

Interactive comment on “A method for predicting the factor of safety of an infinite slope based on the depth ratio of the wetting front” by B.-G. Chae et al.

Anonymous Referee #2

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The work concerning the method for predicting the factor of safety of an infinite slope based on the depth ratio of the wetting front, is very interesting and clearly written and illustrated. Nevertheless, there are some general items that must be clarify:

First of all, please clarify the different between wetting front and saturated soil thickness (positive groundwater pressure) adopted in the original Hammond formulation (1992). It is really important to specify this aspect because all the following demonstration are physically based on this assumption.

P795 – row 8 “...because the unit weight and thickness of the soil layer are assigned

C510

constant values...” this assumption are some of the basic assumption for the infinite slope model. If you want to simulate failure with different thickness or unit weight you have only to change the reference model. Please clarify.

P800 – row 14. Do you think that only one type of granite weathered soil (physical properties and particle size distributions) is sufficient for characterize the whole test area (see fig.3)? Please clarify.

p.807 - row 10. Is not clear that the fundamental parameter in such approach the soil thickness, is derived by a model (the mentioned Z model proposed by Saulnier et al. (1997).) or if were acquired by the 1 : 25 000-scale digital soil maps produced by the National Institute of Agricultural Science. Because in this kind of distributed model the an erroneous assessment and estimation of this parameter makes any model unreliable. Please explain better how do you obtain and us this parameter.

p.807 - row 20-24. In the area (fig.11) there are at least almost three or four main lithology developing weathered soil that promote shallow landslides. How many samples were collected to create the cohesion and friction angle map? How many samples for the creation of the distribution of hydraulic conductivity? and for distribution of unit weight? Which kind of test were performed? Are they really represented of this different kind of weathered soil?

p.807 - row 21. Are the results independent from the adopted interpolator (Kriging)? you would have gotten the same results with another interpolator? Please explain better.

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C511