box Plots for Longest Wet Spell. Details as for Figure S3. Companion to Figure 7b and Figure 13

Number of Heavy Rain Days (R10mm)

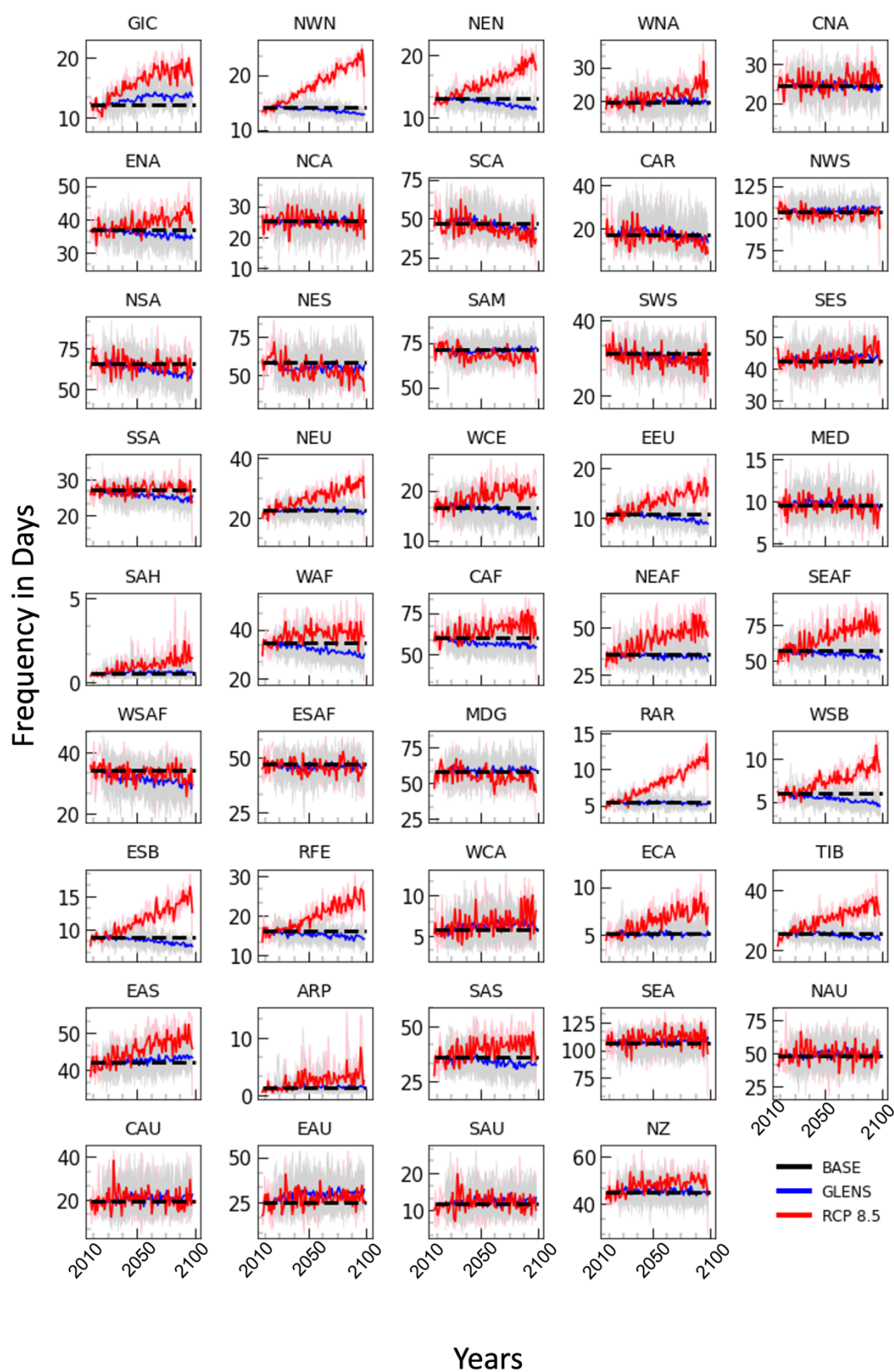


Figure S36: Projected Changes in Number of days exceeding 10mm (R10mm; Heavy Rain Days). Details as for Figure S1. Companion to Figure 8a and Figure 13

Number of Heavy Rain Days (R10mm) Ensemble Range in GLENS EC, RCP 8.5 EC and B

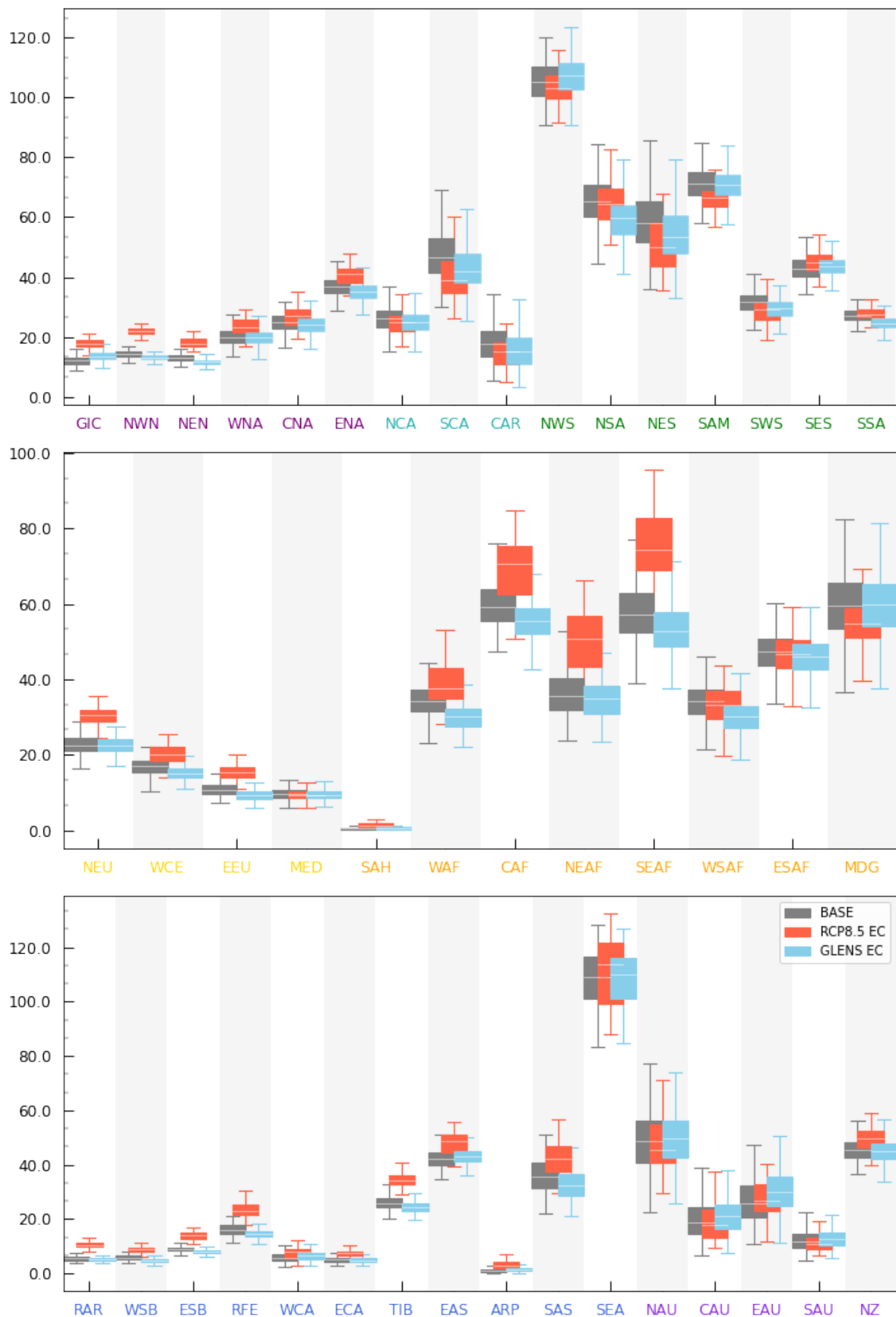


Figure S37: Box Plots for Heavy Rain Days. Details as for Figure S3. Companion to Figure 8a and Figure 13

Number of Very Heavy Rain Days (R20mm)

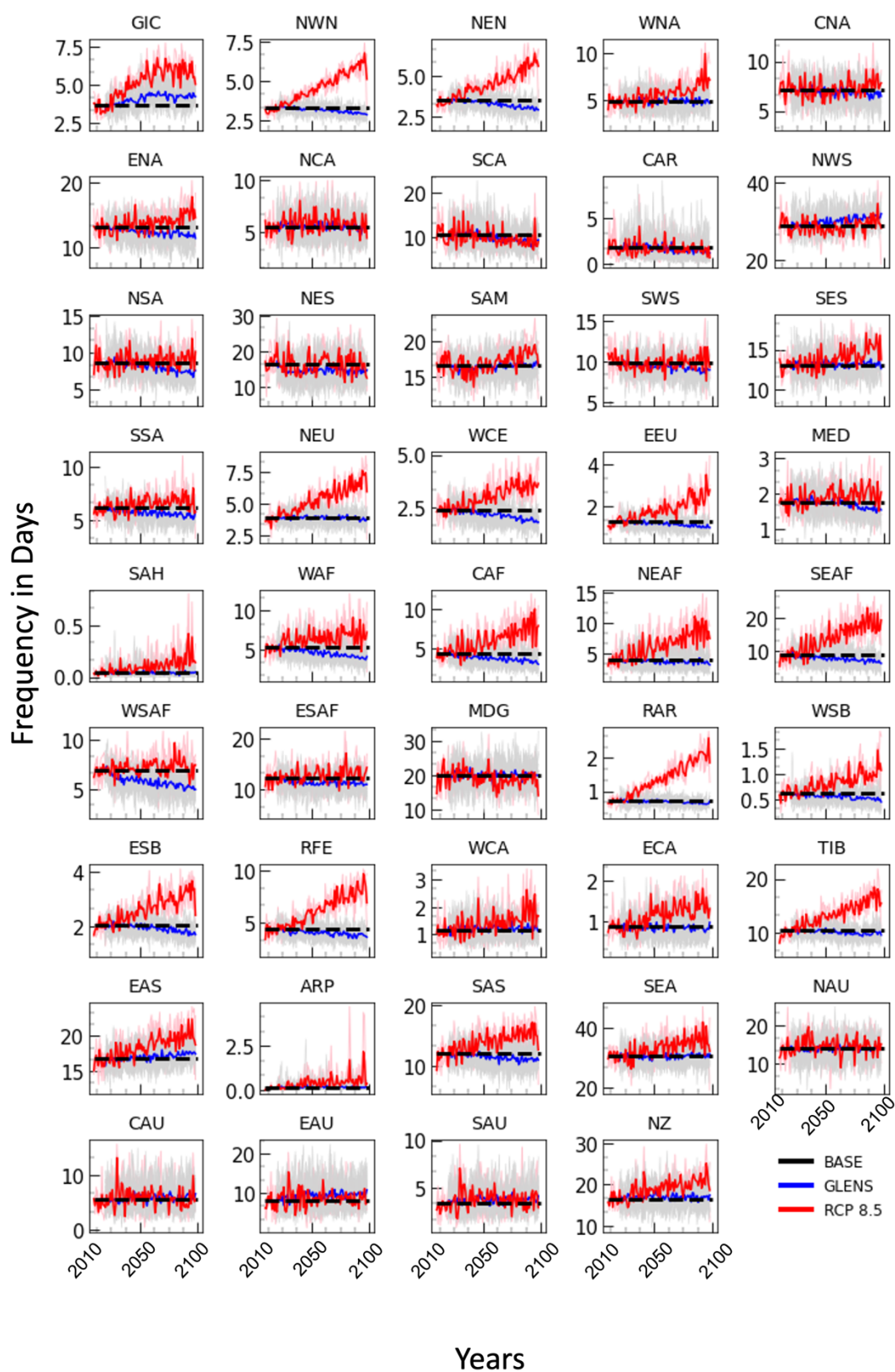


Figure S38: Projected changes in days with >20mm rain (R20mm; Very Heavy Rain Days).
Details as for Figure S1. Companion to Figure 8b

Number of Very Heavy Rain Days (R20mm) Ensemble Range in GLENS EC, RCP 8.5 EC and

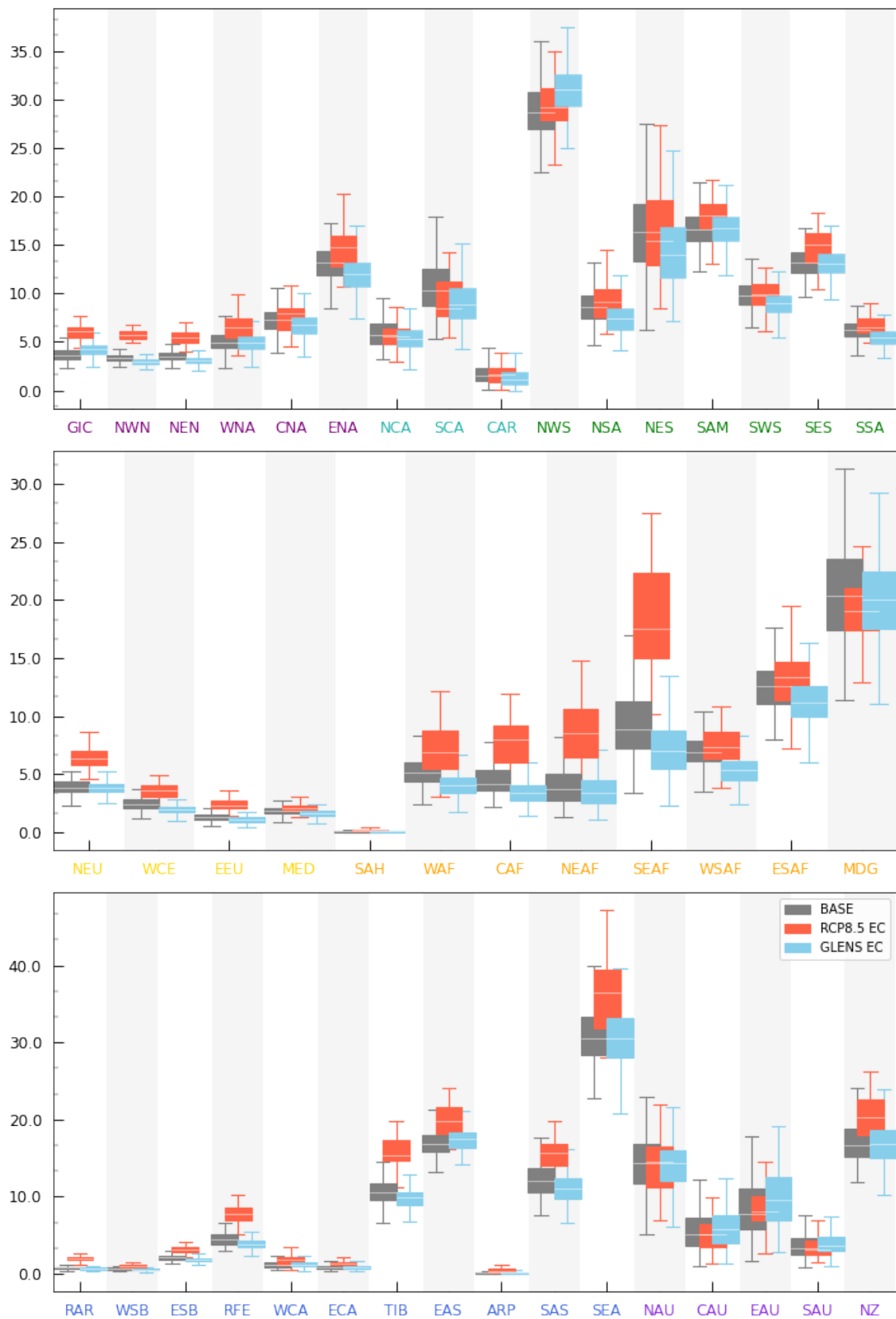


Figure S39: Box Plots for Very Heavy Rain Days. Details as for Figure S3. Companion to Figure 8b