

Author Response to Reviewer 2

We thank the editor and reviewers for their comments, which helped improve this manuscript. Please note: responses to reviewer comments are italicized and bolded text below each reviewer's comments.

This paper presents an overview of the recent changes to the widely-used VIC hydrology model, with a major reworking of its structure. The manuscript is well written and organized, and apart from a few minor issues I think it is in very good shape. The one aspect of the new model that was not described adequately was the extension system, and I would like to see a bit more detail on how the coupling with other models was done. Other minor issues that would need some clarification are outlined below:

Thank you for taking the time to review this paper. We have appreciated your comments.

We have extended our description of both the extensions system and CESM coupling.

* p. 2, l. 16: might want to clarify "coupled" to "two-way coupled".

We have changed the wording of this line to reflect that the previous versions of VIC didn't have to communicate with any other program (1 or 2 way coupling).

* p. 7, l. 10- 11: have there been any tests and evaluation of the vectorization (if any is included) performance? This would be relevant to different types of processors such as the Intel C1 Xeon Phi (~60 cores).

None that we are aware of. We would be open to community contributions to the development and evaluation of vectorization performance metrics for VIC.5.

* p. 7, l. 30: would it have been possible to modify MT-CLIM instead in order to facilitate exact restarts?

Technically, yes, it would have been possible to modify MT-CLIM instead of removing it. However, as we describe in the manuscript, the decision to remove MT-CLIM was made based on a number of factors, including model transparency, simplicity, and extensibility. One practical limitation with including MT-CLIM in VIC 5 was that its memory model would have incurred a significant memory footprint that was not practical in image-driver simulations.

* p. 8, l. 12: are there any other preprocessing packages provided that can help with preparing e.g. soil information in the new format?

We are aware of a number of efforts across the VIC community to develop tools supporting the new VIC.5 file formats. We expect those to be published separate from this paper.