

Interactive comment on “Three-dimensional numerical simulation of mud flow from a tailings dam failure across complex terrain” by Dayu Yu et al.

Anonymous Referee #1

Received and published: 21 October 2019

The paper discusses a 3D computational fluid dynamics approach for predicting the flow routing and impact area of mud flow from a dam failure. It is a very useful idea for dealing with the tailings dam accidents that can cause serious disasters. But there are still some details that should be considered firstly. My comments and suggestions are the following.

1. Three-dimension (3D) technology can benefit to the simulation of the real world. And in this paper, it is used for the simulation of mud flow. However, this paper seems not giving a satisfying overview on the use of 3D technology in the related fields of tailings dam accident.

C1

2. The author used much text to introduce the numerical models used in this paper, however, the improvement of these models for dealing with tailings dam accident doesn't seem to be described clearly.

3. During the simulation for the A'xi tailings dam, the author used two different DEMs with $0.5\text{m} \times 0.5\text{m}$ and $12.5\text{m} \times 12.5\text{m}$ resolutions. Will the boundary inconsistency of two areas with different DEMs cause the low accuracy of simulation? How did the author address the inconsistency while reconstructing the 3D terrain?

4. The parameters of models is usually important. In this paper, how did the authors obtain the parameters for the simulations of different tailings dams?

5. How to evaluate the simulation results, is there some quantitative methods was used for result evaluation?

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-298>, 2019.

C2