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Interactive comment on "The WACMOS-ET project – Part 2: Evaluation of global terrestrial evaporation data sets" *by* D. G. Miralles et al.

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The authors present an edifying intercomparison of three global ET models and proxy evaluation datasets. This experiment was a challenging undertaking, and the results are succinctly and usefully summarized here.

A few typos and suggestions to enhance clarity/interpretability:

P4 L24: "stands as a crucial nexus..."

P5 L9: "computing science, to date, the evaporative..."

P6 L1: "and consistent..."

P6 L30: "Due to the..."

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Sec 2.1: Do all the models estimate ET over snow? If so, briefly mention. If not, were snow-cover conditions masked from the global intercomparisons (e.g., in Fig 2)? Also explicitly specify mechanism through which soil moisture constraints on each are conveyed/implemented by each modeling framework.

P11 L2: Specify whether both upwelling and downwelling radiative SRB fluxes were used.

P14 L12: "...the total annual magnitude for land evaporation..." Again, do these estimates from all the WACMOS models include snow ET/sublimation? How about evaporation from inland water bodies?

P16 L24: The closeness of the R values for PT-MOD/PT-JPL and GLEAM/PT-JPL suggests that R is not a sufficient measure of spatial agreement in this case. The scatter plots give a very different picture of agreement, especially at the high ET end.

Sec 3.2: A map of ET variability is required to interpret these temporal correlation maps - highlighting areas where correlations are low even when variability is high (the most interesting areas). A lot of the spatial structure in R may just be reflecting structure in seasonal variability in ET.

P18 L18: "arctic"

P19 L25: "..Fig 8 demonstrates that the..." What is it physically in PM-MOD that is most prominently causing the underestimation in ET? This drought example isn't completely compelling on its own. Probably need a longer time series and analysis of response to several drought events to determine which model responds most reasonably (from an anomaly standpoint). PM-MOD is always low in this case, and shows no real response... The upper panel doesn't convey additional information. Maybe some other info is more useful here, like net radiation and LAI curves? Could a pluvial event (somewhere globally during the period of record) be included for comparison?

P23 L18: "algorithm than the one..."

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P25: Is there some kind of simple analysis that might be used here to motivate one of these partitionings as being more physically realistic than the others? Maybe plotting T/ET as a function of LAI, or showing seasonal evolution in T/ET and LAI from the different models in different key regions (like the Amazon)? This points to the need for field campaign focus on quantifying E-T separation measurements.

Fig 2 and similar: This color bar seems a little ambiguous. There are purple tones in two parts of the color bar, at least in my print out.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 10651, 2015.