

Interactive comment on “Shear rate effect on the residual strength characteristics of saturated loess” by Baoqin Lian et al.

Baoqin Lian et al.

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-Reviewer #2

This paper deals with the effect of the shear rate on the residual shear strength of loess from three landslides by using a ring shear apparatus. Overall, this is an interesting manuscript because the topic can be considered of large significance for international researches in the field; however, this manuscript needs some important improvements to get it into a position to be acceptable for publication. Thus, a major revision is recommended. My critical review is summarized in the following sentences:

Reply: Thank you for your encouraging comments on our work.

1. The title could be more informative although it is pertinent and understandable

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Reply: Implemented. The title has been changed as “Shear rate effect on the residual strength characteristics of saturated loess in naturally drained ring shear tests ” according to the review’s suggestion. See title in the revised manuscript.

2. The abstract should be more precise and clear, although the most important results have been mentioned (Please, find the file attached for details).

Reply: Implemented. See lines 29-35 of the revised manuscript.

3. Authors should better emphasize the aim, importance and results of this study, and why it should be considered as relevant to be published in an international journal.

Reply: Implemented. See lines 70-89 of the revised manuscript.

4. The introduction provides relevant background information. Important scientific publications, on which the work is based, are cited but some recent original papers are not considered.

Reply: Implemented. We have cited some recent original papers, see lines 45-46 and 73-75 and 85 of the revised manuscript.

5. Geological setting and sampling sites if, on the one hand, require a brief description, on the other hand, should contain all the useful information for the purpose of the work.

Reply: Implemented. We have cited relevant references to describe the geological setting and sampling sites, see lines 110-111, 126, 132-133 of the revised manuscript.

6. Congruent bibliographic references are missing. Please, find the file attached for details

Reply: Implemented. See references in the revised manuscript.

7. Description of the materials used (grain size distribution, percentage and mineralogy of the clay fraction, plasticity of fine) is very important and can explain some discrepancies between different interpretations. Please, find the file attached for details

C2

Reply: Implemented. See lines 71-76 of the revised manuscript.

8. Description of the method used in this study should be detailed and complete.

Reply: Implemented. See lines 218-220, 223-225, 229-232, 241-243 of the revised manuscript.

9. What does it mean for low or high shear rate and low or high effective normal stress? Please, find the file attached for details

Reply: Implemented. See lines 272-274, 313-315 of the revised manuscript.

10. Results and discussion may be combined into a single section to avoid repetitions in the discussion, which would thus be more interesting and complete, also with references to earlier or contemporary studies relevant to the topic.

Reply: Implemented. See lines 253, 263-264, 307-308, 341-348, 354, 401-423, 440-442 of the revised manuscript.

11. Discussion of the results should include aspects related to dilatancy and critical state

Reply: With regards to the dilatancy effect of the samples, we have added the relevant content in the manuscript, see lines 283-289 of the revised manuscript.

With regards to the critical state of the loess, we did not measure normal displacement of loess samples, therefore the critical state of samples was not discussed in the study.

12. Conclusions summarize the main findings of the experimental research but could describe their significance or implication, in light of what was already known about the subject of the study, and present fresh insights or possible new ways of approaching research questions

Reply: Implemented. See lines 488-496, 506-511 of the revised manuscript.

13. Text, tables citations and references should be formatted according to the journal's

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instructions

Reply: Implemented. See Tables and references in the revised manuscript.

14. A thorough revision of the text with the help of a native English speaker is suggested.

Reply: Implemented. The manuscript has been revised with the help of a native English speaker.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2019-156>, 2019.

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