

Supplement to **Response to the interactive comment by Yanbo He (Referee #3):**

Thank you very much for your very careful review on our manuscript, the answers to your comments/questions is enclosed below (in blue).

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Review of: Regional estimation of Daily to Annual Regional Evapotranspiration with MODIS data in the Yellow River Delta wetland; L. Jia, G. Xi, S. Liu, C. Huang, Y. Yan, and G. Liu

General comments:

It is very interesting that the paper proposed a novel method to estimate the regional daily to annual evapotranspiration by combine the ET remote sensing model and HANTS algorithm, estimated the actual ET by RS model and fill the missed value due to the clouds contaminations by HANTS in Yellow River Delta, China. After evaluating the model, the paper analyzed the ET characteristics over different land-use covers and the interesting conclusions have been made from the view of the future wetland protection basing on the model calculation results—the total water requirements for Yellow river delta wetland in the principle of the water balance.

Totally, the paper is well organized and the idea of the work is innovative. It is recommend to be published after improving the points referred in the following specific comments and the Technical corrections

Specific comments:

1) Although the method for daily ET's estimation has been described detailed, it is necessary to brief introduction the method for monthly and annual ET accumulations from daily ET in Section 3 Methodology.

AC: A paragraph is included in session 3.4 to describe how monthly and annual ET are calculated. The sub-title of session 3.4 is changed to '3.4 Monthly and Annual ET by gap-filling method'.

2) In 4.1.4, two paragraphs are describing the spatial variability and missing the daily ET temporal variability description. But in section 4.2, the seasonally variability of ET have being discussed actually. It is suggested to put 4.1.4 into 4.2 and rename the name to "Spatial and temporal variability of ET in the YRD wetland".

AC: the focus and contents of session 4.1 is different from those of session 4.2. Session 4.1.1 is about the method evaluation aiming to show the large spatial and temporal variability in the ET by its nature. Temporal variation is shown by the DOT in the x-axis in Fig. 4. Section 4.2 is the discussion on the ET variability over the whole wetland. We consider the current organization of sections is logical and clear.

3) In Fig.3. the ET_after_HANT results seems relative higher than ET_SEBS, ET_PAN and ETref systematically after day 340. It is recommended to explain the possible errors come from, and if the ET_pan are the weather station measurements, please state it clearly and give out the weather station's name and location, where the ET_PAN comes from.

AC: the higher ET values from HANTS after day 340 is probably due to the parameters setting in HANTS, the opposite as in the initial days. It is not expected that HANTS would give exactly the same values as the original ones, but we consider the errors acceptable.

ET-pan data are from Dongying meteorological station as described in section 2.2.3 and indicated in the caption of Fig. 3 as well.

4) Improvements of the language skill and expressions, it is suggested that a linguistic reversion is necessary.

AC: We noticed there are here and there some inadequate descriptions, we have improved that.

Technical corrections:

P2302 Line2 the Yellow River Delta → the Yellow River Delta (YRD)

AC: Yes.

P2303 Line 24 the latter has rather coarse spatial resolution → it has rather coarse spatial resolution

AC: we think our description is proper.

Line28 Different degrees of success → successfully

AC: we kept our original wording which is more precise description.

2304 Line6 Yellow River Delta wetland (YRDW) → YRD wetland (and the followings are same.)

Line29 constants over a clear day (needs a reference).

AC: YES for both questions. We have included a few reference papers.

P2310 Line 8 This leads to the equation for total daily ET, equation (5), needs a reference for the expressions coefficient (8.64×10^7)

AC: this factor has been explained in the revised manuscript.

P2311 Line24 images on different days → images in 2005

AC: We kept our original wording.

P2312 Line 17 It is apparent to see that some outliers remain still (outliers mean that estimated ET is far below the ET_{ref}) after the clouds-screening procedures. (Needs more clearly statements)

AC: One sentence is included in the revised manuscript for more discussions.

P2314 Line7 Spatial variability is significantly → ET Spatial variability is significantly

AC: YES

Line11 and fractional cover → and vegetation fractional cover

AC: changed to ' fractional vegetation cover'

Line 12 large spatial variability in daily. ET → large spatial variability in daily ET

AC: YES

P2315 Line1 The major contributor to the total ET in the drylands (including croplands, grasslands and trees) and Line4 shows smaller values in the drylands (croplands, Black Locust Forest, 5 and Chinese tamarisk) → the dryland has different inclusions(?)

AC: we have made it consistent.

Line 2 grasslands and trees → grasslands and forests

AC: YES

Line 4 shows smaller values in the drylands (croplands, Black Locust Forest, 5 and Chinese tamarisk), and Line 16 cropland vegetations and other wetland vegetations (Black Locust Forest, and Chinese tamarisk). → Black Locust Forest belongs both dryland and wetland?

AC: we have removed 'wetland' in line 16.

P2316 P28 the Northern Nature Reserve (NNR) and the Southern Nature Reserve (SNR). → the NNR and the SNR.

AC: YES

P2317 Line8 In the current definition of the two natural reserve areas, the area of SNR is much larger than the NNR with many more land surface and vegetation types than the NNR (not clear)

AC: this sentence has been modified, see the revised manuscript.