

Dear Peter,

Thank you for your detailed comments and suggestions. They have been instrumental in further improving the clarity of the manuscript.

The only suggestion that we only partially incorporated relates to rapid thaw. We have extended the paragraph in the introduction to stress i) that late-season subsidence can constitute a significant geomorphic change by itself, and ii) its potential as a precursor for long-term instability. We also mention its complementarity to field observations. We do not address the potential link to hillslope failures such as active layer detachments because we lack detailed observations. This is an exciting avenue for future research. On the Seward Peninsula, colleagues have observed hundreds of microfailures on hillslopes whose movement InSAR indicates accelerated substantially at the end of the record summer of 2019. Unfortunately, they could not revisit the site in 2020.

The following list presents a summary of our changes:

- We now contrast our approach, which focuses on a single summer, with previous long-term InSAR studies. We also stress that late-season subsidence in a single year can constitute a geomorphologically significant change.
- We emphasize the role of precipitation and moisture, as well as the fact that 2019 was very wet more strongly. We have added relevant references, also citing additional papers that focus on surface disturbance as a trigger of thermokarst for balance.
- We now devote more space (results section, figure caption) to negative late-season subsidence observations. In addition to clarifying that they correspond to heave between 10 August and 10 September, we also explicitly state that their magnitude is comparable to the observational accuracy. We have retained the kernel density plots because we contend they accurately reflect that there are negative estimates and because the number of data points is so large that scatter plots would be difficult to comprehend.
- We improved Fig. 3, most notably by labelling the three basis functions.
- We have adjusted the colourbar of the late-season subsidence maps so that they correspond to the spread of the data (no large negative values).
- We have fixed the erroneous figure references in Fig. 7 and the supplement.
- We have tried to end each paragraph in the subsection on limitations on a high note, by giving constructive suggestions on how these limitations can be mitigated.

Please find the revised manuscript and supplement as well as a version with tracked changes attached.

Thank you for your support and suggestions.

Kind regards,

Simon Zwieback