

Review of revised version of Abe et al., 'Brief Communication: Twelve-year cyclic surging episode at Donjek Glacier in Yukon, Canada'

This paper is much improved from the previous version, and the additional analyses and better referencing to previous work makes the discussion and conclusions much stronger than before. The paper now provides a nice summary of the 3 most recent surges of Donjek Glacier, and new insight into the surge characteristics and periodicity in this region.

Most of my comments below relate to minor technical issues, particularly with respect to English language. The main substantive comment is for P7 L8-10, concerning the statement about changes in surface slope when no evidence is provided to back up these claims. Once these issues have been addressed I believe that the paper is ready for publication.

P1 L16: change to '**originating in an area** where the flow width significantly narrows...'

P1 L20: change to 'surge-type glaciers **typically** speed up...', to make it clear that the listed changes don't necessarily occur on all surging glaciers (e.g., some of them see little terminus advance)

P1 L23: they can become stagnant across their entire length, not just their downstream part. I would therefore suggest deleting 'in the downstream' from the end of this sentence.

P2 L12: change to 'originating **from** the surface meltwater...'

P2 L17-18: I don't agree with the statement that 'observations have been too limited to reveal the surging dynamics', as some of the recent papers that you quote actually provide quite detailed information about this. Instead I think that it would be better to change the end of this sentence to: 'but many questions remain about the detailed surging dynamics...'

P2 L19: the start of this sentence doesn't make much sense as it's not clear what is being referred to. It would be better written as something like 'Recent advances in spaceborne remote sensing can provide insight into surging glacier dynamics.'

P2 L27/28: change to 'they **have** revealed long-term changes in terminus positions and velocities of mountain glaciers **around** the world...'

P2 L29: add a paragraph break before this sentence 'To reveal...'

P3 L9: change to 'significantly constricts downstream of 20 km from the terminus.'

P3 L19: change to 'known as a surge-type **glacier**...'

P3 L2425: explain what the 'resolution problem' is.

P4 L2: delete 'image'

P4 L7: indicate approximately how far upstream this reference line was set.

P4 L13-15: the information in brackets would be better put in the methods section than the results

P4 L15/16: you say that 'the speed near the terminus appears much greater', but greater than what? It's unclear what you're making a comparison with.

P4 L20/21: this sentence is awkwardly worded. Please reword to improve English and make clearer.

P4 L21/22: the information about the colours of the different lines is already given in the figure caption, so this sentence should be deleted.

P4 L22-24: the wording here is ambiguous as it can be interpreted as saying that the surge initiation occurred upstream of the valley restriction, whereas I think that you mean to say that it initiated **at** the valley restriction. If this is what you mean, then change this sentence to something like 'The initiation of the three surging episodes occurred in the valley section between 18 and 22 km from the terminus, where the valley is about 33% narrower than upstream (Fig. 1c)'.

P4 L27-28: the red arrows that you added to Fig. 1c in the replies to reviewer 1 comments really helped to illustrate this pattern, so I would suggest adding these arrows to the final paper.

P5 L3-6: wording in this para is awkward, with lots of short, choppy sentences that make the text difficult to follow. Please reword.

P5 L14: change to 'The terminus area changes from 1973 to 2014, with decadal fluctuations...'

P5 L17: change 'global warming' to 'climate warming'

P5 L21: change to 'decadal fluctuations **in terminus area** are attributable...'

P5 L23: the evidence here seems convincing, so I would delete 'may' from this line

P5 L26-29: this text basically duplicates what you've already said in the 2<sup>nd</sup> para in the Results section above. I would therefore delete the text here, and move any relevant information to the 2<sup>nd</sup> para.

P6 L6: delete 'from'

P6 L10: you say 'compared to the earlier surges in 1935 and 1961', but you haven't said what you're making a comparison with. Presumably the terminus advance of these earlier surges? Need to specify what this is.

P6 L30: I would say '**apparently** less variable over time', since your conclusions are based on only the previous 3 surges, compared to 5 or more surges for the periodicities described for Lowell and Variegated glaciers.

P7 L8-10: evidence needs to be provided to invoke the surface slope as being a causal factor here. In the replies to reviewer's comments, I know that the authors said that they had no good DEM data to assess whether there a steep surface slope formed in this area during quiescent phases, but without any supporting information they can't make this statement. So either this statement should be removed or reworded to make the lack of data clear, or data should be acquired. A potential source for this data is the ASTER DEM product (AST14DEM), which can now be produced on demand for free from any ASTER image, of which there should be many available for Donjek Glacier over the past ~15 years.

P7 L26-27: you should also mention that it's very difficult to derive winter velocities using optical image matching due to the lack of identifiable surface features when the glacier is snow-covered.

P8 L13: I would clarify this wording by saying 'inefficient **subglacial** drainage system...'

P9 L16: change to 'known as a surge-type **glacier**.'