Geoscientific

Model Development

Discussions

GMDD

Interactive

comment

Interactive comment on "Rapid development of fast and flexible environmental models: The Mobius framework v1.0" *by* Magnus Dahler Norling et al.

Anonymous Referee #1

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As a model development paper, the contributions of the authors are valuable. The authors have provided various levels of development sophistication in their code: quick/preliminary model developments they using a gui, high-performance models using a C++ base, and a python wrapper for the middle ground. The contributions seem sufficient for a v1.0 paper and their commitment to open source paradigm is laudable.

My comments and questions for improvement are:

* As a reader interested in general ode models paragraph 280 is not clear. If the goal is to compare manual vs autocalibration of model parameters the starting points should be independent (perhaps random in feasible ranges?). Why do the authors use the

results of manual optimization to start the auto-calibration?

* If the authors foresee that the changes in code would break the experiments and files referenced in the paper they can include the commit number (or date) that preserves the experiments since the repository seems to be actively developed.

* The benchmark of runtime experiments can use a better description. Paragraph 335 mentions: "Results of the benchmarking show that Mobius models have a slight performance loss compared to hard-coded C++ models but run several 335 orders of magnitude faster than hard-coded Python models (Table 3)". If the source files for these benchmarks are also included in the github repository, please reference them in the paper.

* The authors should give a simple description of the hardware they are using to run tests. Just the manufacturer, number of cores, and frequency of the CPU is enough. This will ensure the timings have enough context.

* The timing experiments are average model evaluation runs. If possible(at least for the Mobius model using the python interface), It would be valuable to report optimization times in a separate table.

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