

Supplementary

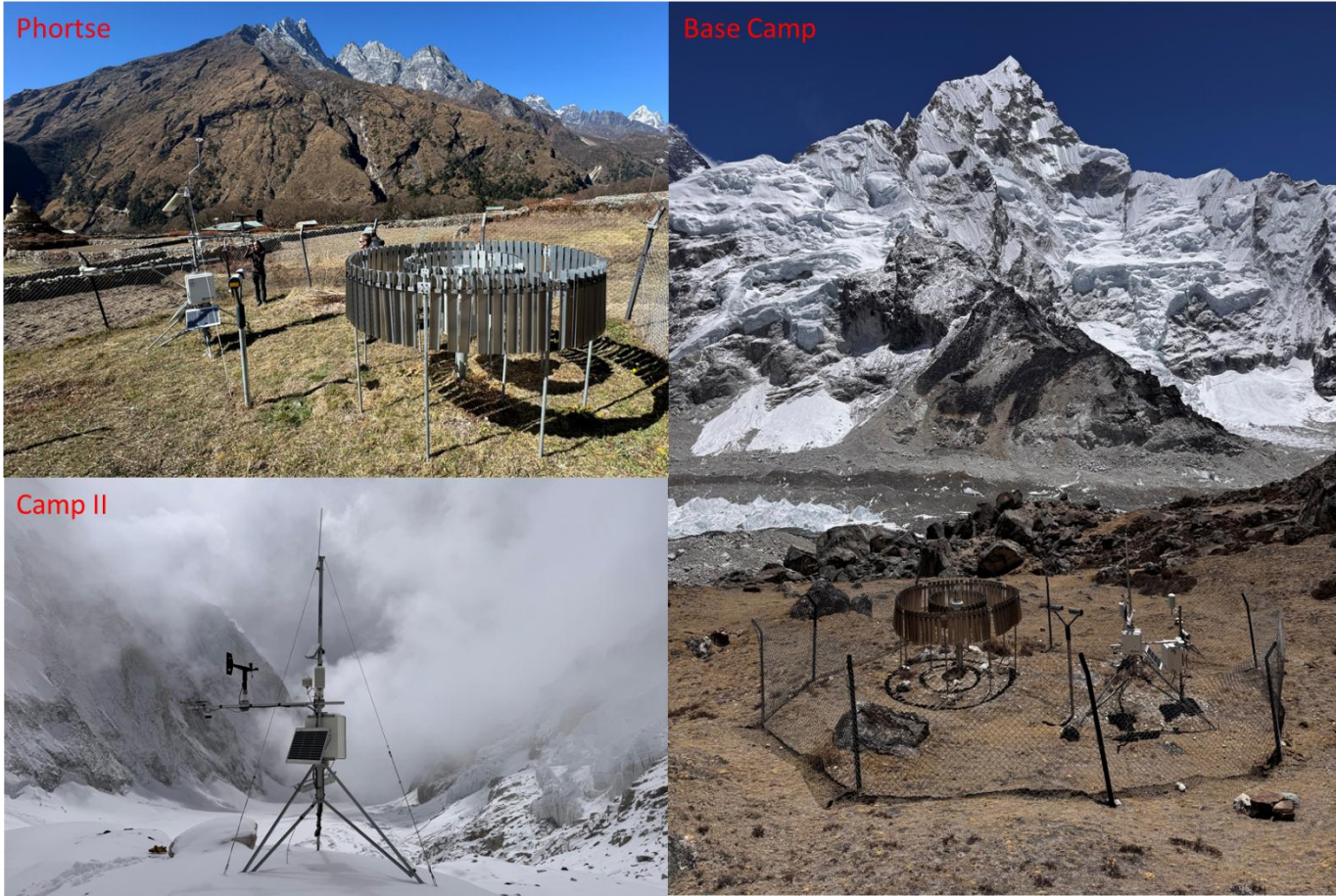


Figure S 1. Photos of Phortse (PH, 3,810 m asl), Base Camp (BC, 5,310 m asl) and Camp II (CII 6,464 m asl) AWSs. (Photo credits: AK)

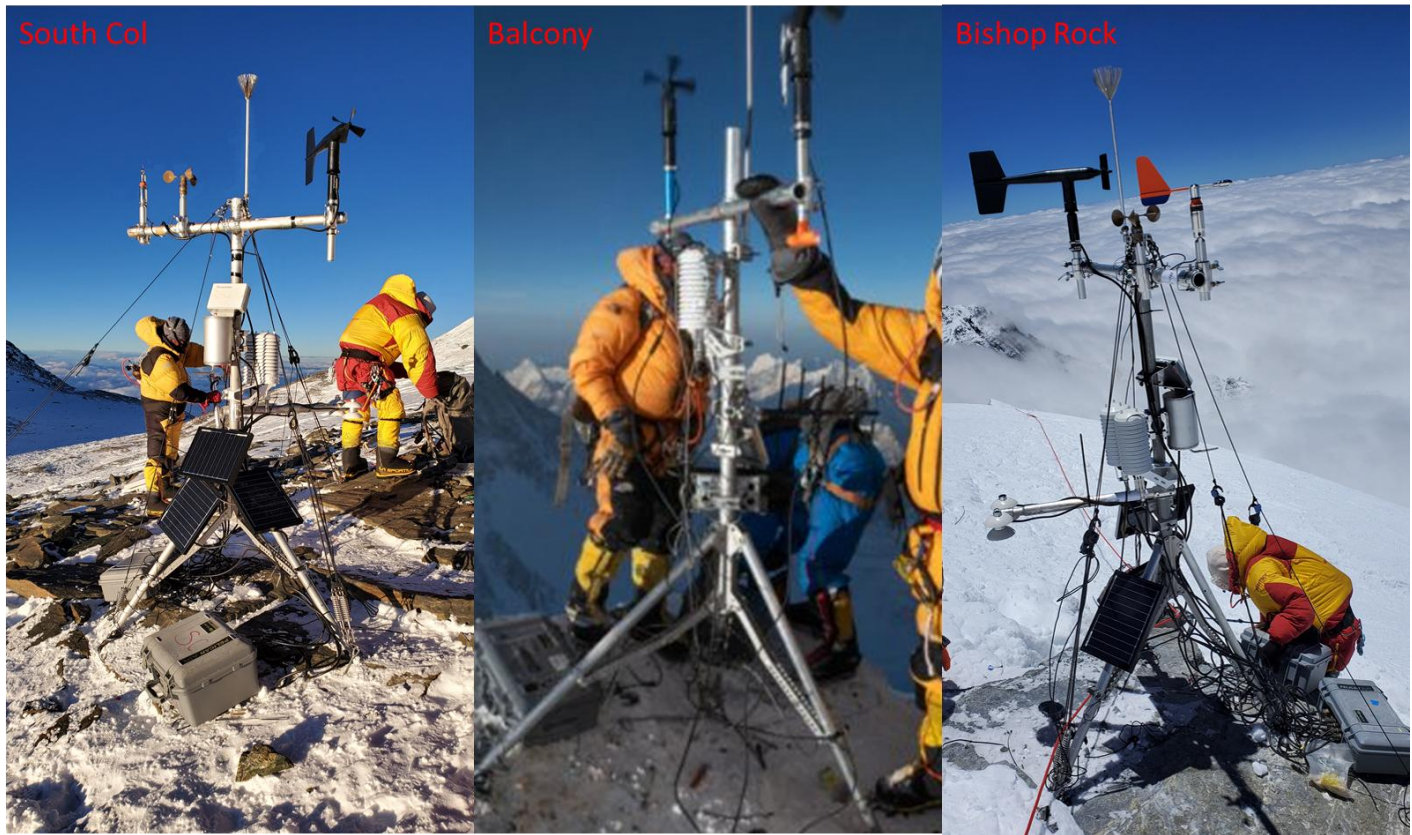


Figure S 2. Photos of South Col (SC, 7,945 m asl), Balcony (BA, 8,430 m asl) and Bishop Rock (BR 8,810 m asl) AWSs. (Phot credits: AK and BP)

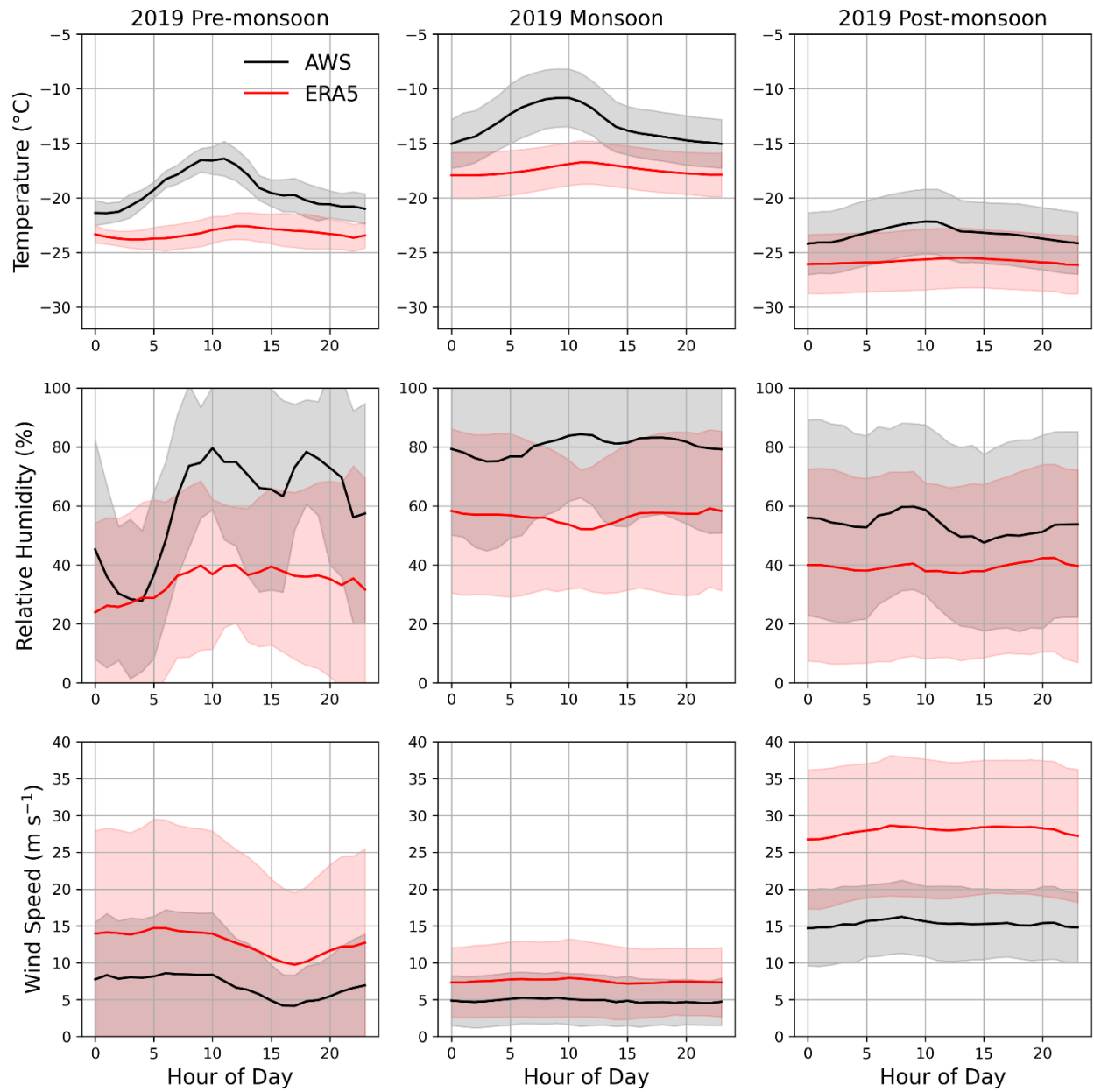


Figure S 3. Mean diurnal cycle of temperature, relative humidity wind speed at SC AWS site for different period of 2019 (in UTC). The shaded light grey and red colour represents the standard deviation respectively

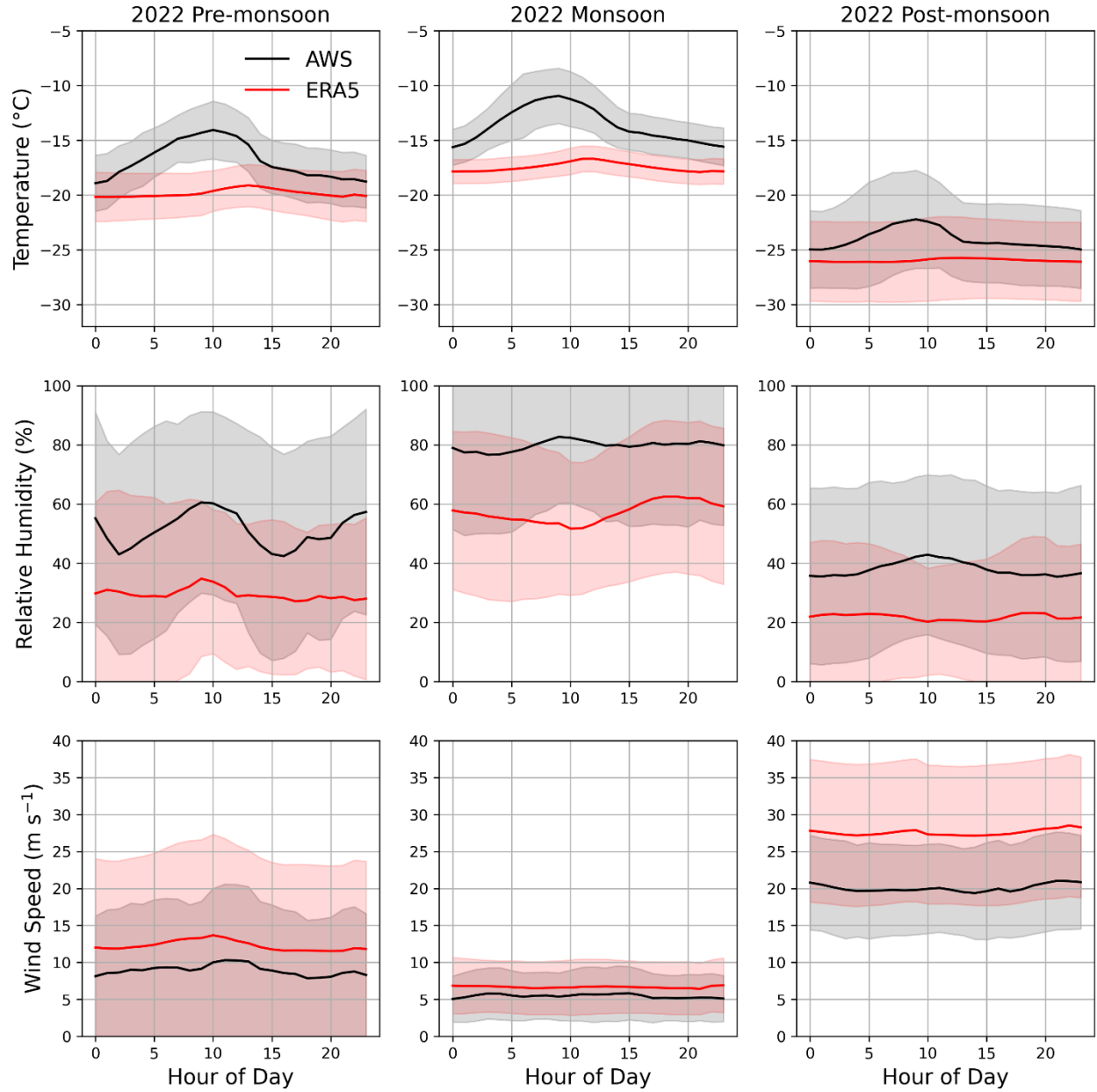


Figure S 4 Mean diurnal cycle of temperature, relative humidity wind speed at SC AWS site for different period of 2022 (in UTC). The shaded light grey and red colour represents the standard deviation respectively.

Table S 1. Sensors type, measured variables and their diagnostic range with the reference link

Sensor	Measured variables	Diagnostic Range	Link
Vaisala HMP155A-L5-PT	Air temperature; relative humidity	-80 to +60 °C; 0–100 %	<a href="https://www.campbellsci.com/hmp155a">https://www.campbellsci.com/hmp155a</a>
CS109	Air temperature	-50° to +70°C	<a href="https://www.campbellsci.com/109">https://www.campbellsci.com/109</a>
R.M. Young 05108-45	Wind speed and direction	0 to 100 m/s	<a href="https://www.youngusa.com/wp-content/uploads/2013/05/05108-45-9028B29.pdf">https://www.youngusa.com/wp-content/uploads/2013/05/05108-45-9028B29.pdf</a>

Richards C5C anemometer	Wind speed and direction	0 to 102.8 m/s	<a href="http://www.aprsworld.com/sensors/asrichards/">http://www.aprsworld.com/sensors/asrichards/</a>
Vaisala PTB 110/ Vaisala PTB210	Barometric pressure	500 to 1100 hPa /0 to 2000 hPa	<a href="https://www.vaisala.com/en/products/">https://www.vaisala.com/en/products/</a>