

Dear reviewer:

Thanks for your suggesting on how to improve our paper. Hopefully, this revision can meet your request. Your comments are responded one-by-one as show bellow.

Comment: The authors do not present how to estimate the sensible heat flux over the soil surface H_g and that over the vegetation canopy H_v .

Response: The detail description about the process for H_g and H_v estimates has been added to the manuscript.

Comment: In the end of subsection 2.1.1, although the authors use the split-window technique for soil moisture retrieval, there is no sufficient explanation how to utilize soil moisture value for ET estimation or another.

Response: The split-windows technique for deriving the vegetation and soil temperature have been added into the revised manuscript

Comment: Detailed information around the observation site is well described in the beginning of section 3. It helps readers to understand geological and climatological characteristics of there. Authors should display time series of observed surface energy fluxes on some typical days, it will give readers much understanding of meteorological characteristics during observation period.

Response: Thank you for your kind suggestion. P935L14-18 ‘Oversimplification of the energy conservation model lead to error in this study. The land surface energy imbalance terms over the Chinese Loess Plateau mesa region cornfield were large indeed, which implied that the magnitudes of the storage terms were considerable in the Loess Plateau Soil-Plant-Atmosphere Continuum (SPAC) system (Wen et al., 2007)’. In Wen’s investigation, time series of the EC system measured energy components at two eddy covariance flux stations (cornfield on the mesa area and bare soil surface on the mesa) were presented during our experiment period. This manuscript did not repeat this again.

Comment: Although data descriptions are presented in subsection 3.2, authors do not clarify what purpose each individual dataset is used. Which dataset is input to ET retrieval? Is that from satellite measurement or ground-based observation? For example, I think U_x is not obtained from satellite observation, how do authors derive horizontal distribution of ET as shown in Fig. 2? An input data list or a brief flowchart involved with ET estimation should be presented.

Response: The detailed explanations about each individual dataset have been added into the revised manuscript to clarify the purpose and process.

Comment: Before comparing daily ET value estimated from satellite measurement and that observed by ground-based measurement, instantaneous ET values should be compared.

Response: Satellite measurement instantaneous ET values were compared to ground measured latent heat flux. P935L2-4: ‘the measurement data of the eddy covariance system on 7, 11 and 27 June 2006 are conducted to validate the instantaneous ET data from remote sensing retrieval (Fig. 3).’

Comment: Assuming diurnal variation of ET is evaluated as a sine function, daily ET can be derived under complete clear sky condition only. During the datasets of these 3 days we focus on, is there no cloud? This assumption has larger uncertainty for ET estimation than that from land surface energy imbalance.

Response: Cloud fraction was very important during scene selection and it is important to reduce the atmospheric effects. We only chose the cloud-free data to free cloud contamination problem.

We acknowledge the reviewer's comments and suggestions very much, which are valuable in improving the quality of our manuscript.

Sincerely yours, Authors of HESS-2008-1005