Review of paper "Finite-Element Sea Ice Model (FESIM), version 2",

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Overall review of submitted paper:
This paper is about a Finite-Element Sea-Ice Model (FESIM) that has been extended with a new elastic-viscous-plastic (EVP) and viscous-plastic (VP) solver. In previous papers the authors have shown have in-depth knowledge of this research topic. The current paper is again a (small) step forward.

The paper is clearly written and of high quality with respect to the conceptual description and the numerical description of the new methods. It is nice that in this paper recent ice modeling work from Bouillon is applied in order to further improve FESIM. On the other hand, the new methods seem to be only a small step forward. The differences in model results between the VP, EVP and mEVP are rather small, as can be seen from the figures. In summary, I recommend this paper for publication after a few minor revisions. My remarks are summarized below:

- *Computation times.* In Section 5.3 there is only a global discussion about computing times. In the conclusion is stated that the CPU efficiency *is* the criterion to select between methods, because the performance of the three methods is rather similar. However, in this paper no CPU times are specified. So, please add a table with actual computation times, for example by specifying total computations times as well as the computing time required by the solver(s) and the evaluation of the right-hand side.
- *Potential of unstructured modeling is not fully used.* In the setup of the Box test case the islands have been removed in comparison with Hunke (2001); see page 875. Why didn't the authors also conduct simulations with the complete test case including the islands? This is also important since the performance of the solvers seem to depend on the domain complexity; see page 883. Unstructured grid modelling is meant for such applications, but the authors seem to 'avoid' this. At least an explanation is needed why complex geometries/islands have not been tested.
- *Figure of the model grid.* Although the applied Box test case has been applied in several earlier papers, a figure with the unstructured model grid of the Box test case will enhance the readability of the paper. So, please add such a figure.

Principal Criteria	Excellent (1)	Good (2)	Fair (3)	Poor (4)
Scientific Significance: Does the manuscript represent a substantial contribution to modelling science within the scope of Geoscientific Model Development (substantial new concepts, ideas, or methods)?			X	
Scientific Quality: Are the scientific approach and applied methods valid? Are the results discussed in an appropriate and balanced way (consideration of related work, including appropriate references)? Do the models, technical advances and/or experiments described have the potential to perform calculations leading to significant scientific results?	X			
Scientific Reproducibility: To what extent is the modelling science reproducible? Is the description sufficiently complete and precise to allow reproduction of the science by fellow scientists (traceability of results)?		X		
Presentation Quality: Are the methods, results and conclusions presented in a clear, concise, and well-structured way (number and quality of figures/tables, appropriate use of English language)?		X		