

Interactive comment on “Aufeis of the Indigirka river basin (Russia): the database from historical data and recent Landsat images” by Olga Makarieva et al.

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Comment: This is a fascinating analysis and I congratulate the authors on an excellent paper. I am very interested in where they might take this analysis from here. It seems to me that based on their data, there appears to be a declining trend in the number and/or size of aufeis in the study area. I am wondering if the authors could access additional satellite and/or aerial photography or other historical records that might allow them to determine if such trends are in fact occurring and attempting to quantify them.

Response: We added the Discussion section where describe the limitations of both datasets and provide the analysis of the area reduction of large and giant aufeis. The

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main limitation of the historical aufeis dataset is that the Cadastre provides an area of aufeis glades, but not the aufeis themselves. The satellite-derived assessment of the aufeis area has the other source of uncertainty. It is often impossible to determine the maximum area of aufeis by satellite images, since it is observed at the beginning of snow melt season, when aufeis are still covered with snow. In late spring and beginning of summer, the area of aufeis may already been significantly reduced in comparison with the maximum values, due to melting and mechanical destruction. The analysis of large and giant aufeis seems to indicate that there has been a significant decrease in aufeis area over the period of last 70 years. Additional analysis of historical aerial photography data could help to clarify the issue of aufeis area decline trend since the middle of the 20th century to the present. We plan to conduct such analysis in the future.

Please also note the supplement to this comment:

<https://www.earth-syst-sci-data-discuss.net/essd-2018-99/essd-2018-99-AC3-supplement.pdf>

Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2018-99>, 2018.

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