

# ***Interactive comment on “How representative are FLUXNET measurements of surface fluxes during temperature extremes?” by Sophie V. J. van der Horst et al.***

## **Anonymous Referee #1**

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General comments: The manuscript by van der Horst et al., poses an interesting question about the FLUXNET data and about the representativeness of the flux measurements during temperature extremes. While the topic is of interest in particular to the modelling community, I have a major concern about their approach. The authors explore data availability at each measurement site based on the availability of the temperature, sensible and latent heats, and NEE data. They take the ratio of the available data for heat (latent or sensible) or NEE, relative to the available temperature data, also accessed through FLUXNET, to compare sites. This way data availability is biased by the availability of the temperature data. My question is why did the authors not use complete temperature records (from meteorological or remote sensing products) for

Interactive  
comment

each site to compare with the absolute availability instead of taking a relative proxy that is biased by the quality of temperature measurements and is not comparable between sites? The authors themselves suggest this approach to the modelling community in lines 31-33. Specific comments: Page 1 Line 17: Why not using the Tier 2 dataset that is more complete, if this study is focusing on data availability? Page 1 Line 22: Perhaps they mean the “availability” of temperature and not “measurement ratio”. Measurement ratio for temperature would be 1 based on their description. Page 3 Lines 5-6: Exactly for this reason, the measurement ratio is relative to each site and cannot be compared across sites. Page 9 line 8: Indeed. But, in my opinion, the authors should have assessed the quality of the flux data independently of the quality of temperature data since the two are measured separately.

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