

Interactive comment on “Laboratory and 3-D-distinct element analysis of failure mechanism of slope under external surcharge” by N. Li and Y. M. Cheng

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Please refer to the attached document for the reply. We hope to have minor revisions to the paper, and the attached reply will be incorporated into the revised manuscript.

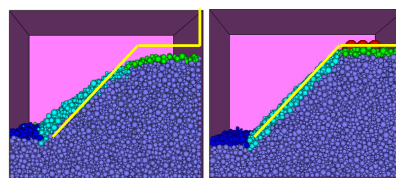
Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 5937, 2014.

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Reply to reviewer's comment

Reviewer 1

1. The original figure 11 gives the results for applied load equal to 2000N, for which both cases have failed. Such results cannot reflect the importance of bond strength, as the bond strength is completely destroyed by the applied load. We have revised the figure 11 to the one as shown below. For a bond strength of 6N, the slope has failed completely, but the slope remains stable if the bond strength is 60N. We suggest to replace the original Fig.11 with the updated Fig.11 for illustration.



(a) Case 1: bond strength = 6N (b) Case 2: bond strength = 60N
Figure 11 Eventual failure of two modeling cases under loading raft in XY direction (with external load 500N)

- 2 and 3. We have looked at the laboratory and numerical results again. Such discrepancy indicates that for the laboratory test, the failure and deformation are more locally confined which is however not reflected in the numerical results. We have also used Flac3D to simulate the problem, and qualitatively, the results from Flac3D agree with that from PFC3D, and in fact, the corners settle more during loading in Flac3D than PFC3D. We suspect that the soil is stiffer

Fig. 1.

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