

Interactive comment on “Investigating effects of different evapotranspiration (ET) schemes on soil water dynamics and ET partitioning: a large lysimeter case of summer maize in a semi-arid environment northwest of China” by L. Yu et al.

Anonymous Referee #2

Received and published: 2 January 2016

The discussion paper presents a comparison of two different ET parameterization schemes for ET for land surface modelling. One scheme (ETind) is based on reference crop ET and LAI, while the other scheme (ETdir) uses canopy minimum resistance and actual soil resistance into the Penman-Monteith model. The analysis was done using the extended STEMMUS model and lysimeter data.

ET parameterization in land surface modelling is an important topic that has been well addressed by the authors. The paper is well structured, but the English needs improvements, which I'll indicate in the detailed remarks.

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Main remarks:

In figure 9, its caption and the text in section 3.4.3 ETind and ETdir results are confused. The same for figure 6 and 7. Please check this for all figures, captions and text. For example on page 22, line 24 it is written that ETind gives the highest cumulative ET, while in figure 9 it is ETdir. In figure 7 (a) shows ETind, while the caption mentions ETdir.

On page 18, lines 12-20 it is mentioned that both ET schemes underestimate the soil water content in the early growing season. Two reasons are given. Which reason is most important?

On page 19, line 15 it is stated that the two ET schemes show similar trends in soil water storage. Is it possible to plot the measured soil water content in Fig. 4?

Detailed comments:

General remarks on English language:

- "at early the growing season" or "at later the growing season" should be replaced with "early in the growing season" or "late in the growing season" respectively, throughout the text.
- Tenses are incorrect. Check for each section which tense is appropriate.

Specific comments:

Page 2, line 5: replace "effective" with "effectiveness"

Page 2, line 11: should start with "is the one-step ..."

Page 2, line 12: add "the" before "Penman-Monteith"

Page 2, line 17: replace "irrigations" with "irrigation"

Page 3, line 29: add "the" before "PM"

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Page 4, line 2: add "an" before "individual variable"

Page 4, line 13: "two fold" is one word "twofold"

Page 4, line 19: here present tense should be used (see General remarks on English language)

Page 5, line 22: "gravity oven method" should be "gravimetric method"

Page 8, line 15: "can be written as Thomas and Samsom (1995)" should be "can be written as eq. 7 (Thomas and Samsom, 1995)"

Page 14, line 25: replace "fluctuate" with "fluctuating"

Page 16, line 7-8: rephrase "... made the relative values ... entered stage ii...". It is not clear.

Page 17, line 12: "the" should be removed before "20 cm"

Page 19, line 18: "increasing while soil drying" should be "increasing while the soil was drying"

Page 19, line 20: "presented" should be "presents"

Page 20, line 9: "fully" should be "a thorough"

Page 21, line 16-17: rephrase "Lacking of ... net radiation". It is not well written.

Page 21, line 19: "had a more fluctuation than" should be "had more variability"

Page 22, line 26: remove "were"

Page 24, line 13: rephrase "...more sensitise to LAI was presented at early the growing season".

Page 24, lines 23 and 25: "was showed" is incorrect English

Page 24, line 24: replace "LAI dominated at" with "LAI dominated in"

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Page 24, line 26: no capital for "Increasing"

Page 25, line 14: replace "was" with "were"

Page 25, line 17-18: improve sentence

Page 26, line 27: replace "at the late growing season" with "in the late growing season"

Figure 5: replace in the caption "the solid black line is" with "the solid black line shows" and "the solid gray line is" with "the solid gray line shows"

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 9977, 2015.

HESD

12, C5881–C5884, 2016

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