

Interactive comment on “Darwinian hydrology: can the methodology Charles Darwin pioneered help hydrologic science?” by C. Harman and P. A. Troch

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We would like to thank Dr Westhoff for his review of our paper and useful comments. His suggestion that the Darwinian ‘method’ be separated from the suggested ‘heuristics’ is echoed by the perspective given by Dr Vic Baker in his review, and we will try to revise the manuscript to make these distinctions clearer. These comments highlight the need to clarify the distinction between A) what we define as the Darwinian ‘approach’, B) the (various) scientific philosophies that have been attributed to Darwin and C) the methods of historical reasoning that Darwin (and others) employ.

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With regards to the comment (2) about the need for the Darwinian approach: our view is that the Darwinian approach has something to offer hydrologic science – and we are by no means the first to suggest this. The Darwinian approach requires a very different set of tools for testing hypotheses from the Newtonian approach, but we must still have rules that can be applied to distinguish valid and invalid conclusions on the basis of evidence. Part of our purpose was to discuss these rules, and draw a clear distinction from approaches that fall short of rigorous Darwinian science. We agree that the rigorous application of standards of evidence to address the question of how to explain hydrologic phenomena requires going considerably beyond the ad-hoc or merely statistically predictive approaches of regionalization.

Additional comments on manuscript organization and clarity are noted and will be addressed in a revised version. Thank you again.

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