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Interactive comment on "Micro-topographic variation in soil respiration and its controlling factors vary with plant phenophases in a desert-shrub ecosystem" *by* B. Wang et al.

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Wang B. and the co-authors do a good job with the high quality dataset of micro-topographic variation in soil respiration in a desert-shrub ecosystem. This might be the first such study in terms of regulation of plant phenology in spatial variation in soil respiration. Accordingly, their findings are important to our understanding of biophysical control of soil respiration in the dune. Their results are robust, and the methods are well described.

I have only a few concerns for the manuscript. Firstly, I think it would be good to include in the introduction the references of Tamai (2010), Kang et al. (2003) and Yuste et

al. (2004), whose reports showed the effects of environmental factors, soil properties and plant phenological patterns on topographic variations of soil respiration in different ecosystems. Secondly, I cannot understand why the dataset for Phase I was missing in some result sections, such as Fig. 3, Fig. 4, Fig 5, Fig. 6 and Fig. 8. Some related explanations are needed. I suggest combining Fig. 5 and Fig. 6 as a clear compared list. In Table 1, the Phases need to be defined. In Fig. 3, the unit of LAI is incorrect. In Fig. 7, the legend of (a) and (b) need to be defined.

References: Tamai K. 2010. Effects of environmental factors and soil properties on topographic variations of soil respiration. Biogeosciences, 7, 1133–1142. Kang S, Doh S, Lee D,L Dowon, Jin VL, Kimball JS. 2003. Topographic and climatic controls on soil respiration in six temperate mixed-hardwood forest slopes, Korea. Global Change Biology, 9, 1427–1437. Yuste JC, Janssens IA, Carrara A, Ceulemans R. 2004. Annual Q10 of soil respiration reïňĆects plant phenological patterns as well as temperature sensitivity. Global Change Biology, 10, 161–169.

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