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This is essential reading for all starting PhD students in hydrology

Anonymous Referee #3

Referee comment on "Flood generation: process patterns from the raindrop to the ocean"
by Günter Blöschl, Hydrol. Earth Syst. Sci. Discuss.,
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This paper represents a major contribution to the issue of spatial scale and scaling, but with a focus on flood generation.

One can think of this as a continuation of the highly cited and authoritative review paper by Bloeschl and Sivapalan (HYP, 1995). It builds on the earlier review, but has gained in terms of richness through the substantial work that the author has done subsequently, especially in the context of the Flood Change project funded by the ERC. In this way, it has reinforced many of the key messages in the previous review paper.

The paper is presented in a narrative way, with no jargon in a lucid style (no preaching either), and thus will appeal to graduate students starting to specialize in hydrology and Earth sciences. I would consider this essential reading for starting graduate students.

In spite of a lot of progress over the last few decades, hydrologists continue to misunderstand the role of time and space scales and do much of their work oblivious to challenges and promise of scale interactions. This is holding back progress in many areas, especially modeling.

I support publication of the paper in its present form. However, one or two reviewers mentioned that they would like to see more discussion of a formalization of these ideas in the form of frameworks and analysis approaches. I think this is a useful suggestion. However, such a formalization was already present in the 1995 review paper, which this paper built on. What was missing in the earlier paper, and in this paper too, is a focus on timescales. Perhaps there will be an opportunity to do something along these lines in the future, whereby both space scales and timescales are both considered together.

That could be in the future - for now, this paper can be published in its current form