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## ***Interactive comment on “Spatial impact and triggering conditions of the exceptional hydro-geomorphological event of December 1909 in Iberia” by S. Pereira et al.***

### **Anonymous Referee #2**

Received and published: 21 November 2015

The paper by S. Pereira et al. describes an event occurring between 20 and 28 December 1909, which caused a great number of floods and landslides in the western part of the Iberian Peninsula. The event is ranked as the one with highest number of flood and landslide cases in Portugal in the period 1865–2010. In the paper, it is described by means of observed impacts, precipitation distribution and atmospheric distribution.

### **General Comments**

The topic of the paper is interesting and I think that detailed reconstructions as the one presented in the paper are very useful to improve our knowledge on events that may have an high impact on the territory. I also think that local and national newspaper are

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a good source on information, together with in-situ data and reanalysis data, to give a detailed characterization of such events.

In its present form, the paper has however some deficits that should be addressed before publication. The main one is that the real focus of the paper is not always clear: after reading the paper, it is not clear whether the main aim of the paper is the description of the impacts of the event or the characterization of the associated meteorological conditions. In my opinion, it is important that the authors clarify this point. After clarifying this point, the authors should then clearly explain the impact of the paper in terms of new knowledge. In other words, if the main goal of the paper is to characterize the spatial distribution and social impacts of the event, they should explain what is the new information with respect to the already available DISASTER database (in suppose the information concerning Spain). On the other hand, if the main objective is the meteorological characterization, they should try to study more in detail the spatial distribution of precipitation (e.g. by modelling a local relation between precipitation and elevation) and give more information than just the one concerning December, 22th.

Finally, I think the paper has to be subjected to a revision to improve the language.

#### Specific comments

Page 5809, line 19: please check “has”.

Page 5811, line 3: please check “of”.

Pages 5814-5818: section 4.1 is really too long and gives too much details.

Page 5818: the relation of the mid November precipitation with the event investigated in the paper is not clear for me. The authors should explain the mechanisms that make it relevant for the paper.

Pages 5821-5823: in my opinion section 4.3 should be, together with section 4.2, the most important section of the paper. In this case, however, the analysis cannot be restricted to December, 22th, but it has to cover the entire period with observes impacts

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(and high run-off).

Pages 5823-5826: the section discussion and conclusion is mainly a repetition of the other sections of the paper. It has to be revised highlighting the new information provided by the paper and its significance in the context of the management of extreme precipitation events.

Page 5837: figure 4 is not necessary as the same information is provided in table 2.

Pages 5844-5845: the captions of figure 11 has the caption of figure 12 and figure 12 has the caption of figure 11.

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