

Interactive comment on “Simplified approach for locating the critical probabilistic slip surface in limit equilibrium analysis” by Y. M. Cheng et al.

Anonymous Referee #3

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This manuscript proposed a fast method for reliability analysis of slope stability and searching the critical probabilistic slip surface. The objective of this study is meaningful. However, the manuscript is not well organized and should be revised substantially.

1. For a given slip surface, the pseudo reliability index is certainly correlated with the true reliability index. However, the authors should prove the system reliability index can be obtained through only two samples if all possible slip surfaces are considered. The findings of this study should be justified and the theoretical basis of the proposed method should be provided. Otherwise, the manuscript seems more like a homework paper instead of a research paper.

2. The several sections about the basic methods of slope reliability analysis should

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be substantially shorten and rewritten as these can be found in textbooks and many previous studies. These sections include Limit state function, System reliability index with floating surfaces, Reliability index for specific slip surfaces, Search for the critical probabilistic slip surface Procedure for the MCSM).

3. What is the harmony search method?

4. What is the load factor method for slope stability analysis?

5. The example problems should be reorganized to clearly present the basis for the proposed method. And the proposed method should be in a separate section and the detailed procedure should be highlighted.

6. Is there any reference for Eq. (8)? What is the meaning of this equation?

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 1061, 2015.