



*Supplement of*

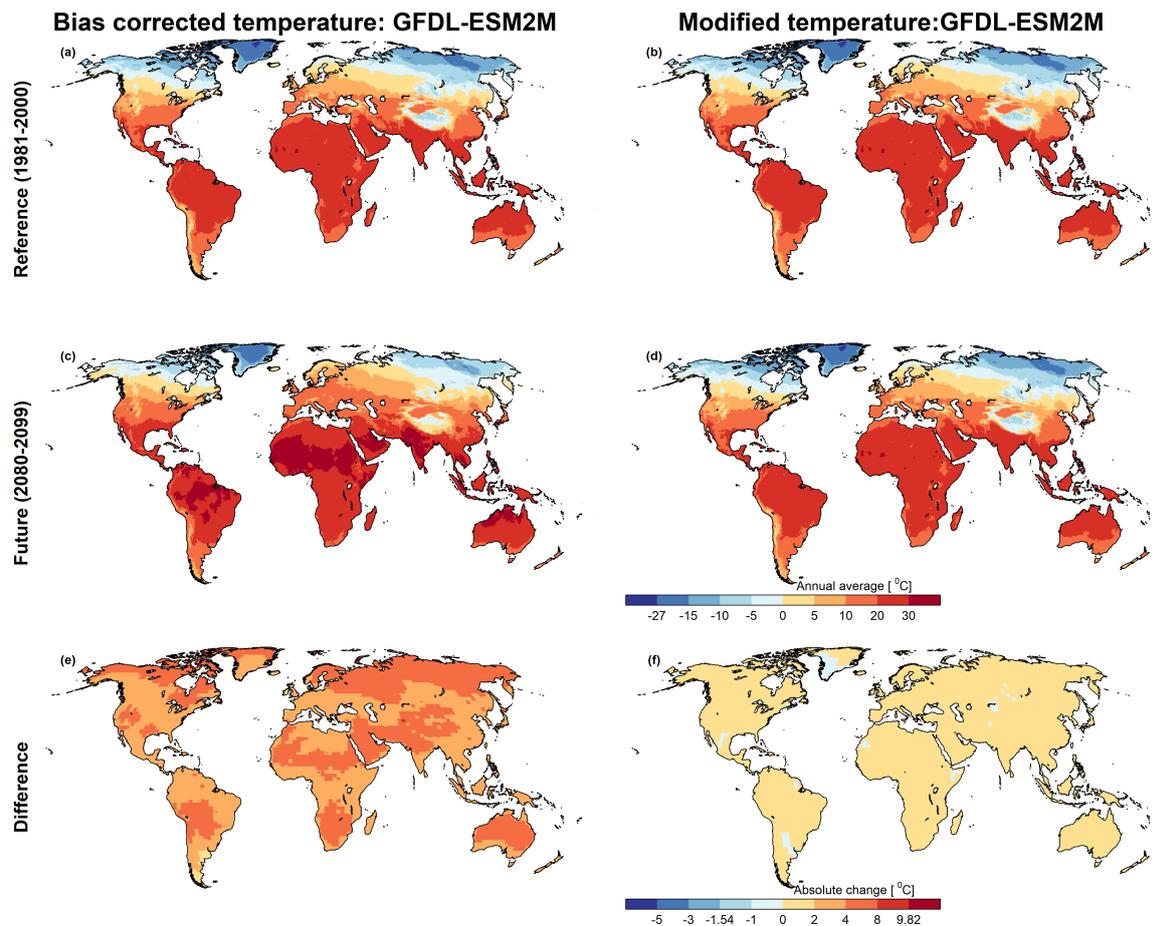
**Improving the quantification of climate change hazards by hydrological models: a simple ensemble approach for considering the uncertain effect of vegetation response to climate change on potential evapotranspiration**

**Theдини Asali Peiris and Petra Döll**

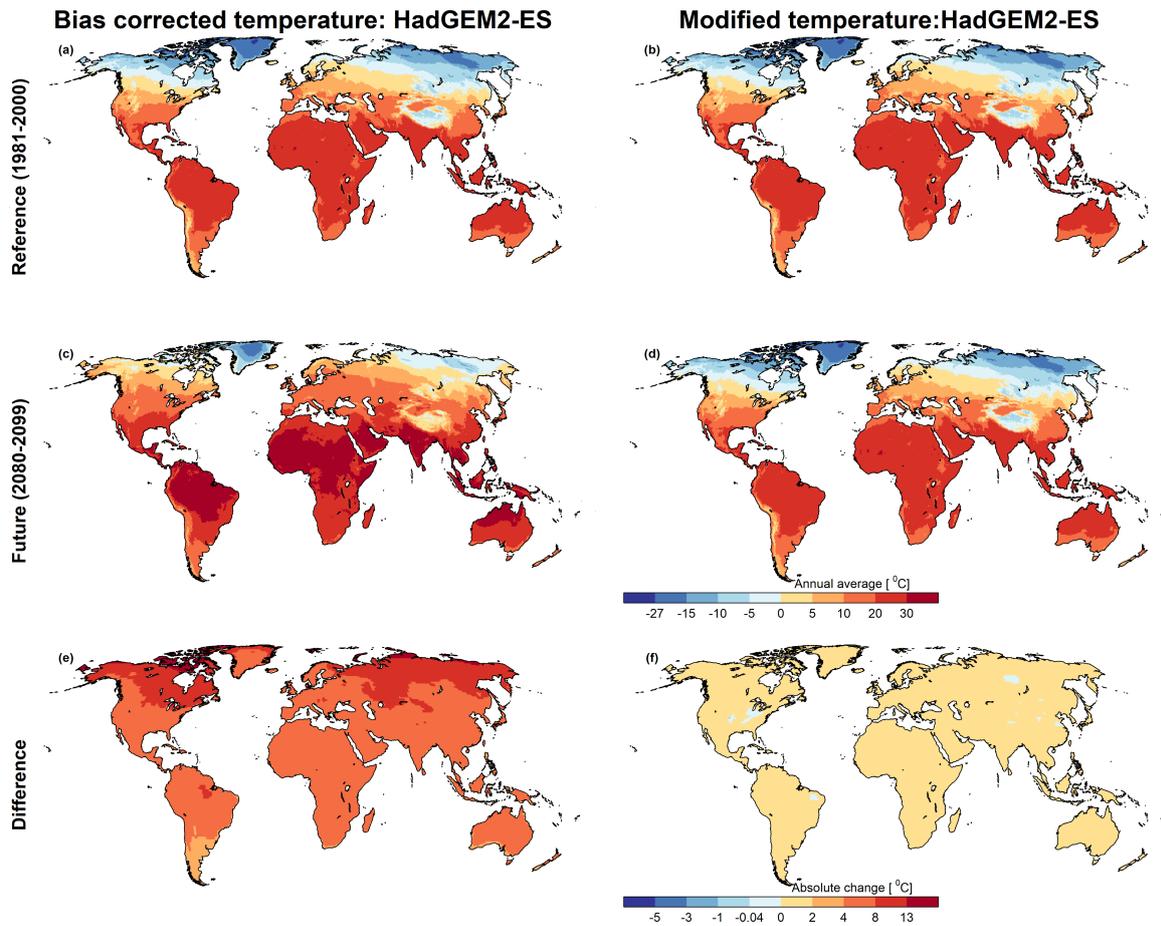
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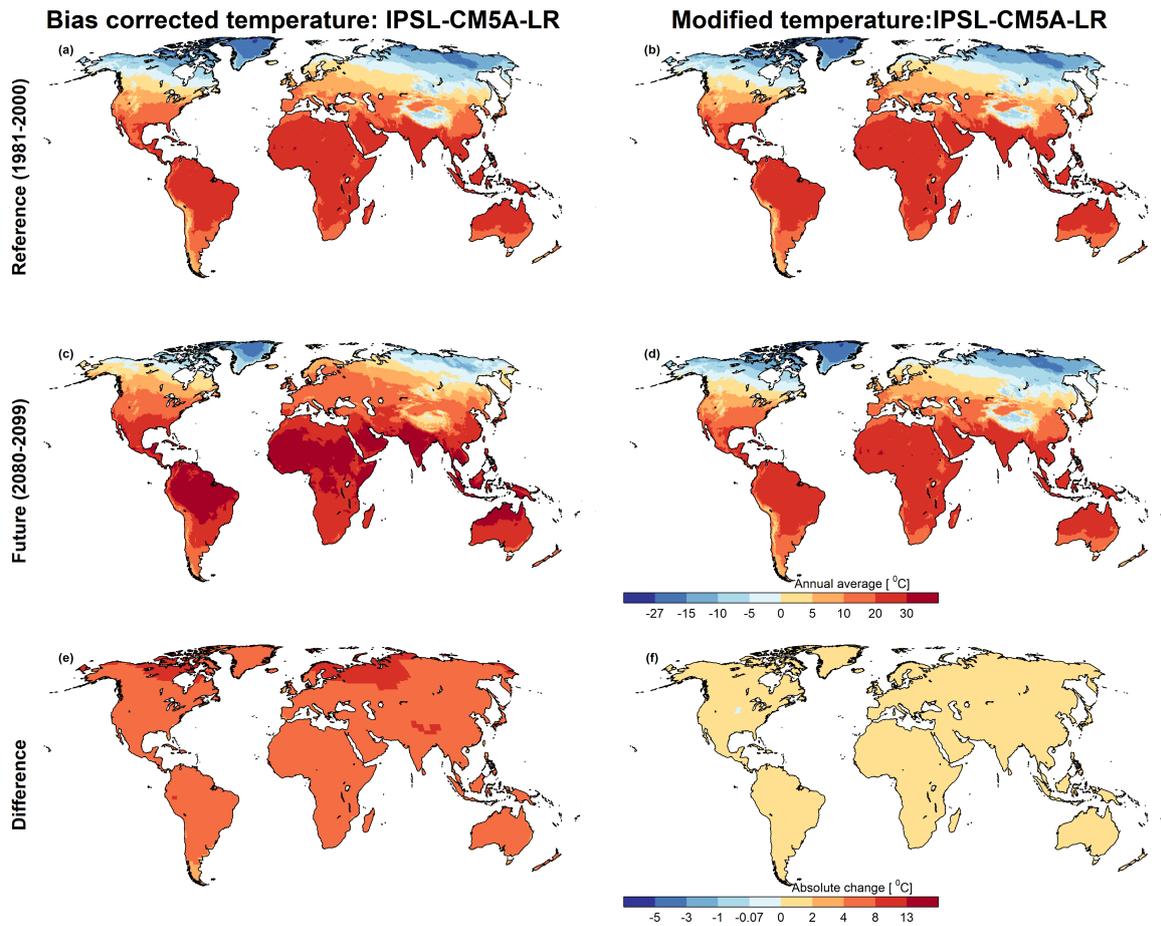
## 1 Temperature data



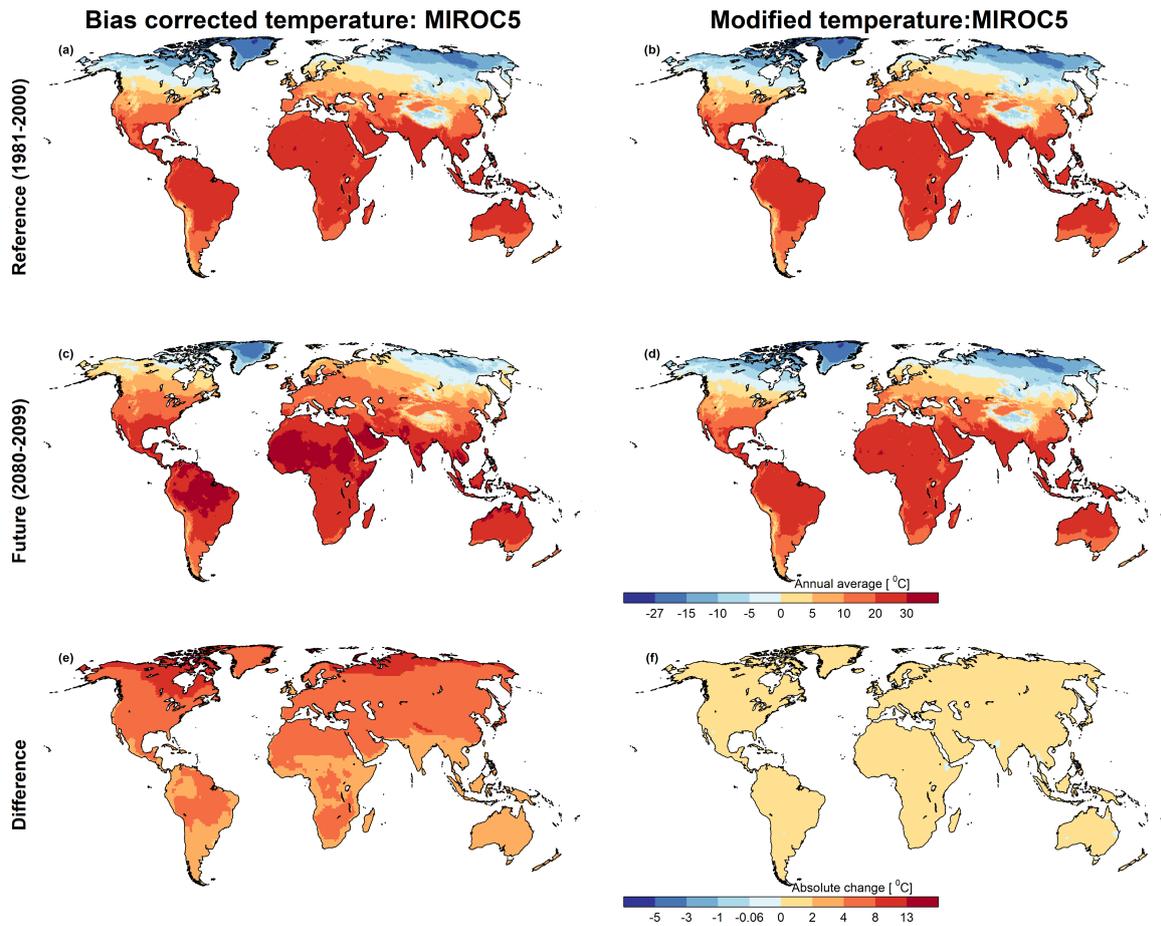
**Figure S1.** Bias-adjusted temperature and modified bias-adjusted temperature based on the GFDL-ESM2M climate model under RCP8.5. (a) and (b) annual average temperature in reference period (1981-2000) [ $^{\circ}\text{C}$ ], (c) and (d) annual average temperature in future period (2080-2099) [ $^{\circ}\text{C}$ ], (e) and (f) absolute change of temperature.



**Figure S2.** Bias-adjusted temperature and modified bias-adjusted temperature based on the HadGEM2-ES climate model under RCP8.5. (a) and (b) annual average temperature in reference period (1981-2000) [°C], (c) and (d) annual average temperature in future period (2080-2099) [°C], (e) and (f) absolute change of temperature between future and reference periods.

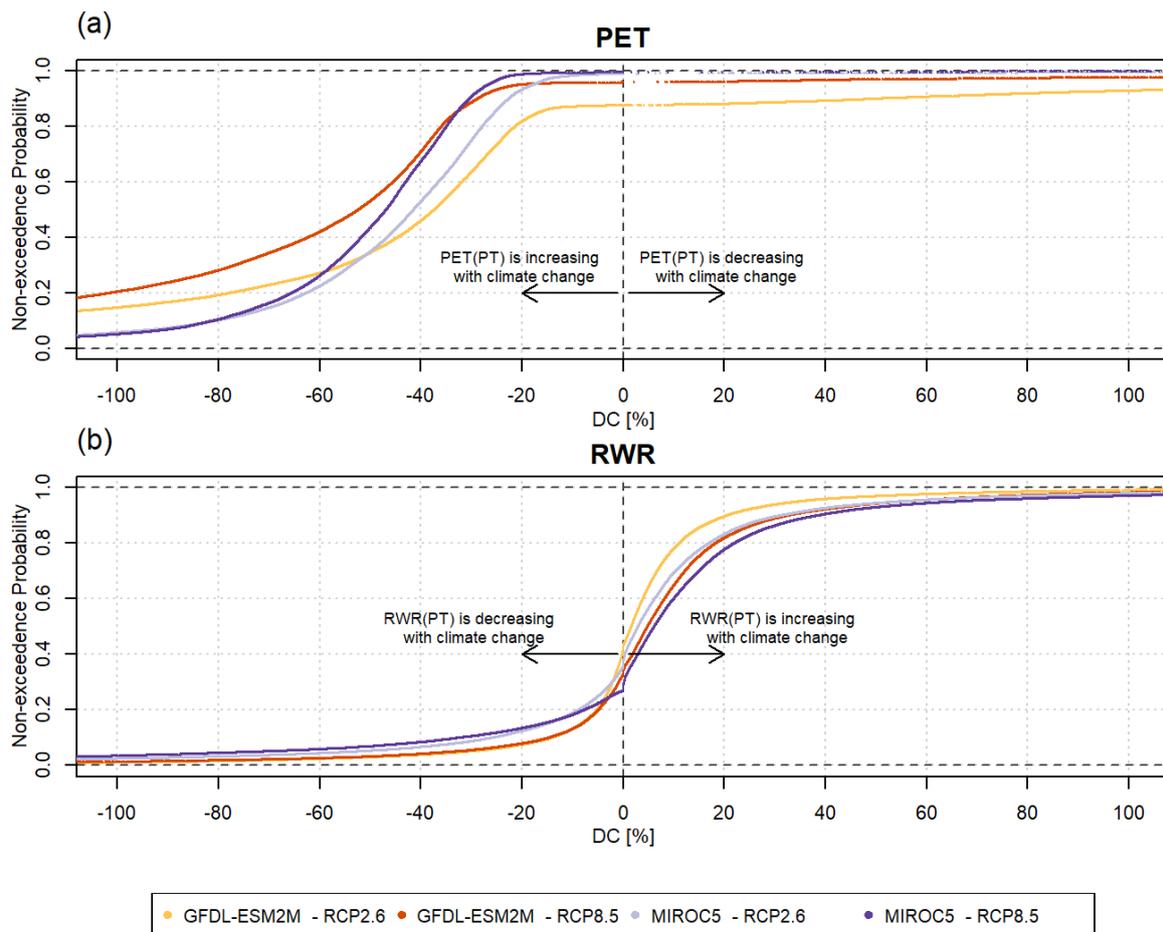


**Figure S3.** Bias-adjusted temperature and modified bias-adjusted temperature based on the IPSL-CM5A-LR climate model under RCP8.5. (a) and (b) annual average temperature in reference period (1981-2000) [ $^{\circ}\text{C}$ ], (c) and (d) annual average temperature in future period (2080-2099) [ $^{\circ}\text{C}$ ], (e) and (f) absolute change of temperature.



**Figure S4.** Bias-adjusted temperature and modified bias-adjusted temperature based on the MIROC5 climate model under RCP8.5. (a) and (b) annual average temperature in reference period (1981-2000) [ $^{\circ}\text{C}$ ], (c) and (d) annual average temperature in future period (2080-2099) [ $^{\circ}\text{C}$ ], (e) and (f) absolute change of temperature.

## 2 Additional results



**Figure S5.** The cumulative probability distribution of the DC, i.e. the relative difference between the change computed with the PT-MA approach and the change computed with the standard PT method for (a) PET and (b) RWR. The results are based on WGHM output forced with GFDL-ESM2M and MIROC5 climate models under RCP8.5 and RCP2.6. The lighter colors correspond to RCP2.6, and darker the colors to RCP8.5. Antarctica and Greenland are excluded