Reply to Referee #1 comments on "Daytime-only-mean data can enhance understanding of land-atmosphere coupling"

Zun Yin on behalf of co-authors

The paper tackle an important and yet unexplored dependency of land-atmosphere coupling metrics from the choice of daily monthly or daytime only subsets.

The paper is well written and reaches a number of conclusions that are relevant for model diagnostics. In particular the use of daytime only time-series can provide a more accurate detection of regions of strong coupling.

AR: Thank you so much for these positive comments. Please check our reply below. Referee's comments are in bold; authors' responses are in regular; and modifications in the manuscript are in blue.

L270: add the two key discoveries in the conclusions.

AR: Thanks for reminding us. In the revision, we will summarize these two newly-discovered mechanisms in the conclusion, as:

...In addition, two phenomena were discovered, which can dramatically obscure the L-A diagnoses if the entire-day-mean daily time series is applied. One is a spurious relationship between flux and atmosphere states led by atmospheric advection in Sahara and Arabia. The other is the underestimation of L-A coupling in the Western Hemisphere due to the classical daily averaging algorithm based on the Coordinated Universal Time that twists the segmentation of the diurnal cycle...