Supplementary Material: A weighting scheme in multi-model ensemble for bias-corrected climate simulation output

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Parallel coordinated box plots

The box plot or box-and-whisker plot is based on five sample quantiles (Wilks, 2011): the minimum, the lower quartile, the median, the upper quartile, and the maximum. The box in the middle of the diagram is bounded by the upper and lower quartiles, and thus locates the central 50% of the data. The bar inside the box locates the median. The whiskers extend away from the box to the two extreme values. It is often useful to have some idea of the degree of unusualness of the extreme values. A modified box plot, sometimes called the schematic plot, locates dots to such unusually low or high values when the values are below the lower fence or above the upper fence. These two fences are defined as lower fence = lower quartile – 1.5 IQR, upper fence = upper quartile + 1.5 IQR, where IQR (interquartile range) = upper quartile – lower quartile. One important use of box plots is simultaneous graphical comparison of several batches of data, using side-by-side plots as in Figures 7, 8, and 9 in the main article. The parallel coordinated box plots allow to compare the batches of several individual observations on a set of side-by-side box plots. The dotted values in each box plot are then connected as

Figure S 1: Distributions of the weights obtained from various α-corrections for each grid cell. Red, green, and blue bars represent the α-weights with $\alpha = 0,\ 0.4,\ 0.7$, respectively.

series of lines across box plots. This parallel coordinated plot provides more individualized information for comparison purpose than just side-by-side box plots.

Figure S 2: Distributions of the weights obtained from various α-corrections for each grid cell. Red, green, and blue bars represent the α-weights with $\alpha = 0.2,\ 0.5,\ 0.8$, respectively.

References

Wilks D (2011) *Statistical Methods in the Atmospheric Sciences,* 3rd Ed., Academic Press, New York.

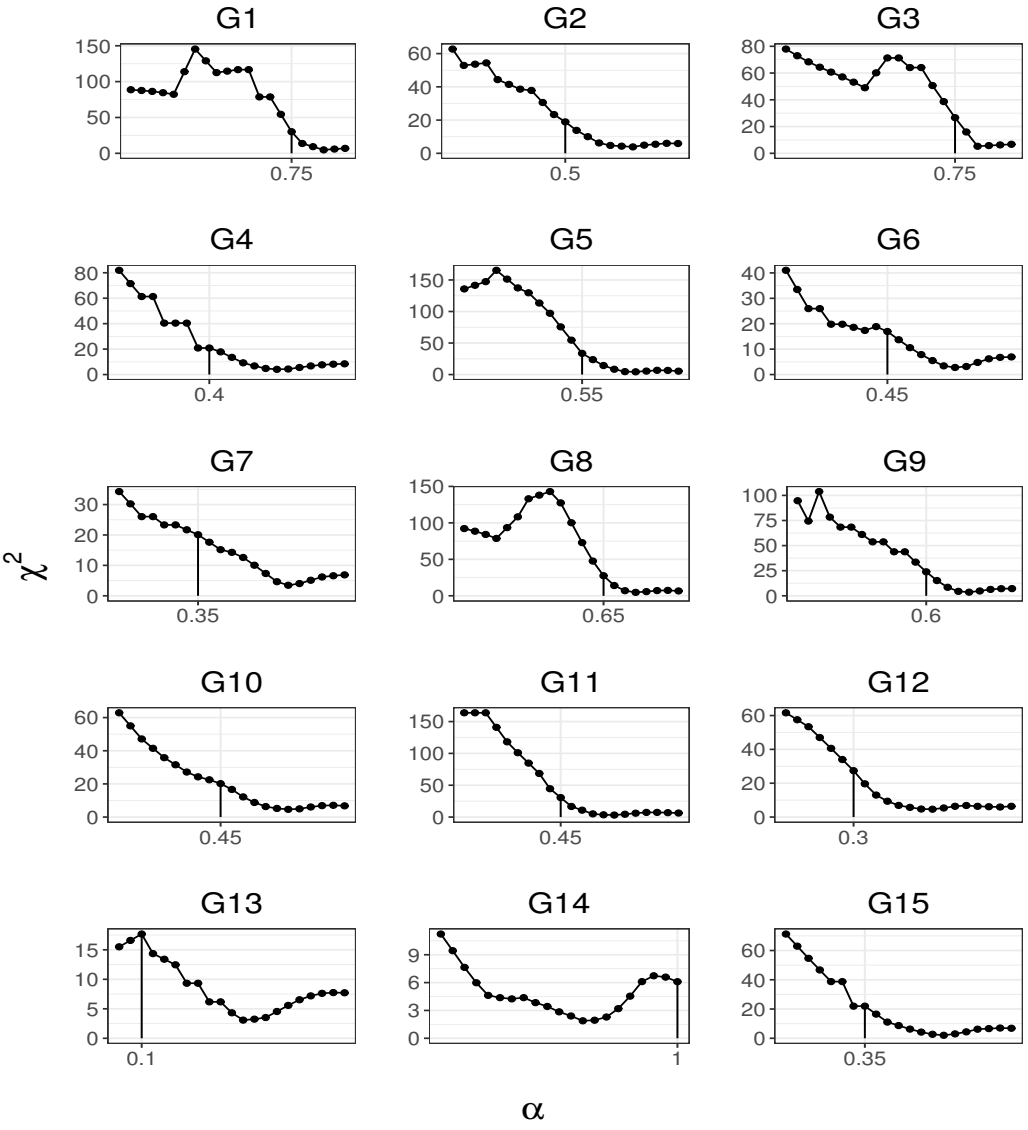

Figure S 3: Plots of the chi-square test statistics as α changes from 0 to 1, and the selected optimal correction rate α^* for 15 grid cells.

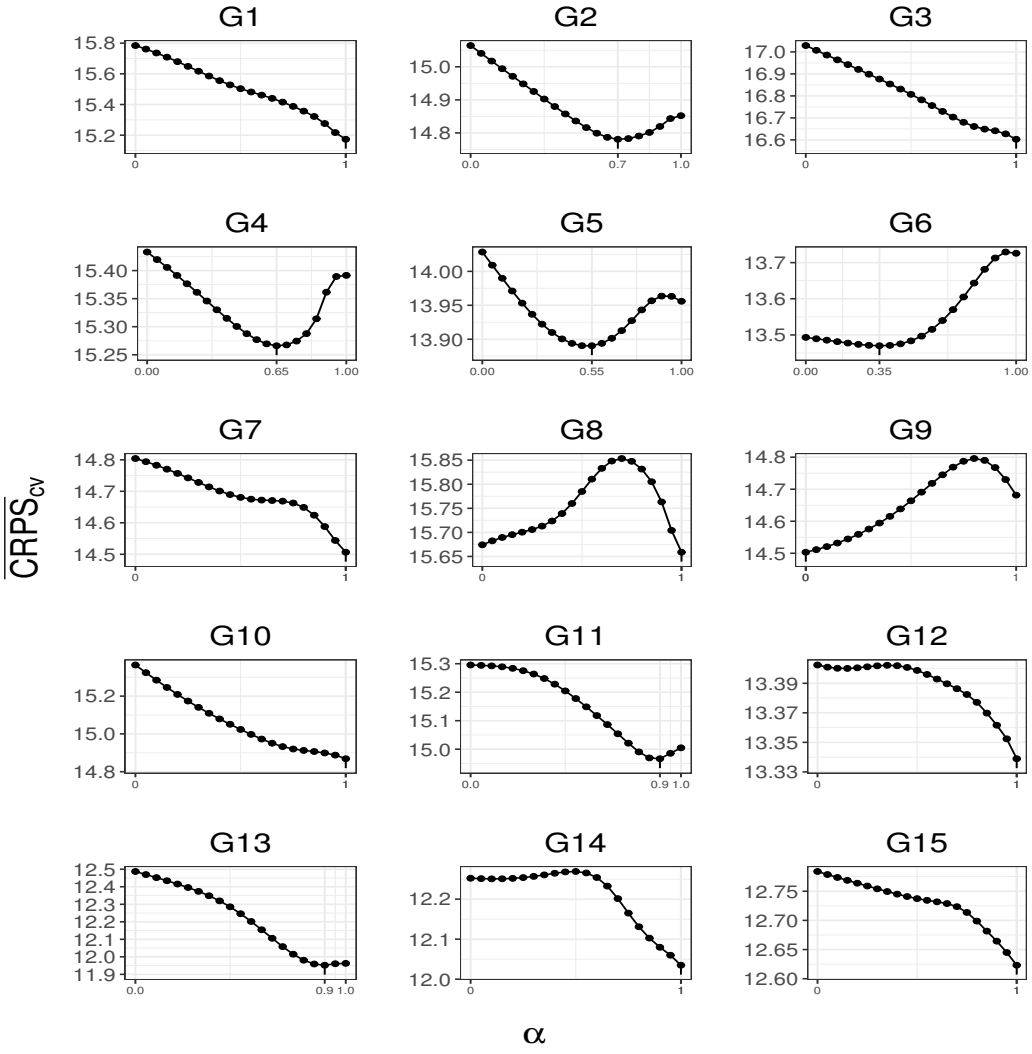

Figure S 4: Computed values of $\overline{CRPS}_{cv}(\alpha)$ defined as in (**??**) and the selected optimal correction rate α for 15 grid cell and for the future period 1 (2021-2060) under the SSP3 scenario.

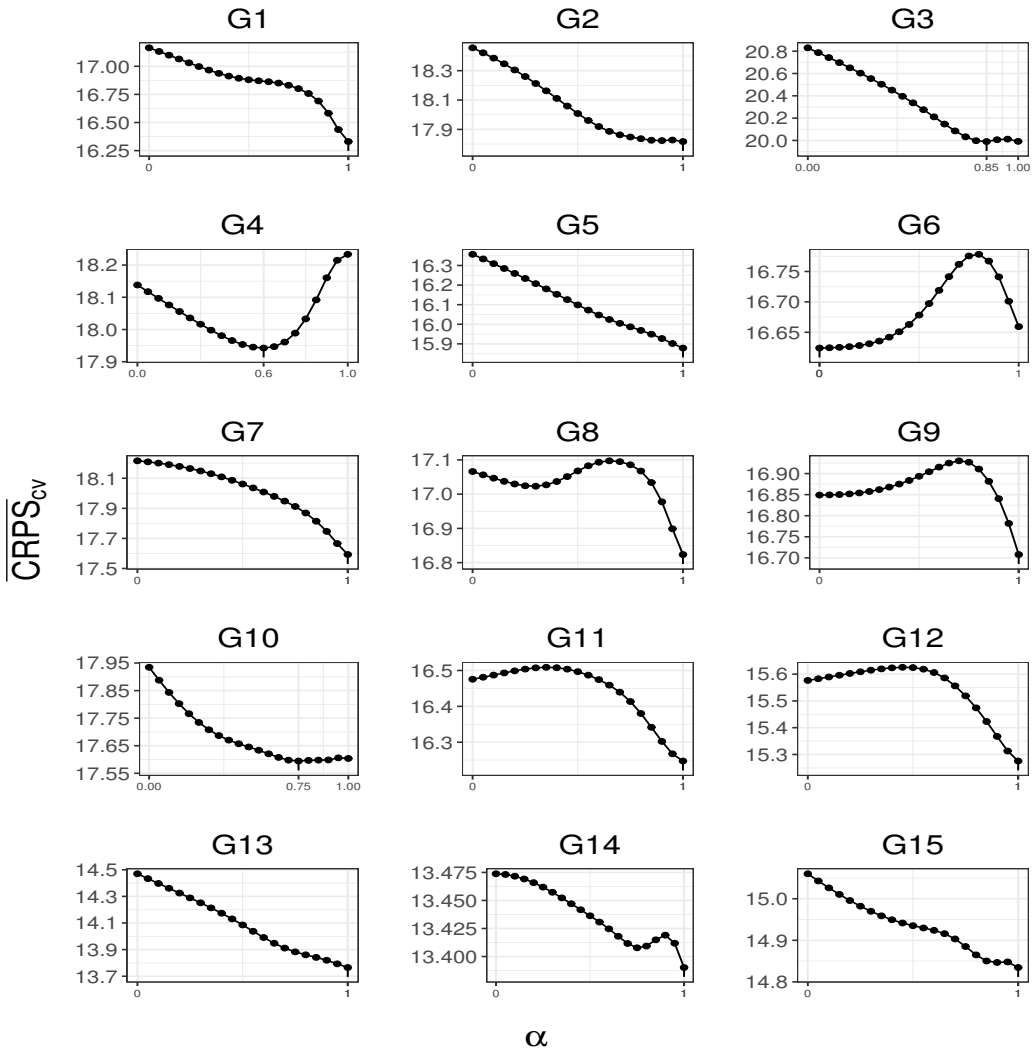

Figure S 5: Same as Figure 4 but for the future period 2 (2061-2100) under the SSP3 scenario.

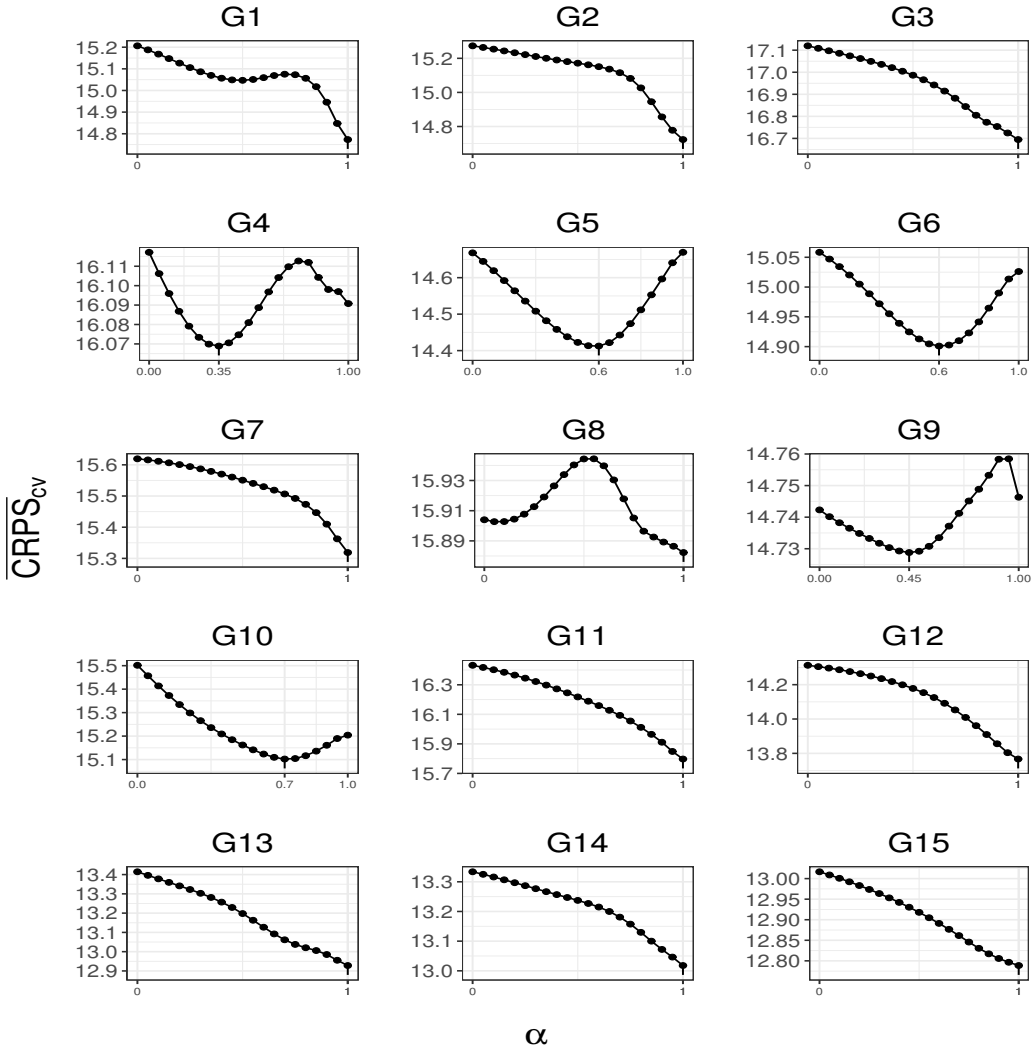

Figure S 6: Same as Figure 4 but for the future period 1 (2021-2060) under the SSP5 scenario.

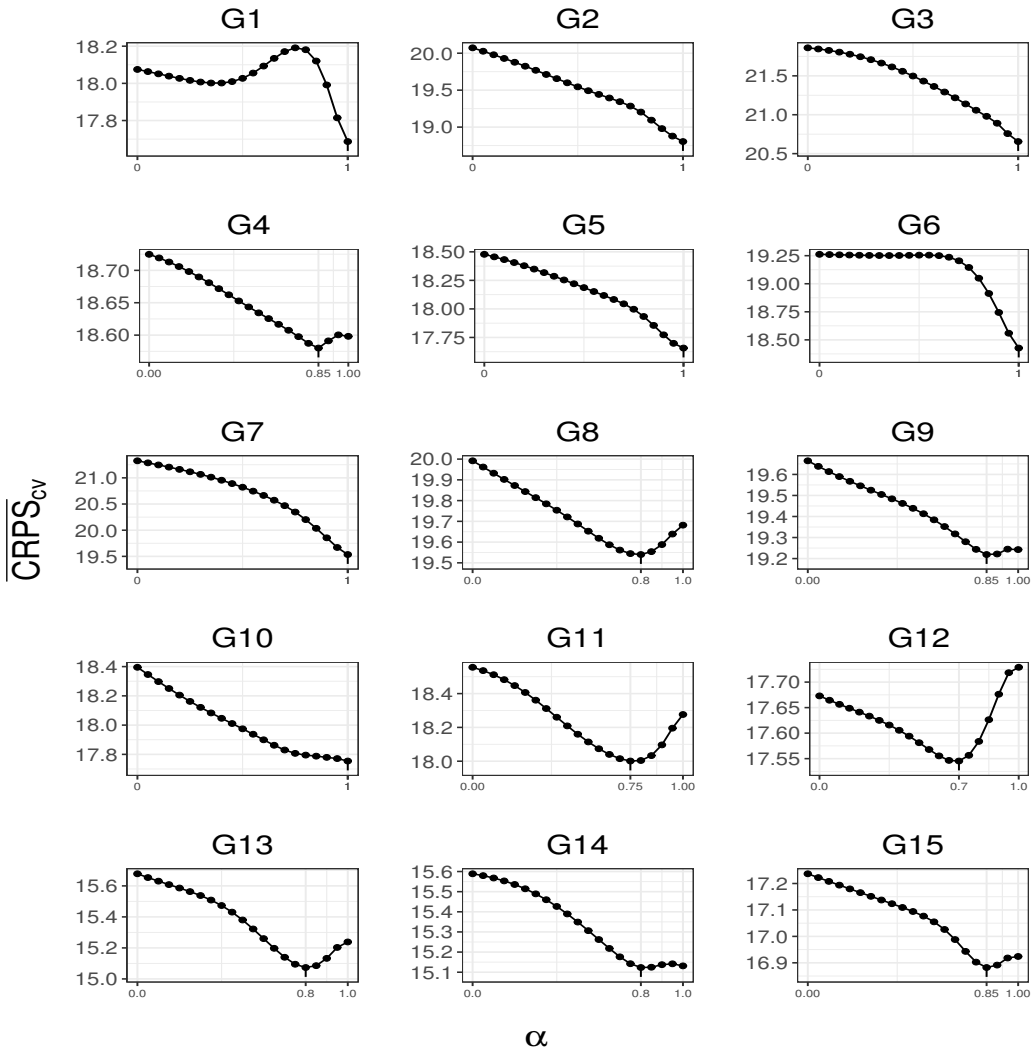

Figure S 7: Same as Figure 4 but for the future period 2 (2061-2100) under the SSP5 scenario.