Hydrol. Earth Syst. Sci. Discuss., 10, C2277–C2279, 2013
www.hydrol-earth-syst-sci-discuss.net/10/C2277/2013/

Hydrology and Earth System Sciences
Discussions

Interactive comment on "Socio-hydrology: conceptualising human-flood interactions" *by* G. Di Baldassarre et al.

G. Di Baldassarre

g.dibaldassarre@unesco-ihe.org

Received and published: 5 June 2013

We would like to thankfully acknowledge Referee #1 for her/his positive comments about our scientific effort and for providing constructive comments that will contribute to improve our paper. This document reports our response to all comments.

In the first part of her/his major comment, the Referee points to the fact that (although there are some references to the scientific literature) our assumptions are not always sufficiently justified. We agree with the Referee. The current version of the manuscript did not provide an explicit explanation of all the scientific evidence supporting the hypotheses of our conceptualization of human-flood interactions. We will therefore revise our paper and provide a better justification of our assumptions by referring to the most

recent scientific literature.

In the second part of her/his major comment, the Referee points to the absence of a comparison with real world data or case studies. The Referee is right. Such a comparison would add value and credibility to our conceptualization. Thus, we will include in the revised paper reference to specific case studies where similar trajectories of floodplain dynamics were observed. However, as stated in the introduction, our focus is on unravelling interactions and feedbacks between hydrological and social processes and this conceptualization "is an educated hypothesis of how human-flood systems work in a generalised way, rather than as a predictive tool for a particular location". Thus, the comparison with real world data will not be the traditional validation of models, e.g. fitting hydrological data, but rather, showing that the model reproduce the long-term dynamics observed in diverse case studies.

Minor Comment 1) In his/her first minor comment, the Referee questions about the parameterization of the conceptual model. The parameters of the models are all characterized by a clear narrative (see Table 1) and, as mentioned above, they are not tuned to fit data for a specific location. Given that this paper introduces a new conceptualization, a comprehensive sensitivity analysis is out of the scope of our paper. The example application of the hypothetical community (WetTown) is only meant to show some results of this conceptual model. The focus on the parameters of the Technology equations aims to show the role of the construction of flood protection measures in determining long-term dynamics of floodplain systems. The revised paper will clarify these points.

Minor Comment 2) The Referee is right in stating that equations are a simpliïňĄed schematization of the political systems. However, as stated in our current paper, "we focus on the interactions and feedback mechanisms between these components. Thus, each component is described by a simple equation..." We are aware that each equation can be made much more complex, but our goal is not too describe all the details of, e.g. hydrological, economical, technological, political, or social processes. Rather, we

HESSD

10, C2277–C2279, 2013

focus on the interactions and feedbacks between these different processes and aim to explore the resulting long-term dynamics. Anyhow, we fully agree with the Referee that the complexity of political processes could be better described. Thus, the revised paper will include a critical discussion of the processes neglected in our conceptualisation and better justify our focus on a set of specific processes influencing human adjustments to floods.

Minor Comment 3) The Referee is right. The mathematical notation in equation (1) will be revised accordingly.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 4515, 2013.