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Interactive comment on "Estimation of Evapotranspiration and Other Soil Water Budget Components in an Irrigated Agricultural Field of a Desert Oasis, Using Soil Moisture Measurements" *by* Zhongkai Li et al.

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Estimation of soil water components is crucial for the optimum irrigation strategies, especially for the ecologically fragile region in Northwest China. The soil moisture is regarded as a more integrated one as it may have the memory features for the antecedent hydrological effects. This study tried to estimate the fields-scale water budget based on six experimental plots with different cropping patterns, NT1 to NT6. The evapotranspiration and soil water components are calculated by employing data-driven method, which combines the soil water balance method and the inverse Richards func-

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tion. The manuscript is generally well-structured and the study is well-founded. There are several concerns/suggestions that may be helpful for the improvement listed as below.

1. The research findings should be more effectively highlighted in the Abstract. There are some too detailed information listed in the current abstract.

2. How to explain the largest Ks value 1007 for NT3 in Table2?

3. Where is the rainfall observation station?

4. Wrong explanation for ε in Table1. There are wo same explanations with "field capacity" and "wilting point" in Table 1, but no explanation for soil water potential Ψ in Table 1.

5. For the case of NT1, both the irrigation amount and drainage amount are the highest, but no big differences about ET with other cases. Based on the energy balance, this high amount of irrigation may reduce the temperature profile (see Chen et al. 2018, Soil of the Total Environment, for the irrigation effects on energy balance in the Heihe River basin), which possibly affect actual ET requirement for the crops in NT1.

6. Following the above point, the inverse Richards method employed for the soil water budget in this study did not consider the energy effects of different irrigation scenarios, which is possible to affect the water budget during different phases. This should be discussed.

7. Another concern is the scale issue. As we have recognized the larger variability for different sets, we can imagine how difficult for a large agricultural land. So the potential for using soil moisture measurement to improve irrigation strategies is still on the way.

8. Line 443: I don't think one-year experiment could be called as "long-term" for hydrological processes.

9. There are many duplicate sentences between Abstract and Conclusions.

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