

Thank you for the feedback on our manuscript! Replies for specific comments are here under (comments are in italics and replies are in normal font).

*General recommendation to the authors would be not to limit the literature review to North American authors and pay attention to the Russian studies of recent hydrological changes and aufeis phenomena, all the more so that the first author clearly is able to read in Russian.*

We really appreciate your suggestion. We now included the following studies published by Russian researchers on winter river discharge increase as well as icings formation (they are highlighted in the text):

Alekseyev, V.R.: Naledi. Novosibirsk, Nauka, Moscow, 1987 (in Russian).

Alekseyev, V.R.: Cryogenesis and geodynamics of icing valleys. *Geodynamics & 366 Tectonophysics* 6 (2), 171–224, 2015. doi:10.5800/GT-2015-6-2-0177.

Makarieva, O., Nesterova, N., Andrew Post, D., Sherstyukov, A., & Lebedeva, L. (2019). Warming temperatures are impacting the hydrometeorological regime of Russian rivers in the zone of continuous permafrost. *Cryosphere*, 13(6), 1635–1659. <https://doi.org/10.5194/tc-13-1635-2019>

Markov ML, Vasilenko NG, Gurevich EV. Icing fields of the BAM zone: expeditionary investigations. Saint Petersburg, Russia: Nestor-History; 2017.

Pomortsev OA, Kashkarov EP, Popov VF. Aufeis: global warming and processes of ice formation (rhythmic basis of long-term prognosis). *Yakutsk State Univ Bull.* 2010;7:40-48.

Tananaev, N. I., Makarieva, O. M., and Lebedeva, L. S.: Trends in annual and extreme 437 flows in the Lena River basin, Northern Eurasia. doi: 10.1002/2016GL070796, 2016.

*Specific comments Line 17-19: I would suggest eliminating the following sentence from the abstract “If confirmed in other cold regions, those results will suggest orienting winter flow trend studies toward a multi-causal hypothesis in glacierized catchments”, as it sounds a bit boastfully.*

We modified the sentence to “If confirmed in other cold regions, those results could confirm the multi-causal hypothesis of winter discharge increase in glacierized catchments”. This wording allows us to highlight that our study supports the multi-causal hypothesis for increase in winter flows without sounding boastful as you pointed out.

*Line 445: change naturel to natural*

Thank you, it has been fixed!

*Last comment and scientific regards to the authors from the field studies of giant aufeis in the North-East of Russia (the Magadan region) where we are at the moment using the same methods as proposed in the paper – TLC, water and ice samples, though complimented by hydrological measurements of aufeis input into river streamflow. The photo is attached.*

Thank you for sharing the picture, and we hope that your field investigation was successful!