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Comment on hess-2021-210

Guy J.-P. Schumann (Referee)

Referee comment on "Calibrating 1D hydrodynamic river models in the absence of cross-section geometry using satellite observations of water surface elevation and river width" by Liguang Jiang et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-210-RC3>, 2021

This paper describes the use of hydraulic geometry relationships to estimate river cross section geometry and the subsequent use of satellite altimetry and imagery to calibrate those parameters.

In fact this is a very well written paper and the methods are sound. The topic is also of interest and quite timely given the applicability of the method at the global scale.

However, I have on main point of concern. The methods the authors present, both the derivation of river geometry parameters and the calibration procedure with satellite data are not new at all, as the authors clearly allude to in their comprehensive and up-to-date literature review. There are now many studies looking at either one of those two approaches and indeed also combined.

In order for this paper to be publishable, I would therefore recommend to revise the title and not talk about a "new" scheme. In my opinion, the authors did a new river application study using existing methods.

Also, I strongly suggest the authors write a paragraph upfront in which they justify what is new in their work.

I gave this minor revisions because I think these two suggestions are relatively straightforward to implement in a revised version but, however, without these changes I would not recommend this current version to be published.