

# ***Interactive comment on “Identifying urban areas prone to flash floods using GIS – preliminary results” by Marzena Wicht and Katarzyna Osinska-Skotak***

**Marzena Wicht and Katarzyna Osinska-Skotak**

[mwicht@gik.pw.edu.pl](mailto:mwicht@gik.pw.edu.pl)

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Marzena Wicht

RC = Reviewer comment AR = Authors reply

RC:

The purpose of the article is to develop a method to identify urban areas vulnerable to flash flooding. This falls within the scope of HESS. The presented line of research has potential as it pursues a versatile methodology, applicable to multiple European cities, without high modelling or expertise demands. However, the submitted article is not at a publishable level. It lacks structure and leg-ibility. Presented methods are not

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novel and results were not validated. Tackling this issues requires more than a major revision. This prompts me to recommend the article rejection. I take the opportunity to encourage the authors to continue with this line of thought as it can certainly render substantial results in the future. An article describing the mining of INSPIRE-compliant data sets, and other open data describing flooding impacts, to automatically identify and validate flood prone areas in a batch of European cities, would yield a novel scientific contribution.

AR:

We appreciate reviewer's valuable and constructive advice on our manuscript. We intend to implement suggested changes to improve the quality of this article. We thank as well for the relevant suggestion of INSPIRE-compliant data-sets, which definitely will enrich this research and will be included in the revised version of the manuscript.

RC:

Specific comments: 1. The article does not present a substantial contribution to current knowledge or techniques in urban flooding. Similar methods have been previously used and are available in related literature. The work of van Dijk et al. (2013), cited by the authors, is a recent example of an already published work in this topic. That paper uses the same method with a closely similar purpose in an urban environment. However, it does include a basic visual comparison of results achieved by the D8 modeling and by a 1D-2D hydraulic simulation. Such comparison is lacking in the article under revision.

AR:

Ad.1 We should like to thank the reviewer for these valuable comments. Although work of Van Dijk (2013) might bear similarities, it merely describes differences between simple surface flow model and 1D/2D hydrological modelling. What is proposed in this manuscript is enhanced surface flow model (coupled in the future research with the minor system) considering much more than just DEM.

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RC:

2. Even though the rationale behind the applied methods is valid, obtained results are not discussed in sufficient detail. The validity of results cannot be determined with the information delivered in the article. The authors do mention that the areas modeled as flood-prone included a hospital and a domestic complex that were previously affected by floods. However this textual description is not sufficiently detailed to afford a proper evaluation of the method performance. A comparison between modeled areas and impact data, delivering quantitative performance metrics, could leverage the scientific potential of this work.

AR:

Ad.2 In the revised version of the manuscript we plan to discuss the results in the greater detail. In our future research we also plan to validate the results based on 1D/2D hydrological models, as well as perform sensitivity analysis (of the input data) to investigate their impact. RC: 3. The structure of the article requires a major revision. For instance, sentences consisting of discussions are often found in Introduction and Results sections. The information in tables and figures is not used or discussed in detail, or its purpose is unclear. The use of English language (style, word choice, punctuation) should be also carefully revised

AR: We thank for the suggestions – the manuscript will be revised in both – structure and writing style.

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