

## ***Interactive comment on “The role of different factors related to social impact of heavy rain events: considerations about the intensity thresholds in densely populated areas” by L. Barbería et al.***

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First of all, we would like to thank the anonymous referee #1 for their comments which will improve the quality of the paper.

Although all the technical corrections will be applied to the final document, a brief answer to all the points is given below:

a) English should be improved (e.g. “associated to” has to be changed throughout

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the text by “associated with”. Verbs should be written using the same time within a paragraph, e. g. Pag 3, first paragraph). (Answer): We will correct this mistake and a revision will be made throughout the text to make it more self-consistent. Nevertheless, it has to be taken into account that depending on the meaning, different tenses are required. For instance, on page 3, first paragraph, the simple past passive is used for the creation of the SIR Group, as it was a specific moment in the past. However, when talking about the studies carried out since 2008, present perfect must be used. On the other hand, present simple tense is used for facts that are always true (for instance: “They reveal if an event has caused damages. . .”, “These claims can be translated into economic losses. . .”).

b) It should be made explicit that the CI index is applied to the Balearic Islands or to Catalonia, not to both regions together. The maximum precipitation collected in the Balearic Islands in 24 hours should not affect the CI index for Catalonia or viceversa. (Answer): In order to make it clearer, on page 461 line 24 we will add “for each region” after the sentence “[. . .], a cumulative index (CI) to indicate the social impact expected for rain events was established”.

c) To make the article more self-consistent, the tables corresponding to the values of LR, LP, LTR and LTW from Amaro et al (2010) should be incorporated. (Answer): Thank you very much for your comment, but for several reasons we preferred not to introduce them. Firstly, this information is already published in Amaro et al (2010), together with other relevant concepts, as the definition of a SIR event and the criteria used to build the SIR database which are not incorporated either. On the other hand, all these tables would occupy an important part of this article, and this is not the goal of the current paper. Finally, the reproduction of part of another study could be considered as self-plagiarism. Therefore, we decided not to incorporate them.

d) Page 7 second paragraph. Improve writing. “Concentration of population in relation with the land” means “population density”? (Answer): In this paragraph “concentration of population in relation with the land” was used as a synonym for population density.

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It can be changed to make it more accurate.

e) In some parts it is written “inhabitants km-2”, in others “inh km-2”. It should be convenient to unify notation. (Answer): We agree that we have to change it. The abbreviation “inh km-2” will be used in all cases.

f) Remove “Eq (1)” at the top of page 4 (Answer): It will be removed in order to avoid repetition.

g) Remove “Eq (2)” at the end of page 7 (Answer): The same as in f)

h) Equation (2) must be at the top of page 8 (Answer): We agree that in order to be consistent with the rest of the text, the equation 2 must be placed at the top of page 8.

i) Page 8 line 5. Delete “only the precipitation between 40 mm and 60 mm is taken into account as” (Answer): If equation 2 is relocated in the text, this sentence is no longer necessary, so it will be deleted.

j) Page 8 line 12. After RCI add “for Catalonia” (Answer): We will add it to make it clearer.

k) The increase in the visits to the websites of the SMC and the free availability of data from automatic weather stations doesn't seem like a reasonable cause of the decline in requests for reports from insurance companies. Insurance companies most likely need official reports from the SMC and not simple copies of the website for their business. (Answer): Based on our daily work with insurance companies, we can assure that at least, in Catalonia, copies of our and other websites are used in order to validate the claims. As a consequence, the number of requests has decreased since free data is available on the internet. Nevertheless, it is true that some insurance companies prefer to ask for official data, as well as citizens who want to contrast the information given by the insurance companies. Moreover, meteorological information required for trials or for public funds (e. g. Insurance Compensation Consortium, <http://www.consorseguros.es/web/i>) needs to be provided by official organisms. Thus,

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a remarkable number of requests are still received even though it has decreased in recent years.

l) Page 11, line 26. Explain better the no inclusion of ‘population factor’ (Answer): Further explanation will be added to the text: “as it has been shown in Table 1, during 2008-2011 there were not significant changes in the population figures. Thus, the population factor will not have perceptible changes. Because of this, it was not necessary to include it in the RCI expression.”

m) Page 13 line 17. Delete “the following (Eq. 4)” (Answer): It will be deleted, in the same way as in f) and g)

n) Page 14, line 13: The same as in l) (Answer): Reference to the explanation added in l) will be made.

o) The references in a paper shall be available to the interested reader (as easy as possible). The 3 references indicated as “poster contribution” are not available to the interested reader. At least the reference of the corresponding abstract should be included if published. Otherwise these references should be removed. (Answer): The posters are available at Research Gate website. It will be indicated at the references.

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