

## ***Interactive comment on “Assessing changes on urban flood vulnerability through mapping land use from historical information” by M. Boudou et al.***

### **Anonymous Referee #1**

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General comment The paper focuses on two flood events that, with a span of twenty years (1910 and 1930), hit two cities in France. The authors analyze how the vulnerability of these towns has changed since then, using detailed maps drawn from historical information. The authors have interesting historical documents. With these they try to define the new vulnerability of the two towns as if a similar event as 1910 and 1930 would arise again today. The study is interesting, pleasant, and definitely improvable. The paper follows the classic pattern: Introduction, General Settings, Methodology, Results, Conclusion, even if the authors do not use these specific terms. In the paper a number of errors and inaccuracies have been noticed, some grammar ones, others due

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to distraction. In the introduction it is possible to point out misuse of verbs (use of the present perfect in place of simple past / errors on the paradigm of irregular verbs and use of); in the paragraphs 3.1 and 3.2 some blunders concerning the adverbs; in the paragraphs 3.4 and 4.1, unfamiliarity in the use of conjunctions and verbs again; 4.3 a mix-up in the relative pronouns (“Which return period” should be, instead, “Whose return period”). In the conclusions I also read “the age of population age”, that I cannot understand ... The quality is really poor and the result is a very elementary grammar level. I think that a paper written for a French journal and later translated into English. In the paper: there is a lack: a paragraph in which the authors analyze similar papers published worldwide. Papers in which other authors have: a) Underlined the importance of the historical data as a tool for risk assessment (Glade et al, 2001; Luino, 2002; Tropeano and Turconi, 2004; Coeur and Lang, 2010 and many other papers) b) Compared floods of the past with the future (also by means of hydraulic modeling) in order to assess the hazard, the risk, and vulnerability. This paragraph is not present and the authors should fill in the void.

I would suggest that the authors, after analyzing the vulnerability, could hint at the forms of insurance provided in France. The calculation of the vulnerability necessarily leads to the conclusion of stipulating some kind of insurance.

### NOTES IN THE TEXT

Page 6152 LINE 1: The term “diachronic” puzzles me: even if it is used in geology, I would like that the authors would use were using some other term. LINE 5: “the XXth century–” ADD “– as a function of certain parameters such as the intensity and severity of the flood and spatial extension of damage”. LINE 25: Add at least two other references (De Bruijn, K.M., 2005; Schanze, 2006; Cardona et al, 2012). Page 6153 To lead, led, led. . . not LEADED. Page 6155 LINE 11 and 23: please, at the end of the sentence insert the estimated damage in French Franc (1910) with today currency revaluation of today (example = 2.5 million of euros). Page 6156 LINE 1: for the “accumulation of pieces of wood” the authors can utilize the term “jam log”, commonly

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used for the flood. LINE 4: which work? Reference. LINE 17: indicate the source who estimated the damage. Page 6157 LINE 6: NOT hundreds! But hundred. The question is “All the structures and infrastructures realized after the Second World War how are influencing the study area? A new railway embankment or some large commercial centers, or a new bridge how could change the dynamic of the flood?”. The authors have considered that? Page 6158 Line 9: “efforts” can be substituted with “work”. Page 6159 Line 18: insert the website (<http://www.eea.europa.eu/data-and-maps/data/urban-atlas>) Page 6162 LINE 10: insert new reference Luino et al. (2012). Page 6163 LINE 9: “Ancient” is good for the “Ancient Greece, ancient Rome”. I propose: “..by two floods occurred in January 1910 and..” LINE 14: “Qualitative information (pictures, technical reports, national and local newspaper articles, paintings, marble plaques, etc.)..”. It should be better to list all qualitative information we commonly use... besides the maps. Page 6168 Figure 1: On the right: it is not clear the method adopted. It should be better a short explanation... here or in the text. What is the meaning of/what does it mean 3.5 to 14? 3 to 12? 2 to 8? I have found the definition “remarkability score” in the paper “Characterization of remarkable floods in France, a transdisciplinary approach applied on generalized floods of January 1930” (EGU 2014). In addition, in another one “Assessing changes on urban flood vulnerability through mapping land use from historical information” (2015). I suggest changing it in “criticality level”, used in many scientific fields. Caption. I suggest: “..9 most remarkable French floodings selected..” Legend: NOT 3,5 but 3.5. Page 6172 In the figure the blue circles are not well distinguishable. Please, use different tone of blue (pale, medium, dark). There are 5 different size circles in the map. Please, check them. Caption: in the figure 4 there is not the date of the event, the year only. Erase “3 March” for uniformity with the previous figure. Page 6177 Figure 10: Why the figures in the upper part are cut at the level of the railway. For uniformity with figures 9 it should be better to enlarge them (or cut the figures 9). Caption: NOT 1910, but 1930.

References De Bruijn, K.M. (2005) - “Resilience and flood risk management: a systems approach applied to lowland rivers”. Luino F., Turconi L., Petrea C., Nigrelli G. (2012)

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- “Uncorrected land-use planning highlighted by flooding: the Alba case study (Piedmont, Italy)”. Schanze J. (2006) - “Flood risk management – A basic framework” Tropeano D. & Turconi L. (2004) - Using Historical Documents for Landslide, Debris Flow and Stream Flood Prevention. Applications in Northern Italy. [www.eea.europa.eu/data-and-maps/data/urban-atlas](http://www.eea.europa.eu/data-and-maps/data/urban-atlas)

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