

Dear Julia Hargreaves,

We have carefully considering of your comments about the GRISLI code availability. Please find below your comments in black font and our responses in blue font.

Best regards,

Sébastien Le clec'h (on behalf of all co-authors)

Thanks for your thorough responses to the reviews. The remaining outstanding issue is the code availability.

- 1. Code that can be made available must be made available before the manuscript can be accepted. I think you mean, "At present, it is in a transitional phase with the aim of being released publicly in the future, but it is currently not publicly available." to be a general comment referring to the model in general, and an undefined time scale, rather than to version 1.3. However it could be misleading so please rephrase to remove the impression that you are embargoing GRISLI 1.3.*

You are right, this is a general comment referring to the model in general, and not to version 1.3. This has been rephrased as follows:

"The developments on the GRISLI source code are hosted at <https://forge.ipsl.jussieu.fr/grisli> (last access: 23 March 2019 IPSL, 2019). For this work, we use the model at revision 150. At present, the model is not publicly available because parts of the source code have no licence. However, the module that contains the iterative minimisation of the basal drag coefficient is provided in the supplement under the CeCILL licence. Access to those who conduct research in collaboration with the GRISLI users group can be granted upon request to Christophe Dumas (christophe.dumas@lsce.ipsl.fr). The model outputs from the simulations described in this paper are freely available from the authors upon request."

- 2. Please explain the reasons why the code is not available.*

The code is not available because large parts of it have no licence. This information has been added in the "code availability section".

- 3. The requirement is that code is made available to the editor at minimum. Therefore, please provide me with GRISLI v1.3.*

We have provided it with the source code used for this work in a dedicated email.

- 4. Are you able to make the part of the code that you developed in the manuscript accessible? If so, please upload it as a supplement.*

We have uploaded the module that contains the iterative minimisation of the basal drag coefficient in the supplement to the paper.