

Climate Change, Disaster, and Sentiment Analysis over Social Media Mining

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INTRODUCTION

Accelerated climate change causes disasters and disrupts people living all over the globe. Disruptive climate events are often reflected in expressed sentiments of the people affected. Monitoring changes in these sentiments during and after disasters can reveal relationships between climate change and mental health.

We are developing a semantic web tool that uses linked data principles and semantic web technologies to integrate and analyze data from multiple sources. This is an early-stage prototype that explores the impact of disasters caused by climate changes to mental health.

OBJECTIVE

We aim to create a semantic web tool that enables people to investigate and understand the social and emotional impact of climate change and disasters.

Links:

http://tw.rpi.edu/web/doc/AGUFM2012_IN51C-1703_20121205
Scan QR for online copy →

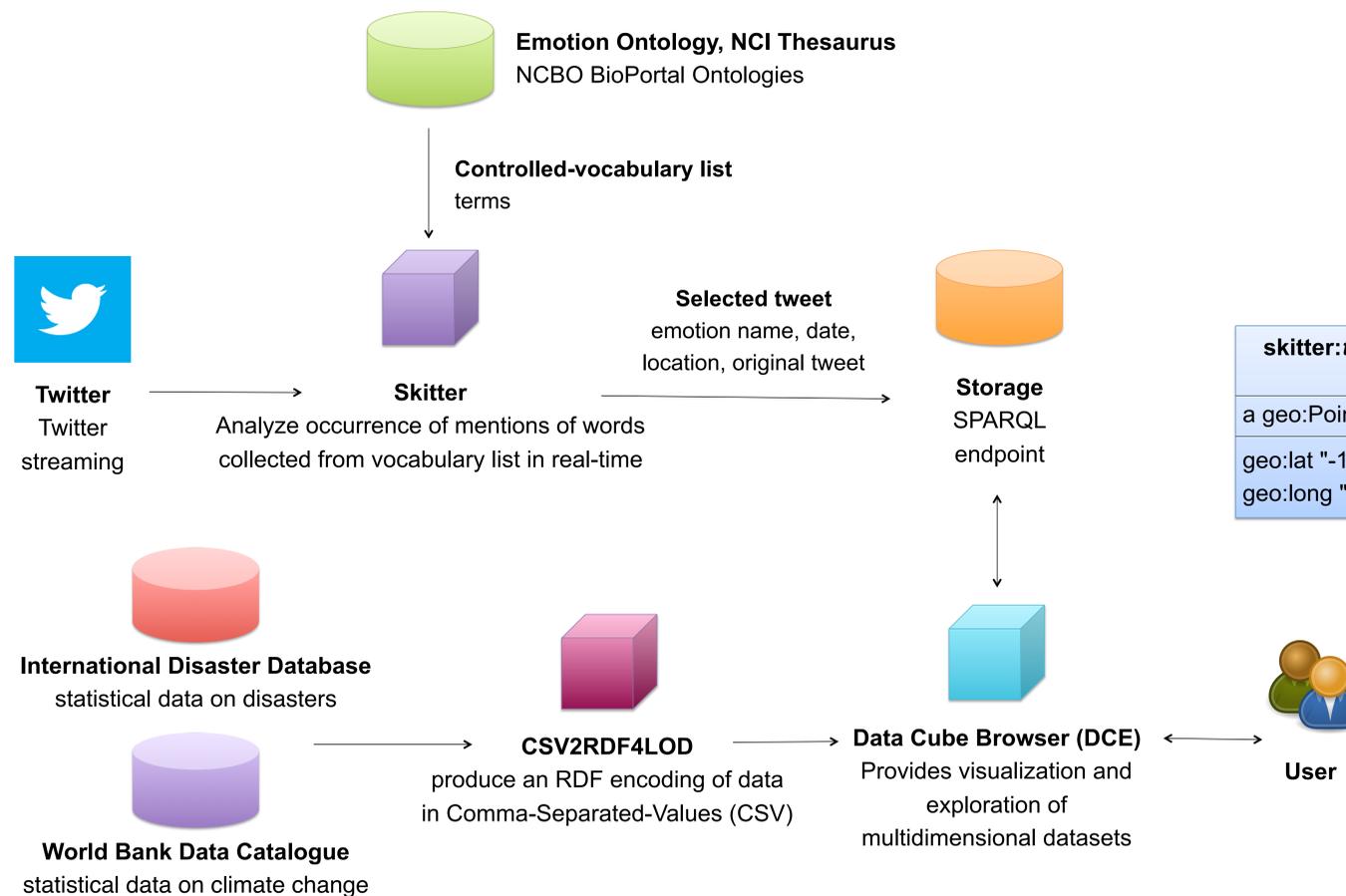
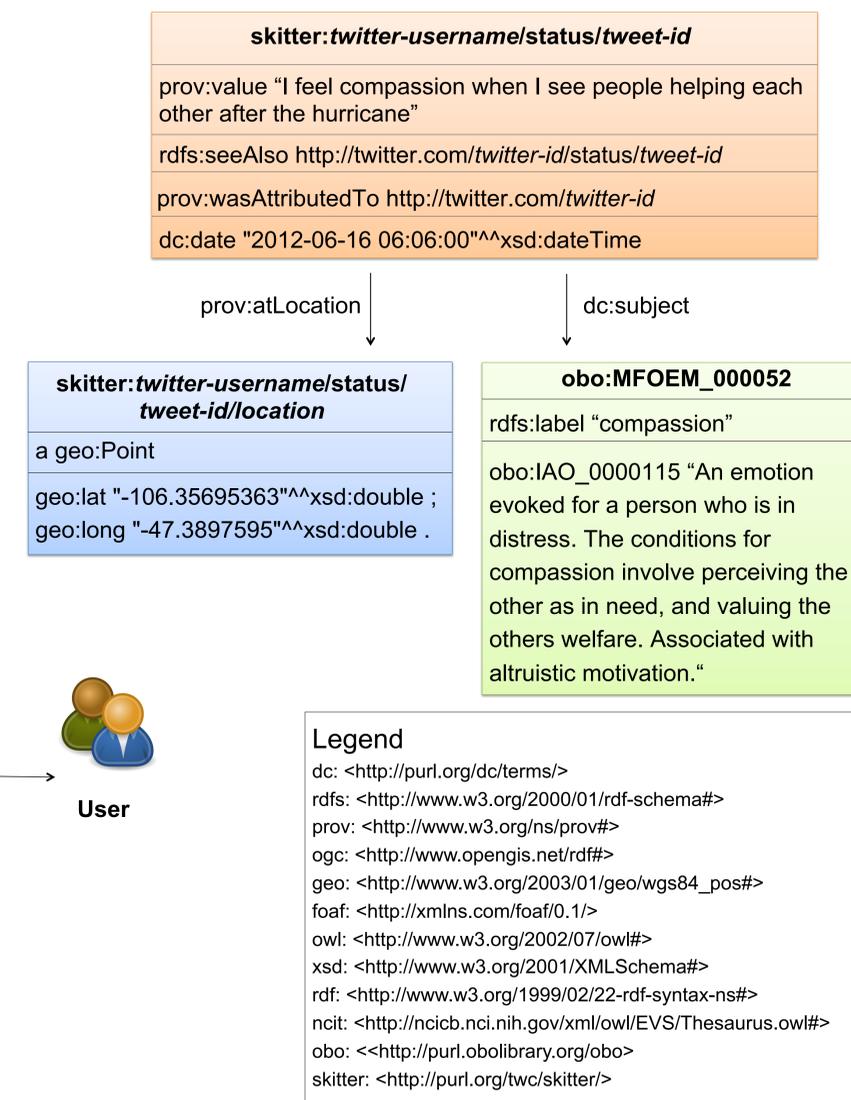


Figure1: System architecture

METHODS

- We are converting statistical data on climate change and disaster records obtained from the World Bank data catalog and the International Disaster Database into a Resource Description Framework (RDF) representation that was annotated with the RDF Data Cube vocabulary.
- We compare these data with a dataset of tweets that mention terms from the Emotion Ontology to get a sense of how disasters can impact the affected populations.
- This dataset is being gathered using an infrastructure we developed that extracts term uses in Twitter with controlled vocabularies.
- This data was also converted to RDF structure so that statistical data on the climate change and disasters is analyzed together with sentiment data.
- We use the qb.js framework to visualize and explore relationship of the multiple data across the dimensions of time and location.

Figure2: Selected tweet in RDF representation (sample)



DISCUSSION

For further work, we need to develop an aggregation component for analyzing multidimensional datasets from World Bank Data catalogue and International Disaster Database.

We hope that this project will demonstrate the use of social media data as a valuable source of understanding on global climate change.