A framework to use Crowd-sourced Geographic Information in Flood Management

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Abstract: It is noticed that more and more user-generated geo-content is shared in internet. The term "Crowd-sourced geographic information (CSGI)" is used to describe these content. It covers both VGI perspective and geo-content from social media. There are many successful projects of using CSGI in disaster management, however, the uncertainty of data is a potential issue. This research discusses how to use CSGI in flood management. A framework about CSGI access, evaluation, formalization, and visualization is expected to be developed.

Introduction: Recently CSGI is widely used in disaster management. It could be served as an alternative channel for agencies to know the situation during the event, or for public to ask support and resource after event. However, the uncertainty of CSGI, such as data quality or incompleteness, is a big challenge in usage. This research aims to provide a framework to increase the data quality of CSGI in flood management.

Methodology

1. Study relevant literature and methods.
2. Develop a method to collect data from CSGI about flood damage and flood relief information (event response and recovery).
3. Develop an integrated framework for formalization, and visualization the data.
4. Evaluate the benefit of this framework in flood management.

Discussion

- Information from social media and other volunteered platform is usually regarded as VGI, but in fact they should be regarded as two approaches. We discussed different data sources and try to use the strengths and minimize the weakness.
- CSGI is regarded as a complementary part of the top-down SDI. A strategy to integrate CSGI in SDI is advisable. For example:
  - Georeference with authoritative data.
  - Peer review and user credibility.

Conclusion

- CSGI play a important role in ICT age. Currently I am working on developing a method to extract the data and to evaluate the data.
- The contribution of this research is providing a framework of using CSGI in flood to agencies and researchers.