Hydrol. Earth Syst. Sci. Discuss., 9, C6501–C6503, 2013
www.hydrol-earth-syst-sci-discuss.net/9/C6501/2013/

Hydrology and Earth System Sciences Discussions

Interactive comment on "The Hydropedograph Toolbox and its application" *by* C. B. Graham and H. S. Lin

Anonymous Referee #1

Received and published: 27 January 2013

The manuscript contains description of the MATLB code developed to analyze spatio-temporal data series on soil water contents, temperature, and sol water potential. The application of the code to the published dataset is demonstrated.

HESS does not seem to be a proper outlet for this work. If the manuscript is written to describe a software then it has to be properly characterized, and a software-oriented journal Environmental Modeling and Software might be proper outlet for this work. If the manuscript is written to report scientific results, then it is not clear what those results are. No research hypothesis is formulated. Most of discussed results are already published in the paper by Lin and Zhou, 2008, which is cited several times in the body of the manuscript.

The feature of the manuscript is a very loose scientific language. Examples are given below.

"Abstract" does little to inform reader on the content of the work.

1. "standardized tools" What does this mean? What kind of standard was used? Who decides on standard.? Neither abstract nor manuscript explain this. Either explain this or remove the term "standardized" 2. What is "soil water release curve?" This term is absent in the manuscript. 3. Similarly "preferential flow occurrence" is mentioned in the abstract but this term is absent and not explained in the body of the manuscript. 4. Finally the term "seasonal storage dynamics" is present in the abstract but is not used in the manuscript. 5. The abstract does not contain any information about the computer implementation of the toolbox.

"Introduction" section. Loose terminology continues to be introduced. Authors talk about "flood of data". Flood is something that is eventually sbciding. Do the authors expect the flow of data disappear in future? The term "soil moisture" is not recommended for the use. "Sol water content" is the standard term. The research objective of work is not formulated. If this is the scientific paper then it has to describe the objectives in a clear manner. Otherwise the paper presents a technical report that should not appear in a scientific journal. The authors mention "real-time high temporal density" However the toolbox as described does not work with real time data.

The hydropedograph toolbox section "accepted in many formast". Can you lit the formats? Or three is "many?" 2.1. Statistical summary. What is the purpose of fitting the Gaussian to sol water content probability distribution? Are you seriously consider the applicability of Gaussian here? The term "Soil moisture storage does " is wrong. 2.2. Moisture release curve. The section contains errors. First, "psi" as used is not the matric potential. Matric potential is negative. The textbook equation of van Genuchten is written incorrectly (Eq. 4). It has to include S to (-1/m). S is not the dimensionless water content. S is the saturation degree. The dimensionless water content can be ob-

tained by dividing the value of water content by a fixed water content value How do you use the "Monte Carlo" methodology for fitting is a mystery that authors do not bother to explain.

Results are mostly presented in the discussion section.

Overall, the scientific novelty of this work is questionable, and the technical value of the work is not described well.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 14231, 2012.