

6th Dec 2021.

Re. Manuscript “Proper orthogonal decomposition of ice velocity identifies drivers of flow variability at Sermeq Kujalleq (Jakobshavn Isbræ)” submitted to The Cryosphere.

Dear Olivier,

Thank you again for your appraisal of our manuscript, we are pleased that both reviewers are satisfied with the revised manuscript.

Please find our response to your editorial comments below in **red** and the accompanying version of the manuscript with changes noted also in **red text**.

Best regards,
Dr. David Ashmore

Both reviewers are happy with the changes made in the manuscript since its first submission as well as to your answers to their comments. I am therefore happy to accept your manuscript for publication in The Cryosphere. I have nevertheless few minor comments listed below that should be accounted for before moving to the editing process.

Thanks you for having choosing The Cryosphere to publish this nice piece of work!

Regards,
Olivier Gagliardini

Minor comments:

- in the abstract, instead of using Mode 1, 2 and 3, I would suggest to used largest mode or dominant for Mode 1, and two following largest mode for 2 and 3.

Agreed, happy to change this.

- line 25 (and at other places: 58, 153, 202): can you check if the use of colon in this sentence is really correct?

We have reviewed these and other colons to ensure they are used correctly, some edited to semi-colons and commas.

- line 27: would be good for the reader to already have an idea of the processes by enumerating them?

We would prefer not to do this as this is an introductory paragraph and feel a lengthy list here would detract from the paragraphs aims. Slightly later in in Introduction (L45-60) we discuss the many factors that affect marine-terminating glacier flow.

- line 91: give in which fields it was applied for each of these references?

This would be a nice addition, thanks.

- line 98: as in the abstract, as you don't have really defined what is Mode 1, 2, ..., may be use the second largest mode?

Agreed.

- line 234: isn't it the definition of the first mode (which is the dominant one)? Is this first sentence then really necessary?

Reworded slightly.

- line 237: missing units for the length scale of 20

Units added

- line 378: "sources ." -> "sources."

Thanks – amended.

- line 388: "The developed of efficient, drainage at Point II" (development? suppress coma?)

Thanks, amended.