

## ***Interactive comment on “Selection of intense rainfall events based on intensity thresholds and lightning data in Switzerland” by L. Gaal et al.***

### **Anonymous Referee #1**

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Review of Manuscript: HESSD 11, 1-36, 2014

Title: "Selection of intense rainfall events based on intensity thresholds and lightning data in Switzerland" Author(s): L. Gaal, P. Molnar, and J. Szolgay

The paper reports a method and estimation of intense rainfall events over a few stations in Switzerland by estimating the threshold intensity with the help of a lightning data, capturing the convective character of these intense events.

General remarks:

Topic of this manuscript is very interesting and important. The authors did a great analysis capturing a regime and properties of rainfall events and their extremes, with

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testing the performance and robustness of the method in which lightning data has been used.

What I would have liked to see in this paper is more stations/locations being used to give a more significant statistical meaning of the results, and possibly more data sets being used for a comparison purpose. In that sense, the authors do say their future work will continue focusing on a greater number of stations available in Switzerland, which I strongly encourage.

Perhaps a few, more general, details can be added in this paper that explain the method for determining and calibrating intensity thresholds, and how this relates to the generally defined extreme rainfall events seen in previous studies.

The authors use two types of correlations in their statistical analysis: Pearson correlation and Spearman rank correlation. Please explain the reasons for usage of both of these, and not just one.

In general, in longer sentences, I advise the authors to use more a comma sign (“ , “) where appropriate, for separating elements for clarity.

Some figures could be eliminated and just explained in the text (I leave it to the author's choice).

Detailed remarks:

Page 3, line 13-14: “Weather radar provide. . .” Change to: “Weather radar provides. . .” or “Weather radars provide...”.

Page 10, line 23: “. . . lightning, expect. . .” Change to: “. . . lightning, except. . .”

Page 17, line 1: “. . . and thefore. . . “ Change to: “. . . and therefore. . . “ Page 17, line 7: Please clarify the affect “by the Mediterranean”.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 593, 2014.

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