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Interactive comment on "A novel algorithm with heuristic information for extracting drainage networks from raster DEMs" *by* W. Yang et al.

Anonymous Referee #2

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The paper aims at introducing a novel method for deriving drainage networks and flow paths, especially in flat areas. In general, this topic is well within the scope of HESS but, however, a series of critical points remain. I don't want to add more comments concerning the originality of the manuscript, the novelty of the algorithm, the missing comparisons with other approaches and the literature review, as reviewer #1 has already pointed out all these issues very clearly. I just want to add that it is a matter of respect towards the scientific community to honor the reviewer comments and that it is a duty for authors to consider their suggestions. Re-submitting a previously rejected paper in a different journal is simply poor scientific practice. Besides that, I want to add some technical details. As a reviewer with only expertise in the field of data capturing for DEM generation, I want to highlight that many of the problems in conjunction with the derivation of drainage networks and flow paths - especially the problem with sinks

– already start earlier, namely when processing the primary topographic data, with other words during the DEM interpolation. The paper mentions this issue but most of the cited articles are more than 20 years old (O'Callaghan, Jenson). A more thorough discussion of modern data sources for topographic data acquisition (LiDAR, RADAR, Photogrammetry, Image matching, ...) would be desirable. There is a lot of literature concerning appropriate DEM interpolation techniques. As the flow path derivation is very sensitive to sink-freeness, it is inevitable to consider this fact already during the DEM interpolation. The geo-statistical approach of Kriging, for instance, considers the spatial data distribution of the (primary) topographic input data and is well known to produce much smoother surfaces than simpler interpolations strategies like, e.g., Delauney Triangulation. Furthermore, the random (height) errors of the measured points are considered (linear prediction) within the interpolation procedure. TINs on the other hand, directly propagate the measurement errors into the DEM surface, thus, leading to rough surfaces with many pits and sinks. The overestimation or underestimation, respectively, of the heights in a raster DEM is stressed several times in the paper, but not the reason behind it. I judge this as a general lack in the discussion about the derivation of drainage networks in general, and of this paper in particular as it concentrates on flat areas. However, before that, more serious deficits, as already pointed out, need to be addressed.

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