

We thank the Editor, Prof. Montanari and the anonymous reviewer for taking the time to review this paper and provide comments. We address the comments one by one. In **black** are the comments made by the reviewers and in **red** are our responses to them. Appropriate changes to the conclusions of the manuscript are also made.

Referee #3, Prof. Alberto Montanari

5 1. *First, let me note that I enjoyed very much the discussion between reviewers and authors. I fully agree that comparing models with models neglects part of the uncertainties. On the other hand, as the literature clearly shows, referring to an ideal situation may help in disentangling the impact and propagation of different sources of uncertainties.*

Thank you for understanding why such an approach is necessary.

10 2. *I understand the reason why one of the reviewers believes that the innovative information conveyed by the manuscript is rather limited. On the other hand, the question of why rainfall-runoff models keep underestimating the peak flow is still open. In this context, I believe the results presented here are interesting and useful to better understand the drivers and conditions leading to peak flow underestimation.*

15 *The information that this manuscript provides may not be innovative but the use of examples to establish the fact that gauge density is a major problem certainly is. The setup of this study was not trivial. What we set out to prove was that no matter how good a model, sparse gauge density will result in peak underestimation most of the times. The reasons for this were shown Sec. 1 and 5.2.*

3. *I am pleased to offer the following minor comments on the revised conclusions of the paper.*

20 1) *I believe the problem is NOT often ignored, as stated by the authors in the conclusions of the revised manuscript line 358: the problem is well considered and explored, in the context of the several uncertainties affecting the rainfall-runoff simulation.*

25 2) *I am a bit confused by the paragraph at lines 384-388 which reads: “Finally, the results and conclusions of this study must be interpreted with the important fact in mind, that models were used to demonstrate the effects of the underestimation of peaks due to sparse networks and interpolations. In reality, it could very well be that these effects become less dominant/observable due any number of other reasons. Nevertheless, the main culprit behind underestimation of peaks is the observation network density. The models used to demonstrate the effects are circumstantial to a large extent.”*

In particular, I am not convinced the results allow us to state that the observation network density is the main reason for underestimation. Indeed it plays a role, but other drivers may be as relevant or dominant, depending on the context. Moreover, I don’t understand the sentence “The models used to demonstrate the effects are circumstantial to a large extent.”

30 *The word **minor** has us confused here as the two main findings of this study are questioned and the following comments are not in line with second comment mentioned above.*

35 *Regarding (1), perhaps you could have added some references so that we had some direction to accordingly reorient the manuscript. We are unaware of any studies that link the problem of peak underestimation and gauge density in a conclusive manner as we have. The gauge densities add to the uncertainties but this paper is about why we keep underestimating it, which is more of a bias.*

40 *Regarding (2), we also request you to provide us the explanation as to how a model is supposed to compensate for the missing volumes of precipitation automatically. As we show in Sec. 6, this problem cannot be handled by applying simple corrections as each event is distorted in a unique manner. The underestimation of peaks starts with the missing volumes, a mass conserving model has no way to compensate for this (even by changing the parameters which we have shown in our previous studies) and hence we deem it to be the main reason.*

4. *Finally, I believe the above paragraph may be placed after the “Further conclusions. . .” that start at line 389.*

Overall, in my opinion the paper is interesting and deserves to be disseminated.

We have repositioned the said paragraph.

Finally, thank you considering this study to be interesting.

45 **Anonymous referee #2**

They did not provide any comments.