J. Fohringer[1,2], D. Dransch[1,2,4], H. Kreibich[1,3], K. Schröter[1,3]

[1] Center for Disaster Management and Risk Reduction Technology (CEDIM), Potsdam and Karlsruhe, Germany
[2] Section Geoinformatics, German Research Centre for Geosciences (GFZ), Potsdam, Germany
[3] Section Hydrology, German Research Centre for Geosciences (GFZ), Potsdam, Germany
[4]Humboldt University Berlin, Geography Department, Berlin, Germany

Correspondence to: K. Schröter (kai.schroeter@gfz-potsdam.de)

First of all we want to thank the reviewer for his/her valuable and thoughtful comments. Following, we will reply to each of the comments made. We further attach a change tracked version of the manuscript from which the changes proposed can be seen.

Review C1396-2015

Interactive comment on "Social media as an information source for rapid flood inundation mapping" by J. Fohringer et al.

Anonymous Referee #2

The paper is well written and the proposed approach is interesting and illustrating a complete process of data extraction and management for rapid flood inundation that introduces a practical However, some key points are not adequately explained and should be detailed in order to make comprehensible the entire process. In particular,

Referee Comment:

1) The description of the intermediate phase between the "retrieval of the posts" and their storage where the authors say "After retrieval the posts are pre-processed" indicating the steps of such actions is not clear. It would be useful to make clearer the following aspects: Which are the criteria/instruments that are used in order to clean this collected set of posts? Is it automatic or not?

Author's Response

We agree with the referee that the text needs improvement in this regard.
Authors' Changes:

We will revise the text of section 2.3 taking into consideration the points raised be the referee. In this context please also see our reply to comment 4.

Referee Comment:

2) When the authors speak about "standardization" of posts "the appropriate attributes are individually parsed and converted to a common format" which are these attributes and what kind of common format is chosen (and why)? More details should be presented of the harmonization activities.

Authors' Response:

The aim of this step is to harmonize differences in formats coming from different data sources (e.g Twitter, Flickr, etc.). For instance date specifications or geo-location data may come in very different formats. The harmonization of this variety helps to simplify data queries.

Authors' Changes:

The paragraph will be revised as in reply to comments 1) and 4). In this context also this step will be explained more in detail.

Referee Comment:

3) A more detailed explanation should be presented regarding the database structure used in the PostStorage. What is the design adopted for the organization of the posts? I suggest presenting a description of the Database and the post characterization.

Authors' Response:

As we use a document based data base and not a relational database there is no database scheme defined ex ante. The posts that are retrieved from the different services are stored as individual documents in the services' format. Harmonized attributes are added to these documents.

Authors' Changes:

The paragraph will be revised as in reply to comments 1) and 4). In this context the concept of the data base will be explained more in detail.

Referee Comment:

4) The description of the methodological part in the components section should be presented in a way it clarifies better the design choices that are developed later in the implementation one. I also suggest connecting the descriptions in these two sections by referring not only to the components names but also to their 'behaviour' organizing in a more structured way the descriptions in the implementation part.

Authors' Response:

We agree with the referee that the text needs improvement in this regard.

Authors' Changes:

We will strengthen the links between the components of the tool and the implementation by revising the text in section 2.3 and 2.4. In this regard we will also adopt a different manuscript structure. This includes the renaming of section 2.3 as 'PostDistiller' and the subdivision in two sub-chapters: 2.3.1 Components and 2.3.2 Implementation.

Referee Comment:

5) When the authors describe the visual interface, it is not very clear which kind of data the user ma add (not only from a technological point of view but also of the phenomena). I suggest to illustrate better also this section giving more details about the attributes of the images, how they permit to the user to estimate characteristics of the flood (automatically/which instruments) and how the authors suggest the reliability of these estimates may be rated ?

Authors' Response:

The user may add attributes to the photo which
- Assess the relevance of the photo: Is there any inundation visible?
- Estimate the inundation depth: The estimation of inundation depths is done by flood experts by visual inspection of the photo contents. Objects visible in the photos might be used to derive an estimate of inundation depth, e.g. flood water in relation to buildings' windows, traffic signs or other street furniture.
- Provide a rating for the reliability of this estimate: this is a subjective rating accomplished on a scale ranging from one to five (one meaning low confidence and five meaning high confidence in the estimate). This is of interest, when photos are evaluated by different flood experts and if probabilistic mapping methods are applied which does not apply for our use case.

Authors' Changes:

We will add a description of these attributes and the process to derive them to the text on page 4243 (new section 2.3.1 Components). We will also provide a specific example on page 4249 (new section 3.2.2 Results) for the photos available for the Dresden use case.