Hydrol. Earth Syst. Sci. Discuss., 5, S2556–S2559, 2009
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Hydrology and Earth System Sciences Discussions

Interactive comment on "Mapping model behaviour using Self-Organizing Maps" *by* M. Herbst et al.

Anonymous Referee #3

Received and published: 12 February 2009

This is a very interesting paper which focuses on how multidimensional model outputs can be analyzed and visualized using SOMs. The paper is well written, and fits within the scopes of the HESS journal. I have a couple of remarks, but am confident the authors will be able to deal with relatively easily. I therefore recommend minor revisions.

1. The last two paragraphs of the Intro need rewriting. On page 3522 lines 15 – 25 all the main results and findings of this study are already described which is not usual in an Intro.
2. Basically all the equations in the manuscript need more description, and all the symabols and their units should be made explicit

3. How certain are the authors that the SOM has found global minima for the individual Signature Indices? Maybe SCE-UA can be run as well for the individual SI's and the results can be compared to what the SOM has found. The SOM optimization is not completely free for the individual SI's, and maybe that can influence the outcomes.

4. How does the SOM methodology compare to other multivariate techniques coming out of more traditional statistical corners? For example. the authors stress that SOM's are excellent tools for visualization, but this can also be said of statistical approaches like PCA, RDA and CCA. This is not a criticism of the work, but this could improve the position of this research compared to other existing approaches.

1) Does the paper address relevant scientific questions within the scope of HESS?

Yes, it does

2) Does the paper present novel concepts, ideas, tools, or data?

Yes, it does

3) Are substantial conclusions reached?

Yes, substantial conclusions are reached

4) Are the scientific methods and assumptions valid and clearly outlined?

Yes, they are.

5) Are the results sufficient to support the interpretations and conclusions?

Yes, they are sufficient

6) Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)?

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Yes, reproduction is possible

7) Do the authors give proper credit to related work and clearly indicate their own new/original contribution?

Yes, they do.

8) Does the title clearly reflect the contents of the paper?

Yes, it does

9) Does the abstract provide a concise and complete summary?

Yes, it does.

10) Is the overall presentation well structured and clear?

Yes it is, except for the last 2 paragraphs of the Intro.

11) Is the language fluent and precise?

Yes, the document is excellently written

12) Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?

No, the equations need further attention. Not all symbols and none of the units are presented.

13) Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?

Yes, see my earlier comments on the Intro.

14) Are the number and quality of references appropriate?

Yes, they are.

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15) Is the amount and quality of supplementary material appropriate?

Yes it is.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 3517, 2008.

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