

## ***Interactive comment on “Flux measurements in the near surface layer over a non-uniform crop surface in China” by Z. Gao et al.***

### **Anonymous Referee #3**

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### **General comments**

The paper address relevant scientific issues within the scope of HESS and has presented some interesting data. The overall presentation is well structured and clear, except some missing details (see below). The description of experiments is presented as a summary and is not sufficiently complete (see below).

After taking account of the specific comments listed below, it is potentially interesting for the community of HESS.

### **Specific comments**

1. Materials and methods: Although the percentage of the land uses was given, it is unclear how the measurement mast was situated in relation to these fields? On which surface was the mast situated (above water or above grass or else)?

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2. The sensor for CO<sub>2</sub> measurement should be mentioned.
3. How was surface temperature measured?
4. How many soil heat flux plates were used and how were they distributed in the field? What are the representativeness of these measurements in relation to the heterogeneous surfaces?
5. On the basis of Fig. 4, it does not appear that CO<sub>2</sub> fluxes behaved drastically differently than LE fluxes, thus the statement “In contrast to energy partition mentioned above, CO<sub>2</sub> flux ( $F_{CO_2}$ ) absorbed by the canopy suddenly increased after thunderstorm events, as shown in Fig. 4. This was likely caused by quick growth of crop canopy which changed both leaf area index (LAI) and photosynthetically active radiation.” is not substantiated. In particular the latter on LAI and PAR is too much stretched, unless independent measurements of LAI and PAR would support the claim.
6. The conclusions reached need to be updated after modifications by incorporating the comments provided here.
7. Please recheck the references, e.g. Gu et al. (1999) is missing in the list of references.
8. It is strange to notice the none of recent HESS publications is referenced in the manuscript, nor any recent European field experiments.

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