

Figure S1. Comparison of observed streamflow (grey) and ClimEx-driven streamflow (red) for four watersheds over the historical period. The shaded area and dotted lines indicate the 10th and 90th percentiles, all river segments and years combined.

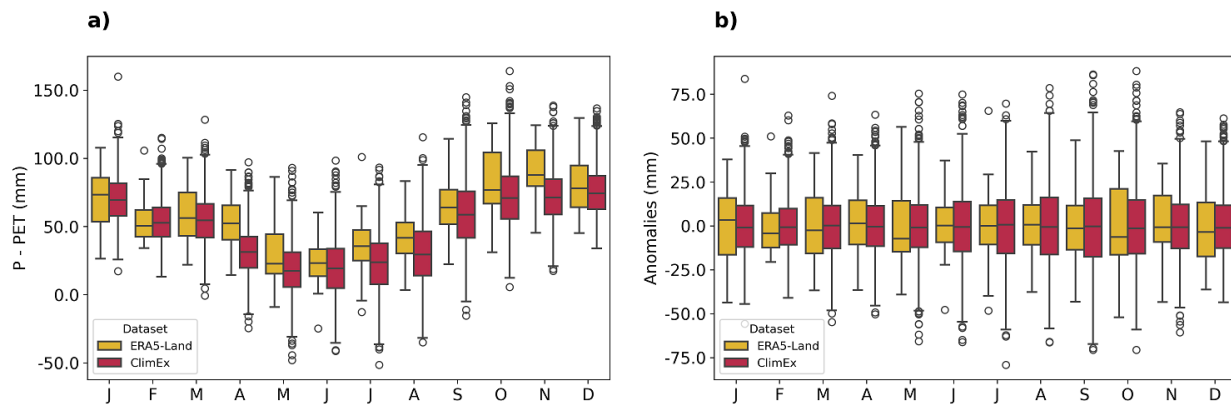


Figure S2. Comparison of ERA5-Land and the bias-adjusted ClimEx dataset for the historical period, for a) the water budget $P - PET$ (mm) and b) the anomalies compared to the 30-year monthly average.

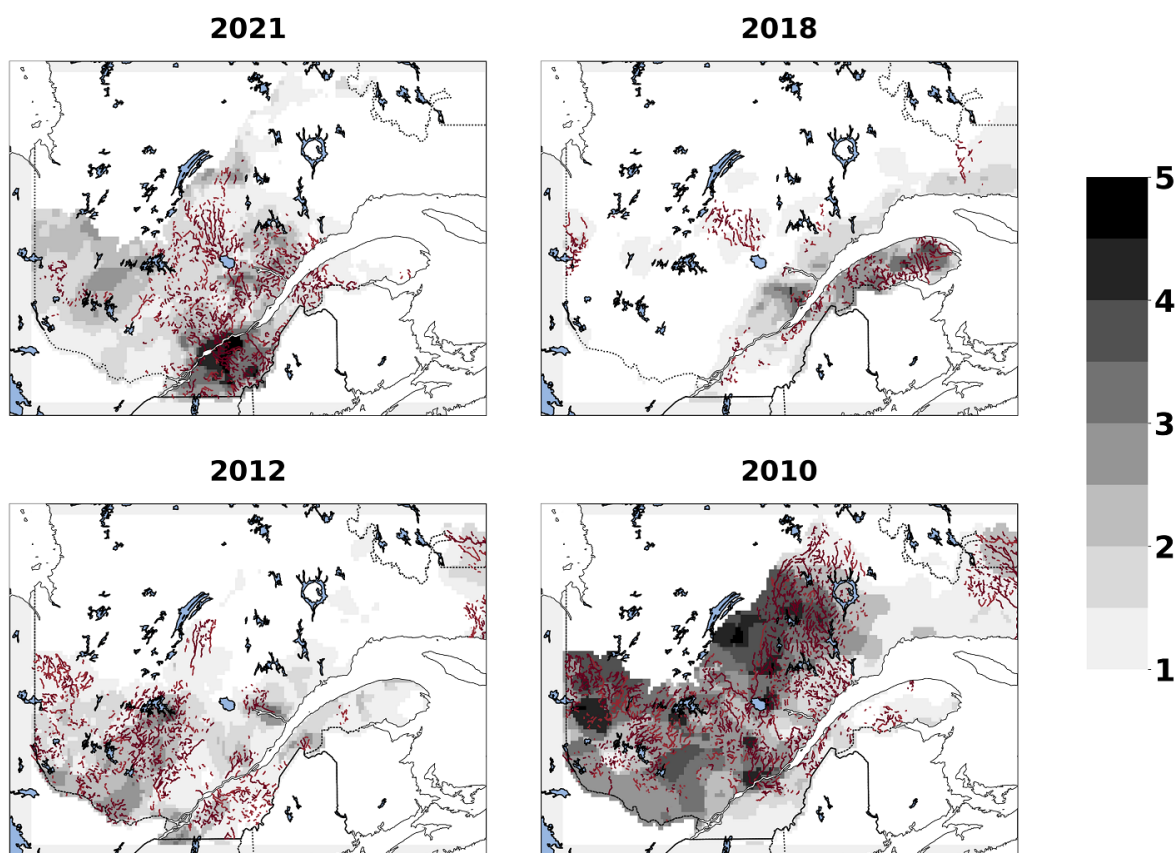


Figure S3. Sum of all weights used during the assessment of candidate analogues (Fig. 3) for four years with intense hydrological drought conditions. The river reaches where the $7Q_{min}$ is within the worst 3 years for the period 1992-2021 are shown in red.

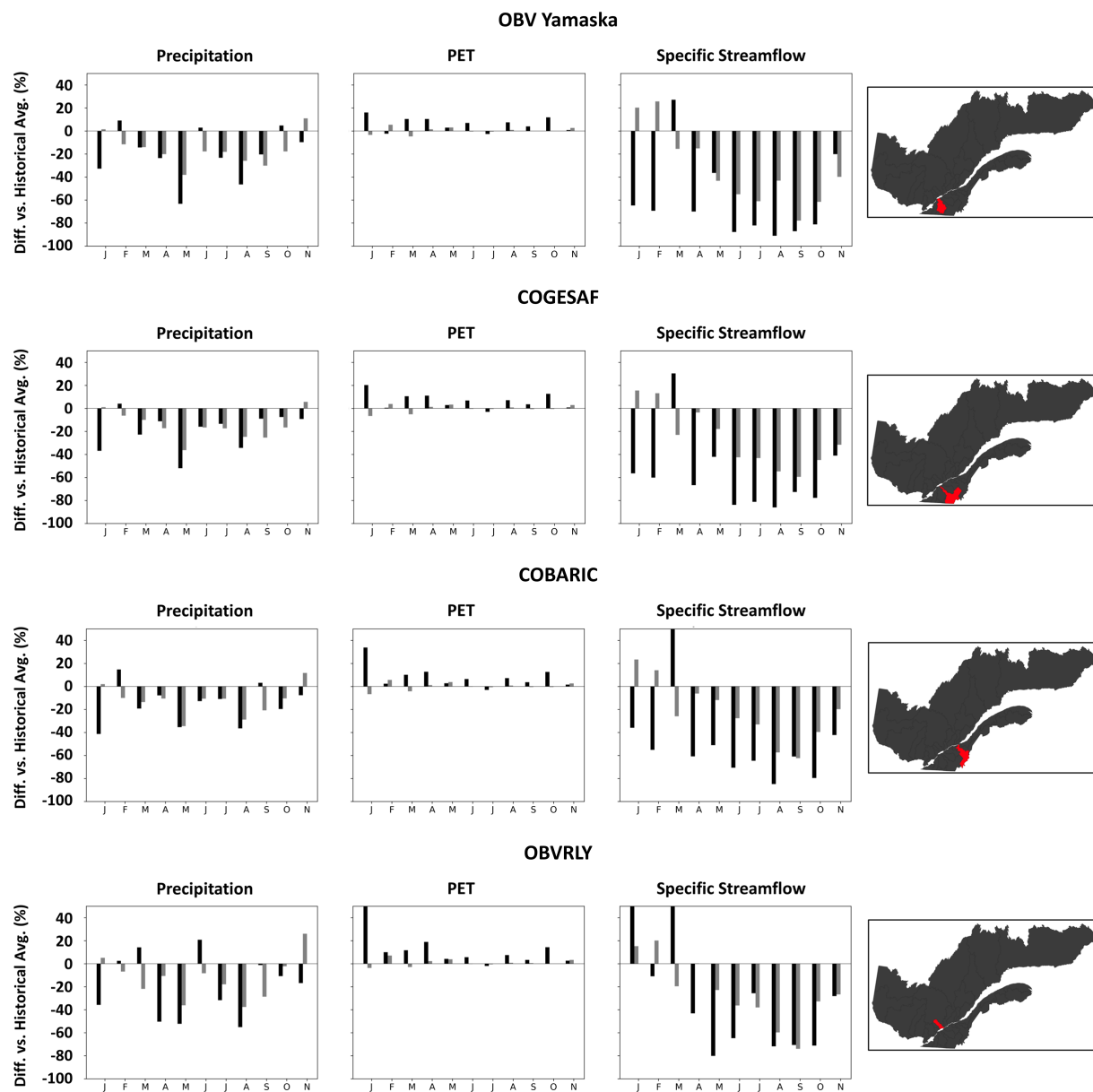


Figure S4. Comparison of monthly mean anomalies in precipitation, evapotranspiration and streamflow for the observed 2021 (black) and for the average of the 10 best ClimEx analogues during the historical period (grey).

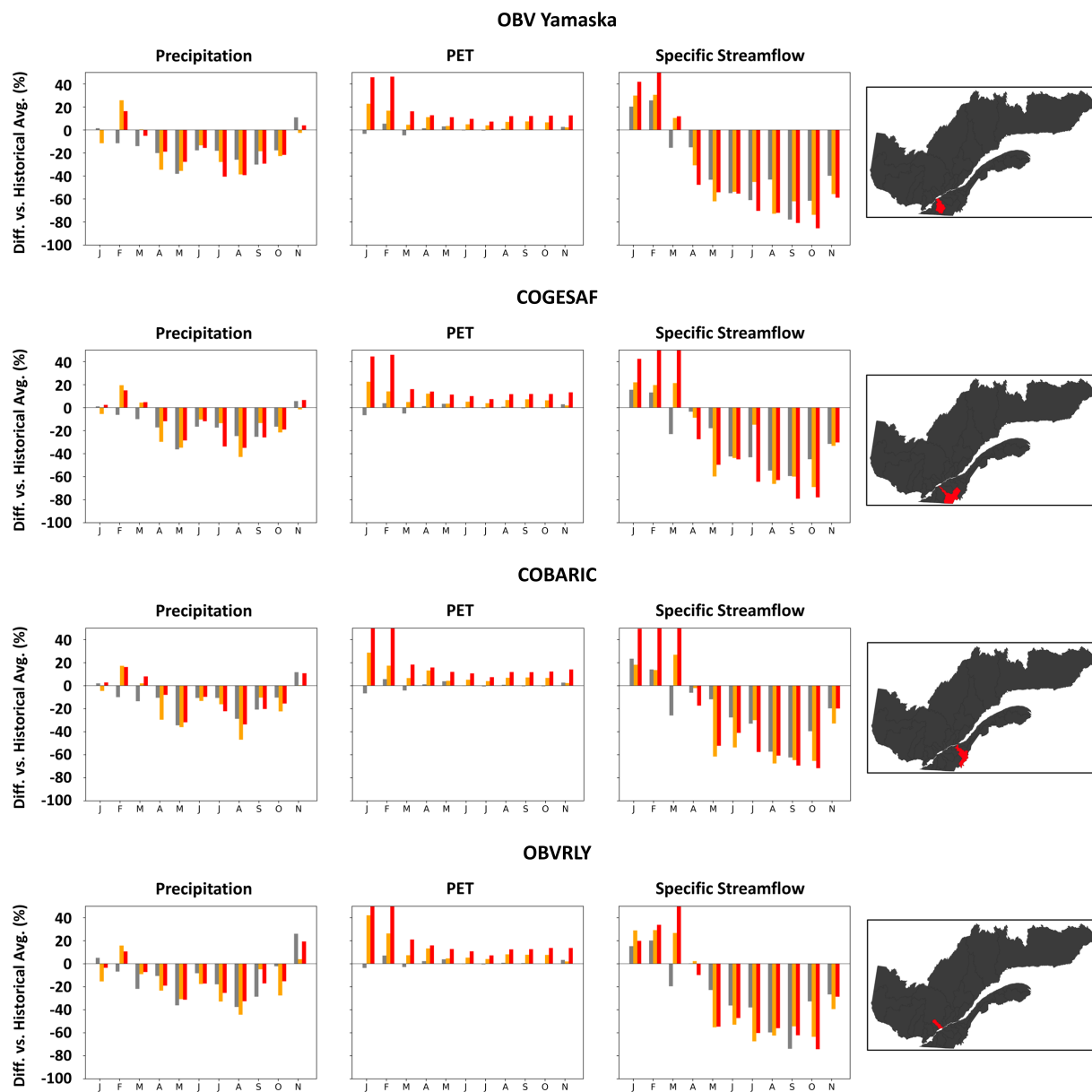


Figure S5. Comparison of monthly mean anomalies in precipitation, evapotranspiration and streamflow for the average of the 10 best ClimEx analogues during the historical period (grey), under +2°C (orange) and under +3°C (red).

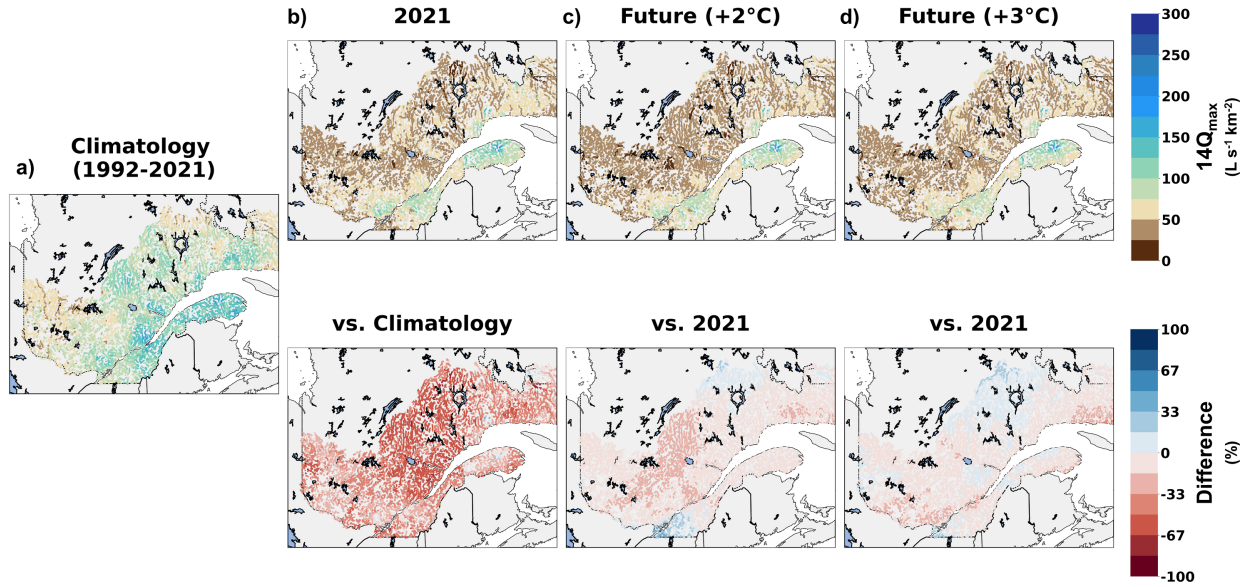


Figure S6. Hydrological indicator $14Q_{max}$ for a) 1992-2021 climatology, b) in 2021, c) for the 2021 event under a +2°C global temperature rise and d) for the 2021 event under a +3°C global temperature rise. The top row displays the absolute values, whereas the bottom row illustrates the differences relative to either the climatology or the 2021 low-water episode.

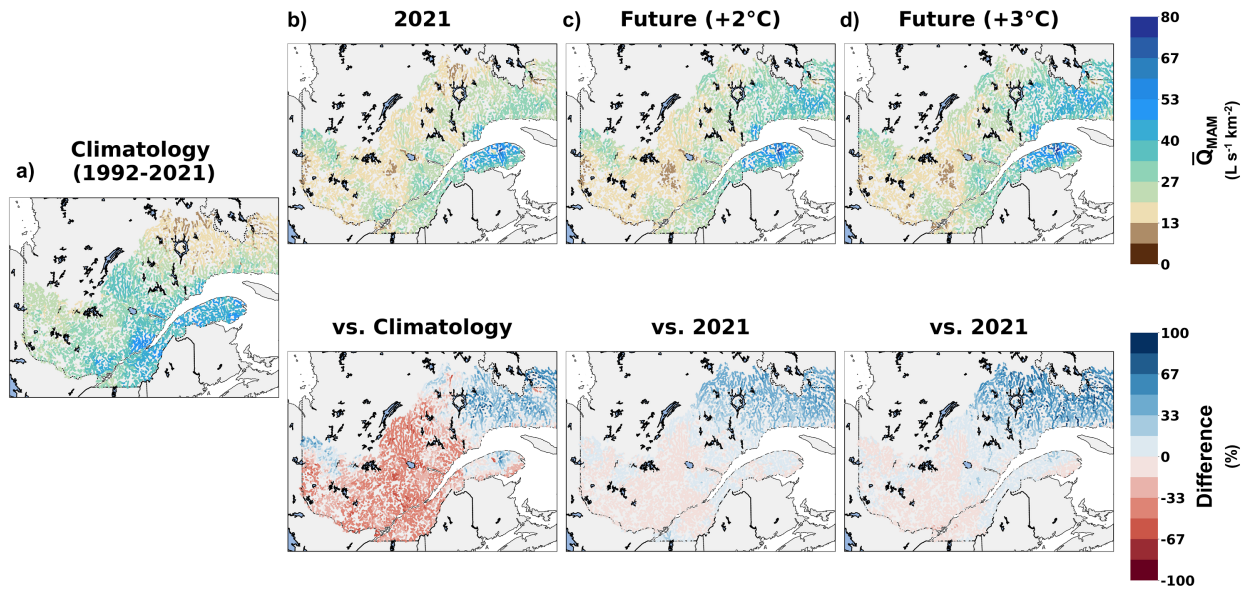


Figure S7. Same as Fig. S6, but for \overline{Q}_{MAM} .

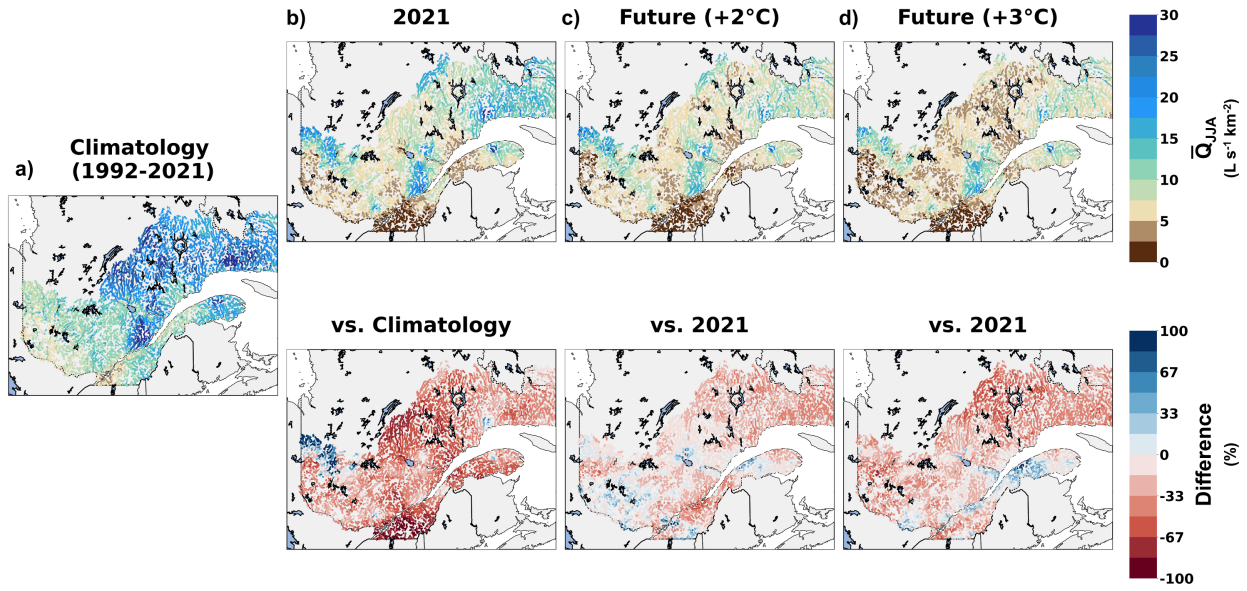


Figure S8. Same as Fig. S6, but for \overline{Q}_{JJA} .

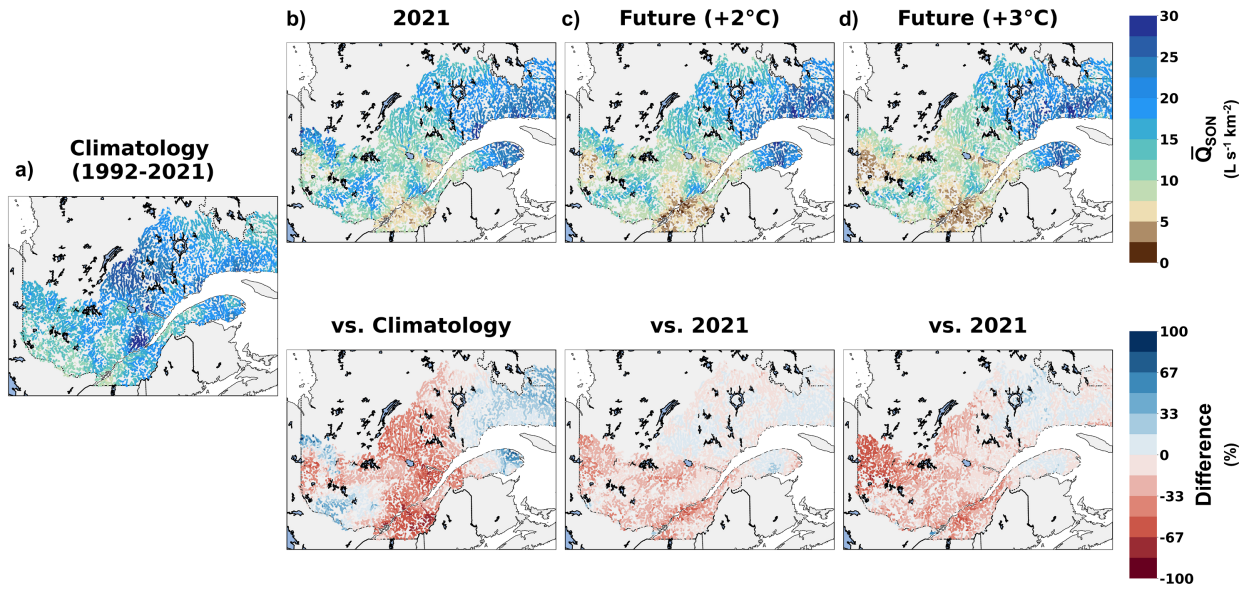


Figure S9. Same as Fig. S6, but for \overline{Q}_{SON} .

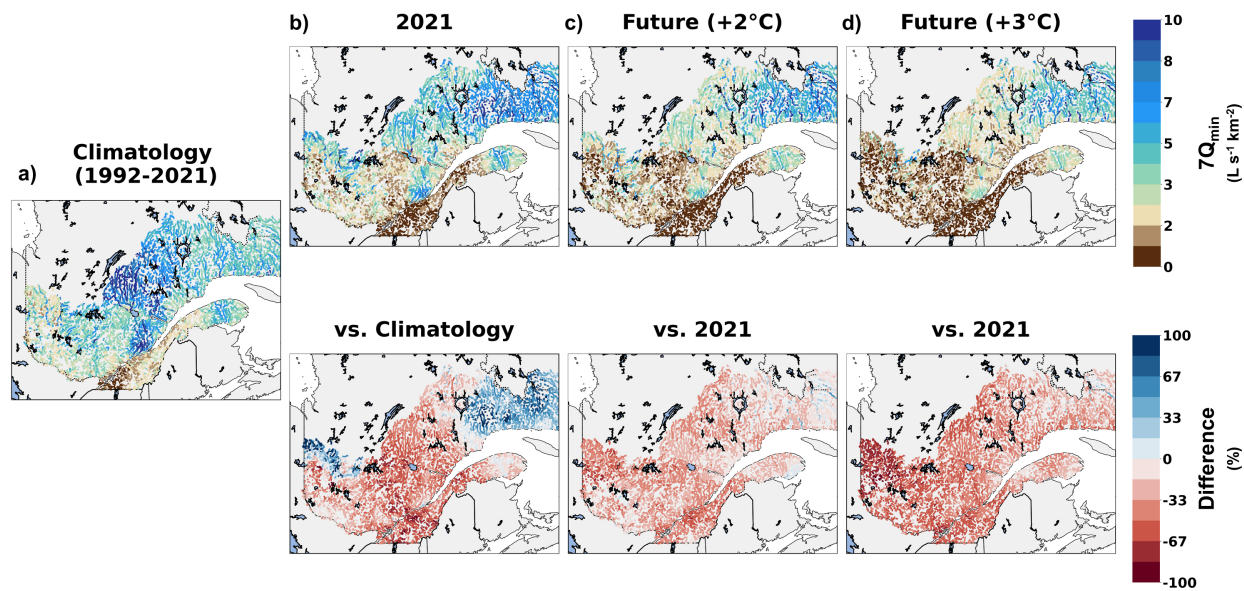


Figure S10. Same as Fig. S6, but for 7Q_{min}.

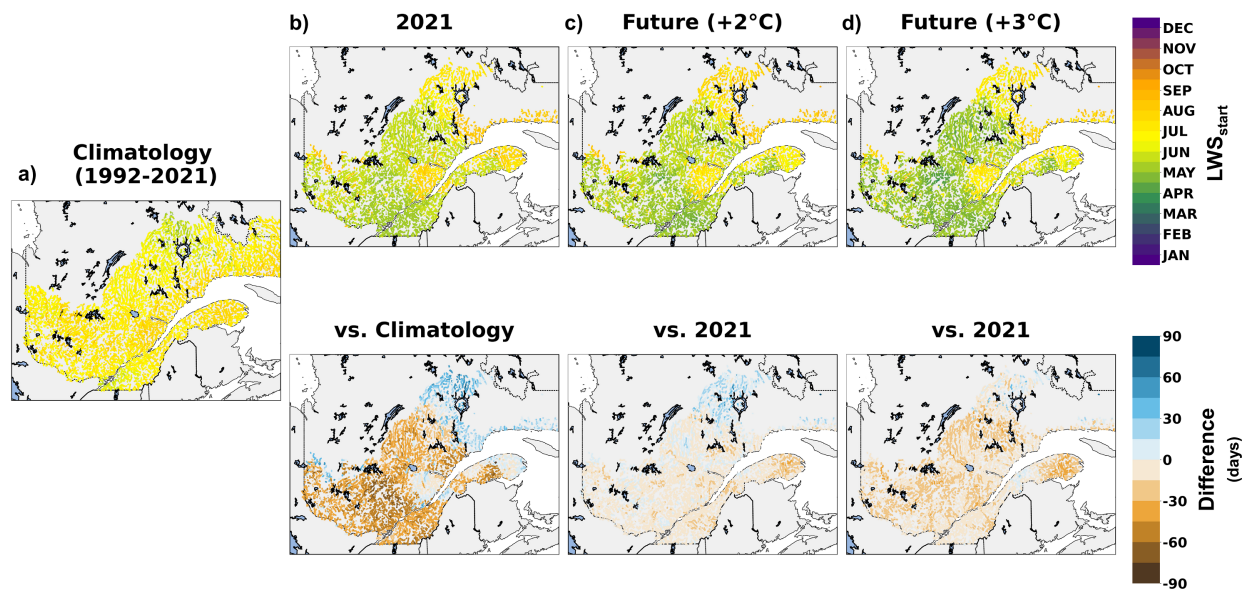


Figure S11. Same as Fig. S6, but for LWS_{start}.

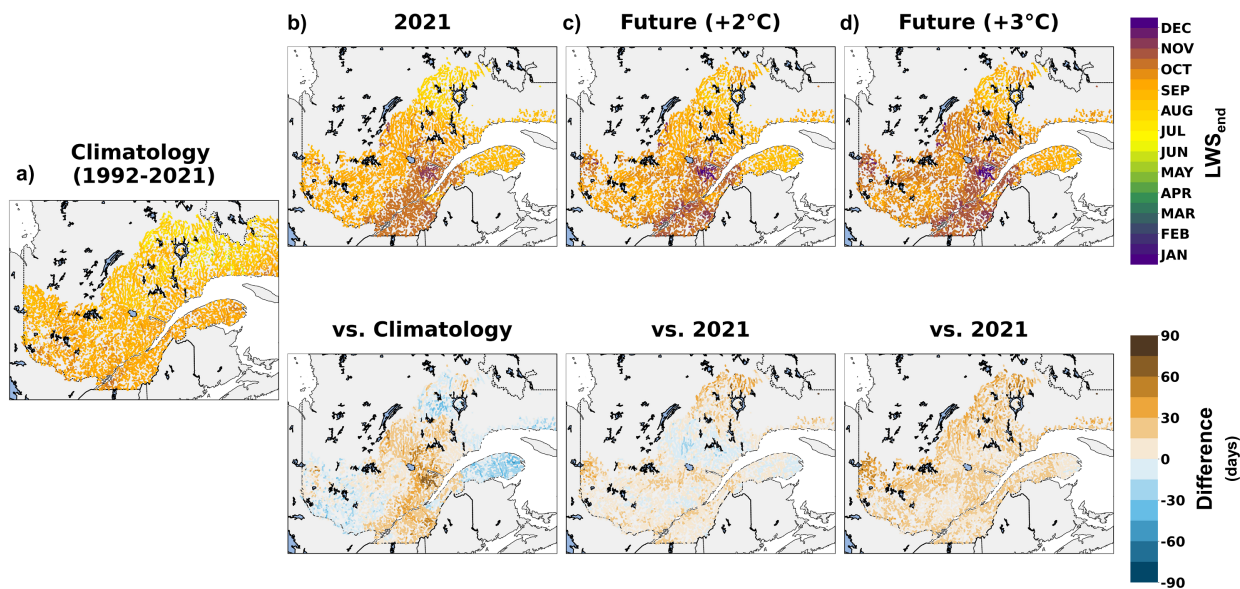


Figure S12. Same as Fig. S6, but for LWS_{end}.

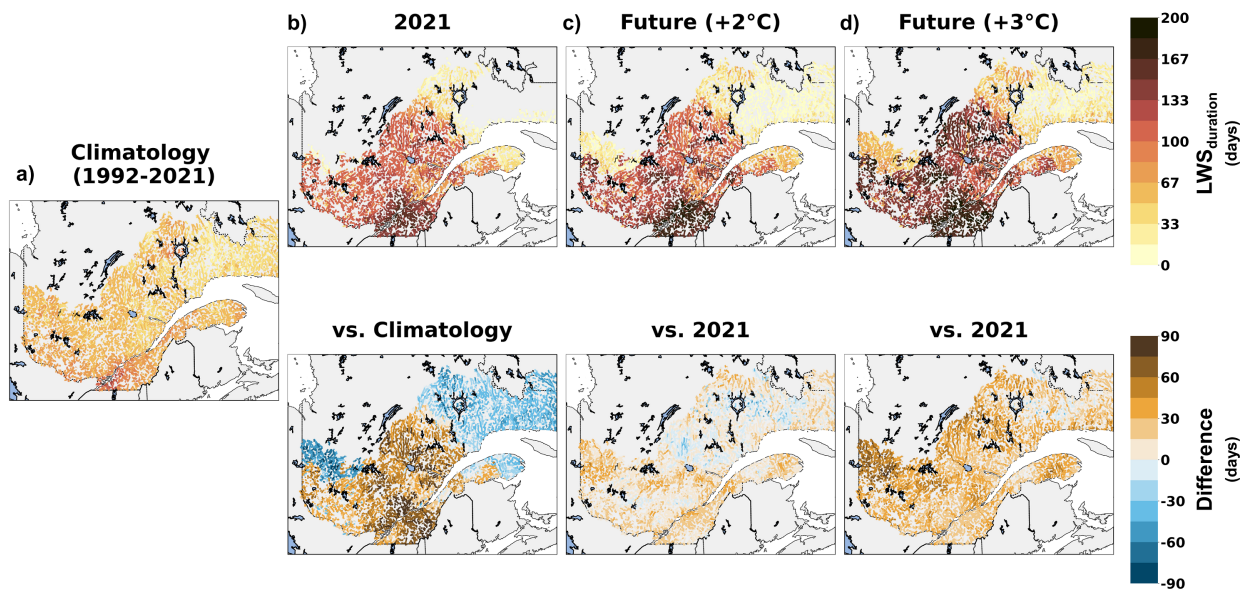


Figure S13. Same as Fig. S6, but for LWS_{duration}.

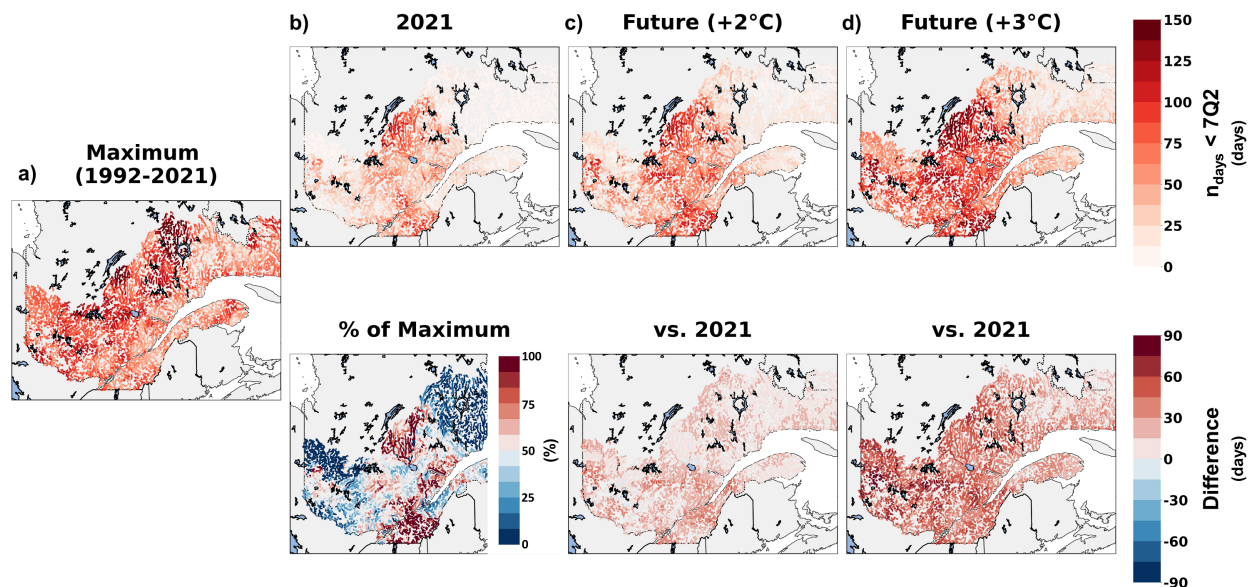


Figure S14. Hydrological indicator $n_{days < 7Q2}$ for a) the maximum of the 1992-2021 period, b) in 2021, c) for the 2021 event under a +2°C global temperature rise and d) for the 2021 event under a +3°C global temperature rise. The top row displays the absolute values, whereas the bottom row illustrates the differences relative to either the historical maximum or the 2021 low-water episode.

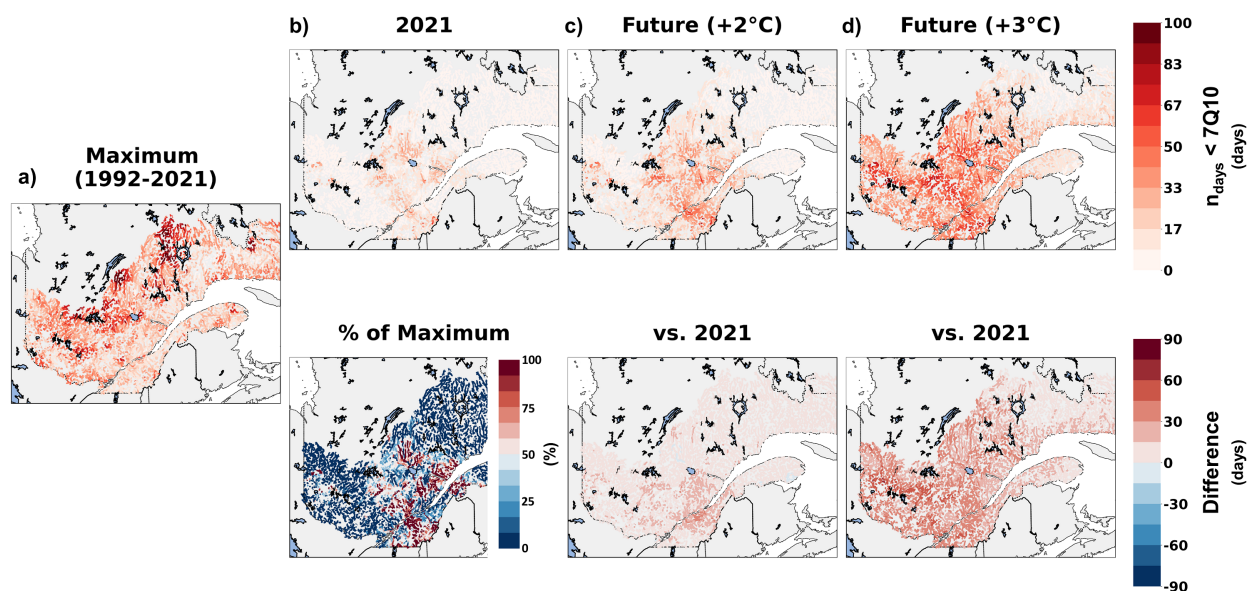


Figure S15. Same as Fig. S14, but for $n_{days < 7Q10}$.