

Interactive comment on “Towards model evaluation and identification using Self-Organizing Maps” by M. Herbst and M. C. Casper

Anonymous Referee #3

Received and published: 5 January 2008

The paper entitled "Towards model evaluation and identification using self-organizing maps" by Herbst and Casper presents an interesting application of a novel technique recently developed in the field of information sciences to a standard hydrological problem (runoff simulation). In my opinion the paper deserves publication in HESS, pending some revision.

In particular, the self-organized map (SOM) technique, which constitutes the core of the paper, should be explained in greater detail, with special care to the fact that the typical reader of HESS might not have a strong background on neural networks, clustering, semantic maps, etc.; Notwithstanding the synthetic explanations provided at page 4-6 of the paper, I have found serious difficulties at understanding how the SOM method

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

works. Since the main strength of the paper is in the novelty (in the hydrologic field) of this technique, I think the Authors should multiply their efforts for providing a more "didactic" explanation of the SOM approach. For example, a conceptual scheme of the functioning of the SOM algorithm could help the comprehension. Also, the Authors could use a simple didactic example (say, with only 2-4 neurons, and some synthetically generated time series) to show how the SOM algorithm works. Further, some care should be exerted in always explaining the technical terms which are used: for example, the first paragraph at page 4 should be rewritten for a non-expert reader. In short, the presentation should be improved and enriched with details so that also a non-expert reader at the end of the paper has understood how the SOM technique works.

Minor points:

- table 2 is cited before table 1 (page 7)
- more details on the Monte-Carlo simulation should be provided. For example: how are the parameters sampled within their ranges? Is there a pre-imposed correlation between model parameters? If no such correlation has been supposed, are all the parameter combinations physically plausible?
- how is the location of the optimum of the combined performance measure determined (rectangle in figure 5)?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 3953, 2007.

[Full Screen / Esc](#)[Printer-friendly Version](#)[Interactive Discussion](#)[Discussion Paper](#)