

Interactive comment on “Soil water regulates the control of photosynthesis on diel hysteresis between soil respiration and temperature” by Ben Wang et al.

Ben Wang et al.

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Response to referee's comments

We thank referee and greatly appreciate the thoughtful and constructive comments and helpful suggestions. We have fully considered the referee's comments in the revision and improved the manuscript accordingly.

General comments:

In this manuscript, by introducing a threshold value of soil water content (SWC), the dominating factor of diel variation of soil respiration is identified as photosynthesis or temperature, corresponding to autotrophic or heterotrophic respiration. Generally, the

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MS is well written and the topic is interesting, however, it would be better to substitute the ratio of SWC to soil porosity for SWC. As the author mentioned in “4.1 Physical vs. biological processes in the control of diel hysteresis”, within-soil gas transport is influenced not only by SWC, but also by soil porosity. So with the ratio of SWC to soil porosity, the results and conclusion of this MS will be more comparable and universal, but not so local.

Answer:

We agree with the above-described comments. Following the referee suggestion, we added the text '(ratio of SWC to soil porosity 0.26)' behind the threshold (0.08 m³ m⁻³) in Introduction (line 7 on P1), Results (line 19 on P6), Discussion (line 19 on P7) and Conclusions (line 18 on P8) paragraphs in the manuscript. However, we still wanted to show also the SWC threshold there. (see attached supplement file)

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/bg-2016-438/bg-2016-438-AC2-supplement.zip>

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