

Interactive comment on “Historic maps as a data source for socio-hydrology: a case study of the Lake Balaton wetland system, Hungary” by A. Zlinszky and G. Timár

A. Zlinszky and G. Timár

azlinszky@gmail.com

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Pistocchi (2013) initiates discussion on the topic of socio-hydrology; whether to call it a new science, a new discipline, a methodological approach or rather a new formulation with the purpose of focusing attention. This discussion has been started in the literature after the publication of the invited commentary by Sivapalan et al (2012) which initiated the term socio-hydrology, and has also been the subject of constructive discussions at scientific meetings (Sivakumar, 2012; Srinivasan, 2013). The aims and scope of socio-hydrology are introduced in several of the papers in the special issue where this manuscript was also submitted, eg. (Gober and Wheeler,

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2013;Di Baldassarre et al., 2013), and we expect that perhaps the preface to the special issue might also shed some light on this question once it is published. For the sake of brevity and readability, this discussion was not presented in detail in the introduction of our paper under section 1.1 (“What is socio-hydrology?”), where it would otherwise belong. We aimed at setting the context for our own study and described our own (literature-based) understanding of what is socio-hydrology. We also consistently refrained from stating that socio-hydrology would be a “new science”, a “new discipline” or anything generally “new”.

We first introduce the framework of socio-environmental studies, based on Widlok et al. (2012), then formulate that socio-hydrology is a “science” (page 4 lines 1 and 11), and also a “context” (line 6.). We proposed socio-hydrology as a sub-discipline of socio-environmental studies and also of hydrology. In this sense, we believe it is a science. Nevertheless, in order to avoid directing attention away from the issues dealt with in the paper, we are considering re-wording the affected sentences as follows: Socio-hydrology deals with human influence on the water cycle and the influence of water availability and quality on human social systems (Sivapalan et al., 2012). Socio-hydrology is a use-inspired, interdisciplinary field of study (Srinivasan et al., 2013; Srinivasan, 2013) with the urgency and the ethical background similar to other newly emerged fields of crisis science (conservation biology, global change research, disaster mitigation).

Distinguishing between palaeohydrology and historic hydrology as required by the reviewer is truly uncertain in some cases. Historic hydrology might be regarded as a sub-genre of palaeohydrology, or they may be separated on the basis of timeframe, with palaeohydrology referring to studies of situations before written (or mapped) local history. We support this latter choice, and the text will be revisited to ensure more clarity on this basis. Based on the suggestions of Paron (2013), we plan to re-formulate the too general statements we made on the limitations of dating fluvial or lacustrine sediment records in historic times that we based on Gregory and Benito (2003). A detailed overview of the methods used for dating hydrological records

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would of course be outside the scope of this paper, but we do intend to balance the formulation we previously used. The other part of the statement, that sample-based palaeohydrological records have limited spatial coverage and/or resolution and therefore can be well complemented by map-based information still holds.

Paron (2013) suggests to elaborate the role of scale in interpreting and analysing historic maps in more detail, as a separate section (1.4.4) within the state-of-the-art section (1.4) of the manuscript. While scale is clearly one of the determining factors of how any map can be used, it would be difficult to discuss it in detail throughout the introduction, without breaking the train of thought of the manuscript. It is also truly one of the very basic aspects of using and understanding a map, and it was assumed that the readers of HESS have a sufficient basic knowledge of maps in general. In case of this paper, we took a rather unconventional approach and moved many of the broader themes usually discussed in the intro and methods section to the step-by-step guide in the appendix. This was done in the hope that researchers already familiar with historic maps understand them anyway, and other readers will refer to the appendix if necessary. We also reviewed the state of the art structured along the major breakthroughs in this field. The section 1.4.4 that Paron (2013) proposes would then discuss the existence of maps as data sources in general and their properties as spatial datasets. This could be fit into the existing framework as "Section 1.4.1 Breakthrough 0: Maps as data sources". Nevertheless, we believe this would not connect well to the rest of the paper. The formulation and readability of the text in its current form was positively evaluated by both reviewers, despite the fact that the paper is rather long. Therefore we are rather cautious to make changes that involve creating or moving sections in the text. We suggest a hybrid approach as a solution: on page 8 line 14 and 15, after the following sentence we will modify the text to briefly discuss the role of scale and the caveats associated with map scale and also legend.

"Maps involve a defined scale and legend (otherwise it is not a map)."

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We can also deal a bit further on map scale in section 5.2.2 (Spatial accuracy and level of detail) and discuss the scale of the map together with the accuracy of the original survey as the main factors of map accuracy.

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