Hydrology and
Earth System
Sciences

Open Access

Discussions

Interactive
Comment

Interactive comment on "Towards understanding the dynamic behaviour of floodplains as human-water systems" *by* G. Di Baldassarre et al.

Anonymous Referee #1

Received and published: 12 May 2013

This is an inspiring paper on the need to understand the coupled behaviour of human-floodplain systems. The paper is strongly convincing in explaining why we scientists (hydrologists and social scientists) should work together to this aim: i.e., in order to assess future flood risk in a rapidly and dynamically changing environment. A very nice review on what was done on the subject till these days and many illustrative examples on evident human-floodplain system interaction are provided. The paper is more vague on the avenue we should follow to advance our understanding on those systems, which is understandable because this is the work still to be done. In Section 7 a three step procedure is proposed, which mainly involves collection and transdisciplinary analysis/interpretation of data. Overall, I am definitely supportive of the publication of this paper in HESS. I have a couple of comments listed below, but since they just involve

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

additional discussion, the resulting revision should be minor.

Comments:

Page 3873 line 8: I agree with the fact that existing floodplain models reproduce stable conditions, but are they really reproducing processes for pristine areas only? The presence of humans is accounted for but, as the authors say, not their dynamic interaction with the river/floodplain.

Page 3875 lines 9-11: Here I got confused, probably because of me being an hydrologist and missing some definition. The sentence "SES theory pay very little attention to ways in which interactions and reactions between social and natural agents are shaped by relations of political, economic, social power" seems to contradict the definition of SES just above: "Interactions and reactions between ecological and human agents were identified as creating causal loops, producing non-linear, emergent, self-organizing, and adaptive social-ecological systems (SES)". In other words, what are the "social agents"? Aren't they politics, economics and society?

Page 3875 line 13: Same reason as above, I do not understand what "social realms" are. It would be useful to add a line and define them.

Page 3878 line 10: in the White's levee effect, what is the changing hydrological process taking place?

Page 3880 sec 6: Just a curiosity. Is transdisciplinary a synonym of multidisciplinary?

Page 3881 lines 18-25: There is a chapter in the book of Scheffer (2009) which deals with the human system dynamics. If I remember well (I don't have the book with me any more) it is argued that the difference between natural and human systems is due to the great difference in velocity between (natural) adaptation and (human) learning.

Scheffer, Marten. Critical transitions in nature and society. Princeton University Press, 2009.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

Section 7: here three steps are indicated as a potential methodology for advancing our understanding of coupled human-floodplain systems: 1) finding long time series of hydrological and population dynamic data; 2) performing in-depth analyses to detect/attribute the feedbacks; and 3) performing a comparative analysis searching for general behaviour in different social/climatic contexts. In other words, if I got the point, the authors suggest that a data-based approach should be preferred to modelling approaches, which involve "arbitrary and subjective assumptions" (page 3880, line 9) such as, e.g., in Werner and MacManara (2007). Is it correct or do the "in-depth analyses" (step 2) include modelling attempts? In another HESSD paper of the same group (Di Baldassarre et al., 2013, Socio-hydrology: conceptualising human-flood interactions) a conceptual dynamic model is proposed. What is its value as a tool for advancing our understanding of coupled human-floodplain systems? Should conceptual modelling be discussed in this section as well (e.g., as a mean to formalise the knowledge/assumptions from the different disciplines and as a mean to formulate hypotheses to be tested with the data)?

————————————————————

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 3869, 2013.