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Natural Hazards and Earth System Sciences
Discussions
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Interactive comment on "Evaluation of Environmental Factors in Landslide Prone Areas of Central Taiwan using Spatial Analysis of Landslide Inventory Maps" *by* K.-L. Fu et al.

Anonymous Referee #2

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This study presents as a final result the landslide potential map of two river basins in central Taiwan, an area which is highly affected by natural hazards. The landslide inventories are prepared for 17 scenes with a connexion to several typhoon and earthquake events within a time period of 14 years. The inventories are statistically analysed including causative and triggering factors using landslide ratio and a logical empirical equation after Uchiogi (1971) to get the landslide potential map. This paper fits to the scope of the journal. The approach takes the opportunity to analyse satellite images over a longer time period to examine correlations between earthquake and rainfall events triggering landslides. The results can be seen as basis for further hazard and risk research in this area and it is worth to publish the outcomes. Nevertheless it has

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to be highlighted that the manuscript is poorly structured, methods and results are not described clearly enough, input data are not presented properly. The text is hard to read. I recommend revising and adopting the entire manuscript. 1. The aim of the study should be mentioned in the abstract and the introduction not in the description of the study area (p. 6 lines 17-19) 2. There are repetitions of information on the usage of the results for further work which should be mentioned only ones. (i.e. p.6 lines26ff.) 3. There are many figures added which are not essential for readers support. Especially figure 4 is unnecessarily because it is hardly mentioned in the text. A legend is missing and does not give an additional input to the reader. 4. Please list all input data clearly with citation of the source and if available the resolution/scale for which they are suitable. 5. Try to present complete lists p.7 line 7 "GIS layers such as roads. Also describe their preparation (eg. buffer of roads) Maybe it makes sense to have an own chapter to describe data and data preparation. Used aerial photographs supporting the image identification should also be listed by date and citation. 6. On p.10 lines 22: I would like to know more about your work of classification and hierarchy and tree structure and not what should have been done. 7. Results: Landslide distribution in figure 8 there are landslide areas which are not only rising during the time. See areas post earthquake Chi-Chi (1999/10/31) total area of 18.767ha whereas pre typhoon Toraji (2011/01/20) the total landslide area is 14.465ha. How do you explain this issue?-How do you consider this circumstances in the following procedures for the landslide potential map? In figure 9 there is a gap in post-typhoon Toraji and pre typhoon Mindulle. This issues would haven been interesting to be discussed. 8. Figure 13 represents not elevation as mentioned on p.20 line 11. The figure shows slope classes. 9. Human activity: p. 23 Line 7 and after in the discussion p. 24 line 19 you mentioned that human activity causes minor or irrelevant landslide contribution. There should maybe discussed the fact, that the area is located in a very steep and montainous part of Taiwan. 10. Generally in the results and discussion chapters the final landslide potential map as the final result is mentioned very shortly. It is mentioned on p.16 line 6 "...this section utilized a dataset of complete and reliable landslide inventory maps of Shenmu area..." How

do you validate your working steps? In general validation of any of your results is required. Landslide potential maps of the different time periods are particularly suitable to evaluate and discuss the model as well as the outcomes. 11. Additionally editing remarks. The Name “Uchiogi” in the References is spelled differentially than in the text “Uchiughi”. P. 18 line 21 “Fig. xx” needs a correct numerical value.

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