Review Tomczyk and Ewertowski

This is a data description of a detailed dataset regarding a GLOF event in Zackenberg. Albeit surely unique, I am wondering if the accuracies hold in an absolute sense, as no GCPs are taken and creep may have been significant and unpredictable since 2014. If this doesn't hold, it is also not a dataset which will be useful for many follow-up studies.

In that respect it should warrant publication as a one-process dataset. There, however, I see too many papers using it already, of which 2 are Journal papers, and 2 Zenodo repositories.

Tomczyk, A. M., and Ewertowski, M. W.: UAV-based remote sensing of immediate changes in geomorphology following a glacial lake outburst flood at the Zackenberg river, northeast Greenland, J Maps, 16, 86-100, doi:10.1080/17445647.2020.1749146, 2020.

Tomczyk, A. M., Ewertowski, M. W., and Carrivick, J. L.: Geomorphological impacts of a glacier lake outburst flood in the high arctic Zackenberg River, NE Greenland, J Hydrol, 591, 125300, doi:10.1016/j.jhydrol.2020.125300, 2020.

Tomczyk, A. M., and Ewertowski, M. W.: Before-, during-, and after-flood UAV-generated images of the distal part of Zackenberg river, northeast Greenland (August 2017), doi:10.5281/zenodo.4495282, 2021a.

Tomczyk, A. M., and Ewertowski, M. W.: Before-, during-, and after-flood UAV-generated digital elevation models, orthomosaics, and GIS datasets of the distal part of Zackenberg river, northeast Greenland (August 2017) doi:10.5281/zenodo.4498296, 2021b.

I really don't see a reason why to recycle this once more, particularly, since I am doubtful that it really gives the absolute accuracy required for follow-up studies.

Figures are graded colourmaps and I don't think they qualify for barrier-free colour codes for colour blinds. Also, they don't show categories and it is hard to make use of them.

L8 2x Arctic. Is ‚intense' good wording here?

L9: sounds as if climate warming was neither low-freq nor high-magn. Suggest expanding

L10: grammar: singular/plural!

L18: of a glacier lake…

Intro

L25: riverscape evolution… sounds weird to me

L33: and commonly occur: something with grammer there

L34-36: too many refs that refer to a very broad statement

L38: of a moraine dam

L44: in the case of Zack, I believe we will rather see the opposite with glacier thinning??

L48: related to a glacier lake…

L48: leaving behind serious… sounds jargon to me

L61-66: direct repetition of abstract.

L71: suggest ‘glacier-covered’ instead of glaciated

L69: ZR could warrant an abbreviation

L74: check refs and GEM database. It is >200 to my knowledge.

L77: do Bendixen et al refer to ZR specifically? Check also Landegaard-Pedersen 2017 for the sediment part

Fig 1: Is it Young Sund or Young Sound in English? Unsure. What is the basis for the isolines? Acquisition date of ice margin extent? The bridge is referred to in the text but not in the map

L91: what is medium-term in this context?

L91-95: repetition to the above?

L97: delete: relatively long?

L98-99: delete. It comes later. No ref to TLS (wrong abbreviation used) necessary in my opinion if you don’t use it. If at all in the discussion

L100-106: add brand of sensors

Fig. 2: show in Fig 1 extent. Is it really 0.5 m you get from GoogleMaps? Doublecheck

L123: what are good weather conditions? Specify or omit

L129: remove: ‘so’

L148: why? It is part of the station infrastructure. In 2017 the bridge was there, was it not possible to cross? I am surprised and a bit doubtful by the lack of GCPs

L150: This is all permafrost, even large boulders may move due to creep, definitely between years. I am doubtful that the accuracy can be achieved down to say 4 mm (Tab1) if no GCPs are taken. Even if we refer to the 0.12 m to 0.15 m this may be within the moving conditions of the terrain over 4 summer seasons if you use the COWI DEM. This warrants at least discussion.

L158: which units?

L173: ground-truthing

L173: vector were vectorized… reword

Fig 3: the color scale of a and e is not useful: use contours and descrete colours as well as contour labels. Also very strange: after the flood the elevation of the orographically left river bank is in the order of 13 m higher than the right river bank?? I have some doubts that this is realistic undercut, also when I look at 3g. if that was the cassse, the yellow colours would likely disappear in 3e and just the plateau remains. Mark extent in fig 1. Scarp and drainage is strange to me here. What is the water body in the upper left corner of the fig? Does a map with different colours related to the slope qualify as ‘geomorphological mapping’?

L189: how do you relate this accuracy to potential permafrost creep?

L194: by then they will have moved again to some extent I fear. It is necessary in such an environment to have DGPS GCPs for each survey if such high accuracy should be obtained.

L195-205: please make it very clear what is precision within the 3 DEMs and what is the absolute precision.

Fig 4: the colour scale is unacceptable. Have contours or discrete ones. I cant see anything here. Also indicate where you are in an overview fig

Fig 5: same as above. Unclear what is shown. which tie point centroid? So here we have errors of up to 0.4 m?

L216-220: it is really unclear why this is relevant there. Stick to topics that occur

L224: do you have pictures of this undercut? It is a bit hard to believe to me

L235: yellowish is jargon I believe

L240: how can you assess the character of water flow from orthophotos??

L287: precision? Typo

Tab 2: why not showing the vectors in all maps (bridge, track). Is it really a 4x4 track??

L295-317: largely another repetition