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Discussions

Interactive comment on "Understanding flood regime changes in Europe: a state of the art assessment" *by* J. Hall et al.

Anonymous Referee #1

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The main attempt of the work presented in this manuscript is to improve the understanding of flood regime changes in Europe. The authors selected a state of the art review as the presentation format. The manuscript is organized in four main sections, starting with the introduction, followed by the review of data base and model base approaches, an idea how to improve the understanding and future research. The presentation includes a detailed review of available literature.

Unfortunately, this paper failed to provide an improvement in understanding the change of flood regimes in Europe – therefore the title may be misleading. This contribution looks much more like a proposal for the research project that should result in an improved understanding of flood regime changes than the presentation of the completed work. The main benefits of the paper include (a) a clear indication that floods are

changing in Europe and (b) an indication that many authors are dealing with this questions at different locations across Europe using different methodological approaches.

In order to become a significant contribution a synthesis work should be completed before the final acceptance of this publication. There are some difficulties in trying to synthesize the work of many authors and results obtained using various methodological approaches. However, comparison of results for three larger geographic regions and specially their presentation in aggregated form for the whole Europe would be a very useful outcome of this publication. It is very hard to see what is the value of an analysis that simple states what is available in the literature. For example, just a quick look at the Western Europe and Northern Europe presents decreasing and increasing (on some stations) trends in Spain, no change, increase and decrease in France, increase and no change in UK, no conclusion in the Scandinavian countries – so what can be inferred about the change in flood regime?

Large portion of section 2 provides the review of methods that are commonly used in hydrological practice and there is no need for extending the length of the manuscript by their presentation.

The discussion of scenario analysis in section 3 is not necessary. Use of scenarios in water resources management is very common and comparison with origins of scenario analysis as it applies to management science (especially use of Shell example) do not provides any additional value for the reader of the manuscript. Scenario analysis has direct links to our understanding of decision making under uncertainty. Flood risk management today and the understanding of future change of flood regimes will depend on the use of quantitative assessments of associated uncertainties. Presentation of sources of uncertainty, their regional differences, and their impact on the understanding of flood regime changes, as well as integrated presentation for the whole Europe will be necessity before final acceptance of the manuscript.

The prediction of future changes in flood regimes is appropriately linked to land use

change, climate change, and physical change of river characteristics (hydraulic structures and morphology). It will be essential for proper understanding of future changes to clearly identify the key drivers of change and start the analysis of causal relationships (feedbacks) from change in population (results in change of land use, urbanization, river characteristics) and climate.

Section 4 of the manuscript is clearly indicating that the material presented in the manuscript is much closer to a research proposal than the journal article.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 15525, 2013.