

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 #1

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This paper presents a new Python modeling package for modeling Earth surface processes. With 28 model programs that result from 13 binary choices between alternate process laws, terrainbento facilitates comparison among model behavior with different process laws – a need in the geomorphic community. The new model package allows for different treatment of hillslope processes, bedrock erosion, surface water hydrology, sediment entrainment and deposition, precipitation and climate, as well as different initial and boundary conditions. terrainbento utilizes Landlab components such that incorporating new components would be relatively easy and it also incorporates model testing and verification. This package is a novel tool that will certainly advance scientific questions in Earth surface dynamics.

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The manuscript clearly and accurately outlines all components, including all terminology used and the theory and math behind every process law, as well as model structure, organization, and implementation, such that utilizing this model package really seems like it would be straightforward. The manuscript is excellently written and very well organized – the authors have clearly demonstrated the novelty and utility in the modeling package they present. My only suggestions are two typos on line 802 and 904.

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

C2