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Discussions

Interactive comment on "Climate elasticity of streamflow revisited – an elasticity index based on long-term hydrometeorological records" *by* V. Andréassian et al.

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We thank Tim McVicar for his comments. We have been careless with words: we used "potential evapotranspiration" with the meaning given to it by Thorthwaite (1948) "the maximum that evaporation can reach and depends only on the climate", which is equivalent to the "atmospheric evaporative demand" (AED). While we were interested in identifying the elasticity of streamflow to AED, we have used the expression "Potential Evapotranspiration" and "Reference Evapotranspiration" interchangeably (while we should not have). We will correct this in the revised version of the paper.

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As far as the different AED formulations are concerned, we used two different ones: the empirical formulation of Oudin (which is based on radiation and temperature) and the Penman-Monteith reference evapotranspiration. We did not see any notable difference, this is why only presented one the results obtained with the most common formula (PM) (even if in our recent tests, Oudin's formula has shown the best performances represent with extreme years). We will do a last test with Penman's formulation.

Reference

Oudin, L., Hervieu, F., Michel, C., Perrin, C., Andréassian, V., Anctil, F. & Loumagne, C. (2005) Which potential evapotranspiration input for a rainfall-runoff model? Part 2 – Towards a simple and efficient PE model for rainfall-runoff modelling. Journal of Hydrology,. 303(1-4), 290-306, DOI: 10.1016/j.jhydrol.2004.08.026.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 3645, 2015.