

Interactive comment on “The era of Infiltration” by Keith Beven

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The recommendations 1 and 2, above, are low because this is strictly not an original scientific paper but is a review paper.

Line 492 contains an awkward sentence, the word "data" needs to be relocated.

The author points to early efforts to describe the separation of rainfall into runoff and soil storage and characterises hydrologists 80 years ago in general as believing that the soil surface exhibited the dominant mechanism. It is in some ways a scientific critique of methods largely engineering-oriented, and as such his critique is somewhat misdirected. Indeed, most of the early work he cites was done simply to try to describe, parametrically, processes observed, rather than study them scientifically - I am sure Horton and Holtan, for example, were simply trying to describe the rainfall loss function, and were not trying to express a general soil water flow theory. Importantly,

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the end product was to have engineering application. Infiltration controlled by soil surface properties (infiltration theory) yet has its place in hydrology in several climates and soil conditions, but we know of course that it is not universal. The author believes that in the "era of infiltration" there was belief that this was general or universal. The processes on a catchment are of course varied, and moreover almost any catchment exhibits significant water flow variability both vertically and spatially. This reviewer is not convinced that early workers such as Holton did not appreciate this to some extent. But again, theirs was not a scientific objective. It is unclear in the end what is the authors point: Complexity and variability exist, infiltration by surface control also exists, a wide variety of paths from rainfall to the stream exist; we know these things. Application of scientific knowledge of flow processes to describe or predict a rainfall-caused hydrograph from any natural catchment simply requires more detailed soil and surface geology data than is practical to measure, and engineering approximations, such as the author cites, will continue to be required.

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