

The quality of the manuscript strongly improved and most issues were addressed adequately. In particular the discussion improved strongly and provides a very nice and interesting summary of the potential processes explaining the observed velocity patterns, highlights the needs for future research. Very good job!

There are only very few issues open, which should be addressed before publication of the paper.

Most important is the poor data coverage for some flow lines and a clear description of the error computation.

Detailed comments:

- L280: Maybe you should note the poor data coverage at flow line 10. This might partly explain its pattern.
- Fig. 4 and 5: Moreover, it is still unclear, if you analyze only time periods with a “13-month Moving Mean” available in Fig. 4 to generate Fig. 5. In particular for flow line 16 the coverage by the “13-month Moving Mean” is quite small. Well, flow lines 5, 9, 15 and 17 have also quite limited temporal coverage. At least, you should mention this issue and its implications for Fig. 5.
- Moreover, it is still unclear how you computed the error bars. In line 127ff, you explain the calculation for the mosaics, but it is unclear how you obtained the error for the 10km² regions (mean of SE within the 10km² areas?) and for the detrended monthly ice flow (Fig.5, SE of all individual vel. Fields for a certain month?, how did you compute the error throughout the 10km² areas?). You talk about standard error in the figure caption and in the legend it is called mean standard error. Please clarify.
- L300 ff. This is an interesting hypothesis but quite speculative. What about flowline17-19 vs 6-9? You should rephrase it. e.g. remove “clear evidence” and state that more research is needed. I would suggest to analyze this hypothesis on yearly scales and based on long-term average.
- Section D1: I am still a bit confused by the plotted “fitted cosine wave”. Flow line 6: Dominant frequency=3. As far as I understand your analysis a frequency of “1” stands for one full cycle per year. I would expect, that a frequency of 3 relates to “3” full cycles per year. However, the orange line for flow line 6 shows only one full cycle per year. Same for flow line 8. What is the unit of phase is it in “rad” or in “month”?
What is the unit of the amplitude?