

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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This discussion voices an overdue opinion that should be heard by many scientists (within and outside hydrology): the entire path that we take from data over analysis, modelling, simulation and so forth up to our final conclusions must be laid open, so that it can be reproduced by others - only this way we can offer transparency and falsifiability of research results within and across groups and in later years.

A previous comment perceived the article as making statements only about "open source codes", but I do not share that impression. The main gist of the opinion given in the manuscript is that one should "use scripts instead of manual procedures, because than everything is at least - technically - repeatable, and others can then test whether

they find it reproducible". Only when one has such scripts that denote all steps taken from initial data import (over model building,...) to final data analysis routines and their result plots from which the conclusions are drawn, then the data/computer part of our work becomes repeatable. Such scripts will then have to be published as open source. I did NOT understand the article as "just use open source codes and you are fine".

I suggest the authors re-consider whether the text may mislead some readers to think that one could simply "use open source and you are fine".

I fully support the opinion of "script what you do and then make the scripts (and all softwares used) available together with the original data".

The only other recommendation I have is the following: there is more about "rules for proper scientific conduct that aim at transparency and repeatability" than what is said here. I think, however, that the authors do not want to give a full review of all possible and required measures in general, but they rather want to provide an opinion on the specific "data/analysis/computer" part of scientific work. For example, there is "open statement of assumptions", "clear/honest referencing", "publication of negative results", and so forth. The authors should add a disclaimer to make sure they are not being misunderstood.

With these two suggestions for improvement, I would fully support the publication of this material, so suggesting a minor revision.

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