

Dear Dr Sandells,

Thank you for your thoughtful review of our manuscript. To address your comments from we have changes as detailed below.

Best wishes,

Nick Steiner

Page 4, line 4: retirevals -> retrievals

Pg4Ln111 – We have corrected the spelling error.

Page 12, second paragraph: 'never above zero but experience above zero maximum glacier surface temperatures during starting in June 2019' should this be maximum air temperatures at the glacier surface?

Pg12Ln330 - Thank you for your comment. Here, we are referring to the maximum daily glacier surface temperature as calculated from SEB. To clarify these results, we have corrected the text to (1) only discuss maximum daily temperatures and (2) indicate the SEB glacier surface temperature as  $T_s$  and the daily maximum air temperature as  $T_a$  as defined in the previous paragraph.

Page 17, 1st paragraph: '≈5,400-6,2000m' -> ≈5,400-6,200m

Pg17Ln432 – Thank you for your comment, we have corrected the upper elevation range.

Page 18: 'brightening of the radar signal due to surface scattering contributions from wet debris'. Would absorption in wet debris result in a decrease in backscatter or is this potential effect more to do with roughness effects or the composition of the debris?

Pg18Ln470 – Thank you for your comment, we agree that this statement needs to be clarified. We have added text to indicate that our understanding is that over ablation surfaces, like debris-cover, changes in backscatter during snow-off conditions may be dominated by scattering from surface roughness rather than absorption effects.

Supplementary material - is the longwave radiation measured or modelled?

The longwave flux is computed using measurements of incoming longwave radiation and the outgoing longwave radiation computed using the Stefan-Boltzmann law. We have updated the supplementary material to include this information.