Natural Hazards
and Earth System
Sciences
Discussions

Interactive comment on "A spatial multicriteria prioritizing approach for geohydrological risk mitigation planning in small and densely urbanized Mediterranean basins" *by* Guido Paliaga et al.

Anonymous Referee #2

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The paper aims to propose a support tool to decision makers to plan and schedule long term investigations at catchment scale in the region of Liguria in northern Italy. Small catchments in a high hazard area have been assessed and compared through three sets of parameters: one describing the morphometric-morphological features related to flood and landslide hazard, another describing the degree of urbanization and of anthropogenic modifications at catchment scale and the last related to the elements at risk exposed. To address the main objective, multi criteria analysis technique to the descriptive parameters was applied.

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General comment

I have read the paper with great interest and the main objective addressed by the manuscript is framed to the scope of the journal, but there are some confusions. My main concern is that the paper reflects more an engineering approach rather than a research approach. Therefore, I think that the paper needs some revisions and I recommend accepting it only after these revisions.

Specific comments

Introduction. In general, flood risk in the context of natural hazards is a broad term, which covers different dimensions from physical to social approaches. In this line, it is important from the authors to give a clear framework of the concept used in this study. Try to explain better or make more explicit the links what you deal with. In this part and to avoid confusion, I would suggest the authors to clearly indicate the flood processes in the area, to better define the problem and to explain better why used the described approach. To make the paper more relevant for the readers of this journal, I would suggest making a more explicit link to ongoing research in the natural hazard community.

Materials and Methods part.

The study area is well described. I would suggest the authors to reduce the information (parts: Geomorphological and geological settings and Climate and Meteorological context) by focusing only on important info for this study. The methodological outline is good described, and the method sounds scientifically correct (I am not an expert on statistics).

In page 7/line 273 where the data is described, the authors used a DEM realized in 2007 and a land use dataset realized in 2015. I would suggest them to use a newer elevation model and if it possible a DTM rather a DEM to reduce uncertainty on their simulations. Moreover, I would suggest them to add units of the formulae parameters

used on Table 2 and Table 3 to avoid confusion, to explain some abbreviations used and to describe more the survey performed. Additionally, and as authors used the International System of Units (SI) I would suggest them to check if the formulas used are in this system. On Table 3 (NRCS-SCS Line) the formula presented is in inches and they are dealing with millimeters. Moreover, it is not entire clear to me, how do they calculate the areas exposed to risk level R1-R4.

Results/Discussion.

In general, I would suggest the authors to merge these parts and to discuss their findings based on the methodology used and/or findings from other similar studies. What is missing in my opinion is a connection or a comparison of their findings with the international literature and/or with findings form other case studies (In the discussion part is only on reference on other studies).

At the end, the conclusions presented are too general and do not reflect what exactly shown in this study. Conclusions based on the findings of the analysis presented would be more effective.