

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

### **Anonymous Referee #1**

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Although the topic of hysteresis of  $R_s$  and  $T_s$  has been discussed in other ecosystems, and the method and statistical method is regular, the impact of SWC on diel hysteresis is well explained in this manuscript. The data and figures are well organized. The author has provided us a relatively complete story of how low SWC affect  $R_s$  by restraining biological process, like photosynthesis. The elliptical loop of  $R_s$  and  $T_s$  diel hysteresis gives a clear explanation. However, this thesis did not explain the mechanism clearly. The mechanism of SWC regulate diel hysteresis between  $R_s$  and  $T_{surf}$  needs strong evidence to explicate other than just mentioning other people's deduction that it is due to relative contribution of autotrophic and heterotrophic respiration to total  $R_s$ . This manuscript needs carefully organize the proof of how and why respiration

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component affects Rs in dry land.

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