

This paper introduces and describes the most recent version (1.0.0) of the University of New Hampshire Water Balance Model with source tracking functionality. The authors evaluates the current model performance against GRDC river discharge observations and FAO's irrigation withdrawals for the period 2000-2009. Considering the above-mentioned variables, the model performs well in regions such as North America and poorly in Asia. The source tracking functionality as demonstrated with examples in the paper distinguishes this model from other GHM's.

Overall, this paper provide a quite thorough description of the model. The source tracking functionality is indeed interesting. However, a few questions should be addressed prior to publication in GMD.

Abstract

Line 11: "WBM was first published in 1989; here we describe the first fully open source WBM version"

Could the authors please add the model version number here for clarity?

Line 16: "Users can determine what proportion of any flux consists of each of the primary inputs of water to the surface of the terrestrial hydrologic cycle, previously extracted water for human uses, or runoff generated from any place on the Earth's surface."

I believe you want to highlight the fact that a user can know proportions of the primary source in a given flux but is it difficult to grasp such meaning with this kind of sentence formulation and length. Kindly rephrase for clarity.

Introduction

Here I would also like to see a closing paragraph on the progression of the WBM models. What was lacking in those models and the reason for the new model? Why should user's care about this new model?

In addition, I suggest explicitly stating your research question, which will improve comprehension.

Eg. The aim of this paper is to provide an overview of the newest model version WBM 1.0.0 by

1. Describing the new model comprehensively
2. Showing and discussing standard model output for selected domain X or the entire globe
3. Providing insights into model evaluation, and giving guidance for the users of model output (***conditional if the focus is not on providing standard outputs for users***)

Model description

The authors really provided a thorough description of the model.

Line 104: "WBM is modular and is able to accept climate, land use/land cover, water management, and water demand inputs from other models and data sources.....",

With Modularity, you mean WBM code (or software) is written in small modules right? If so, you could state the number of modules that makes up WBM or show the software architecture, which will highlight WBM's modularity.

Line 134. "Table 1 presents a cross-section of parameters that are typically..."

Add references to Table 1 if any

Model Evaluation

Line 935: 'Model code': This is well suited for the appendix as it breaks the continuity of the results and dissection and decrease comprehension. You could also briefly summarize the important aspect of the model code (language, code structure, etc.). In addition, refer the readers to the appendix for full and detailed description of the model code in addition to how to use the code

Discussion

This study obviously has limitations. I expect to see more of them discussed here.