Title: Characteristics of landslides in unwelded pyroclastic flow deposits, southern Kyushu, Japan

Authors: M. Yamao, R. C. Sidle, T. Gomi, and F. Imaizumi

General Comments

This manuscript can be a good contribution to the landslide research community if it is appropriately modified. Overall, relatively a short and concise paper, it's goal is very good. These authors have presented characteristics of landslides using 184 landslides that occurred on southern Kyushu Island, Japan. Further, the authors have focused on landslide characteristics mainly under two API thresholds; one is API_7 (7 days rainfall thresholds) and another API_{30} (monthly rainfall thresholds). Authors found both event rainfall characteristics and antecedent rainfall conditions can affect the hydrogeomorphic processes that trigger different types of landslides in Shirasu. However, authors summarized the identified thresholds are only useful in Shirasu deposits which according to authors cannot be applied to other parts of world at similar conditions. It is important to discuss on the limitations of this study and how can this study be applied to other locations.

Authors have to include some additional figures and information to improve the quality of the manuscript which will further help users to apply their approaches to study landslides at other locations. For example, this manuscript lack in information about study area such as size of study domain, description of soil types, landcover types, slope, elevation etc. It is important to include if available, DEM or slope map (or information), soil and land cover maps (or information) etc.

Specific Comments

Authors have accurate dates, times, locations and rainfall records for 184 landslides which can be shown on map. It is important to include either Digital Elevation Model (DEM) map or slope map with locations of all 184 landslides. For example, the included Fig. 2 can be modified like Fig. 2 shown in this document. In addition, landslide locations can be shown on that map.

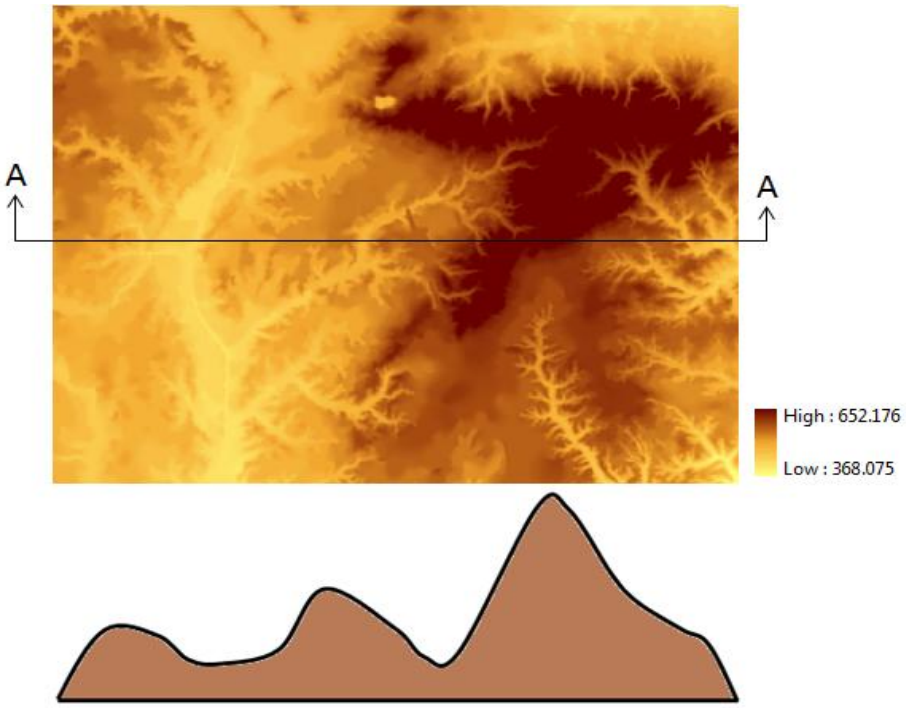

Fig 2: An elevation map of the study area with X-section A-A

OR

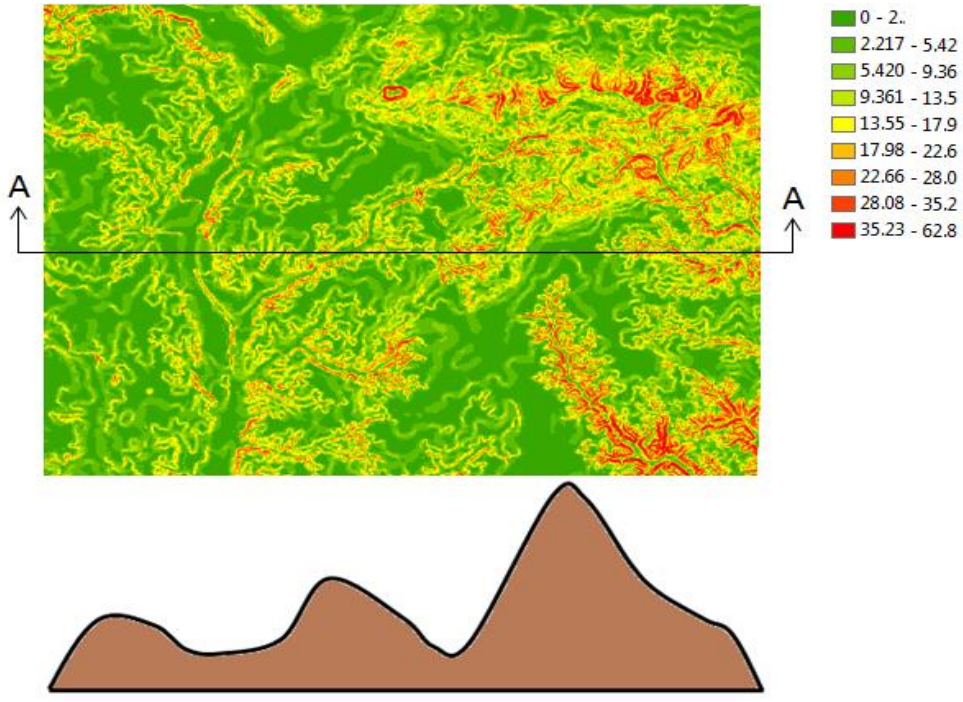

Fig. 2: A slope map of the study area with X-section A-A

It is difficult to compare Fig. 6 (a) and (b) because of assumed different slopes and depths for two simulations. Please use these scenarios; (i) depth I, slope I , (ii) depth I slope II, (iii) depth II, slope I and (iv) depth II, slope II which will generate four figures. It is confusing whether authors have calculated SF at point or map (for complete study domain at each assumed grid), explain.

Technical Corrections

Abstract: It is advised to be consistent throughout the manuscript. For example, authors have randomly used antecedent rainfall, antecedent precipitation, API. First, use antecedent precipitation index (API), if you are really using API. Readers will get confused from antecedent 7 day rainfall (API_7).

3.3 Effects of change in weight and cohesion.....

Include reference of proposed FS equation (1).

Also, explain the difference between antecedent rainfall and accumulated rainfall for readers.

Figure 6: Explain in text about assumed or calculated values of unit weight of soil (9.32 to 14.81 KNm^{-3}).