Dear reviewer:
We are very grateful for your comments to our manuscript. We revised the manuscript in accordance with your advice, and carefully proof-read the manuscript to minimize typographical, grammatical, and bibliographical errors. Here below is one-by-one response to your comments.

Comment: The paper misses a clear objective; think about what is new??
Response: The MERIS and AATSR data are being used more and more on a globalscale. But few researches have show that ET information can be retrieved by MERIS and AATSR data especially over the Chinese Loess Plateau. Our objective was presented in the Introduction, P4L22-25: 'Therefore, the motivation of the presented research here is to develop an algorithm that uses multi-sensor remote sensing measurements to improve the estimation of the daily ET, especially in regions characterized by heterogeneous landscapes over the Chinese Loess Plateau.

Comment: What is the difference between LE and ET
Response: P5L11: 'As sum of latent heat flux (LE) consumed by ET', LE is the latent heat flux, L is latent heat of vaporization, 2.49×10^{6} $J.kg^{-1}$, E is actual evapotranspiration (mm), ET means evapotranspiration.

Comment: The authors do explain the SEBS algorithm;
Response: The explanation of the SEBS algorithm has been added to the manuscript.

Comment: The authors do not show how the Hv and Hg are calculated
Response: The missing process has been added into the revised manuscript.

Comment: Assuming a sinusoidal diurnal variation is tricky because the evaporative demand changes through time. In the literature often the relative evaporation or evaporative fraction is used.
Response: Thank you for your suggestion. Usual solutions consist of extrapolating instantaneous to daily values by assuming that evaporative fraction EF is constant throughout the day, providing that daily available energy AE is known (Hedges, 2008). But zhang (1995) use two different methods of converting instantaneous evapotranspiration into daily totals during the HAPEX-MOBILHY experiment in southwestern France. The first method is based on the assumption that the diurnal course of evapotranspiration is similar to that of solar irradiance and can be approximated by a sine function. The second method assumes that the evaporative fraction, defined as the ratio of the latent heat flux and the available energy flux, is constant during the daytime period. Hence daily evapotranspiration can be determined from the evaporative fraction and daily total available energy. Comparisons of estimated and measured daily evapotranspiration indicated that both the methods are accurate for cloud-free days. However, the first method is preferable for the purpose of estimating regional evapotranspiration using remote sensing data. There are 3 fields identified in the scene for which surface flux measurements were made during the HAPEX-MOBILHY experiment, a well irrigated oat field, a corn field with significant bare soil showing and a pine forest. The LOPEX field site is similar to the one of HAPEX-MOBILHY experiment. So this time we use the method which recommended. We will focus on method which is more efficient in the future, as well as on application over different surface and climate conditions. Thank you again for your kind advice.

Zhang Lu, Lemeur R. Evaluation of daily evapotranspiration estimates from instantaneous measurements [J]. Agricultural and Forest Meteorology, 1995, 74: 139-154
Hedges, JCB; Chehbouni, A; Jacob, F. Deriving daily evapotranspiration from remotely sensed

instantaneous evaporative fraction over olive orchard in semi-arid Morocco[J].Journal of hydrology,2008,354(1):53-64

Comment: The equation of the split-windows technique is not shown and method used to derive the vegetation and soil temperature is missing;
Response: The descriptions have been added to the manuscript to address the splitwindows technique and method used for deriving the vegetation and soil temperature.

Comment: Also, MERIS and AATSR have different spatial resolutions, how do the authors deal with this?
Response: The ENVI software provides the imaging fusion function generate satellite image with same spatial resolution.

Comment: Although the authors have collected a very nice in situ data set, they show very little of it. For example how were the conditions prior to AATSR acquisitions?

Response: We do have collected a very nice in situ data. Our objective is to develop a method finally applied to MERIS and AATSR data which few researchers use in China. Unfortunately, the collected remote sensing data were not enough during the experiment period, only three images were available. More importantly there is a need to further assess whether the approach is robust running on daily to monthly time steps.

Comment: Authors mention there is an imbalance in the EC measurements and attribute this to advection without providing any prove. However, they also need considered the measurement uncertain of EC measurements. Imbalance in EC measurements are a common problem and are often resolved by rescaling it using the bowen ratio.
Response: Thank you for your comment. The bowen ratio do resolve the imbalance in EC measurements. The advantage of present model approach is that it is a simplified version, particularly in the way heat flux is partitioned between the soil and vegetation. On the other hand, many reasons can cause the errors. The problems have been approached at theory, methods and data aspect.

Comment: Scaling issue; Given the surface heterogeneity in the Loess Plateau, I can imagine that authors might want elaborate on that using the in situ and remote sensing measurements.
Response: Scaling issue does an important problem. The “point” observations have a limited regional representative, so the in situ samplings site are carefully located before the start of each sampling by using high spatial resolution satellite image for comparing with the remote sensing measurements.
Many grammatical or typographical errors have been revised. All the lines and pages indicated above are in the revised manuscript. We acknowledge the reviewer’s comments and suggestions very much, which are valuable in improving the quality of our manuscript.