

## ***Interactive comment on “terrainbento 1.0: a Python package for multi-model analysis in long-term drainage basin evolution” by Katherine R. Barnhart et al.***

### **Anonymous Referee #2**

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I'll be short to avoid the system eating my contributions again.

Barnhart et al provide the geomorphic community with a very important tool: a model (in my terms) that allows easy exploration of the impacts of different choices for processes and boundary conditions. This is incredibly important and will be much appreciated. The model is well presented, very well written. I recommend it for publication with relatively minor changes. My annotated manuscript contains the smaller suggestions. Here are the larger suggestions:

1. The explanation of why 13 binary choices lead only to 28 model versions needs to move up to an earlier explanation. I (and others probably) are left wondering until too

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far into the manuscript.

2. It is not well enough explained that the smoothing out of step-functions is not only for mathematical convenience (avoid daemons), but also for process- and scaling-related considerations - if I get this correctly. This generic point can be made a bit clearer the first time you present a smoothed function.

3. You provide a note on terminology in 2.1. The terms you define seem reasonable, but are then very rarely used in the ms, whereas the container term 'model' is used almost exclusively. That is not helpful. Either use the terms you define, or made 2.1 much shorter. (Or clarify what 2.1 is meant to achieve if I get it wrong).

4. The legends in Fig 1 are too small and scientific notation is not useful for these numbers.

5. I am no expert in python and code projects, so I hope you can rely on other reviewers for Chapter 5.

Again, great work, and thank you for making all this available on behalf of the community.

Please also note the supplement to this comment:

<https://www.geosci-model-dev-discuss.net/gmd-2018-204/gmd-2018-204-RC2-supplement.pdf>

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Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2018-204>, 2018.

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