

Interactive comment on “Uncertainty in river discharge observations: a quantitative analysis” by G. Di Baldassarre and A. Montanari

Anonymous Referee #2

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General Comments

The authors present a discussion of the errors associated with discharge data in a large river due to a number of factors. They estimate these errors for a reach of the Po River, and conclude that the uncertainty is likely to be large, and to grow with discharge.

Fitting hydrologic models to discharge hydrographs is still the bread-and-butter of hydrology, and so it is instructive and useful to be reminded of how much uncertainty is associated with this data. This work competently presents a basic analysis that reveals the significance of the uncertainty, but is too simplistic to provide more than that. It is also insufficiently grounded in the large body of literature that has previously examined the sources and degrees of uncertainty in stream-flow measurement and estimation.

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Ultimately, the authors fail to make the case that theirs is a useful new contribution.

Specific Comments

The authors claim that their study is "a first attempt to quantify the uncertainty that one may expect when measuring the river discharge by applying the rating curve method"; (p50 L14). While it may be their first attempt, it is certainly not the first. A number of authors have discussed stream-flow rating curves and their errors in depth, including Art Schmidt at UIUC, and Sauer and Meyer at the USGS. Others, such as Daren Harmel, have gone further and discussed the implications for sediment and nutrient export estimation. The work of Di Baldassarre and Montanari would be greatly improved if they could show that their work extended this previous work, or was different from it.

Furthermore, their analysis is restricted to the particular case of the Po River. Which this is certainly a major river of important practical interest, the degree to which the results translate to other sites is not clear.

In short this work probably belongs as part of a larger study on the Po river, rather than a standing as a piece on its own. A cautious and careful assessment of uncertainties in such a context would be welcome.

Technical corrections, typos etc.

p40 L22: 'inhability' should be 'inability'

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