

RC2: ['Comment on egusphere-2022-1088'](#), Anonymous Referee #2, 21 Jul 2023

Reviewer comments in **black**

Author modifications in **red – submitted 16.08.2023**

General comments

RC01: The authors have addressed my previous comments well. Particularly the inclusion of the uncertainties section was a big improvement. I have only a few minor additional suggestions on the manuscript:

AC01: We appreciate thorough review of our work. It has improved the manuscript.

RC02:L81: change “direct impact glacier runoff” to “direct impact on glacier runoff”

AC02: Fixed, see L81

RC03: L239: since the authors have added a validation of the outgoing radiation, the section no longer only evaluates the model forcings. I would suggest changing the title of 4.1 to “validation of meteorological forcing and model outputs” or similar

AC03: Fixed, see L239

RC04: Section 4.1. Although the turbulent fluxes are not measured, could they not still be calculated using the bulk method? In this case, the whole energy balance in the model could be evaluated. If the windspeed is calculated at a different height, a simple logarithmic relationship could be assumed to get the values at 2m. And even if the fluxes cannot be calculated for the whole period, due to data gaps, could it not be used to evaluate part of the period?

AC04: Correct. For the work presented here we choose not to do so.

RC05: L346-47: Currently, the sentence states: “The bare-ice areas generally reach a certain lower limit (0.1-0.25) limiting further radiative forcing” - surely there is still radiative forcing even if the albedo reaches a minimum value? Do you mean that it limits the effect of the albedo on the radiative forcing?

AC05: Yes, this is poorly worded. We have modified the sentence to, see L345:

“The bare-ice areas generally reach a certain lower limit of albedo (0.1–0.25), limiting further effects of albedo on short-wave radiative forcing, although the timing of bare-ice exposure is important.”

RC06: L368: What is meant by higher values being observed at Drangajökull and NE Vatnajökull? Higher values of SW or total energy balance? And is it higher values for all years, or all years excluding 2010 and 2011? Please clarify in the text.

AC06: Here a typo was pointing to the wrong figure, see L368

„As shown in Figure 4...” has been changed to „As shown in Figure 6...” and „Higher values were observed for Drangajökull and the northeastern outlet of Vatnajökull” removed.

RC07: L503: what is meant by “obvious” trends? An increasing trend of how much?

AC07: The sentence refers to trends in warming, increased mass balance etc, pointing out that even if we do not find significant changes over the 20-year period they truly exist in Iceland.

We rephrased the sentence to, see L503:

“Trends over longer timescales for glacier runoff and increased mass loss of Icelandic glaciers are obvious and have been confirmed in other studies.”

RC08: L566: Wittmann et al., 2017 and Schmidt et al., 2017 both use HIRHAM5, which should calculate the cold wave in the snow during the winter. They therefore do not assume a zero sub-surface heat flux, as it will vary over the winter.

RC08: Wittmann et al., 2017 and Schmidt et al., 2017 both use HIRHAM for their climate forcing data. For comparison of AWS data (SEB from AWS) they used calculations schemes developed by Guðmundsson et al., 2006. The model does not include a subsurface module.

We modified the sentence from:

„The assumption of zero sub-surface heat flux has been applied in many recent studies of energy balance and surface melt for Icelandic glaciers“

To in L566

„The assumption of zero sub-surface heat flux for AWS data has been applied in many recent studies of energy balance and surface melt for Icelandic glaciers“

RC09: Figure 4: Consider using thicker lines, as they are a bit hard to see (particularly the yellow)

RC09: Lines have been made thicker.

RC10:Figure 7: consider expanding the y-axis, so that the glacier names do not overlap some of the plotted points.

RC10: Text move to the right side on each panel. No overlap.

RC11: Figure B3: Mýrdalsjökull is misspelled in the title of both subfigures

RC11: Updated and fixed. The figure for Hofsjökull also had a typo, fixed as well