

What is the role of big data in water-related disaster mitigation?

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¹*POSTECH*

(a) Purpose of study or research hypothesis

To understand potential triggers and dynamic patterns of social response during US droughts at the state and national level.

(b) Key issue(s) or problem(s) addressed

Big data provides a unique opportunity to explore the dynamics of social response during the emergency of a disaster. Big data was however underutilized to water-related disaster mitigation due to lack of pioneering effort.

(c) Methodology or approach used

In this study, we facilitate the Google Trends (GT) data to investigate potential triggers of Californian's awareness during the 2011–17 Drought and how we can quantify the forgetting rates of the public awareness. To quantify forgetting factors of public interest or social memory, power law stochastic models were selected and trained against the monthly GT data.

(d) Results or conclusions derived from the project

The key findings are included: 1) drought awareness spreads out beyond the drought-affected areas simultaneously at the monthly time scale and 2) forgetting rates are various across the states and are determined by the socioeconomic structures.

(e) Implications of the project relevant to congress themes

This study will discuss potential applications of the proposed methods to Korean public awareness studies and the role of big data in transforming our nation to a water-related disaster-ready nation in coming years.

Keywords : drought awareness, big data, power law model