

## **Review of updated manuscript for: iHydroSlide3D v1.0: an advanced hydrological-geotechnical model for hydrological simulation and three-dimensional landslide prediction**

### **Overview**

The revised manuscript is generally more organised, clear, and outlines the real-world applications of combined hydrological-geotechnical models for land planning and disaster risk management. It shows the utility of the model, and its contributions to this field of modelling. The paper gives good insight as to how the probabilistic approach of landslide risk in iHydroSlide3D v1.0 is advantageous over conventional binary assessments of landslide risk. This revised manuscript more clearly outlines the assumptions, equations, inputs, suggested parameters, novelty, and limitations of the model. I only have minor comments around some phrases and terms that can be reworded or defined to improve clarity.

### **Specific comments**

P1 L16: “The model features the feasibility of applying flexibly different simulating resolutions for hydrological and slope stability submodules by embedding a soil moisture downscaling method.”

- Suggest rewording this sentence for clarity. Maybe:
  - “Through embedding a soil moisture downscaling method, this model is able to model hydrological and slope stability submodules even at different resolutions”

P2 L35: Change “Modelling of landslide...” to “Modelling landslide...”

P2 L43: Change “Literatures have shown...” to “Literature has shown...”

P2 L58 to L60: “As a matter of fact, to the best of our knowledge, there are still very few fully coupled hydrological-geotechnical models that are capable of performing in a large scale and producing 3D information of landslide disasters.”

- Suggest making this more concise:
  - “To date, there are still very few fully coupled hydrological-geotechnical models capable of performing at large scales and producing 3D information of landslide disasters.”
- There are other sentences in the paper that could also use further editing to make them more concise. Phrases like “we want to point out” or “as a matter of fact” can be removed.

P2 L61 to L62: “Another problem that will be involved is the selection of computational spatial resolution.”

- Suggest making this more concise: “Another problem is the selection of...”

P3 L66: “squared meters” to “square meters” or “meters squared”

P4 L102 to L103: If URLs are placed in the text, please add date of access.

P9 L237 to L239: The paragraph mentions that TWI is related to soil moisture through the wetness coefficient, and the reader is directed to another paper. Please briefly explain this relationship to the reader in this section, just enough for them to understand the basics.

P19 L446: Change “... the model behaves sensitive...” to “... the model is sensitive...”

P28 L605: Change “... containing two resolutions datasets...” to “... containing two datasets with different resolutions...”

P28 L605 to L606: “For the purpose that the model is practicably performed in the case of large scale, we parallelized the program for efficiency.”

- Suggest rewording this sentence for clarity, particularly the first part.

P28 L609: Change “literatures” to “literature.”

P28 L614: Remove “as a matter of fact”

P28 L616: Remove “we want to point out”

P30 L670: There seems to be a strange tab/space here in the manuscript, maybe “In summary...” was supposed to be part of a new paragraph?