**Hydrology and
Earth System
Sciences
Discussions**

Interactive comment on "Assessing the predictive capability of randomized tree-based ensembles in streamflow modelling" *by* S. Galelli and A. Castelletti

S. Galelli and A. Castelletti

castelle@elet.polimi.it

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NOTE: *The original comments by Reviewer 2 (**R**) are in italics. Replies by the authors (**A**) are in regular text.*

R: *The authors have investigated the accuracy, explanation ability and computational efficiency of Extremely Randomized Trees. The idea is well conceived, well written paper, but very lengthy. The work can be presented in a short form without reducing the technical contents. The introduction could be reduced and a short information on CART can also be provided.*

A: We wish to thank the reviewer for the useful comments. We agree with the reviewer

that the introduction is a bit lengthy, so we will try to reduce it. In particular, we will remove the distinction between process-based and data-driven modeling and directly introduce data-driven streamflow modeling. On the other hand, we believe that the description of CART advantages and drawbacks is needed to motivate the adoption of M5 and Extra-Trees (with particular regards for predictive accuracy and computational aspects), so shortening this part would necessarily imply enlarging the subsequent description of ETs.

R: *Is computational requirement a problem with data driven techniques? The requirements are all in seconds, or minutes and is very minuscule when compared with numerical modelling techniques. The authors can think of removing this topic from the paper.*

A: We agree that in a simple streamflow modeling problem computational requirements may not be a key issue. However, as stated in the introduction, ETs have a potential in many other applications of operational hydrology, ranging from planning to real-time control and automatic input variable selection, where the computational burden might be a challenge. We will clarify this in the revised paper, also reducing emphasis on this evaluation criterion.

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