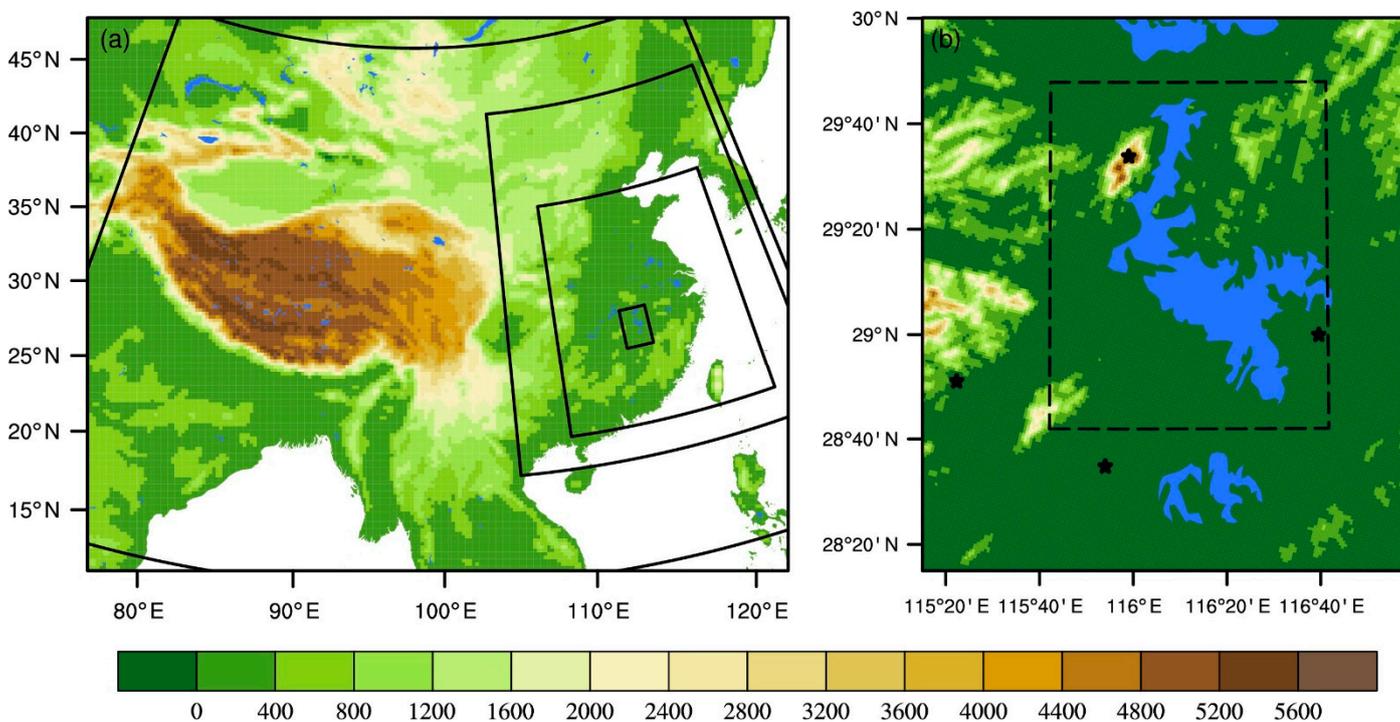


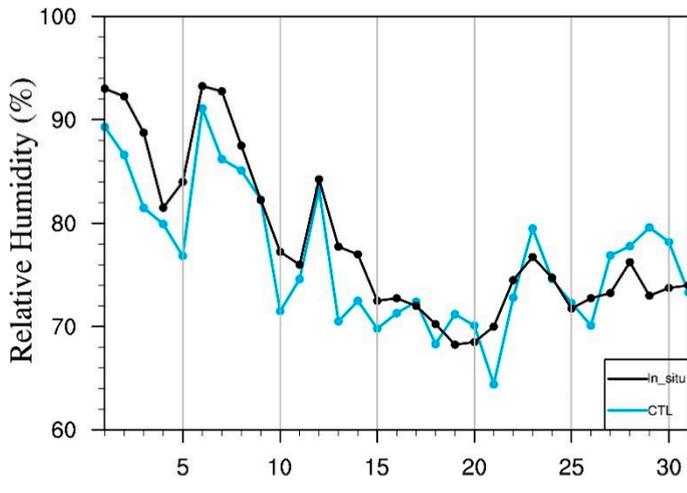
# Supplementary Materials: The Effects of Lake Level and Area Changes of Poyang Lake on the Local Weather

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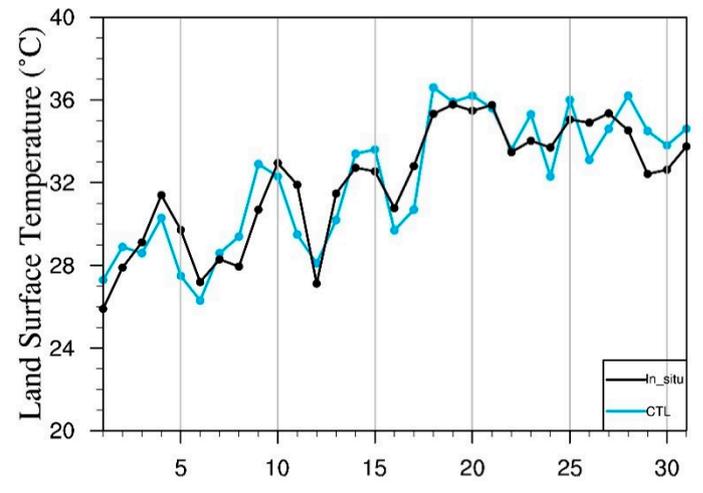
In the Section 3.1, we show the daily temporal variation in 2-m air temperature and precipitation simulated by the CTL simulation and observation data. We add the evaluations of two more variables in appendix, relative humidity and land surface temperature. These two variables are verified with station data. Because the meteorological stations near the Poyang Lake are sparse (as shown in Figure S1), we didn't add them to the manuscript. The Figure S2 shows the daily variation of relative humidity and land surface temperature by the CTL simulation and observations, and they both show good accuracy. Their correlations between the CTL and two variables are 0.79 and 0.9, respectively, passing the significance test of  $\alpha=0.01$ .



**Figure S1.** Same as the Figure 2 in the manuscript but added stations in the Figure2b. The domains for WRF simulations and the terrain height (m) for the domain. (a) Domains 1 to 4. (b) The terrain height in domain 4 and Poyang Lake (in blue). The rectangular dashed box in (b) is the area that will be used for analysis later in the work.



(a)



(b)

**Figure S2.** The daily observed (black lines) and the CTL (blue lines) (a) relative humidity (%) and (b) land surface temperature (°C) from 1 to 31 July.