

## ***Interactive comment on “Assimilation of wide-swath altimetry observations to correct large-scale river routing model parameters” by Charlotte M. Emery et al.***

**Paul Bates (Referee)**

paul.bates@bristol.ac.uk

Received and published: 25 July 2019

In addition to the comments of the previous referees, I would add that I think the paper also needs to better articulate what is the new contribution to knowledge made by the work. Previous papers have established that SWOT data is very likely going to allow us to better constrain parameters and states in a variety of environmental models, but I was missing what in addition to this that we learn from the present work. There are a number of specific technical differences here to the previous papers by Pedinotti et al (2014) and Emery et al (2016) which are described in the last paragraph of the introduction, but I am not sure these changes lead to very different conclusions. Overall

C1

the abstract states that the assimilation scheme " is able to retrieve the true value of the Manning coefficients within one assimilation cycle most of the time", but isn't this ability already well established, at least in general terms? What do we learn about the likely potential of the SWOT data that we did not know before? Alternatively, what do we learn about the kinds of assimilation schemes that are going to work well with the SWOT data? In addressing this issue the comments of the other referees about the rather specific nature of the numerical experiment are pertinent: if the experiment does not reflect the assimilation problem that will be faced in practice when ISBA-CTRIP is confronted with SWOT data then the conclusions drawn may not be easy to generalize. I think a significant effort needs to be made to re-draft the abstract introduction to more clearly identify what is the new contribution to knowledge made by the paper. I'm sure there is one, so this is more a question of properly assembling the arguments in order to bring this out.

---

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-242>, 2019.

C2