

## Referee comment 2:

**[RC2-1]** This brief communication by Brun et al. is an important and timely response to the recent paper by Potocki et al. (2022) reporting dramatic ice loss from the Everest South Col Glacier. From differences in photogrammetric DEMs rather than dating an ice core, Brun et al. concluded that the 1984-2017 surface elevation change did not statistically differ from zero. Both studies then attempt surface mass balance modelling to interpret their results. The authors of Potocki et al. (2022) have already responded in the discussion. Implications of their comment that Brun et al. have given the wrong elevation for the ice core should be considered. Rather than the comment that the modelling by Brun et al. challenges the possibility of such large thinning rates, however, I would say that they have demonstrated that uncertainty precludes firm conclusions from modelling in this case.

**[ARC2-1]** We want to acknowledge the anonymous reviewer for this assessment of our study, and for considering that our contribution is an important response to Potocki et al. (2022). We want to stress that the modelling used in Brun et al. (2022) does not aim at interpreting the results from DEM differencing (i.e. no thinning between 1984 and 2017) but rather illustrate the sensitivity of the models (Cosipy in our case) to arbitrary choices in the numerical and physical treatment of the surface energy balance. Our results show that uncertainties are large (for melt for instance) and consequently, no conclusion concerning surface processes can be drawn so far. See reply ARC1-3 for an exhaustive reply.

In figures 1 and A6 of Brun et al. (2022), the location reported for the ice core extracted for the Potocki et al. (2022) study is correct, with a horizontal approximate accuracy of +/- 15 m originating both from the coordinate precision provided in Potocki et al. (2022) and the uncertainty in the Pléiades geolocation. The elevation difference comes from the fact that in Brun et al. (2022), the elevation corresponds to height relative to the ellipsoid WGS84, and not the geoid. This was specified in the Figure A6 caption, but not in Fig 1 caption. Now all elevations are expressed as heights above the geoid, as suggested by reviewer 4 (see ARC4-14), and the contour lines in figure 1 have been relocated accordingly.

### Minor corrections

**[RC2-2]** Abstract - No need to be so cautious: "This is in contradiction"

**[ARC2-2]** Done

**[RC2-3]** line 202 - "melt that immediately refreezes within the same time step could occur"

**[ARC2-3]** This sentence has been removed from the manuscript.

**[RC2-4]** line 276 – "we suggest that the core"

**[ARC2-4]** Done

**[RC2-5]** line 370 - "E<sub>p</sub> is" or "E<sub>p</sub> is given by"

**[ARC2-5]** Done, we replaced "writes" by "is given by"

**[RC2-6]** line 382 - "u<sub>{\*t}</sub>"

[ARC2-6] Done: \*t has been put in indice

[RC2-7] line 395 - "(one hour)"

[ARC2-7] Done

[RC2-8] line 399 - "the former thicknesses of each layer"

[ARC2-8] This is line 385: thickness is now plural, as suggested

[RC2-9] line 436 - "is the ice thickness"

[ARC2-9] Fixed

[RC2-10] Figure 1 - The inset showing the location of Mt Everest is not referred to and is not necessary.

[ARC2-10] We prefer to keep the inset to locate Mount Everest. The inset is now referred to in the caption.