

Hydrol. Earth Syst. Sci. Discuss., author comment AC1  
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## Reply on RC1

Amilcare Porporato

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Author comment on "Hydrology without dimensions" by Amilcare Porporato, Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-442-AC1>, 2021

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I would like to thank the anonymous reviewer for his/her encouraging report and thoughtful comments. I am glad the paper was found of interest, also for providing a different angle to this time-honored topic.

The point raised by the reviewer, regarding the application of dimensional analysis to system that do not have a clear and typical physical definition, is very interesting and deserves attention. Unfortunately, however, it is also a difficult problem, one which is not typically considered in the traditional dimensional analysis literature. I plan to revise the paper paying particular attention to this comment emphasizing it, when suitable. There are some references in the economics and social science context, which are already cited in the introduction, where this point is relevant. I plan to expand around this issue, when commenting on these references. Also, the augmented dimensional analysis, and the idea of adding new variables, such as temperature or heat flux, as in the Rayleigh problem, can be seen as a precursor of this interesting problem. Again, I plan to add some comments in the paper to this regard. Thank you.