This study by Mads Dømgaard et al. reports on a time series of 14 GLOF events from the ice-dammed lake at Russell Glacier, West Greenland. They have a uniquely long and detailed dataset of these events, including estimated volumes and drainage dates. This study nicely presents the record through time, including a more detailed analysis of the basin using high-resolution DEM and orthomosaics. The authors describe interesting observations of multiple drainage paths and a potential change over time. Datasets such as the authors present are important for understanding ice-dammed lake drainage dynamics and their evolution over time.

General comments:

Within the text, there are many long sentences which can be difficult to interpret- I suggest trying to shorten sentences/remove extra words to improve clarity. The overall manuscript and structure are well organized.

I don’t believe the authors discussed the presence or absence of ice within the ice-dammed lake. If ice is present, I suggest looking at Jenson et al. (2022) for how ice presence can influence lake discharge/volume and may produce discharge values different than would be expected.

Specific comments:

L11-12: Difficult to follow. Perhaps “…are frequent in Greenland and can influence local ice dynamics, cause geomorphological changes, and pose flooding hazards.” – I’m not sure what you mean by “bedrock displacement”?

L13-15: Too many parts to this sentence—difficult to follow. Break into multiple sentences. Do this elsewhere in the abstract as well.

L20: perhaps use “~” instead of c.? more commonly used- here and throughout manuscript

L22: for consistency, say “drainage dates ranging from late May to mid-September and drainage volumes ranging between…”

L61: remove “and up”

L63: remove “reoccurring” – annual implies that it is reoccurring

L64: remove “different” – variety implies they are different

Figure 1: I believe the star should be “stream gauge”? The hydrograph is what is recorded, not the actual instrument that is in place

L68: “6th of September”
This sentence is a bit confusing. Please clarify. Is it the ice margin drainage route and outlet drainage route?

remove the comma after “Mission II”

did you mosaic them together? Or separately?

Was there any ice present in the lake? That could produce real differences in elevation of the lake surface? See Jenson et al. (2022)

“…spacing of 20 m, however, they vary depending on the visibility of the waterline and by avoiding areas with apparent morphological changes.”

what do you mean “it only has”? Could remove “only” for clarity

“based on”

“Water discharge was then obtained”

Are these from manual discharge measurements? Or how did you take these measurements?

Did you apply a lapse rate? It appears that the weather station is ~200 m above the lake. Or clearly state if you determine this is not necessary

remove “through”

“respectively (Table 2). However, …”

I suggest removing “which show variations in timing and magnitude”

What do you mean by “weaken the ice dam”? In what ways?

Figure 5: It is difficult to follow the labels all the way to the plots on the right – it would be helpful to either add y-axis labels to all plots, or perhaps add a line at 0 degrees so it is easier for the reader to quickly see whether the temperatures are above or below 0 C.

could say “which is 63% lower than the 37.7…”

“explained by the observed thinning” – suggestion for clearer text

can remove “suddenly” and “sudden”

“low drainage volumes”

References