

Interactive comment on “Remote-sensing algorithm for surface evapotranspiration considering landscape and statistical effects on mixed-pixels” by Z. Q. Peng et al.

K. Mallick (Referee)

kaniska.mallick@gmail.com

Received and published: 15 February 2016

General Comments: In this manuscript, the authors compared two different spatial aggregation approaches to retrieve and evaluate the land surface energy balance fluxes using remote sensing data from the Chinese HJ-1B. One approach (IPUS) uses information aggregated to the 300m resolution as given by the thermal channel while the second approach (TSFA) uses a thermal sharpening approach by utilizing NDVI – TS relationship and downscaling 300m Ts into the 30m. Authors showed the differences between both approaches. Validation exercise is also performed to demonstrate the advantages and improved prediction capacities of the TSFA approach. This study is very useful to the community and worth publishing. However,

C1

the authors need to address the following concerns before a possible publication. The sentence constructions also need to be better in some part of the manuscript. (1) A clear hypothesis and research question is missing in the manuscript. (2) Is it really necessary to aggregate the NDVI from 30 m to 300 m as described in the IPUS method? Why not using the 30 m NDVI with 300 m LST? (3) More emphasis is given on discussing the sensible heat flux (For example Table 11, 12, 13 and 14). A balanced discussion involving both LE and H would read better and rational. (4) Suggest including a table on different input data, their source and for what purpose they were used. (5) The table and figure captions need to be explicit. (6) Abstract: Some statistics need to be added in the abstract. At this moment it reads too general. (7) Page 2, line 16: Evapotranspiration is a variable, not a ‘parameter’ as stated by the authors. Authors should know the difference between a parameter and a variable. (8) Page 2, line 16: Reference is too old. Many recent references are available. (9) Page 2, line 22-22: This sentence does not carry anything meaningful. Please make your statement clear. (10) Page 3, line 37: it should be ‘landscapes’ instead of ‘landscape’. (11) Page 3 (line 23 onwards to page 4): The last paragraph is quite confusing to understand. (12) Page 4, L26: ‘Land based parameters’...LAI, LST, DLR are not parameters, these are variables. This is becoming confusing now. (13) Page 5, L10: The resolution... Need to be explicit on what is intended here by ‘resolution’. (14) Throughout the entire manuscript, the authors are confused about ‘parameter’. (15) Section 4.3.2, paragraph 3: The authors have not mentioned anything about the LE statistics of the two methods. (16) Spatial comparison of surface fluxes (as mentioned in section 4.3.2) should be done at least for 2 different vegetation cover conditions. (17) I made some edits and comments in the manuscript pdf (attached here), which the authors should consider.

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/hess-2015-491/hess-2015-491-RC2-supplement.pdf>

C2

