

Interactive comment on “Forecasting post-failure landslide mobility using a SPH model and data from ring shear strength tests: A case study” by Miao Yu et al.

Anonymous Referee #1

Received and published: 9 February 2018

This manuscript presents a SPH simulation on a flowlike landslide. A series of ring shear tests under different axial stresses and shear velocities were conducted to obtain the soil strength parameters which were necessary in the numerical simulation. My detail comments are listed as follows: 1. In Figure 7, no obvious relationship between shear stress and shear strain rate is found. 2. What's the new contribution on the SPH model should be highlighted in this work. 3. In this numerical simulation, 3242 particles would establish a poor spatial discretization. An analysis of the discretization error related to the particle distance is strongly encouraged. 4. How to decide the time step in the simulation? A convergence analysis is suggested. 5. Ring shear tests were conducted to evaluate the residual shear strength of slip zones, but in the simulation, the

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authors used the strength parameters to describe the behavior of the whole landslide body. 6. According to the numerical results, the maximum velocity of the landslide is 6.66 m/s. However, in the ring shear tests, the maximum shear rate is 20 °/min, which is much smaller than the numerical result. So can the strength parameters obtained from the tests be applied in the numerical simulation? 7. According to the Figure 13, it seems that the landslide is still moving at 120s after failure, see the blue line.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2018-6>, 2018.

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