

Exploring social sensing techniques for measuring rainfall and flood response in urban environments

Koole, W.; ten Veldhuis, JAE; Sips, RHJ

Publication date

2015

Document Version

Accepted author manuscript

Citation (APA)

Koole, W., ten Veldhuis, JAE., & Sips, RHJ. (2015). *Exploring social sensing techniques for measuring rainfall and flood response in urban environments*. Abstract from 10th international workshop on precipitation in urban areas, Pontresina, Switzerland.

Important note

To cite this publication, please use the final published version (if applicable). Please check the document version above.

Copyright

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy

Please contact us and provide details if you believe this document breaches copyrights. We will remove access to the work immediately and investigate your claim.

Exploring social sensing techniques for measuring rainfall and flood response in urban environments

W. Koole¹, J.A.E. ten Veldhuis¹ R.H.J. Sips²

1 Delft University of Technology, Watermanagement Department, Delft, the Netherlands

2 IBM Benelux, Center for Advanced Studies, Amsterdam, the Netherlands

Abstract

Extreme rainfall is expected to occur more often in the future as a result of climate change. To be able to react to this, urban water managers need to accurately know vulnerable spots in the city, as well as the potential impact to society. Currently, detailed information about rainfall intensities in cities, and effects of intense storm events on urban societies is lacking.

In this study, we will present first results of social sensing experiments to measure rainfall and flooding using a smartphone app. Users of the app are asked to submit rainfall reports by selecting an rainfall class from a pre-defined list of (6) classes, to register time and location and to make a photo of the rainfall. Rainfall photos will be used in a future experiment for automated retrieval of rainfall classes using computer vision techniques.

With the experiments we aim to validate rainfall observations made by lay people and to evaluate factors that influence the willingness of users to contribute observations. The results show that users consistently distinguish heavy and extreme rainfall from drizzle and mild rainfall, but have difficulty in making more detailed distinctions. The main factor driving willingness to contribute to the social rainfall sensing experiments is the perceived usefulness of rainfall reporting.