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Poster-
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Background

For emergency management and reconstruction planning a broad overview of the flood event is required. For this overview, information from many different sources has to be acquired and integrated. Observations from the affected population can be an important source of information. New Internet technologies facilitate fast and easy data collection from the public, but also interviews with the affected population can be used. A major obstacle for using such kind of information is its unknown quality.

Objective

The objective of this poster is the presentation of information about a flood event collected from affected people to answer the following questions:

- What information can be gathered by affected people and what uncertainty is associated with the gathered information?
- For what information are affected people the best source of information, what information is collected better by other means?

Data collection

In the aftermath of a severe flood event in August 2002 in Germany, 1697 computer-aided telephone interviews were undertaken in flood-affected private households (Figure 1).

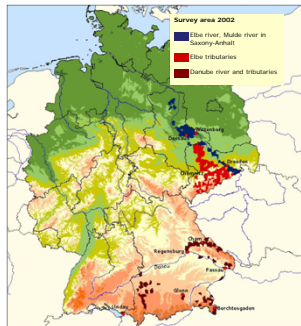


Figure 1: Municipalities in which interviews in affected households have been undertaken in the Elbe and Danube catchments in Germany.

References:

Poser K, Kreibich H, Dransch D (2008) Humans as Sensors: Assessing the quality of information from the public for rapid flood loss estimation. In: Pebesma E, Bishr M, Bartoschek T, GI Days 2008 - Proceedings of the 6th Geographic Information Days, June 16-18, Münster, Germany - Award for Best Paper
 Kreibich, H., Thielen, A. H., Petrow, T., Müller, Me., Merz, B. (2005) Flood loss reduction of private households due to building precautionary measures - Lessons Learned from the Elbe flood in August 2002. Natural Hazards and Earth System Sciences, 5, 1, 117-126.

Flood impact characteristic

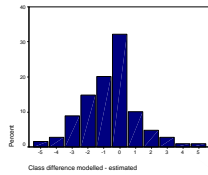


Figure 2: Deviations of classified hydraulic modelled and estimated water level data.

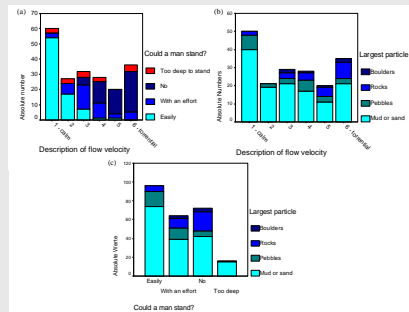


Figure 3: Test of consistency within the dataset: What is the agreement of answers to different questions all related to flow velocity?

Table 1: Descriptive statistics of estimated versus modeled data (MAE – Mean Absolute Error)

	Mean of modelled data	MAE of estimated data	Bias of estimated data	Correlation coefficient
Water level	1.72 m	0.71 m	0.82 m	0.56
Flow velocity	1.79 m/s	1.62 m/s	1.42 m/s	0.03

Monetary flood damage in different situations

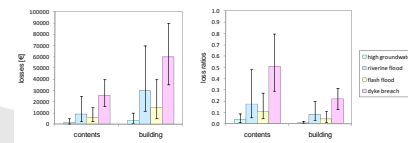


Figure 4: Absolute and relative direct monetary flood losses of affected private households caused by different flood types

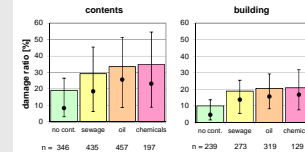


Figure 5: Relative monetary flood losses by different flood contamination

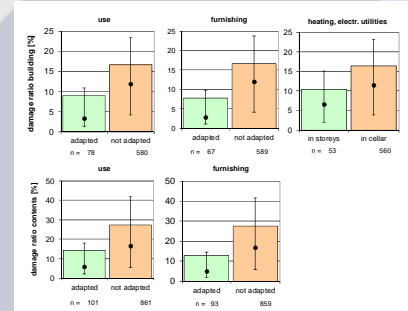


Figure 6: Relative direct monetary flood losses of affected private households who had or had not undertaken different precautionary measures.

Damage mitigation measures

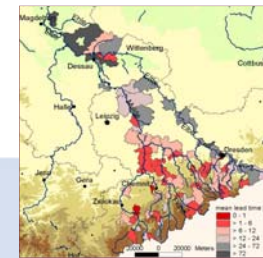


Figure 7: Mean lead time as reported by the affected people and their judgement about the possibility to undertake emergency measures.

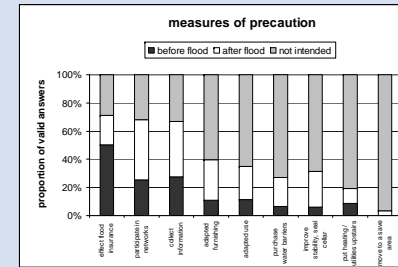


Figure 8: Proportion of affected households, which undertook specific measure of precaution before, after the flood 2002, or which do not intend to undertake the measure.

Conclusions

First results show that water level can be estimated by observers with very good accuracy in comparison with results of hydraulic models. Flow velocity, however, is very difficult to estimate and the estimates differ significantly from modeled values. Some information like precautionary and emergency measures undertaken can only be gained from affected people.

