

Hydrol. Earth Syst. Sci. Discuss., author comment AC5
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Reply on CC6

John Ewen and Greg Martin O'Donnell

Author comment on "If a Rainfall-Runoff Model was a Hydrologist" by John Ewen and Greg Martin O'Donnell, Hydrol. Earth Syst. Sci. Discuss.,
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The reviewer recommends that the paper should not be published because it inappropriately addresses “*deep questions that are at the center of other discipline areas of study*”. The disciplines in question are philosophy and technical communication. In the paper, the RR records are treated as a set of numbers that lie at an outer boundary to the work (see Fig. 1), so all deep philosophical questions about the reality of river catchments lie outside the scope of the work. The usual rules of logic, English, and written communication are not breached in the development of KERR, nor is the work unusual in paying close attention to describing the basis and assumptions for modelling. All deep general questions in technical communication therefore lie outside the scope of the work, such as questions about how scientific papers should be written.

Here is a note on the science in the paper. It addresses the following statement, in CC5, from the reviewer:

There is no science in this paper. No hypothesis was tested (in my original review, I attempted to - generously - treat the new model development as a hypothesis test of the new philosophy, but the reviewers did not even recognize that this is what I was doing in their replies).

The title of the paper is “If a rainfall-runoff model was a hydrologist”. An appropriate hypothesis was tested: i.e. An RR model can be a model of a hydrologist. KERR is a model of a layman. KERR was tested by comparing its median NSE against that achieved using GR4J, with success being equated with achieving a value approaching that for GR4J (showing that KERR is a reasonable RR model, taking into account that GR4J has the advantage of using evaporation data and calibration). The layman is a benchmark for a hydrologist (i.e. a reference against which hydrologists can be compared and measured).