Flood coverage measuring method based on spatial distributions of Social-Media messages

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ABSTRACT

Based as an practical approach to automatically collect potential content in order to contribute to the NEOHAZ 3D flood level mapping project. As input source, several social-media platforms could be analyzed in terms of their content suitability and availability. The main idea is to create a python script which filters social-media messages spatially (to area of interest) and semantically (specific image tags, here e.g. flood, floodplain). Furthermore, with this approach, different time aspects for flood level mapping could be analyzed (if image quantity is sufficient). A main source of suitable images may be the social-network platform FlickR, with itÂťs detailed image metadata (precise timestamps, sensor information) as well as additional information like autogenerated tags which could be used to identify buildings and at last the easy-to- operate python api. Aim is to create a framework that is capable to collect images from different areas/times with minor changes to the script, for example a shape-file with a bounding box of another area of interest.

Keywords

Social-Media, Flickr, Flood, Spatial Analysis, Heidelberg

INTRODUCTION

RESEARCH QUESTIONS

- To which exent are flood intensities predictable with help of Social-Media messages?
- To which extent can training methods improve the accuracy of predicted floods?
- Is the theoretical approach of Social-Media based flood prediction feasible to realise in practice?
- Which factors does a region need to be best suited for flood prediction with AGI?

Relevance of Research Questions

Relevanz der Forschung –> current issues: (Wen interessiert es? Warum? Welchen Beitrag zur Gesellschaft leistet die Arbeit?)

Most common disaster globally (2006-2014) - Water level measurements not evenly distributed - Regions differ in infrastructural standards - Big differences between countries or even within states

Aim of Research proposal: - Create method to model distributions of Flickr messages - Flood related tags - Major goal: - Model floods solely based on Flickr (in practice just extension to existing flood prediction models) - Area of interest - High rate of flood-related impacts - Low quality/quantity water level measuring infrastructure - High level social-media usage rate

Literatural context

(Literatur als theoretische, empirische Basis; Hypothesen sollten sich aus Literatur ergeben)

METHODOLOGY

(welche Datengrundlagen, woher beziehbar, zugÃďnglichkeit, Eignung, Methoden zur Datenanalyse rechtfertigung

SUMMARY

(wann welcher Teil von mir erstellt wird + vorlÃďufiges Inhaltsverzeichnis) –> Implementation of Workflow: [picture]