

## ***Interactive comment on “Regional physically based landslide early warning modelling: soil parameterisation and validation of the results” by Teresa Salvatici et al.***

### **Anonymous Referee #1**

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I think this manuscript presents the application of the HIRESS code to forecast shallow landslides at the regional scale. Especially the geotechnical and hydrological input data were measured in 12 sites and then the spatial distribution of measured data was estimated by Monte Carlo simulation. Through the application of HIRESS code, it is possible to forecast the shallow landslide using rainfall data in the special area with regional scale. So I think it deserves to be published in NHESS after some minor problems are solved clearly. Some minor problems are as follows;

Firstly, I wonder how to consider the unsaturated soil parameters such as bubbling pressure in the HIRESS code. I think the unsaturated soil parameters were not con-

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sidered in this manuscript. As you know the shallow landslide is induced by the rain infiltration into the ground and saturation of the surface soil layer. To analyze this phenomenon, the relationship between matric suction and water contents in the surface soil layer was considered in a view of unsaturated soil mechanism.

Second, to make Thiessen's polygons for the rainfall data in a certain area, the rainfall data in study area as well as out of the study area especially around the study area should be used. But, in this study, the rainfall data in the only study area were used to make Thiessen's polygons. Also, the modification method of Thiessen's polygons should be verified.

Finally, in this manuscript, the final aim is to set-up the early warning system for shallow landslide with regional scale. But this manuscript focused on the application of the HIRESS code to the special area to forecast shallow landslide. Therefore, this part should be corrected and complemented to match up with the overall contents of the manuscript.

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