Geophysical Research Abstracts
Vol. 20, EGU2018-1144, 2018
EGU General Assembly 2018

What information citizen science can help acquiring for flood hazard assessment?

Bocar Sy (1), Corine Frischknecht (1), Hy Dao (2,3), David Consuegra (1,4), and Gregory Giuliani (3)

(1) University of Geneva, Department of Earth Sciences, Switzerland (bocar.sy@unige.ch), (2) University of Geneva, Department of Geography and Environment, Switzerland, (3) University of Geneva, Institute for Environmental Sciences, Switzerland, (4) School of Management and Engineering Vaud, Institute of Territorial Engineering, Switzerland

Floods is the most frequent hazard, causing substantial economic and human losses. The 2017 flood events occurring across the globe (e.g. South Asia, USA, and Greece) show one more time how floods can affect our modern societies. One of the key elements necessary for implementing efficient mitigation strategies is flood hazard maps. However, establishing these maps require some knowledge of past events, an understanding of hydrological and ground conditions as well as the morphology of the area.

This study presents the contribution of citizen science to flood hazard analysis in a pilot study: a suburban area of Dakar, Senegal, where flooding has emerged lately as a major threat for its population. This area is characterized by a) a lack of records of past events, b) a poor coverage of hydro-meteorological stations, c) no regular update of basic data, such as topography, and d) limited coverage with satellite images.

Using a combination of citizen science techniques, such as participatory mapping, participatory GIS and social media, the citizens living within the study area helped providing different thematic and spatial data. Rainfall intensity data were collected daily through simple devices and results posted by the local contributors in a dedicated Facebook page (https://www.facebook.com/xeex.meude). Then, by working with 246 people, including 82 neighbourhood chiefs, spatial extent and water levels of past flood events were obtained from the explicit memory of the local population, through participatory mapping. The participatory approach was also applied to retrieve the hydrographic network, focusing particularly on the flood directions.

These promising results show that citizen science can help capturing key information necessary for flood hazard analysis, in particular for areas where no or few instrumental stations are available and financial resources are scarce.