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Hydrology and Earth System Sciences
Discussions

Interactive comment on "A new probability density function for spatial distribution of soil water storage capacity leads to SCS curve number method" *by* Dingbao Wang

Anonymous Referee #2

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This is a very interesting paper and potentially significant contribution to the hydrology field, particularly semi-distributed rainfall-runoff modeling. The mathematics is quite solid. I do have a few minor comments/questions though:

1. It is not clear how the author reached the specific probability density function (PDF) (Eqn. 24) since it is not associated with any well-known functions. It'd be better if the author can clarify his reasoning process here. 2. The comparison made between VIC and new distribution have different ranges of C values (Figure 3a and 3b, and Figure 4a and 4b). The C value goes from 0-200 for the new function and 0-50 for VIC. 3. Though it can be seen from Figure 4 that for the new PDF the storage capacity curve

has S-shape curve, for the same range of C value (0-50) the new distribution function seems to be no different from β = 1.5 and Cm=50.

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