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Supplemental Material

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Supporting Information for

**Increasing compound hazards of tropical cyclone and heat waves over
southeastern coast of China under climate warming**

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Contents of this file

Figures S1 to S7

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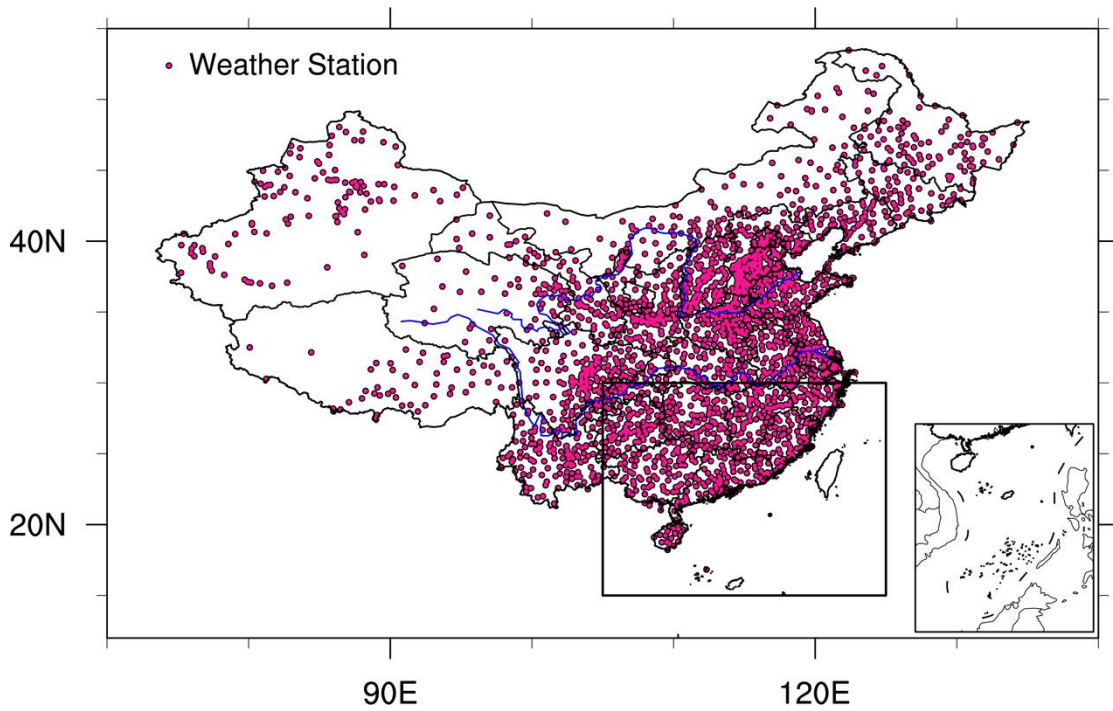


Figure S1 Map of China showing observational stations; stations involved in this study are outlined with the box over SECC.

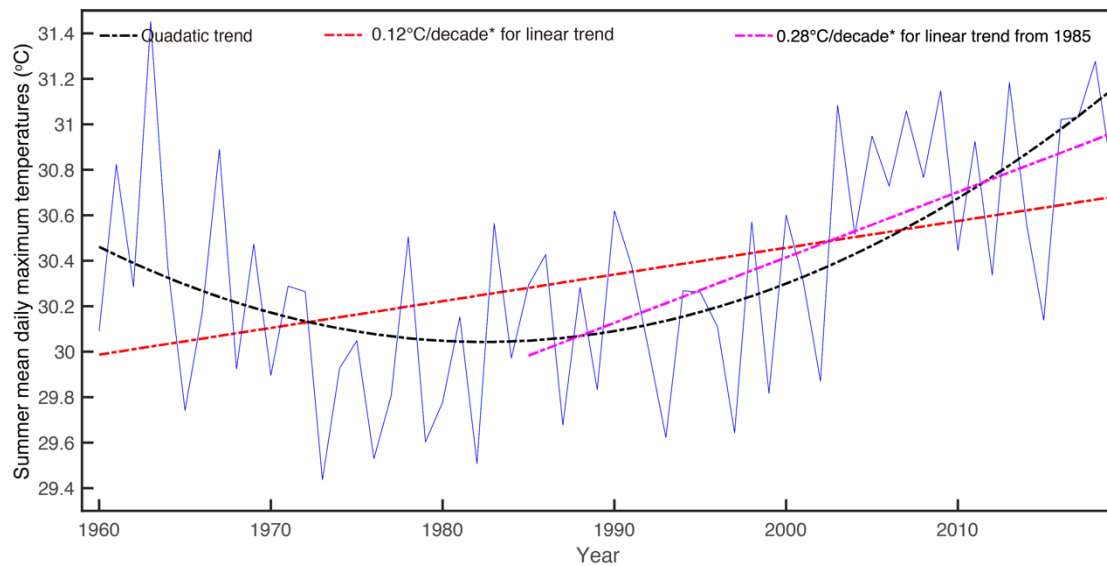


Figure S2 Time series of observed average Tmax for warm season (May-September). Linear and quadratic regressions are presented for the period 1960-2019 (red and black line, respectively) and the period 1985-2019 (magenta line). Linear trends marked by asterisk denote significant trends above 95% confidence level.

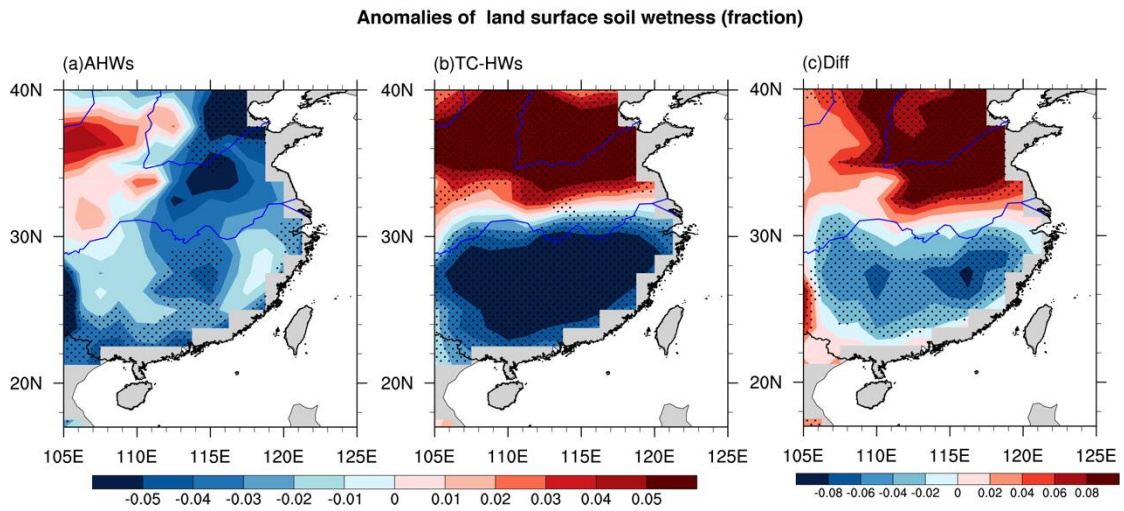


Figure S3 The spatial pattern of grand surface (the uppermost layer) soil wetness anomalies during (a) AHWs, (b) TC-HWs, and (c) the differences between AHWs and TC-HWs (the latter minus the former). Stippling indicates statistically significant anomalies above 95% confidence level.

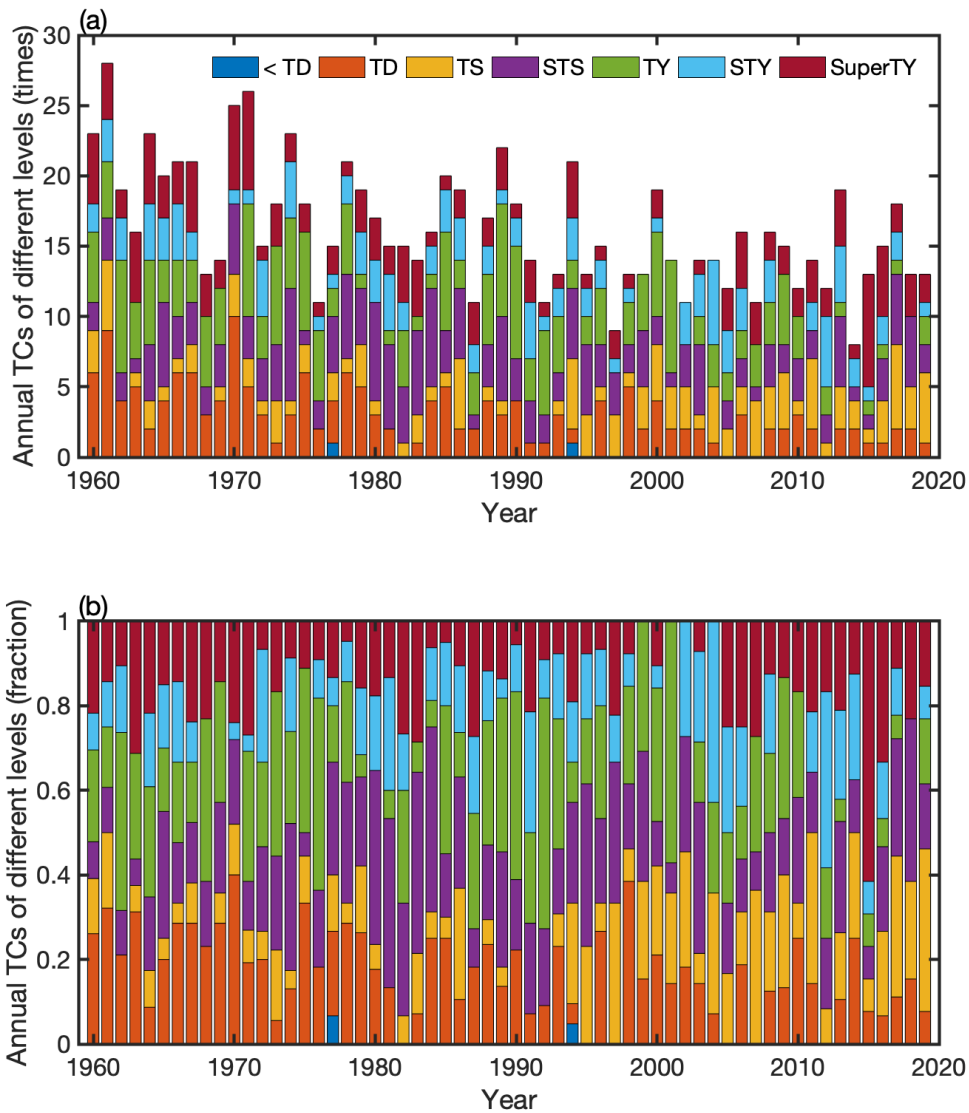


Figure S4 (a) Annual variations of TCs of different intensity levels (times) and (b) the percentages of TCs of different intensity levels relative to total TCs over SECC during 1960-2019. Intensity category: “< TD”, “TD”, “TS”, “STS”, “TY”, “STY” and “superTY ” denote TCs weaker than Tropical Depression or unknow intensity, Tropical Depression, Tropical Storm, Severe Tropical Storm, Typhoon, Severe Typhoon and Super Typhoon.

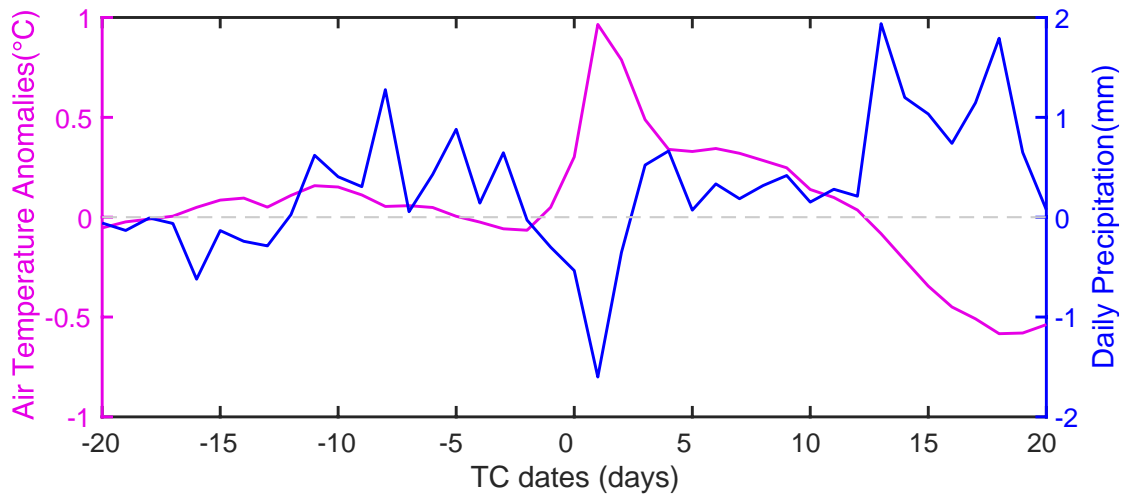


Figure S5 Composite of observed Tmax (°C, magenta line) and precipitation anomalies (mm, blue line) of the SECC region from 20 days ahead of to 20 days following the dates when TCs enter the SECC region (zero point). Anomalies are calculated from a day-of-year climatology.

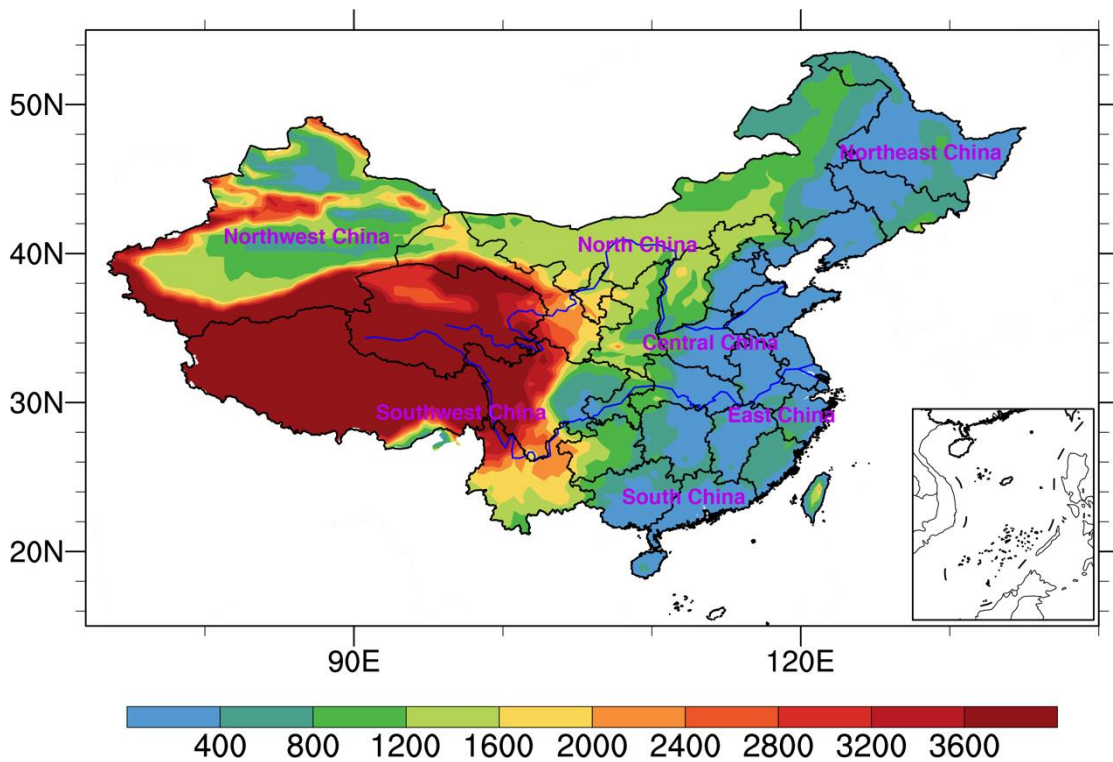


Figure S6 Topography map of China (unit: m) and the different subregions.

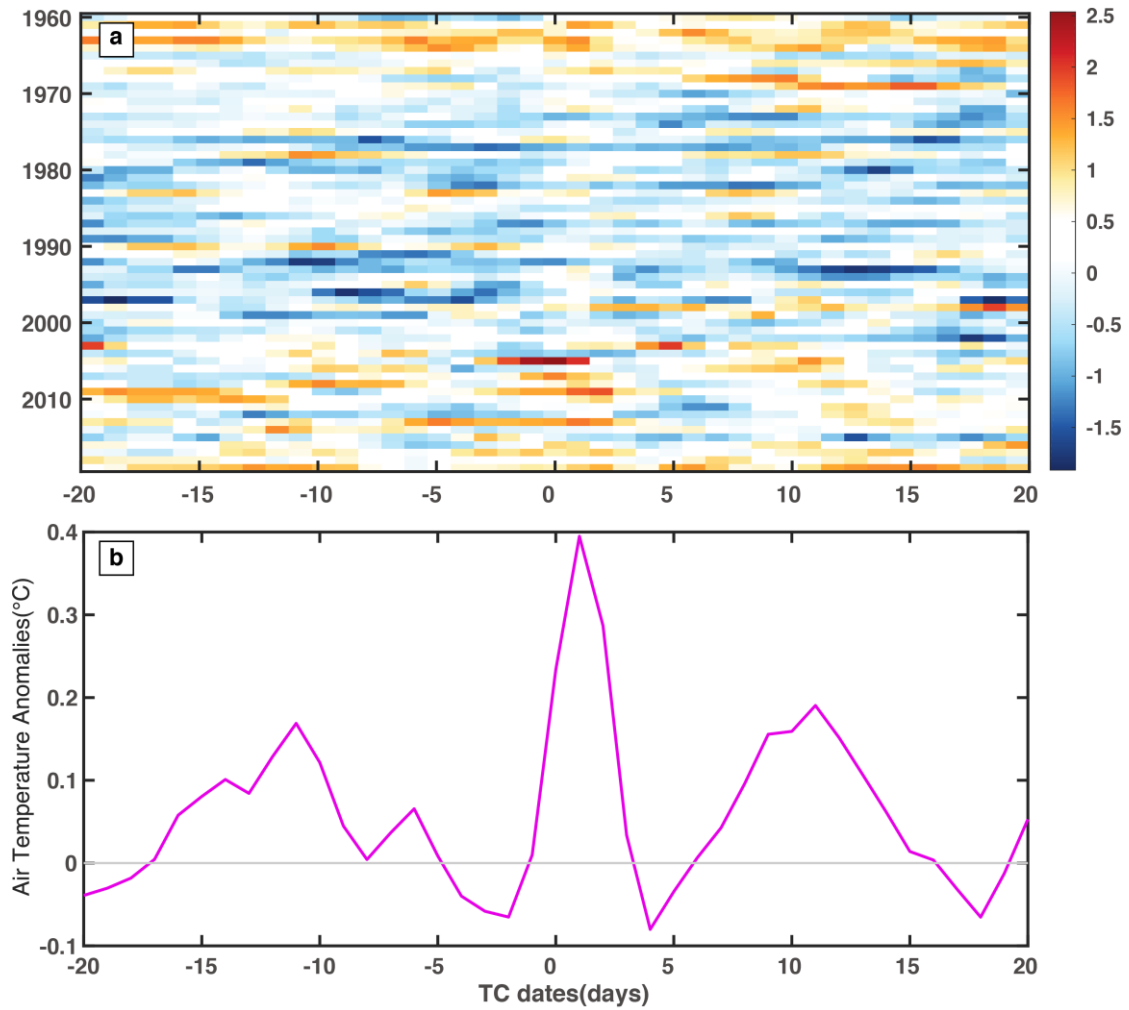


Figure S7 (a) Observed daily Tmax anomalies ($^{\circ}\text{C}$) averaged for the SECC region from 20 days ahead to 20 days following the dates when TCs enter the SECC region during 1960-2019; (b) Same as in (a) but for the composites of the observed Tmax anomalies ($^{\circ}\text{C}$) for 1960-2019. Note that the linear trend of daily Tmax for 1960-2019 has been removed and the anomalies are calculated from a day-of-year climatology.