

The authors have done a good job revising the manuscript and thus improved their manuscript significantly. All questions have been responded to. However, some (technical) questions still remain open and should be clarified prior considering the manuscript for publication, especially if the contribution is considered as technical note.

Question: chapter 3.1: Why did the authors not exclude some of the coded targets (because many are given) during the bundle adjustment so these targets could be considered as check points and thus used for accuracy assessment of each SfM surface and camera geometry reconstruction?

*Answer: We contemplated this but some targets weren't well detected on every DEM, especially during the early experiments. We preferred to keep the entire target set and try a different way to estimate the error and precision using the model surfaces rather than a few targets.*

Nevertheless, additional check points improve the error assessment of the SfM model significantly if more targets than necessary are captured and used as check points. Maybe it is worth noticing it in the manuscript.

Question: p. 4 L. 9-10: The usage of just one value (mean of entire DoD) is not able to describe the spatially variable error, e.g. due to potential tilting. How is this considered for the decision of the DEM?

*Answer: Indeed, the mean value isn't able to describe a potential tilting; nevertheless we didn't noticed any consistent spatial variability (see figure below) on the DoD or a tilting on the cross section or longitudinal profiles.*

Maybe the authors should at least consider the standard deviation, as well, to consider systematic effects to some degree?

Question: p. 4 l. 10-12: How certain are the authors that surface changes to the previous time interval are not conflicting the decision for the most suitable DEM of the subsequent interval?

*Answer: The two DEMs for each time interval are generated by the same process each time. They are therefore detecting the same changes from the previous DEM so that both DoDs contain the (same) real morphological change as well as the DEM error. Our method was intended to include potential differences due to DEM error and to select the DEM for which the 'global' errors were smallest. We are assuming that the DEM error will add topographic bed variation and so increase the mean value.*

But what happens if changes occur and one DEM captures them better than the other and shows larger deviations to the previous DEM although they are more precisely than the other DEM with higher error and also lower deviation to the previous DEM because changes are not as well captured? How are such potential cases mitigated?

Question: p. 6. l. 11: Why is the fixed focal length essential during low light conditions and low texture? The interior geometry does not influence these circumstances. The fixed focal length is important regarding a reliable camera self-calibration. Good texture is essential for feature extraction and matching but not influenced by the stability of the focal length. To improve texture

e.g. aperture and/or exposure time should be adapted (see Mosbrucker et al. 2016 for much more detail).

*Answer: We have rephrased this to reflect the point. The fixed focal length is useful at close range (not relevant for UAV imagery) to keep the focus as sharp and consistent as possible which has a major effect on the quality of the results if low light affects the auto-focus.*

But the focus “stability” (?) has nothing to do with the lens type. In zoom as well as fixed lenses focus can be changed. Furthermore, why did the authors use auto-focus at all? This should be avoided especially if the authors use Agisoft lens for prior or posterior calibration. As soon as the focus changes (which can happen often for auto-focus settings) the camera calibration is no more valid. Also, the authors measure the surface from the same distance and thus could set the focus manually.

Question: p. 7 l. 1-2: How was the DEM interpolated from the dense point cloud? PhotoScan offers different options potentially influencing the final DEM.

*Answer: We use the Photoscan interpolation (enabled option).*

Maybe, the authors should discuss a bit more the potential impacts of interpolation error. For instance, was it necessary to interpolate empty cells and how are more than one point within one cell considered?

Further question:

p. 6 l. 17: How does a fixed lens influence the sharpness of an image? It should be possible with a zoom lens, as well.