

Interactive comment on “Identification of stable areas in unreferenced laser scans for automated geomorphometric monitoring” by Daniel Wujanz et al.

Anonymous Referee #2

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The paper “Identification of stable areas in unreferenced laser scans for automated geomorphometric monitoring” presents a useful approach in the context of multitemporal analysis of laser scanner points clouds for change detection. The paper has good potentialities and the approach seems promising, however there are several critical points requiring major revision. As a first point the paper is not easy readable, the structure should be improved and the English language checked. In regard to the methodology and the presented case studies there are various points requiring a better explanation or even further analysis. Some of the more important critical points are listed in the following lines; for more technical comments see attached pdf (commented).

1) The methodology is not clearly explained, including its limitations: for example how is defined the dimension of octree cells? Moreover, for a good alignment, how the stable areas should be spatially distributed in the studied domain? In your figure 1 the “stable cubes” are almost all clustered in the corner.

2) The most critical point of the article for me is the validation of the proposed approach. As first point, it could be worth to test your approach with synthetic data sets (I mean simulated) in which you can control noise, location of stable areas, the distortion between point clouds, etc.. Clearly, reality is generally more complex; however, with synthetic data at least you are sure of how the algorithm works in defined conditions. Then, the validation of your approach for the identification of stable and unstable areas in front of the reference data sets seems to present some weakness; from your discussion is not clear how much accurate are your reference data sets. Linked to this, from your description of ground control points for the different study sites, the reader may draw the conclusion that it would be difficult to define stable and unstable areas with comparative approaches: so, one can expect high uncertainty in your reference data sets. Maybe you could use a case study in which you have a more efficient network of control points so as to have a more accurate and precise reference dataset for comparison.

3) In the section 5 “summary and outlook” you give mean values and standard deviations for classification of stable and unstable areas; I think that calculating mean values and standard deviations from 3 samples is not much informative.

Please also note the supplement to this comment:

<https://www.earth-surf-dynam-discuss.net/esurf-2017-41/esurf-2017-41-RC2-supplement.pdf>

Interactive comment on Earth Surf. Dynam. Discuss., <https://doi.org/10.5194/esurf-2017-41>, 2017.