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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.

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The research presented in this paper performs a good "sensitivity analysis" of DEM born from UAV photogrammetric campaign, and tailored for overland flow modelling purpose. The focus is put (i) on identifying parameters that influence the photogrammetric dataset quality and (ii) on comparing the UVA born DEM with LiDAR based DEM.

For (i), the material, method and metrics used for comparison are interesting and well presented. Discussion is faire regarding this objective. In my opinion the parts con-

cerning (ii) should be improved to give more information about context, objectives and conclusion.

My justifications regarding this opinion and suggestion for improvement are following:

LiDAR data is a different technology compare to photogrammetry. These topographic data gathering technologies do not offer same advantages and limitation for a given application (such as gathering topography in an urban environment). This should be quickly recalled in more detailed way (for contextualization) (e.g. in section 2.2). More over the objective or context for the LiDAR topographic campaign should be emphasis (this dataset might has been gathered for a multipurpose use, which is different to the UVA –Photogrametric campaign dedicated to urban sector DEM elaboration).

UVA, which is the vector for the photogrammetric campaign whereas, if I get it right the LiDAR campaign has been gathered using specific flight as vector (having probably a high flight elevation and different properties).This should be linked with previous comment (regarding objective/spatial extend of the LiDAR campaign).

Results are not as comparable between the two categories of DEM as presented by authors (important differences are presented in figures 5), or at least, a longer discussion regarding explanation for the differences should be provided. Are vegetation and leaves (terrain physical properties) the only explicative point regarding differences or are vector (UVA and airplane flight) parameters responsible for some of the differences (my intuition is, yes here)?

Lastly, conclusion regarding this part enhance that advantages of UAV born DEM. It should be interesting to open the conclu/discussion on possibilities of photogrammetric data to be photointerpreted/classified which is an interesting perspective for objective/tailored DEM creation. Limits should be recalled in conclusion as well : practical difficulties regarding legislative framework for UVA flight, limitation regarding spatial extend of gathering campaign with UVA and the data manipulation (possibly "big data" not easy to handle by standard operator/practitioners without decreasing the quality).

Thank you for your work, I did insist only on (ii) as I think that improvement would make this paper go to another level but the part (i) is really complete an well presented. Hope this helps.

Best regards, Morgan Abily PS: I have a couple of suggestion regarding orthograph and grammar but no time to scan it. If you want to? I can send it through email on Monday.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 5629, 2015.