

Interactive comment on “HESS Opinions “The art of hydrology”¹” by H. H. G. Savenije

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Hydrology is Art, but hydrological modelling must avoid the subjectivity inherent to Art

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We enjoyed very much reading the paper by Savenije (2008), with which we agree (almost) entirely. We particularly like the call for more creativity, more imagination in hydrology, for a continuous interaction between the elements of the 'hydrologic trinity': science, technology and art. When reading the literature, we get sometimes the feeling

¹Invited contribution by H. H. G. Savenije, the EGU Henry Darcy Medallist 2008 for outstanding contributions to Hydrology and Water Resources Management.

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that our science is stuck in a dead-end, and that most of the efforts are aimed towards rather futile hunts (see e.g. Andréassian et al., 2009). Mechanistic/Reductionist thinking itself is not the problem: the problem is its tendency to hegemony, which also tends to hush up the more 'artistic' downward approaches.

The purpose of our comment is only to raise attention on one risk inherent to Art. Savenije writes that 'Modelling is an Art'. The risk we see is that modelling becomes highly subjective. In a museum, when looking at a painting, we can say 'I like it', we can say 'I don't like it'. Justifying our opinion is often extremely difficult, we often just feel Art. Note that from an artistic point of view, it doesn't matter, since we say in French 'les goûts et les couleurs ne se discutent pas' (there's no accounting for taste).

But the appreciation of a model should be as objective as possible. There will always be a debate concerning the criteria to be preferred, but the fact is that objective criteria are needed. We agree that there are no 'good models' in absolute terms: among the alternative structures proposed by hydrologists, several are approximately equivalent but 'some are definitely inferior' (Michel et al., 2006). In other words if there are no good models, there are definitely some unsafe ones as far as technological applications are concerned.

Savenije is of course aware of it, since he mentions that we need 'more studies that compare models', that we 'need tools that are able to assess the relative merits of different models'. We just wanted to remind how painful objectivity can be. Indeed, Nobel Prize Konrad Lorenz once mentioned that one of the major problems of science is that scientists tend to fall in love with their hypotheses (Lorenz, 1973). Bergström (1991) said the same thing when he wrote that 'going from complex to simpler model structures requires an open mind, because it is frustrating to have to abandon seemingly elegant concepts and theories' (p. 125).

Hydrologic modelling needs Art. But from the model assessment point of view, it does also need (some) standards.

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