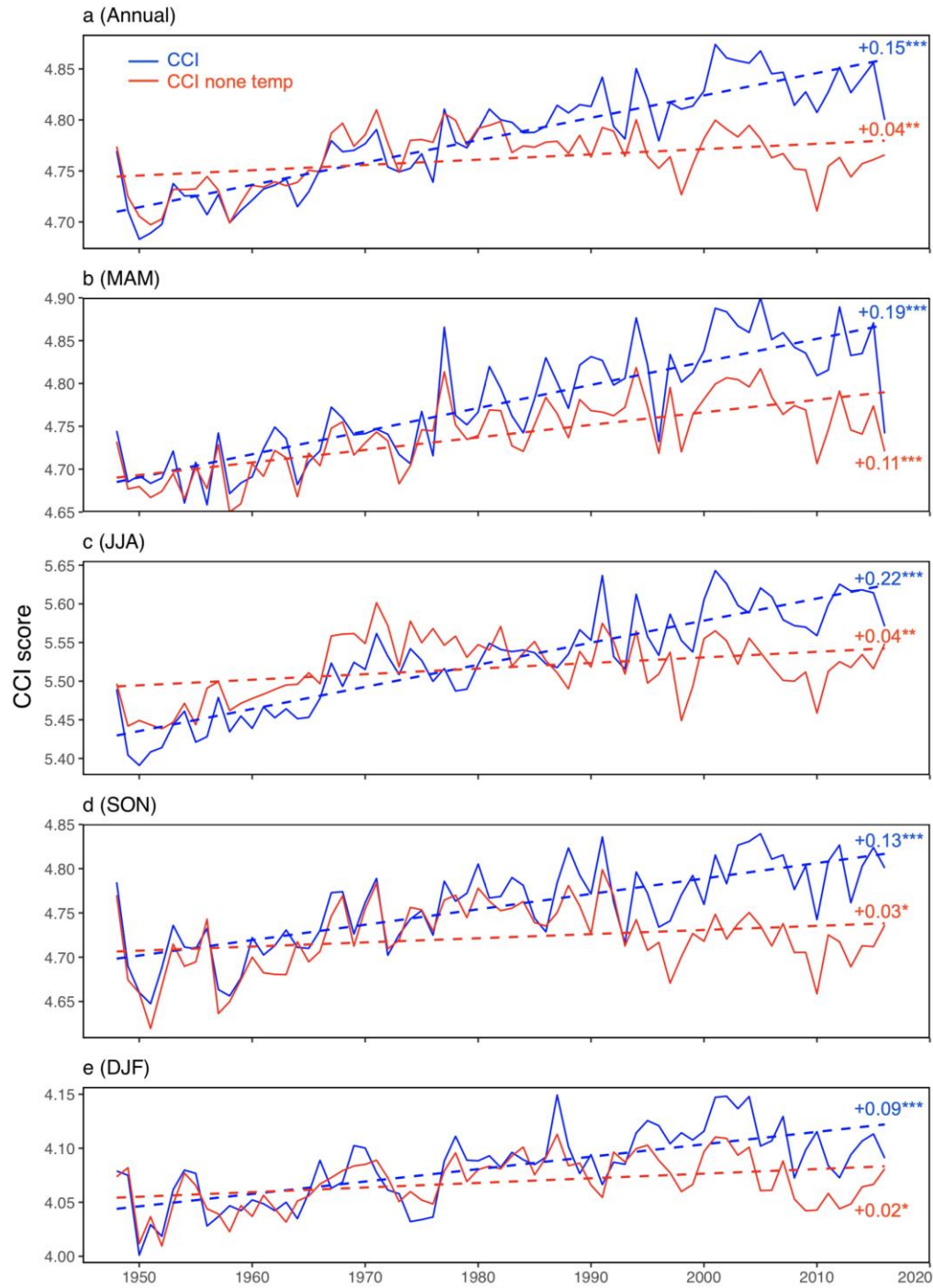


## **Global climate resources for camping and nature-based tourism**

### **Supplementary Note: Method to determine the contribution of temperature to CCI changes.**

The CCI is composed of three main facets of climate factors, including thermal comfort, extreme weather events, and sunshine hours. Changes in either climate factor can lead to changes in tourism climate suitability. To evaluate the relative role of thermal comfort on the changes in CCI score, an experiment was made by re-calculating the CCI score with unchanged temperature. Specifically, the new set of CCI was calculated based on daily precipitation, wind speed, sunshine hours, and the daily climatological temperature during 1948 – 2016. As shown in Figure 1, the blue line is the original global averaged annual CCI, and the red line is the global average annual CCI with unchanged temperature. The differences between the two lines are the contribution of temperature to the changing CCI. The red line is closely neighboring the blue line before the 1990s and progressively drifts apart in recent decades. While the global observational CCI continued to increase significantly, the CCI with unchanged temperature demonstrates a relatively stable increment. Additionally, the linear trend in the observational CCI are at least 3 times higher than that based on unchanged temperature CCI in all seasons, except MAM. The noticeable differences in the time series pattern indicate that the warming temperature is the major contributing factor to the historical CCI changes.



**Supplemental Figure S1. Time series of the annual and seasonal global average CCI score. The linear trends are shown as dashed lines. The positive sign indicates the slope of the trend line is increasing during 1948 – 2016. Significance level are indicated by asterisk. \*\*\* $p < 0.001$  \*\* $p < 0.01$  \* $p < 0.05$ . The unit is the global average CCI scores.**

**Supplemental Table S1.** Comparison of the identified weather threshold values for camping and park visitation

Category	Source	Study region	Preference method	Thresholds of unacceptable conditions			
				Minimum temperature (°C)	Maximum temperature (°C)	Precipitation (mm)	Windspeed (km/h)
Camping	Hewer et al (2015)	Canada	Stated	16 (daytime)	35 (daytime)	16mm/h	41
				9 (night)	29 (night)	-	-
	Hewer et al (2018)	Canada	Stated	14.5 (daytime)	35 (daytime)	-	-
				6 (night)	29 (night)	-	-
	Ma et al (2020)	USA	Revealed	8	34	10	23
Park	Hewer et al (2016)	Canada	Revealed	11 (off season)	29 (shoulder season)	-	-
				-	33 (peak season)	-	-
	Matthews (2019)	Canada	Revealed	1	41	9	40
	Hewer et al (2020)	Canada	Revealed	15.4 (spring)	33.2 (spring)	26.7 (spring)	56 (spring)
				-	34.7 (summer)	2 (summer)	44 (summer)
				15.8 (fall)	28 (fall)	9.4 (fall)	61 (fall)
				9 (winter)	-	6.2 (winter)	40 (winter)