

Interactive comment on “Scientific Workflows Applied to the Coupling of a Continuum (Elmer v8.3) and a Discrete Element (HiDEM v1.0) Ice Dynamic Model” by Shahbaz Memon et al.

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We are grateful for the reviewer’s time and the comments towards improving our manuscript. Our response to the suggested edits and improvements is stated below:

Page 4, line 1, suggest to find an easier name for “the glacier coupling and calving use case” – and in other places use this name, it will make reading easier

We have now adopted the term “glacio-coupling use case” for this.

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Page 12, line 32, can you state how much "significantly reduced" is?

This line is now more streamlined and better describes the main advantages of our approach. It includes the code usability and separation of each of the defragmented workflow steps into a set of interlinked reusable tasks. Furthermore, there are supporting statements being added, that answer: why the workflow code is reusable and what benefit it yields in terms of extensibility and resource heterogeneity.

Page 18, line 28, missing year in reference

These are actually not references, but the code names of the processor microarchitectures produced by Intel, now clarified this in the text.

Title: suggest to put "model" in plural

As both the phases, coupling and calving incorporate one single model separately therefore we think "model" being singular would be more suitable here.

Page 4, line 2, add "a" in front of "part"

Page 4, line 14, suggest to replace "largely" with "extensively"

Page 4 line 24, suggest to edit "the later-on extruded footprint" is not clear

Page 4, line 30 suggest to replace "long-time" with "long-term"

Page 5, line 11, missing r in through

Page 16, line 17, missing t in "It also..."

Page 19, line 5, is a repeat, it has already been stated, maybe it is possible to combine these sentences?

Page 23, line 29, suggest to replace "huge" with a quantitative statement

Page 25, line 1, suggest to replace "verify" with "validate" and "glaciology" with "glaciological"

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We appreciate the careful proofreading and have incorporated these corrections and stylistic improvements in the text.

One minor change:

In the last manuscript version there was no citation on the actual glacio-coupling use case which describes the underlying scientific significance and methods. The reference is now added to the latest draft on Page 4, line 8-9.

The modified manuscript is attached as a supplement to this reply.

Please also note the supplement to this comment:

<https://www.geosci-model-dev-discuss.net/gmd-2018-158/gmd-2018-158-AC2-supplement.pdf>

Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2018-158>, 2018.

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