**Natural Hazards
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Discussions

Interactive comment on "An assessment of landslide distribution in the Faifa area, Saudi Arabia, using remote sensing and GIS techniques" *by* T. Alharbi et al.

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I read the paper with great interest given my own research interests on the topic. The contribution aimed at mapping landslide distribution, and identifying landslide types and its controlling factors to generate landslide hazard maps and predictive modeling of potential landslides. The approach is based on integration of extensive field observations and remote sensing and GIS analysis including:

1) known landslide inventory was developed by extensive field surveys, and its spatial and spectral characteristics were determined using high-resolution remote sensing

data.

2) extraction criteria and a work flow that allow remote sensing detection of landslides were established over the known locations of landslides.

3) the approach developed with known landslides were then extended to elsewhere in the study area where similar landslide types could occur.

Authors identified two types of landslides: debris ïňĆow within ephemeral valleys and on sparsely vegetated slopes (Type I), and landslides caused by failure along fracture planes (Type II). NDVI, slope and landscape elements (e.g., absence or existence of terraces) used to map Type I landslides. For the Type II, the dip angle and direction of the fracture planes across large sections of the study area were used. Major land cover types, e.g., road network, urban areas, were used to understand diversion of rainfall across the landscape.

The manuscript is very well written, and the conclusions drawn from the results are comprehensive and well supported by the data and results. I am sure many readers of the journal will find the paper interesting. I found specifically the following aspects of the paper is valuable:

1. The NDVI and slope regression over field observed landslides is simple, but effective way of predicting large area landslides or future landslides.

2. Detailed landscape analysis, e.g., existence of terraces, and the relationship between precipitation, road network, etc.

3. The power of integrated GIS analysis that utilize the GoogleEarth images, and other free and commercial data in online platform.

4. The type of classification of landslides, which made the subsequent analysis was clear and fluent.

Very minor concerns as a reader:

1. The conclusion could be shorter, but perhaps this is preferred by the journal.

2. A figure or a paragraph of the relationship between slope, dip angle, and fracture plain and potential landslides may be helpful for non-geologist or remote sensing readers of the journal.

3. There is a typo on Page 6693 Paragraph 5 "that intersects a road is shown on Fig. 4c. In the absence of high special resolution"

Change "special" to "spatial"

Overall, I enjoyed reading the paper, and is definitely a good reference for my future work.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 6685, 2013.