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Supporting Information for

Preference of afternoon precipitation on dry soil in the North China Plain during warm seasons

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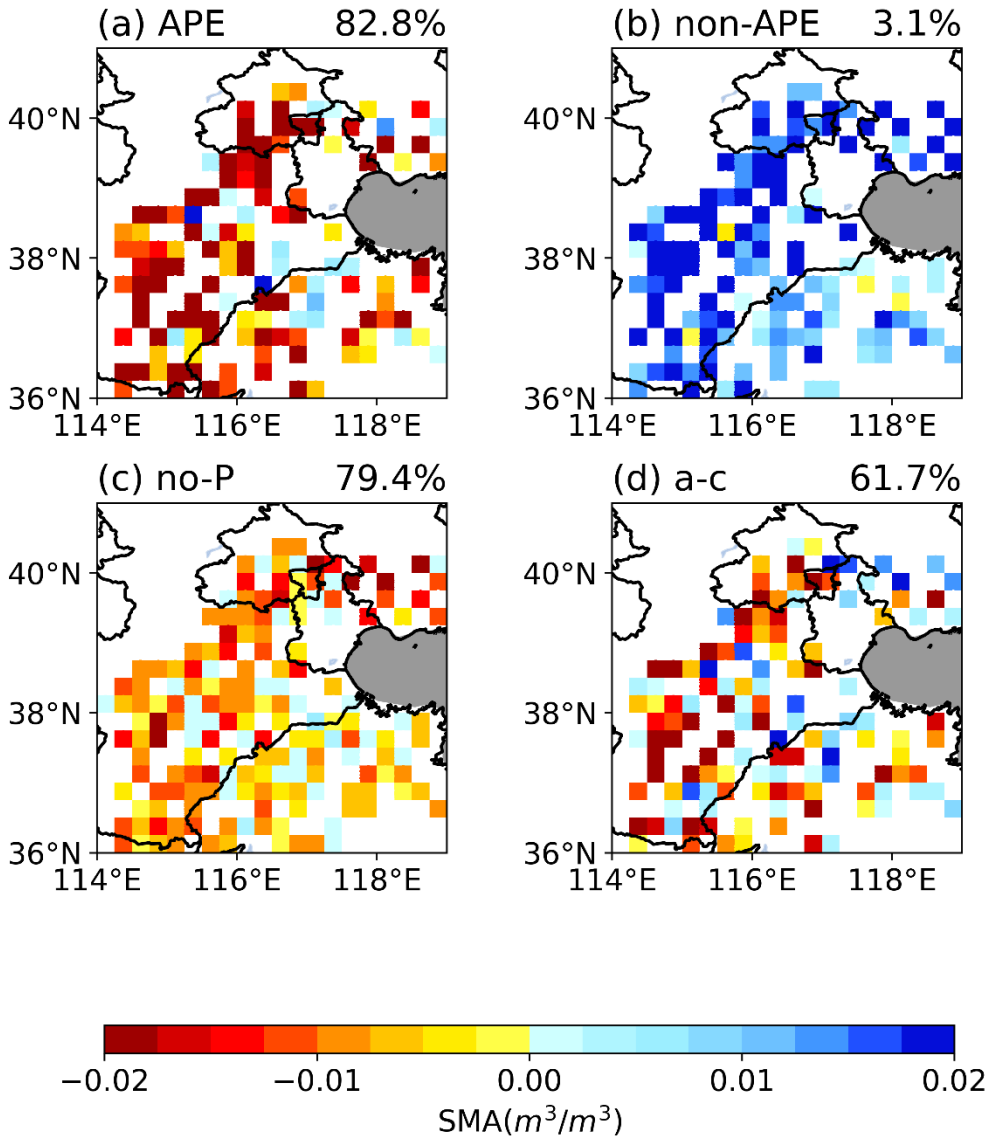

Figure S1. Spatial distribution of the mean morning soil moisture anomaly corresponding to (a) APE, (b) non-APE, (c) the situation where there is no precipitation in the afternoon (as well as no precipitation on the previous day, the morning of that day, and the next day), and (d) the difference between (a) and (c) over the NCP. Grid boxes in shades of blue (red) indicate areas where precipitation events tend to occur when the soil is dry (wet) in the morning. Percentages at the top right of each panel gives the percentage of grid points that have negative SMA values.

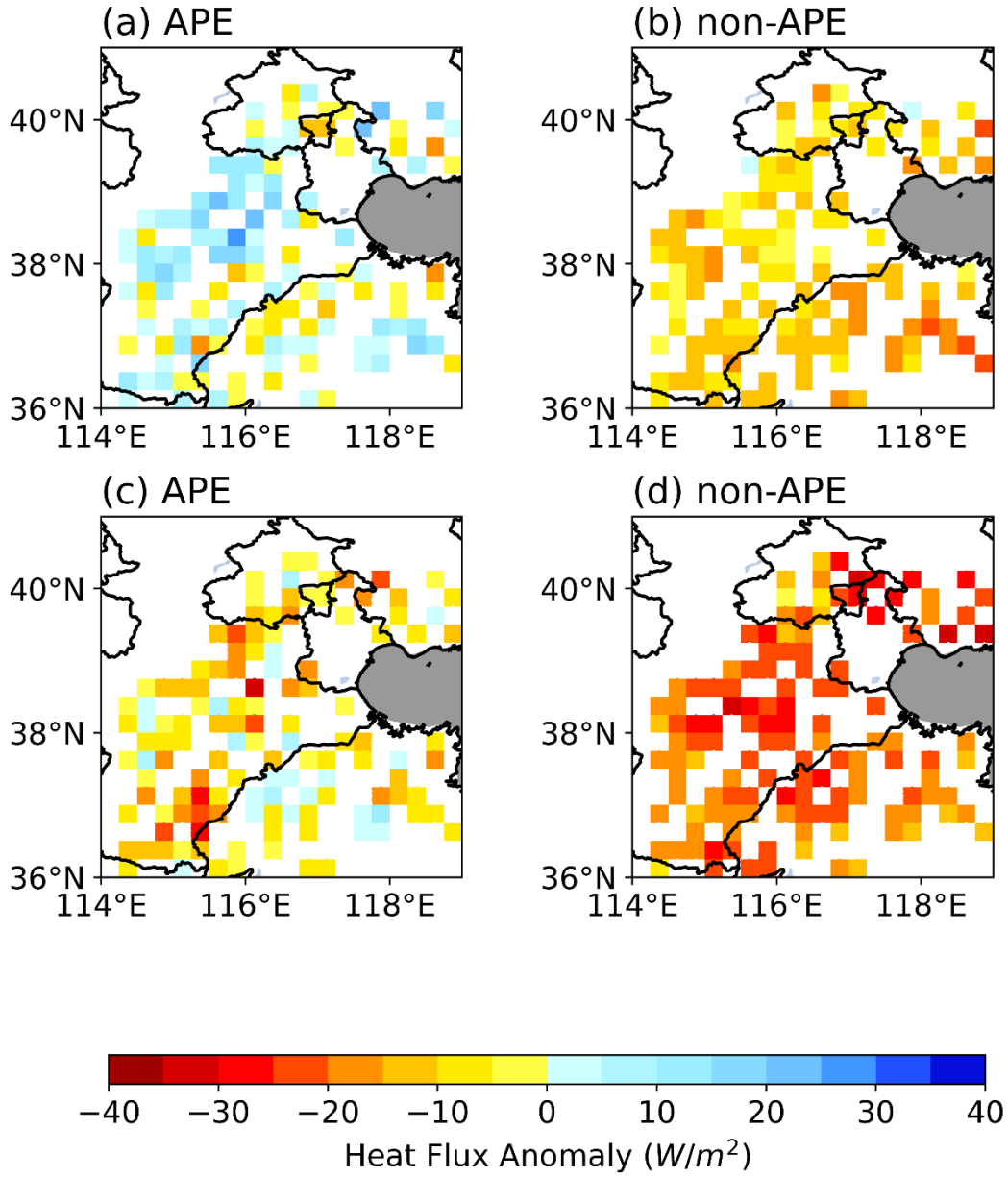

Figure S2. Spatial distribution of the average of morning latent heat flux anomaly (a, b) and sensible heat flux anomaly (c, d) corresponding to APE (a, c), non-APE (b, d) over the NCP.

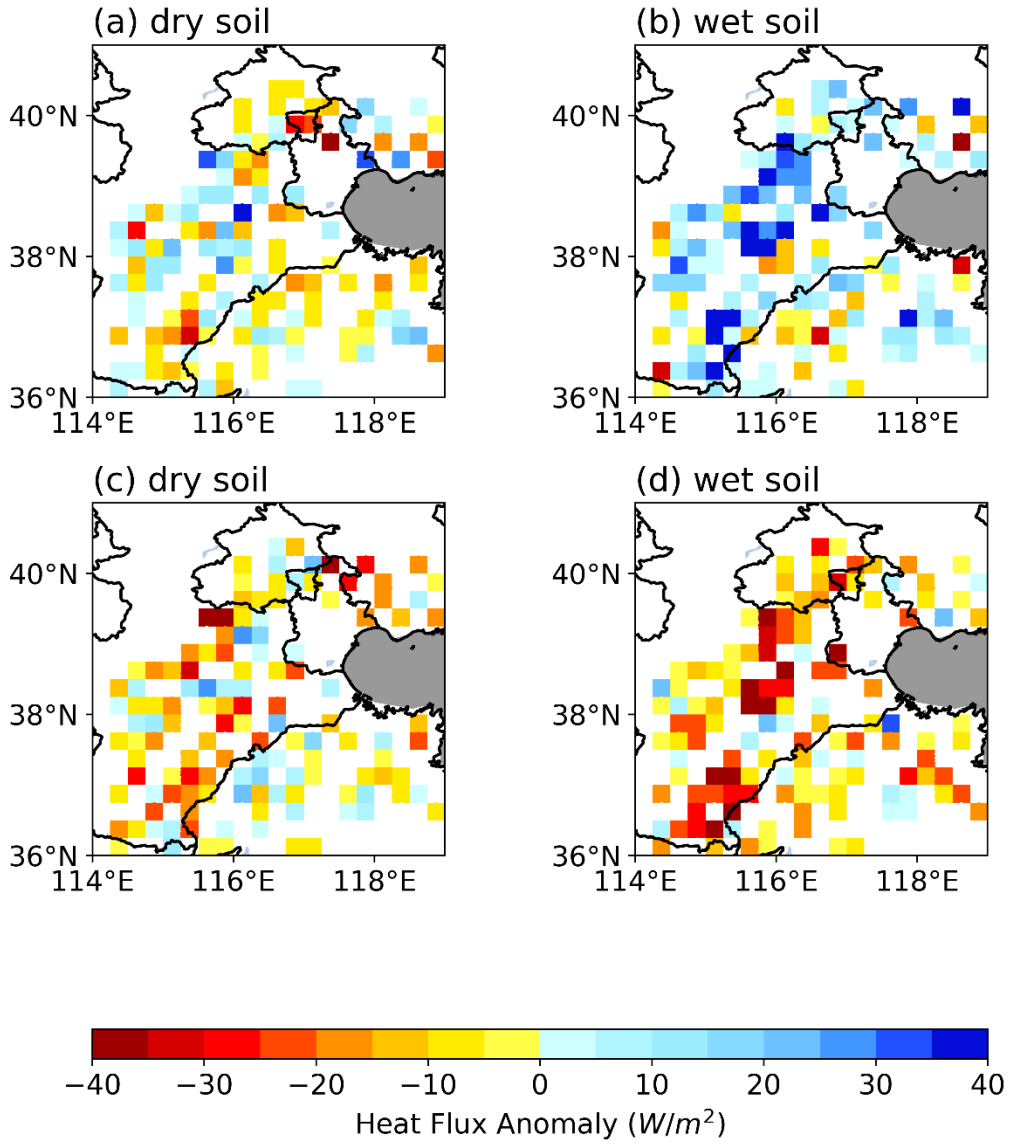

Figure S3. Spatial distribution of the average of morning latent heat flux anomaly (a, b) and sensible heat flux anomaly (c, d) corresponding to APE that antecedent soil moisture anomaly is negative (a, c) and positive (b, d). Soil moisture anomaly is calculated using in-situ observations.

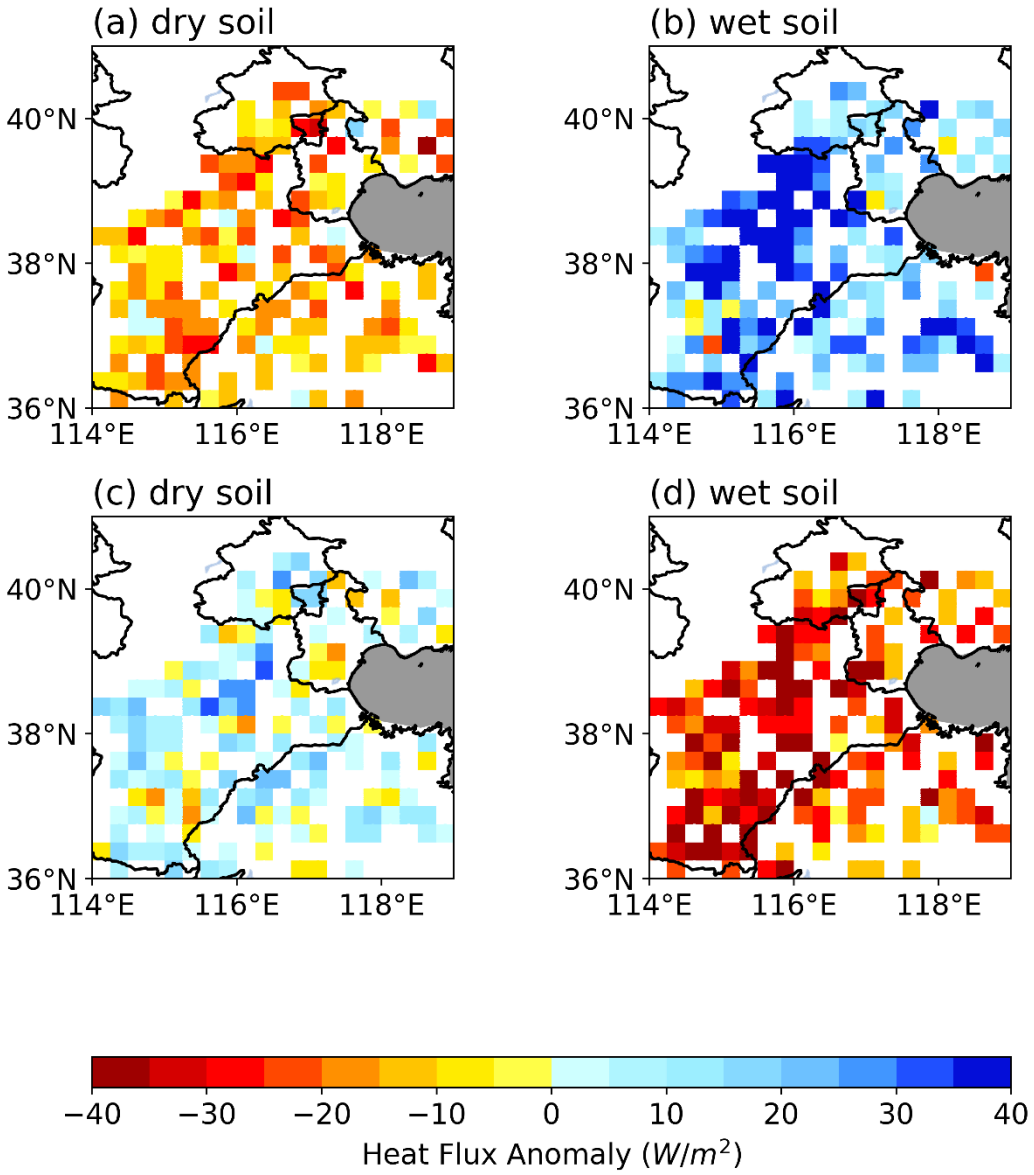

Figure S4. Similar to Figure S3, but using soil moisture data from GLDAS.

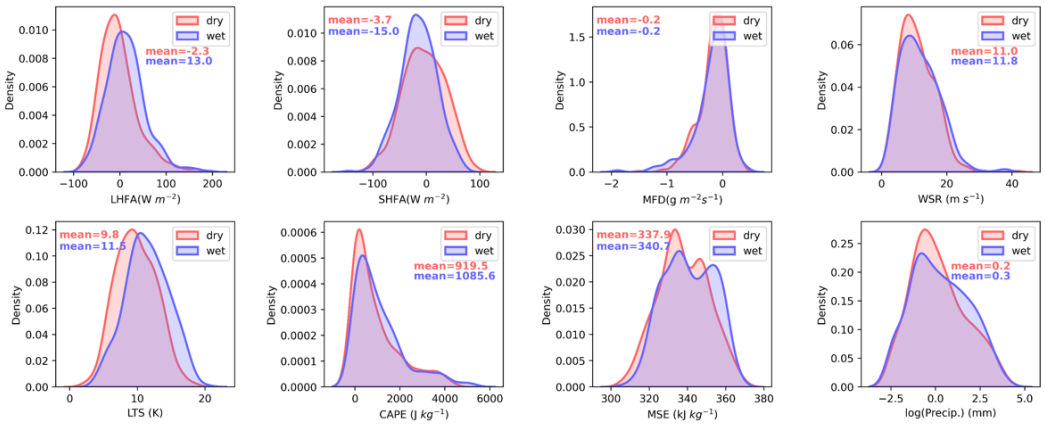

Figure S5. Probability distributions of atmospheric variables under different soil moisture conditions when APE happen, in which areas shaded in red and blue are for dry soil and wet soil. Blue and red text denote the mean values of atmospheric variables under different soil moisture conditions.

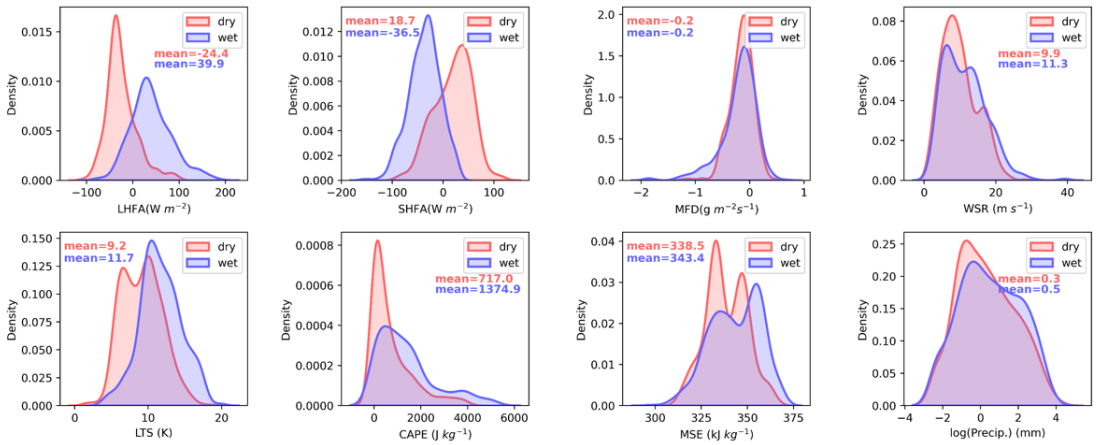

Figure S6. Similar to Figure S5, but using soil moisture data from GLDAS.