

Summary and general comments

I would like to thank the authors for the substantial amount of work they put in the revision of the manuscript. The structure was much improved. I have a couple of minor additional comments (the page and line numbers refer to the latest manuscript version). The comments often concern sentences that are unclearly worded and hard to understand.

Content-related (text)

Line 2: “where and when” → it’s maybe better to leave out the “when” here. The timing of discharge is rather uncertain (→ runoff routing delay was not accounted for in this product).

Line 6: shouldn’t it be 22645 days?

Lines 10 – 12: “spanning four orders of magnitude ... +500%/-80%”. → this part is difficult to understand (without reading the manuscript). Can you rephrase it?

Line 26: what is meant by “stream spatial resolution”?

Line 42: I would already mention “bed topography” here

Line 57: “ERA 6-hour” → I guess “ERA-Interim 6-hour”

Line 57: “RACMO (v 2.3p2; Noël et al. (2018)) ran with 5.5 km” → is it really 5.5 km – not 11 km?

Line 65: what is meant by “other RCM output”?

Line 76: I find the term “±95 % quantile range” odd. An alternative name could be “5-95% quantile range”

Line 93: what values was selected for this threshold?

Line 107: I was not able to find the “seven-day smoothing filter” in Van As et al. (2017)

Lines 122 – 125: It’s difficult to follow this (long) sentence – could you rephrase it?

Line 126: I guess it should rather be “map projection of the statistically downscaled RCM product” instead of “map projection of the RCM”

Line 126 – 128: This part already confused me in the previous manuscript version. However, I think I understand it now: You have to perform the scaling because EPSG:3413 is not an equal area map projection, right?

Line 141: “The RCM ice domain” → is the MAR or RACMO ice domain shown?

Line 149: “the 95% prediction interval” → how to you compute this interval exactly?

Lines 160 – 161: I don’t understand this sentence: it seems odd to assume subglacial flow but compare streams with supraglacial features.

Line 166: remove “Alternatively” (also in line 169)

Line 202 – 203: “That runoff is both...” → I don’t understand this sentence; could you rephrase it?

Line 211: Why is the performance of MAR (0.45) much lower than the one of RACMO (0.88)?

Lines 212 – 213: “For RACMO this is...” → could you rephrase this sentence?

Lines 219 – 220: replace “not necessarily...” by “not necessarily the insufficient ability of the RCMs to simulate (near-surface) climate conditions.”

Line 222: “for all and only the days” → I don’t understand

Lines 222 – 223: “for example the...” → oddly stated, please rephrase

Line 224: “reports ~50% of the observed discharge” → not really visible from figure 4

Line 226: “where the RCMs do not cover...” → does that apply both to MAR and RACMO?

Lines 232 – 233: “or half of the range of the data.” → I do not understand this part

Lines 264 – 266: could you rephrase this sentence?

Line 272: “There is no way...” → I don’t understand the meaning of this sentence.

Lines 274 – 275: “The other two...” → I don’t understand this sentence

Lines 285 – 287: I find it a bit odd that the gauge location is shifted onto the ice. Can you explain this choice in more detail?

Line 307: what does ENE mean? East-Northeast? (same for “NNE” a line below)

Lines 327 – 328: “These agreements...” → I don’t understand this sentence

Lines 350 – 351: “Any ArcticDEM...” → could you rephrase this sentence?

Line 374: what is meant by “almost-overlapping ice basins”? Generally, this paragraph is difficult to understand (in my opinion) and could be improved.

Lines 392 – 393: “and the range of upstream...” → I don’t understand this part

Line 419: “the relative uncertainty between the bed to the surface increases.” → I don’t understand

Line 420: “may overflow away” → I’m not sure what is meant by this

Line 431: is this sentence correct? → “examined the uncertainty of modelled SMB for 95%”

Line 465: what you mean by “coverage algorithm”?

Line 466: “discharge can be” → I would replace “can” by “could” (because this method is not applied in your work; right?)

Line 469: do you really apply a lag function in this work? I thought it is only a seven-day smoothing.
Lines 484 – 485: “pushing the coast into fjords...” → I don’t understand this part
Line 486: “10 m bin at 0 m elevation.” → I guess this refers to the bin ranging from 0 – 10 m, right?
Line 486: does “± 10 m” refer to 0 ± 10m?
Line 500: why only the “non-ice-covered land surface”?
Line 503: what is meant by “from all previous freshwater sources”?
Line 513: neglecting routing delay also contributes to the uncertainty in discharge timing and should be mentioned here.
Line 515: I don’t understand “half an order-of-magnitude” here (also in line 580)
Line 517: again, do you really introduce a temporal lag?
Line 526: “and may be systematic (bias).” → what do you mean by that?
Lines 528 – 530: I think this statement is incorrect: the errors add up according to $e_{\text{tot}}^2 = e_1^2 + e_2^2 + \dots$, right?
Line 587: What do you mean by “process-level”?

Typos, phrasing and stylistic comments

Line 54: “RCM results” → “RCM output”
Line 141: “, and RCM land domain not shown” → “and the RCM land domain is not shown”
Line 150: “observations vs. difference” → observations vs. bias”
Line 258: change “van As et al. (2012).” to “(van As et al., 2012)”
Line 261: remove “here”
Line 274: change “Uncertainty section” to “uncertainty section”
Lines 390: “... small enough it is usually difficult ...” → transition within sentence could be improved
Line 445: I would remove either “precise” or “accurate”
Lines 446 – 447: replace “but not ...” by “but not in the scatter plots.”
Line 453: replace “equivalent many” by “equivalent to many”
Line 474: is “prohibitive” the correct word here? Maybe “intensive” is better...
Line 519: replace “to annual sum” by “to annual sums”
Lines 583 – 584: replace “through spatial or...” by “through spatial/temporal aggregation or by implementing a lag function.”

Figures and Tables

General comments: The size of most graphics should be increased.
Figure 5: I’m confused by this graphic: why is the difference (bias) always positive? It should also be negative (if the observed value is higher than the modelled one), right? Or are the panels actually showing the relative biases (RCM (MAR or RACMO) / observation)? But then, the y-axis should be unitless.
Figure 5: caption: “RCM minus observations” → “RCM bias”
Figure 7b: I find it a bit confusing that only the last calendar year is shown here (but all data is used for the graphics below). Maybe it’s better to put the full hydrographs in the supplementary material?
Figure 7c: the colour bar should be moved outside of the panel (for improved readability)
Figure 18: Are there really land outlets with elevations up to ~1500 m? And why are “absolute land outlet elevations” plotted in the bottom panel (and not also negative values)?

Access to online data

I briefly checked the “Discharge measurement at the outlet stream of Qaanaaq Glacier” and I’m still not able to find the units of the provided values. Are there stated somewhere?