

## Supplementary Tables and Figures

### What is climate change doing in Himalaya? Thirty years of the Pyramid Meteorological Network (Nepal)

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The hourly temperature data recorded by the two AWSs at 5035 m a.s.l. (AWS0 and AWS1; Figure S1a) during their overlapping period (grey area in Fig. S1a) show a high level of agreement, with an  $R^2$  value of 0.93 (Fig. S1b) and a mean bias of  $-0.073$  °C (Fig. S1d). However, some scatter is observed, mainly during the winter months (from November to March; Fig. S1c, right axis), despite this season exhibiting the lowest mean bias (Fig. S1c, left axis). These discrepancies could be attributed to the lower sampling rate at AWS0 (2 hours). When aggregated to the daily scale, the scatter is substantially reduced (Fig. S1b), with  $R^2$  values of 0.972, 0.987, and 0.996 for daily maximum, minimum, and mean temperature, respectively.

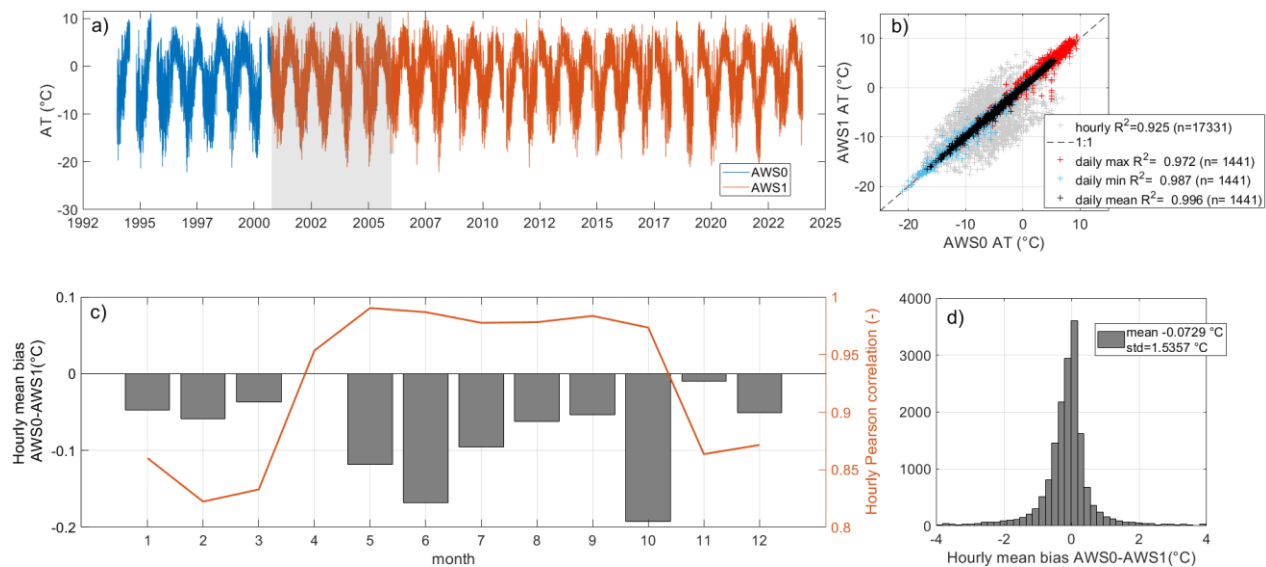


Figure S1 Comparison of hourly 2m atmospheric temperature measurements at AWS0 and AWS1. a) Hourly 2m atmospheric temperature measured at AWS0 and AWS1. The shaded area indicates the period of overlapping observations. b) Hourly and daily scatter plot of common observations with associated  $R^2$ . c) Seasonal mean hourly bias (left axis) and Pearson correlation (right axis) between the two stations. d) Hourly bias histogram between AWS0 and AWS1.

Similarly, we compared daily precipitation measurements at AWS0 and AWS1 in Figure S2. Since precipitation is an accumulated variable, the lower sampling rate at AWS0 does not allow a meaningful hourly comparison. At the daily scale, the two stations show a negligible bias, with a mean bias of  $-0.53$  mm (Fig. S2d), though the data exhibit greater scatter ( $R^2=0.64$ ; Fig. S2b), mostly observed outside the monsoon period (Fig. S2c, right axis).

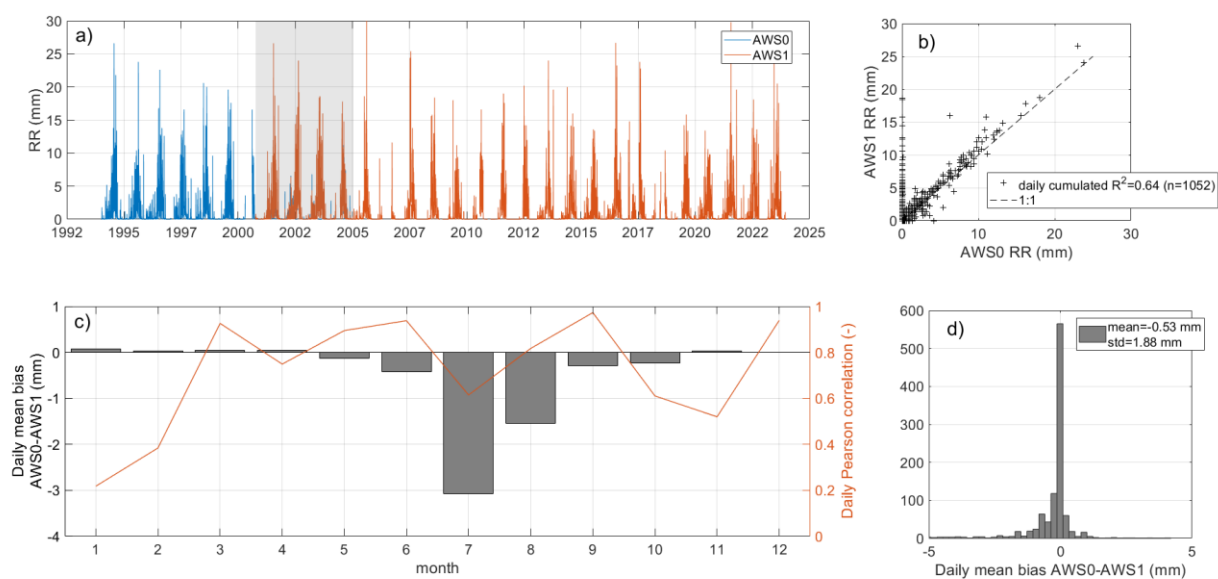


Figure S2 Comparison of daily accumulated precipitation measurements at AWS0 and AWS1. a) Daily accumulated precipitation measured at AWS0 and AWS1. The shaded area indicates the period of overlapping observations. b) Daily scatter plot of common observations with associated  $R^2$ . c) Seasonal mean daily bias (left axis) and Pearson correlation (right axis) between the two stations. d) Daily bias histogram.