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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Assessing the quality of Digital Elevation Models obtained from mini-Unmanned Aerial Vehicles for overland flow modelling in urban areas" *by* J. P. Leit ao et al.

Anonymous Referee #1

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General comments:

The article is interesting; UAVs are employed in always more applications within the environmental topic, as testified by recent literature. Use of UAV for generating DEMs is not new but the comparison of DEMs in urban context, in particular with the LIDAR derived topography, presents some novelty and deserves accurate discussion. Potential benefits of UAVs are evident: in particular the low cost and the capability to fly with different tree foliage conditions. Indeed it is crucial to assess the quality of DEMs produced with UAVs, and this work represents a good contribution, especially in a challenging condition such as the urban areas; notwithstanding the present work

should be improved. The Authors state that one of the objectives of the research is to understand how UAV flight parameters affect the DEM quality, but within the article such aim is not adequately described. 14 DEMs have been produced (plus 2) with different flight parameters from flight altitude to weather conditions, and only one has been compared with the LIDAR DEM. The Authors state that the impact of the flight parameters on the DEM quality metrics was not substantial, but I believe some data should be presented. In the discussion section, the comments are quite generic and not supported by quantitative data; some paragraphs of the discussion could be more suitable in the introduction section, hence I believe that introduction and discussion should be rearranged based on more results.

Specific comments:

Pag. 5637, first paragraph: it could be useful to report a small description on the surveying points, in terms of quantity and characteristics, since the DEMs comparison is based on such points.

Pag. 5640, rows 10-12. It could be interesting to test a different flow routing scheme, in particular a multiple one, that can contribute to better represent the surface flow in particular within the urban context, often characterized by small slopes.

Pag. 5648, row 23. J.B. Vilmer reference is missing.

Reference section: Hutchinson and Gallant (2000) is not cited in the manuscript.

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