Hydrol. Earth Syst. Sci. Discuss., 12, C3659–C3661, 2015
www.hydrol-earth-syst-sci-discuss.net/12/C3659/2015/

Hydrology and Earth System Sciences
Open Access
Discussions

Interactive comment on "Green and blue water footprint reduction in irrigated agriculture: effect of irrigation techniques, irrigation strategies and mulching" *by* A. D. Chukalla et al.

Anonymous Referee #2

Received and published: 15 September 2015

This paper conducts an investigation on the effects of different management practices on the consumptive water footprint of three crops grown in three different soils considering four environments. The objective of the paper is clear, the writing is concise and the development of the argument can be followed well.

To my knowledge this is the one of the first papers regarding the study of the water footprint reduction using the AquaCrop model. Today many papers contribute to the literature on the water footprint; using databases as for example the one developed by Mekonnen and Hoekstra (2011, 2012), but little studies refer to the effects of different water management practices in the context of water scarcity. In my view, it is important

Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

to go deeper in the understanding and interpretation of water footprint input data. Thus, as far as I am concerned, an original and relevant contribution is definitely present in the well-informed analysis of the different management practices on evapotranspiration, yield and consumptive water footprint as well as in the study on the variability of the ratio of green to blue water footprint. This contribution is very interesting, and should be highlighted in the abstract, introduction and conclusion.

The introduction is concise, summarizes previous studies on the same line and clearly defines the main objective of the paper. I suggest that the authors strengthen the contribution of this study on the existing literature and specify the relationship of their work with other studies on the water footprint at different scales (global, national, local). It would be interesting to see how this study could help to interpret and clarify the results on other work. I personally believe that this work can contribute to the interpretation of scientific literature that utilizes the water footprint concept. The methodology is clearly explained and developed in detail. Similarly, the input data and their sources are well defined. However, in my opinion the study lacks an assessment of the sources of uncertainty (accuracy of the databases used, methodology utilized, assumptions made, etc.). If possible, it might be better to develop this point. This discussion would add value to your study and would help to improve the understanding of the results observing the possible drawbacks for their interpretation.

The discussion warns on the need to validate the model results with field experiments, which as the authors acknowledge is important but costly. This is in my view an important point that makes the reader to be cautious when drawing general conclusions from this study. I would also develop on the possibility to extend this study for more crops and regions. Finally, the authors could go deeper in the recommendations for action to improve sustainable water use provided from the results obtained. Policy implications would be a plus, also looking at the possibility/caution when extending the findings to other scales (local, regional, national, global), since many studies on the water footprint have been carried out in this line over the last decade.

HESSD

12, C3659–C3661, 2015

Overall Recommendation Considering the above strengths and weaknesses of the contribution it is recommended that the paper may be accept after minor revisions.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 6945, 2015.