Review by Ben Marzeion

The paper presented by Paul is somewhat unusual for TC, since it is more about communication within science, and to the public, than about new scientific findings. It is not so much that the image sequences presented in the paper add scientific insight per se; the (important) point is rather that the information – which quantitatively needs to be extracted using other methods – becomes a lot more accessible and intuitive. This point is also acknowledged by the author.

I am convinced that there needs to be room in a journal like TC for this kind of publication, but this should be an editorial decision. Given the format of TC, I also believe it is justified to be published as a research article; but should there be reservations, I can imagine that the author might be able to shorten the manuscript and to publish it as a brief communication.
I agree that it would be possible to convert the ms into a brief communication, but this would require rather substantial changes to the text and maybe a re-review. As the review by D. Quincey identified several points that might warrant a 'normal' publication in TC I would prefer to stay with the current format.

The manuscript is very well written, and I only have a few suggestions/questions that should be addressed before acceptance.

General comment:
• The greatest value of the submission probably is found in the animated images in the supplement. They are great – but I think there are two changes that might enhance their use: (i) add a progressing bar showing the time line (at least with start and end year), (ii) add a break (perhaps 2-3 frames) between end and beginning of the sequence. (I also find the sequences very quick, and slowing down the frame rate might be good – but this is probably a matter of taste, and hard to say without trying.)
Indeed, it is not only a matter of taste; different speeds also reveal different aspects of the flow dynamics. As also mentioned in the response to the review by D. Quincey, inserting empty frames at the end would introduce a stroboscope effect that is hard to watch. Any other markers of progressing time will be difficult to follow (and distracting from the flow dynamics), as the time period of the entire animation is too short (0.8 sec). Creating time-series with a different frame rate is possible but would exclude them from the supplementary material as the 50 MB space is already fully used.

As a compromise, I will provide the individual images (plus some new ones) on a separate server so that anybody can use its preferred animation speed and annotation. A further point was to show the results that can be obtained with a minimum amount of processing using freely available software. This should also facilitate the 'do it yourself' idea that is required for related teaching / classroom experiments.

I think particularly adding a bar is essential, as the uneven distribution of images in time (P2602, L23-25) implies a non-linear time line.
As mentioned above, there is no way to follow such a time bar, as the frame rate is too high. Moreover, for the visual perception it does not really matter if the temporal difference between the images is 1, 2 or 3 years and unevenly distributed, as the brain will average the differences out.

Specific comments:

• P2600 L4: I would say that the sequences do not necessarily provide new insights in these phenomena, but they make the insights more intuitive and accessible.

I fully agree with the latter point, but also think that seeing a glacier flow at about 800 million times its normal speed (25 years in 1 sec) IS a new insight in itself. Converting the 'normal' (quantitative) colour-coded maps of glacier flow or elevation changes to real surface flow, dynamic interactions of tributaries, frontal advance, mass transfer or down-wasting is in my opinion very difficult. So actually seeing how this takes place in a high-speed mode (with all the mutual interactions) is in my opinion providing several new insights.

To give one specific example, I was very surprised to see the very high flow velocities in steep accumulation regions of many glaciers (e.g. the southern tributaries of Baltoro). I think this has not been reported before (based on velocity maps) so I would argue this is a new insight.

• Fig. 1: The green square in the inset is very small; perhaps you can zoom a bit further into the map shown in the inset.

The inset and the main figure will be revised and improved.

• P2603 L4 (and elsewhere): The term laminar is a bit ambiguous, I think, because based on Reynolds number, I am relative sure also surging glaciers show laminar (as opposed to turbulent) flow. Admittedly, I don't have a better word...

I agree that laminar could be misleading in this regard and will think of a better word (maybe stable or steady flow?).

• P2603 L7: why mention the name of Liligo particularly, but not the two northern ones?

There was no specific reason for it apart from the availability of more detailed studies about this glacier and hence a chance that its name is known.

• P2604 L20-21: It could also be related to the debris distribution, which itself could be affected by the surge.

In principle yes, but for the examples discussed here debris cover is not present at the surface.

• Sect. 3.2 and 4.1 have the same heading, and Sect. 3.2 contains actually not much information on how to identify surge-type glaciers (instead, it is mostly discussed what would not work). The two sections are also of similar content to some degree, and I would suggest merging them.

I agree that there is some overlap between these two sections and will revise them. In the results section I will have a focus on the observations (new title: Surging glaciers), while I will describe the implications of the observations and the context to other studies in the discussion section.