

## ***Interactive comment on “An advanced distributed automated extraction of drainage network model on high-resolution DEM” by Y. Mao et al.***

**Anonymous Referee #1**

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The authors present a modeling strategy that is designed to solve computational problems in the extraction of large river networks from high-resolution digital elevation models. I do not think that this is a relevant problem in the area of water resources for two main reasons. In absolute terms, digital elevation models as large as 400 millions cells can be processed accurately with CPU times in the order of 24 hours. Good programming and adequate RAM equipment is all we need in order to obtain these performances. In relative terms, river network extraction is a preprocessing task in hydrological modeling, and the computational costs required to describe runoff generation and propagation processes are much greater. State-of-the art methods for the determination of river networks from high-resolution digital elevation models are accurate and computationally efficient. With respect to existing methods, the authors' work

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does not make a significant new contribution to the area of water resources in my opinion. In any case, several important points are inadequately addressed in the authors' investigation. Specifically:

• the review of the existing literature on the subject is incomplete • the original contribution provided by the authors is inadequately identified • the improvement offered by the proposed modeling strategy over existing methods is inadequately shown

For the reasons mentioned above, I recommend that the paper is rejected for publication in Hydrology and Earth System Sciences.

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