

From Text to Map: The Feasibility of using Twitter as a Tool for Disaster Response



A Case Study: Hurricane Harvey in Houston, TX

Rachel Hausmann

Objective: Utilize NLP in social media for real-time disaster mapping



Only
2%
of tweets are
geotagged

IMPACTS

- Targeted Emergency Response
- Reduce human suffering

DATASET

~ 400,000

**tweets with the Hurricane
Harvey hashtag**

Process

1) Clean & Preprocess Data

2) Topic Modelling

3) Geoparsing and mapping

Topic Modeling: Top Topics

- 1) Hurricane Harvey as seen from the International Space Station
- 2) The wind storm is strengthening and being upgraded to category 4
- 3) Stay safe friends and family, hope and pray.

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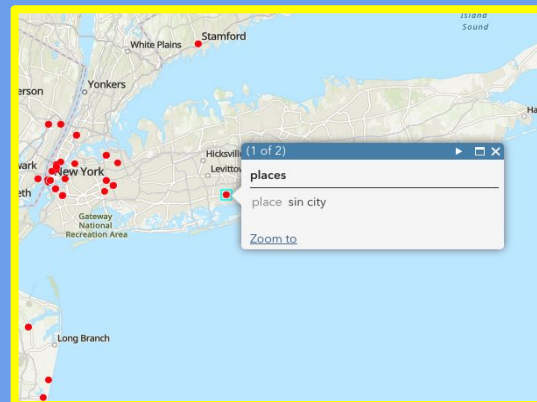
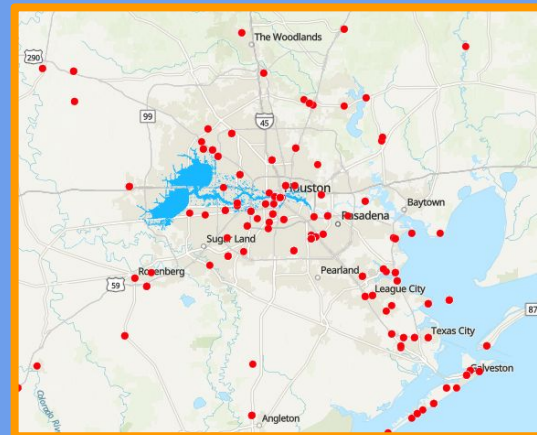
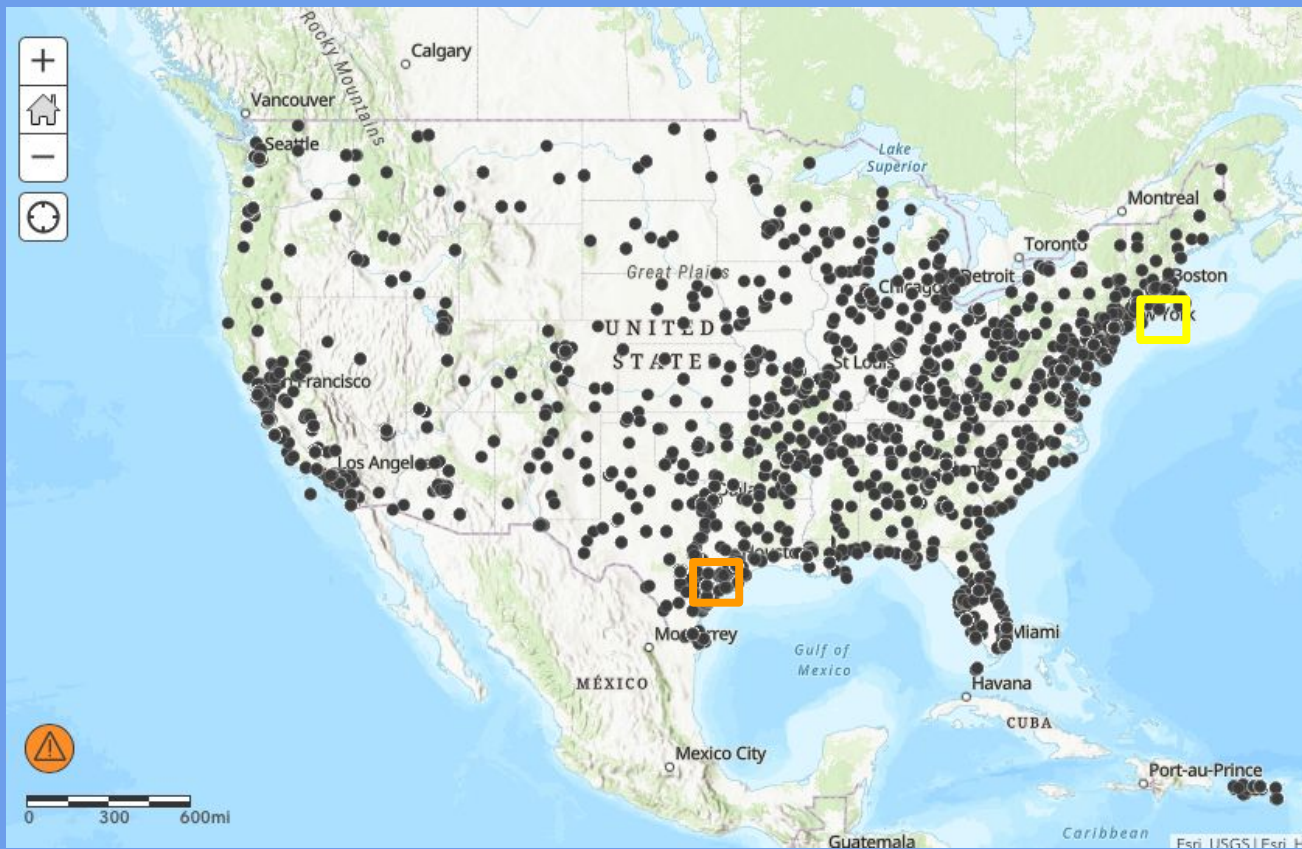
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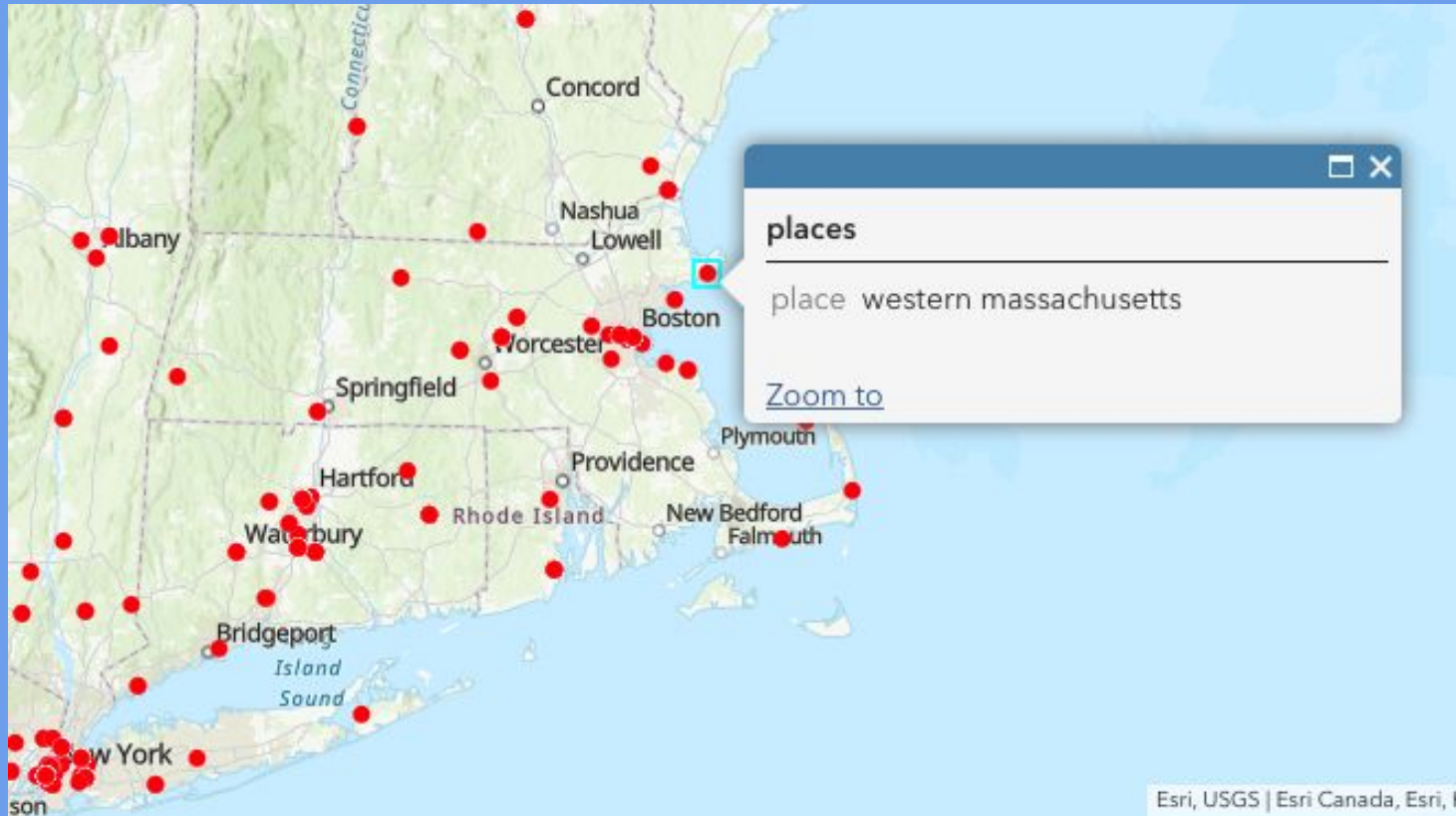
2) Topic Model

3) Geoparsing and mapping: Spacy NER

NLP Geoparsing Results



Insights: NER is still in its infancy



Insights

- Geoparsing is still in its infancy
- Automatic systems need to filter using spatial clustering
- Public education is needed in high-risk disaster zones

Thank you.