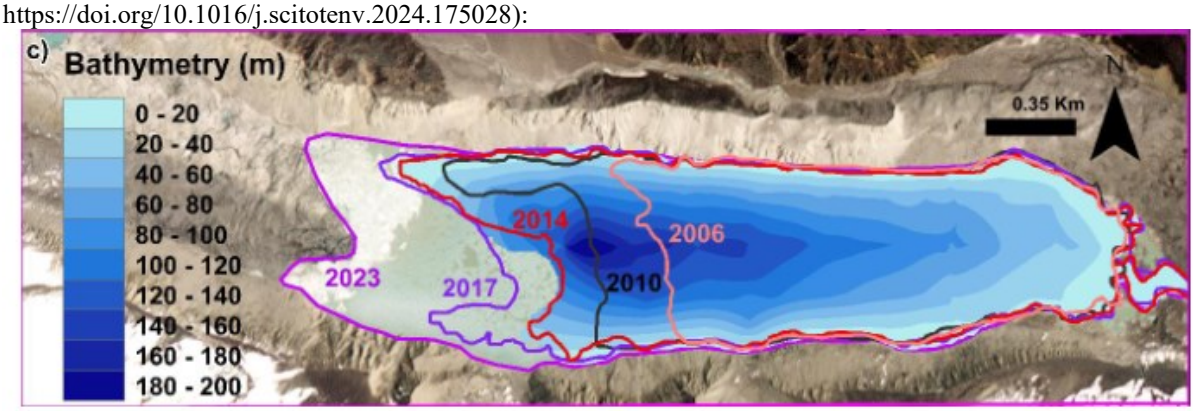
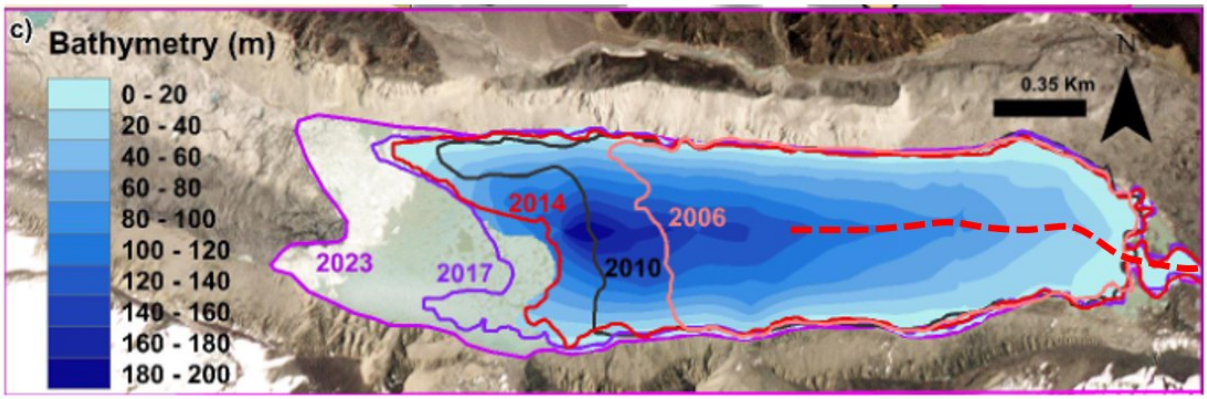
The authors reflected on my comment regarding dam geometry and introduced a characteristic named “dam depth” (“dam height” may be more suitable). However, it is not appropriate to consider that dam height is identical to maximum breach depth. The worst moraine dam breaches reported in the literature are up to several tens of meters deep, however, the authors consider > 100 m for most of the lakes, resulting in the overestimation of what is called the worst case scenario. Here I use the the example of Lower Barun lake to illustrate why:

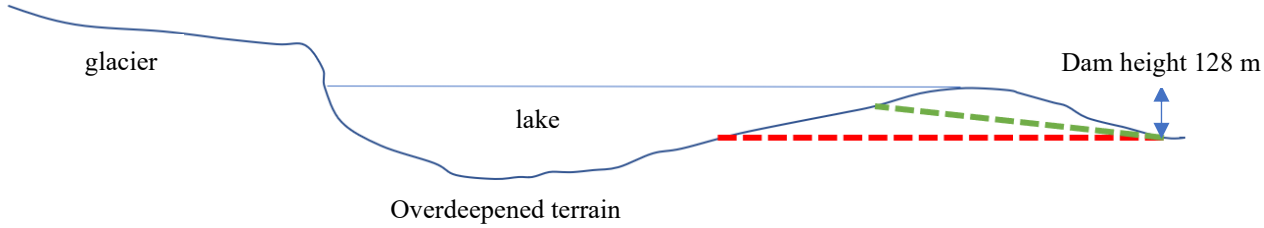
The authors estimated the dam height of this lake 128 m (from the toe to the crest) and consider this value the maximum breach depth. Now let’s have a look at the lake bathymetry from Gantayat et al. (2024; https://doi.org/10.1016/j.scitotenv.2024.175028):




I draw 128 m deep breach as dashed red line:




Such a breach (here I draw a profile) would have to be > 2,500 m long while its slope would have to be 0° at the same time (dashed red line):




Both these assumptions are unrealistic. In reality, the inclination of the breach channel will be > 0° (schematically represented by dashed green line). And this makes a huge difference. Further, since the lake occupies overdeepened depression, it is unlikely that the dam is even erodible to such depth (bedrock is likely at certain depth or the erosion would stop because of too low slope inclination of the channel).

Therefore, I argue that max. breach depths, flood volumes as well as peak discharges of all lakes with assumed breach depths > 100 m (and resulting flood extents downstream) are overestimated rather than "worst case".

I’m convinced that this issue should be addressed (or at least acknowledged) before the study is accepted for publication. Thank you.

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