Interactive comment on "Landslide and debris flow susceptibility zonation using TRIGRS for the 2011 Seoul landslide event" by D. W. Park et al.

Anonymous Referee #2

Received and published: 4 July 2013

General comments. The paper presents the results from application of TRIGRS, which is a well known regional, physically-based stability model, to a documented landslide event occurred at Woomyeon Mountain, Seoul, Korea on 26-27 July 2011. The paper compares observed landslide and debris flow events with those predicted by the TRIGRS model. The results predicted by the TRIGRS model, which appear rather good, are presented as safety factor (FS) maps corresponding to transient rainfall events, and in terms of debris flow paths. In fact, beyond the normal use of TRIGRS, the authors pay attention to the prediction of routes of debris flow, using a runoff module. In order to quantify the accuracy of the model, authors propose a new index called LRclass (landslide ratio for each predicted FS class), which appears effective.

The manuscript represents a useful contribution to the distributed modeling of rainfall-

induced shallow landslides and debris flows at catchment scale. The main contribution deals with the extension of TRIGRS to debris flows and with the development of a new quantitative method for comparing percentage of unstable grids and actual landslide during the target time. The proposed method appears useful, especially when size and boundaries of occurred landslides is difficult to be known and helps to evaluate the model performance.

Specific comments. The paper can be improved as regards the following aspects: 1) detailed comments about the choice of soil shear strength parameters should be added; 2) a description of initial conditions assumed for the TRIGRS model could be added; 3) please revise reference Sorbino et al. (2010) (page 19 line 20): "Natural Hazards" instead of "Nat. Hazards Earth Syst. Sci".