

Title: Actual daily evapotranspiration estimated from MERIS and AATSR data over the Chinese Loess Plateau

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General comments:

This paper presents evapotranspiration (ET) distribution over the regional scale in the vicinity of PingLiang City estimated with the aid of satellite remote sensing. The in-situ comparison between ET estimated from satellite measurement and that observed from ground-based measurement is also presented. The ground-based measurement authors have conducted is important to understand regional water exchange between land surface and atmosphere above it over the Chinese Loess Plateau.

This paper requires major revisions for publication from following reasons. The main purpose of this paper is not described clearly. Do authors focus on a retrieval algorithm development or a case study of this area? In the former case, what is a significant advance from previous method should be shown explicitly. In the latter case, authors should mention what is a new insight of this study.

Specific comments:

- 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 .
- 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.
- 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.
- 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.
- Before comparing daily ET value estimated from satellite measurement and that observed by ground-based measurement, instantaneous ET values should be compared.
- Assuming diurnal variation of ET is evaluated as a sine function, daily ET can be derived under complete clear sky condition only. During the 3 days authors focus on, is there no cloud? This assumption has larger uncertainty for ET estimation than that from land surface energy imbalance.

Technical corrections:

- page 933, line 25: Beside → Besides
- page 935, line 6:

“The minimum and maximal relative errors of this approach are 10.96% and 4.80%...”

→ “The minimum and maximum relative errors of this approach are 4.80% and 10.96%...”