

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

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This paper presents a rapid and practical procedure that can locate the slip surface for a slope with the minimum reliability index. The obtained reliability indices have been compared with results from different sample numbers using the Monte Carlo Simulation Method. The manuscript is of interest to general readership of the journal. It is properly organized and structured. This review therefore recommend acceptance of the manuscript with suggested revisions below:

(1) The proposed method is suitable for slopes without system effect. The merit of the method is it can obtain the probabilistic critical slip surface, design point and the related failure probability of the surface. However, it did not consider slope stability as a system

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reliability problem. The obtained failure probability associated with the critical slip surface will be smaller than that for the system that comprises all potential slip surfaces, especially when the safety factors for different slip surfaces are not highly correlated. Therefore, the slope reliability problem had better be solved in the framework of system reliability. The authors shall at least comment on that too.

(2) The literature review is not adequate, because the most recent studies on slope reliability analysis or probabilistic slope stability are not mentioned.

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