

***Interactive comment on* “A distributed simple dynamical systems approach (dS2 v1.0) for computationally efficient hydrological modelling” by Joost Buitink et al.**

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Response to Anonymous Referee #1 (AR1)

We thank AR1 for their time and effort to write a constructive comment in order to improve the quality of the manuscript. Below, we respond to the general comment of AR1. We also thank AR1 for the specific comments and technical corrections, which we will clarify/implement in the next version of the manuscript.

We totally agree with the reviewer that a discussion of SIMPLEFLOOD is currently lacking and should be added. However, we do believe that SIMPLEFLOOD and dS2

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are different models which complement the currently existing hydrological model selection. Comparing the two models: dS2 is a distributed model on a grid basis, compared to the catchment-based SIMPLEFLOOD model; dS2 has a strong focus on computational efficiency, including a fast but robust numerical solver optimized to solve the SDS approach, compared to the more generic JAMS framework where SIMPLEFLOOD is in embedded; furthermore, the model code of dS2 is publicly available and can easily be modified. In the next version of the manuscript, we will describe the differences between dS2 and SIMPLEFLOOD.

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