Review Report for

Open access 3D-printable landslide models for outreach and teaching

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Round 1 Review

Comments by reviewer 1 (Wengang Dang)

Completed: 2026-03-21 08:31 AM
Recommendation: Minor revisions

This manuscript presents a new and highly practical set of six 3D-printable models designed to facilitate geosciences education and public outreach regarding landslide processes. The inclusion of both idealized models for teaching fundamental mechanics (rotation vs. translation) and real-world models (Denmark and Greenland) provides an excellent bridge between theory and practice. The manuscript is well-structured, offering detailed printing parameters, safety guidelines, and specific experimental protocols. Overall, this is a valuable contribution to the geomorphology community, particularly for those involved in public communication and education.

limitations and issues to be addressed:
1. The authors explicitly state that the models do not reproduce “full material physics”. However, the friction between PLA surfaces is substantially different from real-world soil or rock interfaces. The manuscript should include a brief discussion or a prominent disclaimer on how the unreal “stick-slip” behavior of plastic might mislead students.

2. While the models are “designed for outreach and teaching”, the manuscript lacks empirical data or qualitative feedback from actual classroom settings. Including a “Lessons Learned” or “User Experience” is necessary.

3. The paper suggests “polishing” or “roughening” surfaces with sandpaper to adjust stability. This manual adjustment introduces significant variability. A more standardized suggestion, such as a specific grit number or a standardized "cleaning" protocol would be helpful.

4. Experiment 3 involves injecting water through an “internal channel” to trigger failure. I think the raw 3D printing materials are notoriously porous. The authors should clarify if any post-processing (e.g., epoxy sealant) is required to ensure water reaches the slip surface rather than leaking through the model's internal structure.

Comments by reviewer 2 (Bruno Colavitto)

Completed: 2026-06-11 09:16 AM
Recommendation: Minor revisions

I would like to thank the authors and the Journal editor for giving me the opportunity to review this work. The manuscript presents a novel and pedagogically valuable approach to teaching geomorphology concepts through 3D-printed landslide models. It is timely, clearly written, and relevant to a broad audience, particularly in educational contexts. The title, abstract, and overall structure are appropriate, and the conclusions are consistent with the material presented. The use of physical models represents an original contribution with clear potential for teaching applications.

However, the submission is better suited to the Short Communication format and should be substantially shortened (currently around 5'000 words) to meet the journal's requirements (less than 3'000 words and limited figures/tables). While the methodology is generally acceptable for this type of contribution, the manuscript would benefit from clearer positioning as a teaching tool rather than a research study, as it does not address a specific scientific research question.

Several minor revisions are recommended (see attached pdf). Figures and tables are useful but require improvements in clarity, including the addition of scale references and consistency in model dimensions. The number of figures should also be reduced to align with Short Communication guidelines. Table 1 should be checked for minor numerical inconsistencies. The manuscript would benefit from additional supporting materials (as Annexes maybe?), such as datasheets for each experiment (including schematics, explanations, and real-world examples), and potentially a geological cross-section to enhance interpretation (model F).

Further clarification is needed regarding the practical use and limitations of the models, particularly their small size and applicability to larger audiences. Including discussion of use cases, advantages and limitations, and possibly supplementary materials (e.g., a demonstration video) would strengthen the contribution. Overall, the paper is well written and of interest, but requires moderate refinement and condensation before publication.(paste the review comments from the Geomorphica review dashboard)

Recommendation by Associate Editor 2 (Anonymous)

Completed: 2026-06-21 06:02 PM
Recommendation: Minor revisions

Dear authors,
I read with interest your manuscript entitled "Open access 3D-printable landslide models for outreach and teaching", as well as the reviews from two anonymous reviewers. Based on my reading of your manuscript and the reviews, I would like to recommend that the manuscript undergo minor revisions.

Both reviewers acknowledge the novelty and practical value of the contribution, and agree that the set of six 3D-printable models represents a useful tool for geoscience education and the outreach community. With some revisions, this manuscript has the potential to make an interesting and immediately usable contribution to the field.

First, the manuscript would benefit from clearer positioning within the journal's Short Communication format, which implies a substantial reduction in length (currently around 5,000 words) and a reduction in the number of figures and tables.
The reviewers also suggest that the manuscript would be strengthened by the inclusion of at least some qualitative feedback or observations from actual classroom or outreach use, as the pedagogical effectiveness of the models is currently asserted but not demonstrated. A brief discussion of practical limitations, in particular the differences between PLA friction behaviour and real geological features, and the potential variability introduced by manual surface adjustment, would also improve the transparency and usability of the contribution.

Finally, the reviewers identify several corrections that would improve the overall quality of the manuscript, including the addition of scale references to figures, verification of numerical consistency in Table 1, and clarification of the water injection experiment with respect to material porosity. In addition, the contribution would be considerably strengthened by the inclusion of supplementary demonstration materials, in particular a short video (e.g., hosted on YouTube or a similar platform) showing the models in use during actual demonstrations.

Best wishes,
Anonymous Associate Editor

Decision by Editor-in-Chief (Alice Lefebvre)

2026-06-22
Decision: Minor revisions

Dear Kristian Svennevig, Carsten Thuesen,
Thank you for submitting your manuscript entitled "Open access 3D-printable landslide models for
outreach and teaching" (76) to Geomorphica. I have now received two reviews and an Associate Editor
assessment (included at the bottom and/or attached to this email). I have looked at the paper, the reviews
and the Associate Editor recommendation myself.
On this basis, I would like you to undertake a minor revision of your manuscript. As this is a minor revision decision, we will assess the revised version internally and we are unlikely to need to consult more widely before a final decision is made.
Reviewer 2 suggests for you to follow the short communication format. However, I feel that the manuscript would lose too much by being cut by half (considering that both reviewers want you to add
more details). I would like to suggest for the paper to be published as a case study:
"Case study and applied research articles present innovative ways in which existing knowledge is
implemented and/or adapted to address any aspect of geomorphology in specific contexts within the journal's scope. The manuscripts should be based on rigorously acquired data and analysis, and their implications may be site-specific. Authors are encouraged to identify broad implications beyond the particular aspects of their study. Their structure should be similar to original research articles and also undergo thorough peer review. Case Studies and Applied Research are typically less than 6,000 words in
length."
I think your manuscript fits well with the first sentence describing a case study. That will leave you enough flexibility about the paper length and number of figures, while recognising that this manuscript
does not present original research.
Alice Lefebvre

Authors' responses to review comments

25 June 2026

Dear Dr. Lefebvre,

Thank you for your constructive handling of our manuscript "Open access 3D-printable landslide models for outreach and teaching" and for the thoughtful reviews. We are pleased to resubmit our revised manuscript as a Case Study, a format we agree fits the contribution well. The main text is now ~5400 words.

We have addressed the large majority of the reviewers' and Associate Editor's comments, including adding an explicit discussion of the practical advantages, use cases and limitations of the models; clarifying the kinematic scope of the models and the role of demonstrators in communicating this; standardising sandpaper guidance with a specific grit specification; and adding a scale bar to Figure 1.

We respectfully maintain our position on three points. First, formal classroom or outreach trials are outside the scope of this contribution. The paper's aim is to make the tool openly available so the community can use and evaluate it, not only in classrooms but everywhere where landslides are discussed; we have strengthened the Outlook section accordingly to initiate this community-driven process. Second, producing a demonstration video and maintaining a YouTube channel is beyond our current scope and resources; we have instead added explicit encouragement for community-produced demonstrations in the Outlook section. Third, we consider the detailed experimental protocols in section 4 and Table 1 to already constitute sufficient guidance for each model, making separate model datasheets redundant.

A point-by-point response to all comments is provided in the attached Response to Reviewers document.

We hope the revised manuscript meets with your approval and look forward to your response.

Yours sincerely,

Kristian Svennevig and Carsten E. Thuesen

Response to Reviewers

Svennevig & Thuesen — "Open access 3D-printable landslide models for outreach and teaching"
Geomorphica, manuscript 76

#	Source	Reviewer comment	Authors' response	Manuscript change
1	AE + R1 + R2	Add qualitative feedback from actual classroom or outreach use. Pedagogical effectiveness is asserted but not demonstrated.	Formal classroom or outreach trials fall outside the scope of this contribution. The paper's aim is to make the tool openly available so the community can use, evaluate, and adapt it. We have strengthened the Outlook section to explicitly solicit user feedback, framing the publication as the starting point of a community-driven evaluation process.	Outlook section expanded to invite user feedback and frame the paper as initiating community evaluation.
2	AE + R1	Discuss PLA friction vs. real geological interfaces as a	We believe that these aspects are well covered by our limitations and scopes section	We have modified the scope and adding a sentence about

		limitation (stick-slip behaviour may mislead students).	already. However we have made this even clearer now.	"Demonstrators should make this explicit when using the models"
3	AE + R1 + R2	Add scale references to figure.	We have added a scale to fig 1 where all te hmodels are shown to scale next to each other.	Added scale bar to fig 1
4	AE + R1 + R2	Verify numerical consistency in Table 1.	We have elaborated the explanation to table one to reflect that the xyz dimensions refer to how the model elements are oriented in the slicer (printing software)	Added "*Size along XYZ axes refer to model elements orientation in the 3D slicer software." To the description of Table 1.
5	AE + R1	Clarify water injection experiment with respect to material porosity. Is post-processing (e.g. epoxy sealant) needed?	PLA is, for all practical purposes on the scale of these experiments, impermeable.	No action: this is already explained in lines 372–375
6	AE + R1 + R2	Add supplementary demonstration video (e.g. hosted on YouTube) showing models in use.	We consider the detailed experimental protocols in section 4 to constitute a sufficient guide for demonstrations. It is beyond our scope and resources to produce a video and maintain a YouTube channel for this purpose. We welcome community-produced demonstrations.	Added encouragement of videos in Outlook.
7	AE	Note variability introduced by manual sandpaper adjustment; discuss limitations of this approach.	We have expanded on this in section 2.5. Added another mention of the sandpaper grade (240)	Added sentence: Note that manual surface adjustment by sandpaper introduces some variability between setups; results may differ between users and across repeated trials
8	R1	Standardise sandpaper guidance: specify a grit number or a standardised cleaning/polishing protocol.	See above	See above
9	R2	Add supplementary datasheets per experiment (schematics, explanations, real-world examples), possibly as annexes.	We believe this is already covered in table 1 and the text.	No action taken
10	R2	Add geological cross-section for Model F to aid interpretation.	Going into depth with these real world cases is beyond the scope of the paper. We refer to the published papers on the Karrat landslide for specifics on this case	Added further references for Gauthier et al 2018 and Svennevig et al 2020
11	R2	Clarify practical limitations: small model size and applicability to larger audiences.	We have expanded the outlook section with sentences on scaling the models for a larger audience based on the author's own experience with this.	Added sentences to Outlook section.
12	R2	Provide explicit discussion of use cases, advantages, and limitations.	Use cases, advantages and limitations are all addressed in section 5.1. We have added a short paragraph explicitly naming the key practical advantages of the models and contrasting them	Added paragraph to section 5.1 naming key advantages (reusable, consumable-free, open access, portable, reproducible) and contrasting with

			with traditional analogue approaches.	traditional analogue models. Small-size limitation and scaling mitigation also noted
13	Editor	Reclassify manuscript as Case Study (not Short Communication). Adjust framing accordingly. Max ~6,000 words.	This format seems like an excellent fit. The manuscript is now just below 6000 words.	Added “Case study” below the title.

Round 2 Review

Recommendation by Associate Editor 2 (Anonymous)

Completed: 2026-07-16 08:02 AM
Recommendation: Minor revisions

I want to thank the authors for their comprehensive responses to the reviews. The manuscript describes an interesting and original project, and the open-access, 3D-printable models have real potential as teaching and outreach tools.

A quick comment before proceeding with publication:
- In paragraph 5.3, there are four “x”s at the end. Is this meant to indicate a missing citation that still needs to be inserted?

Decision by Editor-in-Chief (Alice Lefebvre)

2026-07-21
Decision: Accept

Dear Kristian Svennevig, Carsten Thuesen,
Congratulations! I am pleased to inform you that your manuscript entitled "Open access 3D-printable
landslide models for outreach and teaching" has been accepted for publication in Geomorphica.
Alice Lefebvre