

Interactive comment on “Lithological and geomorphological indicators of glacial genesis of the upper Quaternary strata in the lower courses of the Nadym River” by Oleg Sizov et al.

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Dear Authors,

First of all thank you for your contribution!

This is potentially an important paper shedding some light and adding data on the glaciation history of NW Siberia. The main strength of the paper is comprehensive lithostratigraphic work in two sections of the Nadym river. Another strength, from the perspective of a reader outside of the Russian federation, are references to, and some discussion of older Russian/Soviet-era literature relevant in the field. This literature

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can be difficult to access and read for non-native Russian readers so this contribution is helpful for the general community in the field.

However, I see some major problems with the paper in its current state.

1.) The English language is poor and sometimes makes the paper difficult to follow and assess. I strongly suggest the authors seek significant help from a colleague or editor with good command of scientific English language before proceeding further with the paper. I have abstained from commenting of the language, because the corrections are so numerous that the scientific criticism would "drown" in language related comments.

2.) The figures and maps are just barely passable. In particular the maps in figures 1, 6, and 7 are not of very good quality. The lithostratigraphic logs in Figure 2 are very simplistic and does not indicate grain size, and I'm not so sure the sections are as featureless as the logs indicate. Please follow peer reviewed suggestions on how to log sections.

3.) Mapping of the landform record using TanDEM-X data is lacking! Figure 6 shows a shaded relief model of "Area of linear-ridged relief" and Figure 7 shows "Area of Kame relief". Perhaps my understanding of the paper is lacking but to me it seems these morphological inferences are very poorly related to the lithostratigraphic sections/logs K-1 and K-2. Figure 6 are c. 150 km away from the sections and Figure 7 are c. 60 km away. Why were these landforms shown in figures 6 and 7? Are there other similar landforms in the large area? How are they related to the stratigraphy presented in this paper and other published records? A much more comprehensive mapping of glacial landforms, for example in the whole Nadym watershed, would be needed to get an overview of the glacial extent and ice sheet dynamics of the area. Please have a look at for example the following paper by Larsen et al. where the authors attempt to tie landforms to lithostratigraphy <https://onlinelibrary.wiley.com/doi/epdf/10.1080/03009480600781958>

4.) This point is somewhat related to point 3 above. There is no chronology (di-

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rect dates of the described sections) or attempt to connect the lithostratigraphy to a chronostratigraphy other than (in my eyes) a vague chronostratigraphic discussion related to older Russian literature. This might of course be relevant and correct but this discussion is not clear to me. Please clarify and discuss the potential age model or time frame of the described sections.

5.) Some of the methods used, for example "Roundness" and "Surface dullness" relate to older, sometimes Soviet-era literature in Russian language. Again, this is fine, and the methods are probably sound indeed, but it is very hard for the wider audience outside of Russia to assess the methods. Please consider using widely published and documented methods.

I would suggest the authors improve the following in; A) The English language must be improved by a native speaker so that international readers can follow the reasoning B) The mapping should be extended to a larger area and not arbitrary smaller areas C) The lithostratigraphy and landform record should be connected D) The sections (K-1 & K-2) should be dated, or an attempt should be made to tie them to a chronostratigraphic framework E) The discussion of older Russian/Soviet references are very interesting and useful for the wider scientific community. However, I suggest the authors more clearly set up a table or cartoon with the different older hypotheses and relate those to the model presented in this paper.

I hope the authors finds this review helpful and I am looking forward to an improved future manuscript!

Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2019-175>, 2019.