Holmes et al. present an Elmer/Ice-based modeling study regarding calving dynamics at Kronebreen, Svalbard, that yielded important insights into the field of calving initiation due to frontal undercutting. I congratulate the authors to this thoroughly performed and discussed modeling study. I have no severe concerns regarding publication of this article. However, in its present form, especially the visualization of the results lacks clarity and needs to be changed/improved in order to make the figure content more easily accessible to the reader. I recommend to accept the manuscript of Holmes et al. for publication in The Cryosphere after a minor revision along the issues outlined below.

Detailed comments:

L15: Maybe Svalbard should also be mentioned here, as the paper is about Svalbard.

L19f: Strictly spoken, "frontal ablation" also contains subaerial melt and sublimation at the calving front and should be mentioned for clarity (see Cogley et al. 2011, Glossary of Glacier Mass Balance, for details).

L24ff: Maybe it would be worth adding Svalbard's tidewater glaciers that have shown retreat over recent decades, which implies substantial calving (e.g. Braun et al. 2011, doi:10.1111/j.1468-0459.2011.00437.x).

L64: "supra-glacial melt" is rather odd, "surface melt" would be the right term (also to be corrected in the following)
Fig. 1: left panel: name the most important currents in the map; right panel: no needs for three decimals (one is enough)

L105: I’m not sure if this is the right location, but in any case it needs to be noted that you do not consider subaerial frontal melt/sublimation in your modelling.

L106-109: Additional information about e.g. mean velocities and errors/uncertainties of the calculated velocities must be presented here. Given the nature of the study, velocities at the front should be given special attention.

L179ff: The position should be mentioned from where the profiles were measured (maybe also indicate them in Figure 1).

Table 2: The term "Large icebergs" should be quantified somehow in the caption so that it can directly be distinguished from "All icebergs".

Fig. 4b/c: I find it very hard to distinguish between "All size" and "Large" in those figures. The presentation of the data should somehow be changed so that a straightforward differentiation is possible. I also think that this kind of plot is inadequate to visualize the results, as +80 and -80 cm are located in direct vicinity. A linear bar plot would be correct instead (it would also solve the problem that lines overlap frequently for small numbers of icebergs, which is in parts responsible for the problematic readability of the graphs).

Fig. 5: Same comments as for Figure 4. This needs to be changed here, too.

L264: correct to "... an impact ..."

Discussion section: It might be worth taking a look at another study that analyzed calving at Kronebreen (Sund et al. 2011, TCD, https://tc.copernicus.org/preprints/tc-2010-104/), even if the paper was not accepted for final publication. Maybe it gives some additional insights into the discussion.

Fig. 7: I have some problems with this figure, too: While I like the idea of showing the profiles in perspective, I think this makes visual comparison of the undercut sizes almost impossible. In (a) sizes are given for profiles 2 and 3. It appears that the undercut in
profile 2 is about four to five times as large as thin in profile 3, but this is by no means supported by the values given. Moreover, it is strange that profiles 1 and 4 are shown with their numbers, while undercut values are given for profiles 2 and 3. I suggest to change the presentation of the profiles in (a) to individual x (distance from calving front) vs. y (depth) line graphs. This would allow the reader to get the right idea of the sizes of the undercuts.

L345 "We note..." instead of "The authors of this paper note..."?

L390: It needs to be discussed to which extent the fact that subaerial frontal melt was not considered in the model (only one single simplified overall frontal melt), has an impact on the results. I mean, frontal melt rates are different below and above the water line, which clearly also impacts the creation of undercuts.