

Interactive comment on “HESS Opinions: Repeatable research: what hydrologists can learn from the Duke cancer research scandal” by Michael N. Fienen and Mark Bakker

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With pleasure I see the discussion evolve. I have read the response of the authors to the comments by Dr. Cirpka - there is a line of discourse about the question whether data processing scripts provided as supplementary material are a burden or a blessing during review. While I fully agree that one cannot expect reviewers or Associate Editors to suddenly look into a much larger volume of details, I agree with the authors reply that - in case of doubt - such additional scripts may be worth looking at.

However, there is an additional point here: How many times have authors been contacted five or more years later with requests like "Nice work you did back then, I would like to use your procedure to follow up on that study (transfer of a well-done analysis to

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a different study region; use of the developed methods; upgrade of the methods developed)". Or "I am doing follow-up research (same/different study region; application of methods; improved methods,...), and I have problems in repeating/reproducing your results". Having everything available in a repeatable manner has two advantages: in case an error is detected, the follow-up research activity can falsify the previous results (ending in an erratum or a comment/reply series in the journal, both of which would help to assure quality); in case there is no error, the follow-up study confirms and then runs faster because past efforts in analysis/coding can be recycled. The former is about repeatability for testing and falsification, the latter is about re-use and citation boost for one's own ideas.

Well, this is a slight side track as fifty percent of it is about re-use, speed and citation boost of one's own scientific results. However, the other fifty percent are about classical repeatability by others - outside the peer review process but within the years to come. If we look back at the evolution of science, then the largest steps were achieved by falsifying older theories, and this did not happen during peer review but in later years after publication.

One might think of the "marketing" aspect as an additional incentive to persuade researchers to follow repeatable concepts, and this may come to the rescue when questioning whether the hydrology community can ever be persuaded to enforce repeatability.

The authors might take this side track discussion to add an additional paragraph to their opinion if they deem it useful for their manuscript. I would be happy to see this happening, because I have hope that it can indeed help to persuade (at least some hydrologists) .

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