

Surviving Snow in Boston's (Data) Shadows

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By Jay Dev, Sarah Edgar, Charlotte Ong, Maia Woluchem

We know Boston gets extreme weather. But...

- Who gets noticed when things get bad?
- How are information and alerts shared leading up to and in the wake of extreme events?
 - How do public information services and city departments respond to citizens differently based on their mode of communication and what neighborhood in Boston they are in?
 - What role does Twitter have in improving outreach? How does it exacerbate existing spatial inequalities?
 - Who do people turn to in cases of emergency?
- Does service provision match this network of communication?
 - Are there gaps? Are some areas more prone to service gaps than others?

Why do this work?



Why do this work?

- City agencies are increasingly turning to tech solutions (social media, mobile apps) to engage with and respond to citizen requests
- Just one type of actor in the social media landscape
- How is this shift impacting service provision?

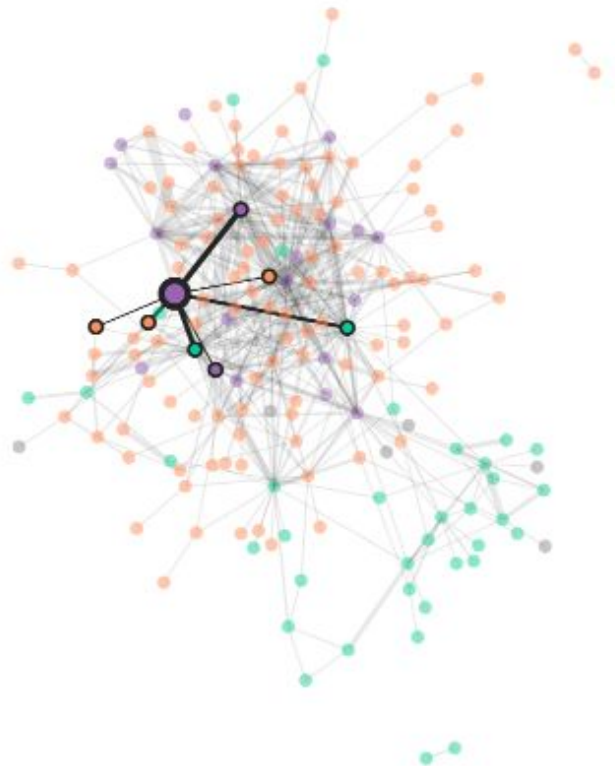
Do the “data shadows” coincide with the service gaps?

What might this look like?

- A network map of Twitter conversations for data shadows:
 - Shows the connection between the official communication channels and the people who are receiving these communications
- A service map for service gaps:
 - Shows where services are delivered poorly by neighborhood
- A radial bar chart for service times:
 - Determine which methods of reporting receive service more quickly
- Combined, do they tell us where service provision is ineffective?
 - What are the socioeconomic / demographic profiles of these areas?

Option 3

Select a node in the conversation network



Force-Directed Graph

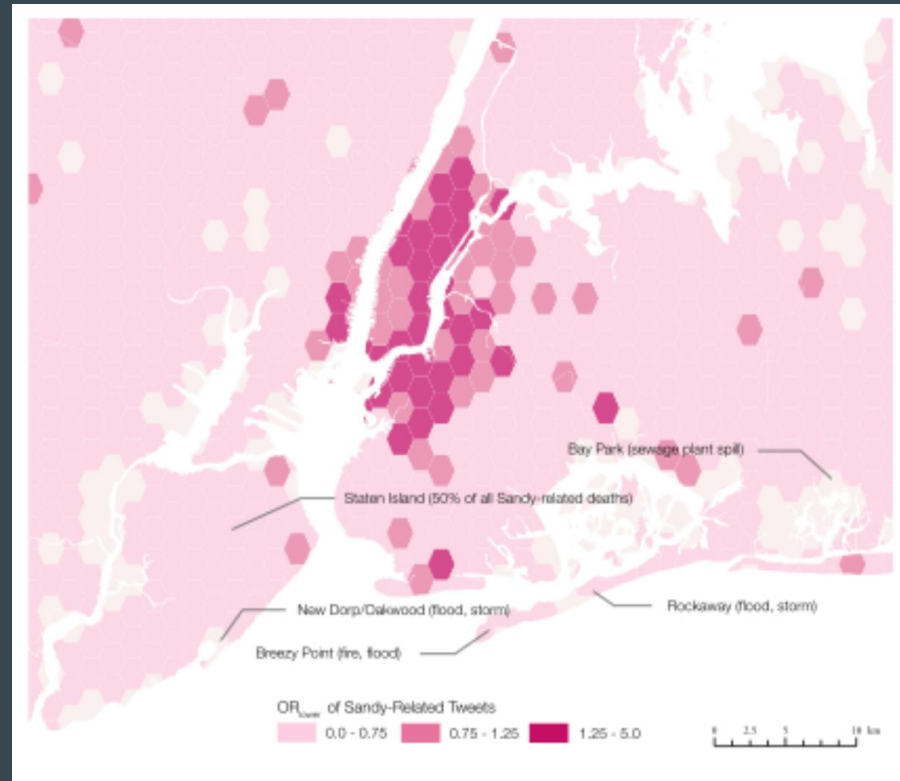
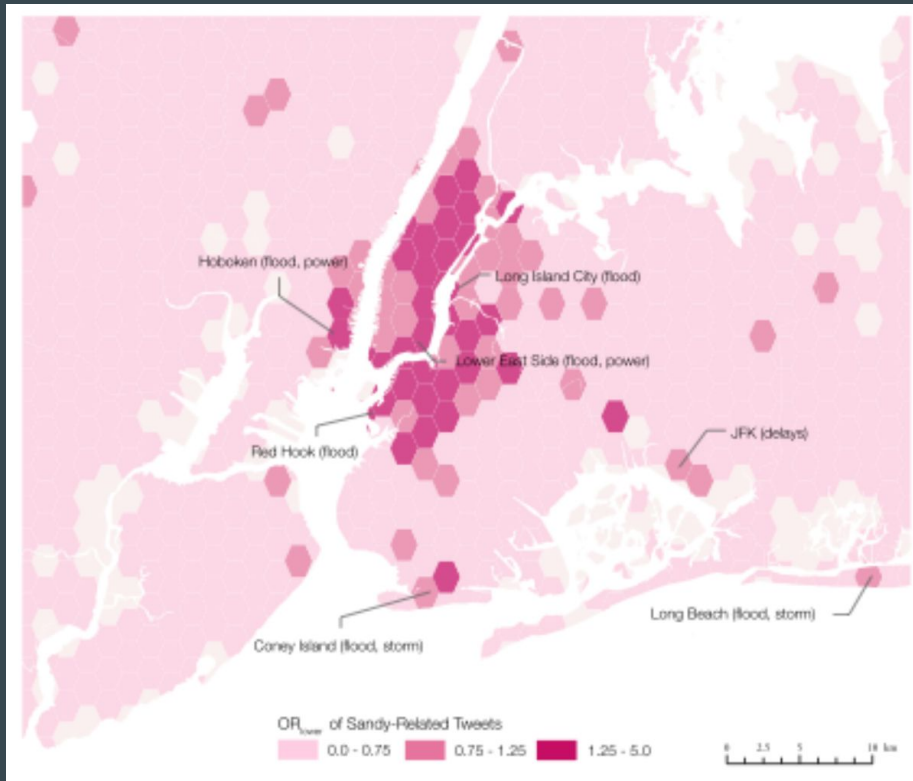
Tanyoung Kim

Visualization of 10 Years Twitter Data (Part 2—Design),

<https://towardsdatascience.com/visualization-of-10-years-of-twitter-2-design-abbbe121a7d4>

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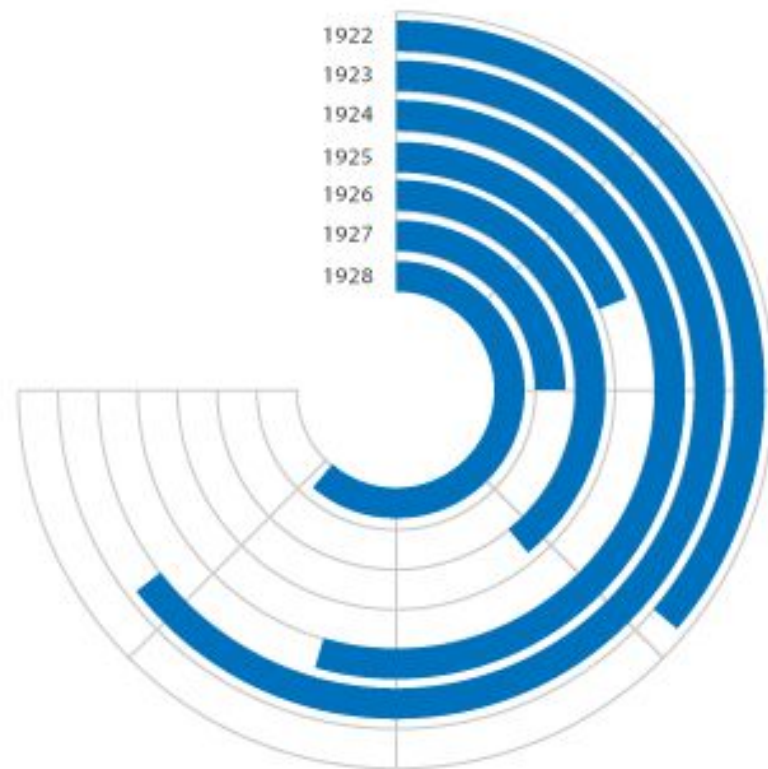


Identifying Data Shadows: Hexagonal Grid

Shelton et al, (2014), *Mapping the Data Shadows of Hurricane Sandy: Uncovering the sociospatial dimensions of 'big data'*. *Geoforum* 52, pp. 167-179

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Comparing Service Response Times: Radial Bar Chart

The Data Visualization Catalogue - https://datavizcatalogue.com/methods/radial_bar_chart.html

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Potential Case Studies

- 2018 Bombogenesis
- 2015 Winter Storm Juno
- 2015 Winter Storm Marcus
- 2013 Winter Storm Nemo

Comparing snowfall totals, average temperatures.

DATA SOURCES

- Twitter's User API on general public
- Twitter data from @ReadyBoston (Office of Emergency Management), @MassEMA, @Boston_Water, @BostonPolice, @BostonFire
- Boston's 311 Data
- 911 Daily Dispatch
- Analyze Boston - Rainfall and snowfall data
- Disparate impact at neighborhood level by news reports

TIMELINE

- March 21st - Presentation!
- March 26th - Twitter pull complete
- April 2nd - All data compiled
- April 9th - Data analysis begins
- April 16th - Design template done
- April 23rd - Start working on data visualization
- April 30th - First cut of data visualization complete
- May 7th - Data visualization complete
- May 16th - Pin-Up!

TEAM RESPONSIBILITIES

- **Sarah:** Twitter API pull, data analysis, data viz design
- **Jay:** data analysis, data viz coding
- **Charlotte:** Research on neighborhood-level impacts, data analysis, data viz design
- **Maia:** Analyze Boston data pull, data analysis, data viz coding

Thank you