



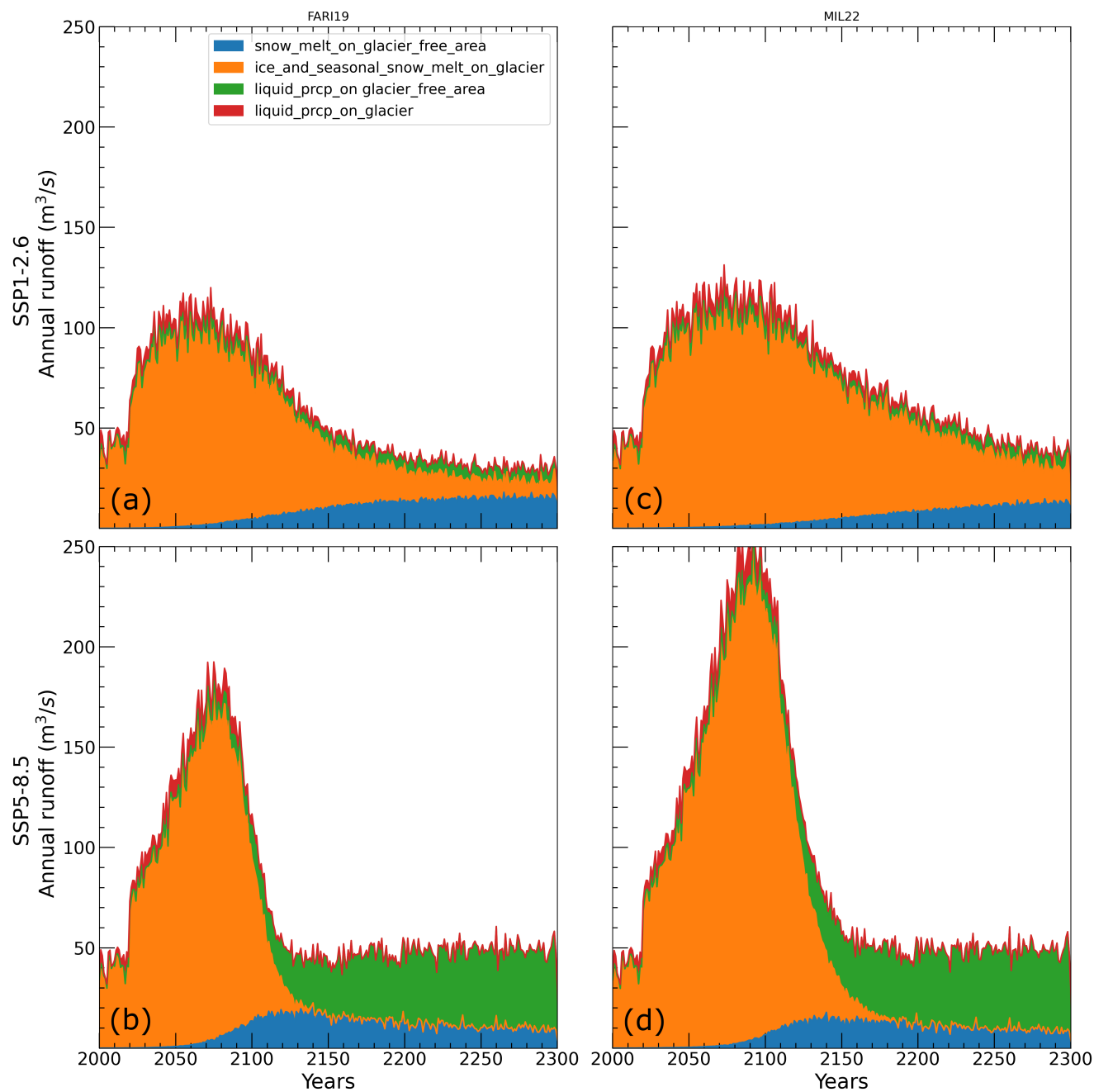
*Supplement of*

**Brief communication: Sensitivity analysis of peak water to ice thickness and temperature: A case study in the Western Kunlun Mountains of the Tibetan Plateau**

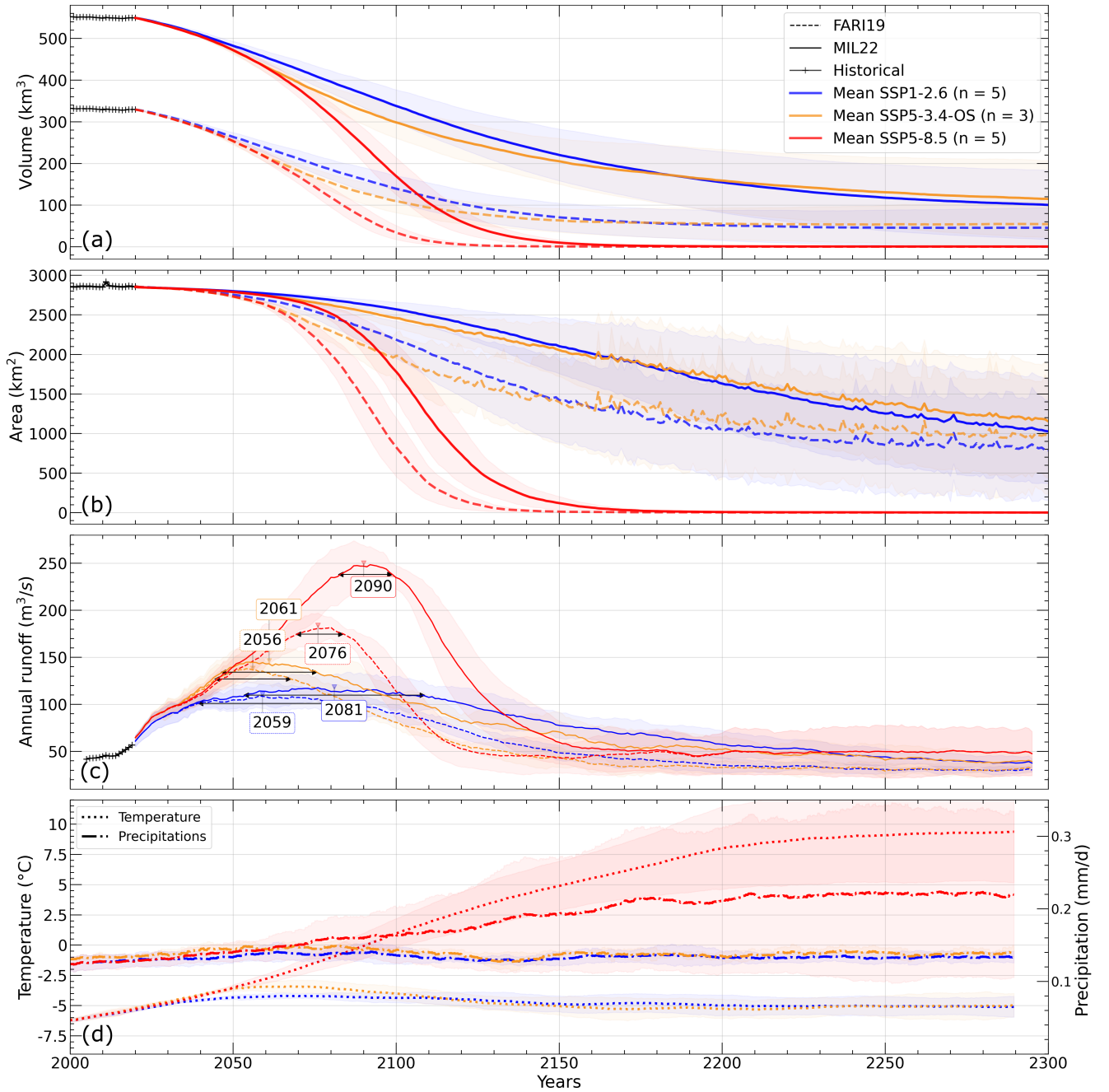
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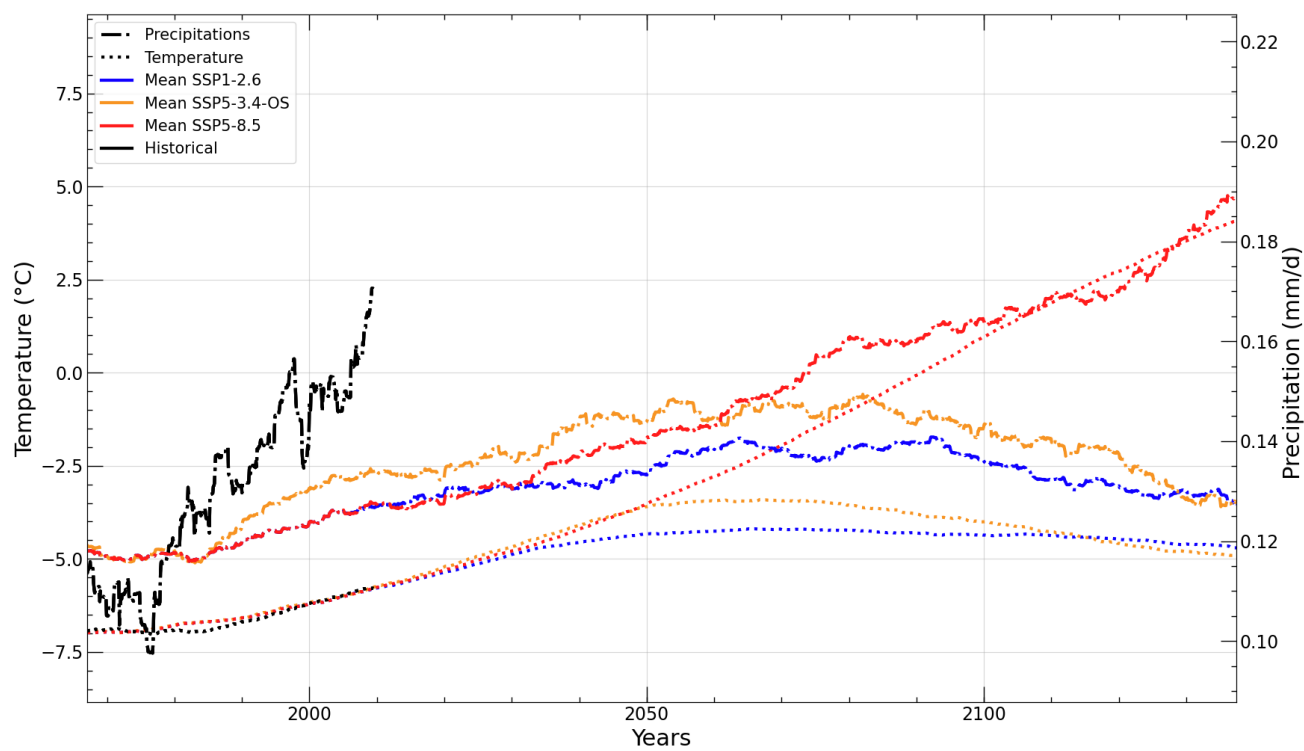
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**Figure S1.** Simulated evolution of cumulative annual runoff for all 160 glaciers with its four different contributions, using FARI19 dataset ((a) & (b)), and MIL22 dataset ((c) & (d)) under SSP1-2.6 and SSP5-8.5.



**Figure S2.** Projections of glacier evolution in the region of interest: the cumulative of all 160 glaciers **(a)** volumes, **(b)** areas and **(c)** annual runoffs, with an assessment of peak water timing, accompanied by **(d)** mean temperatures and precipitations projections under various SSPs (multi-GCM mean shown in bold, shading is the mean  $\pm 1$  standard deviation of the GCM ensemble).



**Figure S3.** Multi-GCMs mean temperatures and precipitation projections under various SSPs, with historical climate data from W5E5 shown in black.