

***Interactive comment on* “Setting up the critical rainfall line for debris flows via support vector machines” by Y. F. Tsai et al.**

Anonymous Referee #3

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Reviewer Comment:

The manuscript applied support vector machines to setting up the critical rainfall line for debris flows. This topic is indubitably of interest to the readers of Natural Hazards and Earth System Sciences. The authors compiled the data carefully and got their results reasonably. I hope my following comments be useful to the authors:

Major comments: 1. This manuscript only describes the process of the model building, but lacks in-depth analysis of the results. In-depth analysis should be made to the 7 groups divided by the authors and to the differences among respective critical rainfall lines, particularly causes of the differences. 2. The manuscript should introduce some real cases for verification of the accuracy of the model generated by the authors. 3. In addition, the data process and establishment of the critical rainfall lines for debris flows

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seem in a logical mess.

Minor comments: 1. Personally, I think that Figure 1 is meaningless and should be removed. 2. The author fails to explain the origin of rainfall data. 3. The research progress of the critical rainfall threshold is not summarized in Introduction. 4. The blue dots in Figure 7 are not evident in the image and the figure should be redrawn following requirements. 5. Page 5959 Line 9-10“were considered” replacement “was considered” 6. The difference between streams with disaster and streams without disaster in the legend of Figure 2b is not obvious. 7. Page 5959 Line 3: Nakamura et al. (2000) reference is missing. 8. I suggest authors to add references for Fig.4 and Fig.5 since they come from other articles. 9. Page 5963 Line 20: Authors should add “is” after “product” in the sentence of “This inner product generally made by a kernel function” . 10. Figure 2 and Figure 3 are not clear and should be redrawn to improve resolutions. 11. Please add more literatures and improve introduction for in-depth analyzing progress of the research of critical rainfall threshold.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 5957, 2015.

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