

Manuscript: Evaluation of three new surface irrigation parameterizations in the WRF-ARW v3.8.1 model: the Po Valley (Italy) case study

Major remarks

The authors have revised and improved the manuscript. In their response, the author stated that one of the main objectives of the paper is model documentation with respect to the three parameterizations implemented into WRF. Consequently, some of my previous remarks were considered as not applicable for the present manuscript. If this is ok for GMD, it is ok for me, too.

However, the quality of the English is still not sufficient for a publication in a scientific journal such as GMD. Moreover, my related major remark in my review of the discussion paper has been ignored by the authors. Hence, I repeat this remark: *One major obstacle in reviewing and understanding the paper is the low quality of the English. Several times, I was not able to understand a sentence. Usually, I also provide some suggestions for text edits and sentence improvements, but the high amount of unclear sentences, wrong grammar and unusual sentence structures let me refrain from doing this. I strongly recommend a careful proof reading from a native English speaker.*

In their reply, the authors stated: “New aspects are also the comparison of the impacts of timing as well as the evaporative loss.”. This is an important clarification of the novelty of the used parameterizations and I suggest including this statement into the abstract.

I suggest accepting the paper for publication after the English has been considerably improved and minor revisions conducted.

Minor remarks

In the following suggestions for editorial corrections are marked in *Italic*.

Line 5

...ascribed *one* cause to the

Lines 28, 31, 33, 48-50, 59, 65, 87

Text is exceeding the margins.

Line 67

It is written: “... 90-25%”

Do you mean 25-90%?

Line 69

The *second* group includes ...

Line 82

It is written:

“... allows calibrating the F-Parameter ...”

This is a technical detail, a reader, who is not familiar with the CESM code, will not understand. Please explain more thoroughly that it can be understood without this technical knowledge about the code!

Line 89-90

It is written:

“The main reason processes.”

I cannot follow this argument as this also applies to GCMs

Line 241

cis (2015) is not included in reference list.

Lines 273-283

This paragraph is partially redundant with the definitions and descriptions in Sect. 2 where they belong. Hence, please remove these definitions / descriptions of the parameterizations from this section 3.2.

Lines 358-359

Bias definition is redundant with the one in lines 349-350. Please remove one of them.

Lines 367-368

Incomplete sentence.

Lines 375

It is written:

“The three stations are in an Alpine valley, which can lead to a different set of model biases, such as the effect of steep terrain.”

Steep terrain is not a model bias. I do not get what the authors want to say. This is actually a good example for my major remark about the English.

Lines 412-413

It is written:

“The accumulated value obtained for the MODIS data is aggregated with the control run of Fig.8... “

I do not understand this. How does the MODIS data value is aggregated with the control run to yield an accumulated value? Moreover, what is a control run of Fig. 8? This is another good example for my major remark about the English.

Figure 13 – lower panel

Where is the green curve for DRIP?

Lines 652

It is written:

“.... (it is done by comparing the irrigation timing with themselves).”

I do not understand the meaning of this. Actually, the sentence in brackets may be even obsolete.

Line 680

Reference “NCEP ...” is not within the alphabetical order.

In addition, I suggest carefully checking all citations to be consistent with the reference list.