The authors would like to thank the reviewers for their comments and feedback. Our answers are presented below in blue.

Major comments

Emissivity: The authors note the high, near-blackbody, emissivity of snow surfaces with some variation due to grain size, but neglect to address the angular variability of snow emissivity (see Dozier & Warren 1982, which the authors did cite). The difference between observed temperature using a blackbody assumption and the true surface temperature of snow is likely much larger than the errors from other sources that the authors did investigate (e.g. window transmissivity). High spatial resolution DEMs of the study site were used in the projection of the imagery, therefore I suggest that the authors use these same DEMs to estimate snow emissivities given the varying view angles across the study site. Alternatively, an additional map could be provided with the dataset to show the variation in view angle across the study area so that a user of the data can apply their own angular emissivity corrections across the image.

As this comment was raised by both reviewers, the following answer is common to the two reviews. As pointed out, the emissivity of snow is likely decreasing with the angle of observation. However, only few measurements of the directional snow emissivity are available in literature. These observations suggest that snow cover emissivity is mostly isotropic in contrast with most natural surfaces. However, angular variations were observed depending on several factors including density, age and grain size and there is no consensus on how to model them. To avoid an inappropriate correction, our approach is to consider that this effect contributes to the global error, that is assessed by the comparison with the ground truth measurements (that are not affected by the grazing incidence of the camera).

Nonetheless, to facilitate further investigation, as suggested by the reviewer, we add a map of the observation angles of the snow surface temperature in the published dataset.

To clarify this, the paragraph at L350 in the Discussion was modified as follows: "Another limitation of the current dataset concerns the emissivity. We assume snow is a perfect black-body and do not attempt to apply an emissivity model due to the lack of consensus on the topic. However, snow emissivity is known to be slightly lower than 1 (Hori et al. 2014) and to decrease with the observation angle, especially for angles over 45° in the 12-14 μm TIR window (Dozier and Warren, 1982, Hori et al., 2006). We assume this error is included in the global error, assessed by the comparison with the ground truth. To facilitate further analysis by the data users, a map of the observation angles of the area, computed as in Castel et al. (2001), is included in the dataset. Moreover, downwelling longwave measurements performed at the Col du Lautaret site are supplied (FluxAlp measurements for winter 2021-2022, AWS-North and AWS-South measurements for spring 2023). With these measurements, the surface radiative temperatures can be adjusted to accommodate emissivity values < 1".

Image projection: Inspecting the TIR imagery, I noticed an area in which there were significant parallax effects due to the images of trees being projected onto a large area of adjacent terrain (see attached Figure 1). It appears that this line of trees (behind a snow fence from the camera's point of view) occupies a slight rise in terrain before the terrain dips into a ravine or stream valley below. When the TIR images are projected using a bare-ground DEM, the sides of these trees are therefore draped across a large swath of terrain, making it appear that this terrain is the same temperature as that of the sides of these trees. Though the parallax effect causes this same "lay over" of trees elsewhere in the imagery, those instances are of much less concern since the terrain behind the trees rises uphill (therefore the area of terrain they are projected onto is much smaller). Ideally, regions of the image where the land surface is not visible (such as behind large trees) should be masked out like was done for the hill slopes hidden from view, and/or a digital surface model should be used for projection (one that includes the "surface" of large vegetation). Otherwise, it would be sufficient that the paper should at least mention this issue in the images, and call out the one particular region where the effect is most significant. Users of the imagery data can then mask out this region themselves. (And a related minor note, the road passes this same location as this stand of trees such that if an image was taken just as a car was driving by, the projection stretches the car across the terrain creating a narrow streak of very warm temperature in the image. See attached Figure 2. This is understandably not avoidable, but would be worth mentioning in the paper as an artifact of the image projection.)

We acknowledge the presence of important strikes pointed out by the reviewer. To compensate, we add the following paragraph to the Discussion section to inform dataset users: "Dataset users should account that the camera FOV contains not only snow but also rocks, trees, a road and wood fences. Moreover, during the orthorectification process, some vertical features such as tall trees or wood fences are projected over long distances on the DEM behind their actual position because of the oblique angle at which the camera is installed. This is always the case behind the snow fences in the central part of the image and can happen when cars are driving on the road in the camera FOV (Fig. 2)".

Minor comments

Lastly, I have one minor comment: Section 4.2 describes quantifying the transmissivity of the germanium window of the TIR camera housing. Are there specifications from the manufacturer of this window that these results can be compared to?

The transmittivity value of the camera window supplied by the manufacturer is 0.92, while we found 0.95. We recommend to carry on an independent assessment of the camera window properties for three reasons. First, no reflectivity or emissivity values were supplied. Second, the transmittivity supplied by the manufacturer is lower than the one of most Germanium windows with anti-reflection coating (0.95-0.99) available in commerce. Third, the anti-reflection coating of the window is made out of polymers that can be damaged by atmospheric UV radiation. We therefore also recommend to determine theses properties periodically. To make this aspect clear, we modify L167 as follows: "The manufacturer supplied a transmittivity value of 0.92 but no reflectivity or emissivity values. Moreover, we found this transmittivity to be lower than most Germanium windows with anti-reflection coating (0.95-0.99) available in commerce. Also, atmospheric UV radiation can damage the anti-reflection coating in time and cause these parameters to change. Transmissivity, reflectivity and emissivity (t, r and e) of the camera's window were thus estimated experimentally to provide a correction".

Finally, although not requested by the reviewers, two figures were added to the manuscript to highlight the utility of the dataset. The first is a full timeseries of the snow surface temperature measured at AWS-South from between December 2022 and May 2023, compared with the TIR radiometer. The second illustrates four examples of spatial patterns of the snow surface temperature under different atmospheric conditions: a night with clear sky, a day with clear sky, a cloudy day and a melting day. To implement these figures, L376 was modified as follows: "The full timeseries are shown in Fig. 13. Finally, the images in Fig. 14, acquired under different atmospheric conditions, show the variability of the patterns of the surface temperature of snow caught by the TIR camera. Beside these examples, the dataset provides numerous other situations that deserve further exploration."