



Social media and emergency services: Information sharing about cases of missing persons in rural Sweden

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Blue light in Green Surroundings

Challenges and opportunities for emergency and rescue services in rural Sweden

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A group of searchers in a field. The background shows a dense forest with some trees in autumn colors. In the foreground, there are blurred green and yellow leaves. A group of about seven people wearing high-visibility yellow vests are walking across a grassy field. A paved path is visible in the lower right corner.

New information and communication technologies are influencing emergency services in profound ways.

Social digital networks such as Twitter and Facebook have become among the most popular sources for accessing emergency information. Such a key role is reflected in studies on earthquakes, floods, hurricanes, terror attacks, forest fires and social unrest.

Much less known is the use of social media in calls for emergency services in cases when a person goes missing.

Currently, a call for a missing person often includes voluntary organisations specialised in searches that make use of social media.

In these cases, Facebook and Twitter are often a source of information to those who look for confirmation and verification of specific information.

A group of approximately ten people wearing bright yellow high-visibility vests are walking across a large, open field. The field appears to be a harvested agricultural area, possibly a cornfield, with some stubble and patches of green grass. In the background, there is a dense line of trees, some of which are showing autumn foliage in shades of yellow and orange. The foreground is partially obscured by out-of-focus branches and leaves, suggesting the viewer is looking through a natural frame. The overall scene is set in a rural, wooded area.

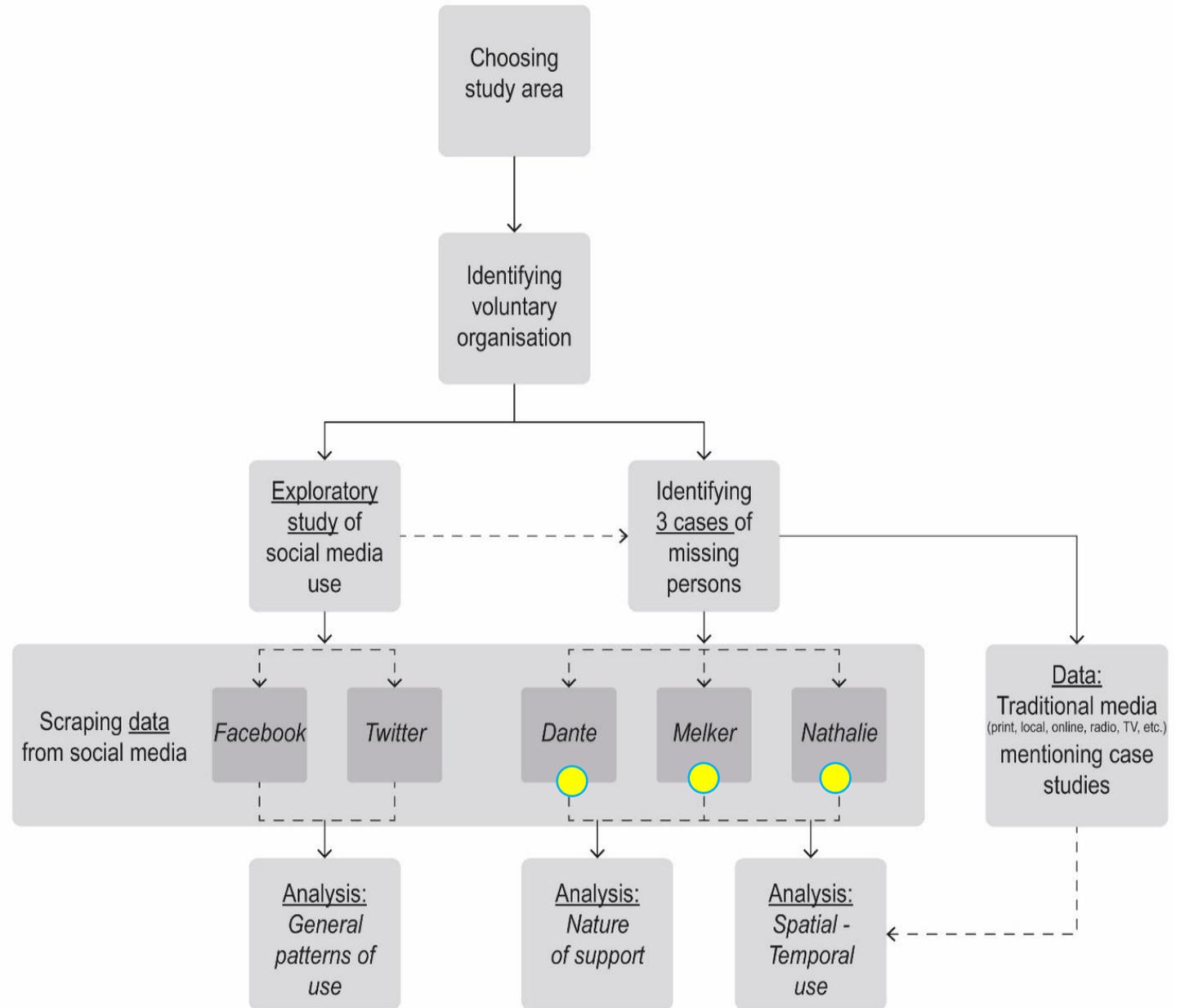
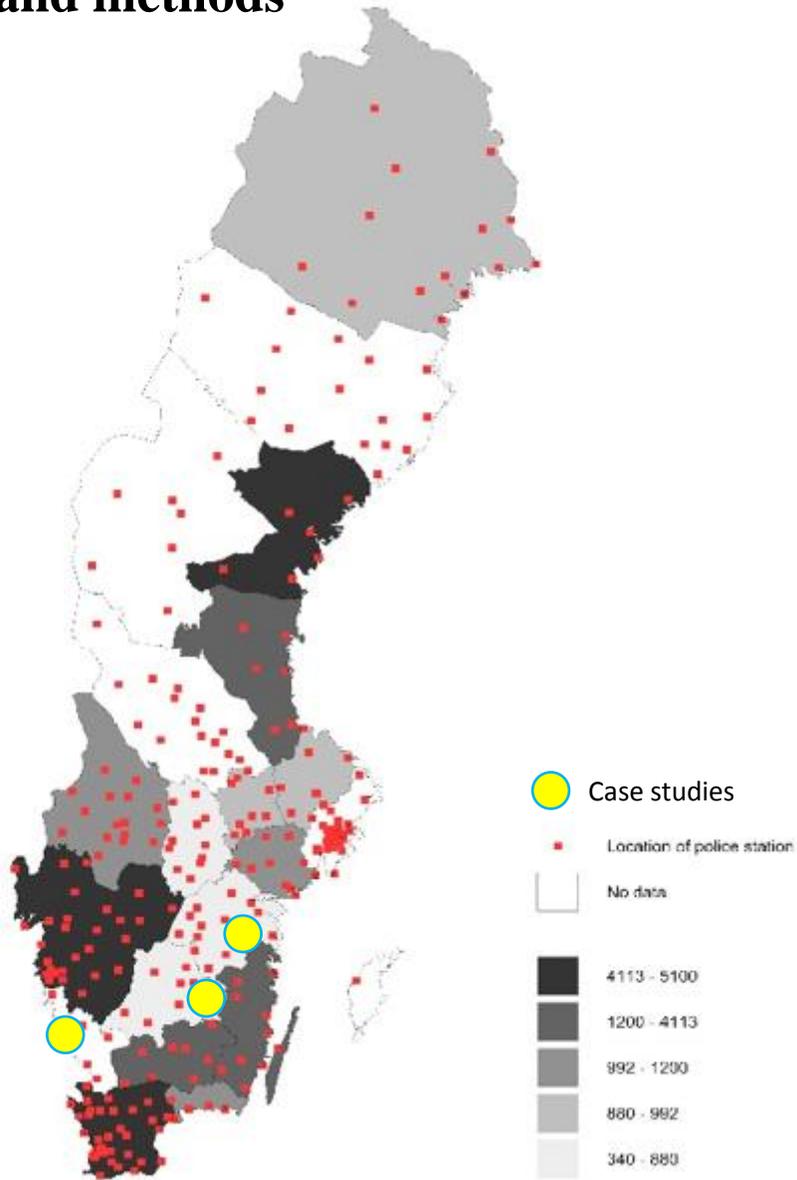
Rather than focus on the analysis of massive databases from social media, in this study we instead find it more relevant to ask in an exploratory way how small subsets of the data, especially georeferenced social media information scraped from the internet, can potentially reveal the geographies of a range of social practices that may vary over time during emergency situations.

We hope to obtain a better understanding of the ways in which voluntary organizations operate in cases of missing persons in relation to traditional emergency services, in particular the police in rural areas of Sweden.

We focus on three cases of missing persons with a total of 1,104 tweets.

Geographical Information Systems (GIS) and visualisation techniques underlie the methodology of this study.

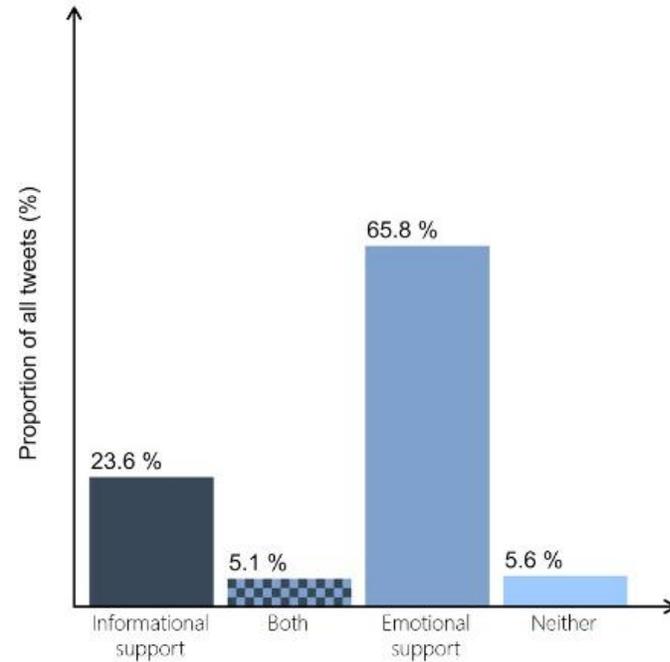
Data and methods



1. *What is the most common content in MP tweets: informational or emotional?*
2. *What does the temporal pattern of MP tweets look like?*
3. *How can we characterise the spatial pattern of tweets for a missing person?*
4. *Which types of roles can tweeters have in MP appeals?*
5. *How do tweets depict the relationship between voluntary organisations in MP cases and the police in rural contexts?*

Results

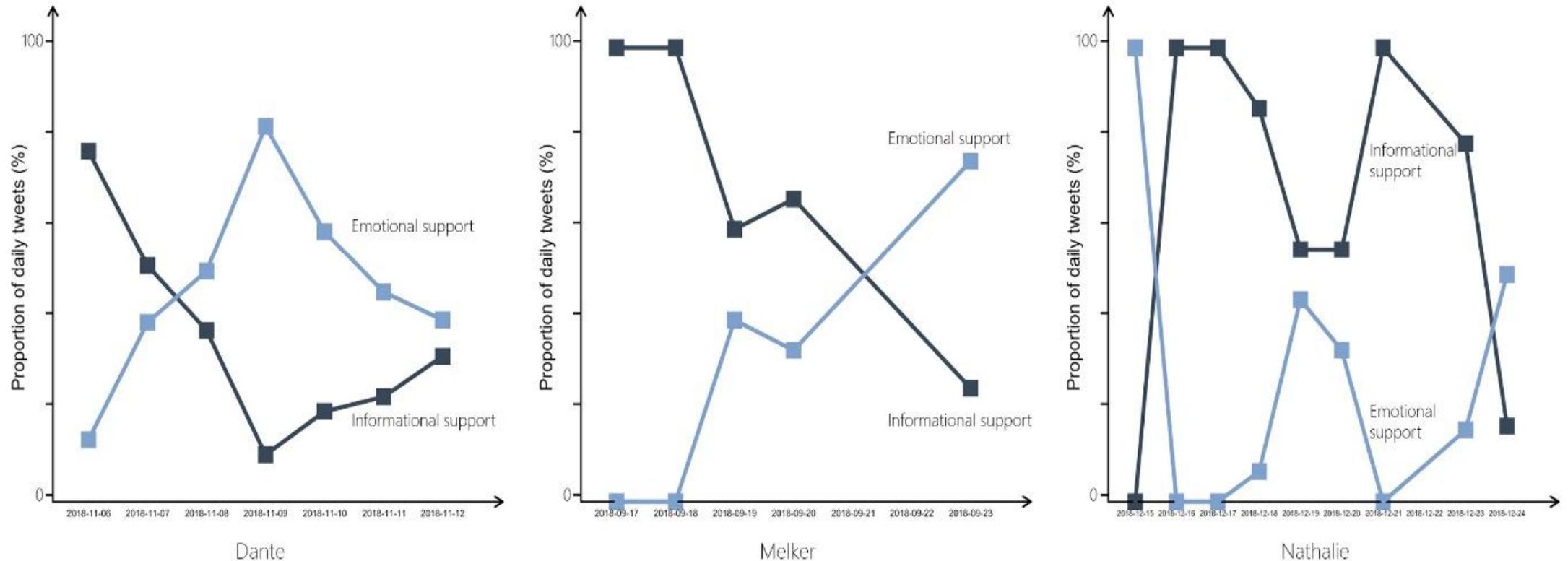
What is the most common content in MP tweets: informational or emotional?



The proportion of tweets by content: informational, emotional and both.

By collapsing all tweets into one database (total of 1,104 tweets), **63% of tweets were characterized as emotional**, 27% had informational content, 5% contained both and 5% contained neither informational nor emotional content. Note that these figures are heavily skewed by one case study.

What does the temporal pattern of MP tweets look like?

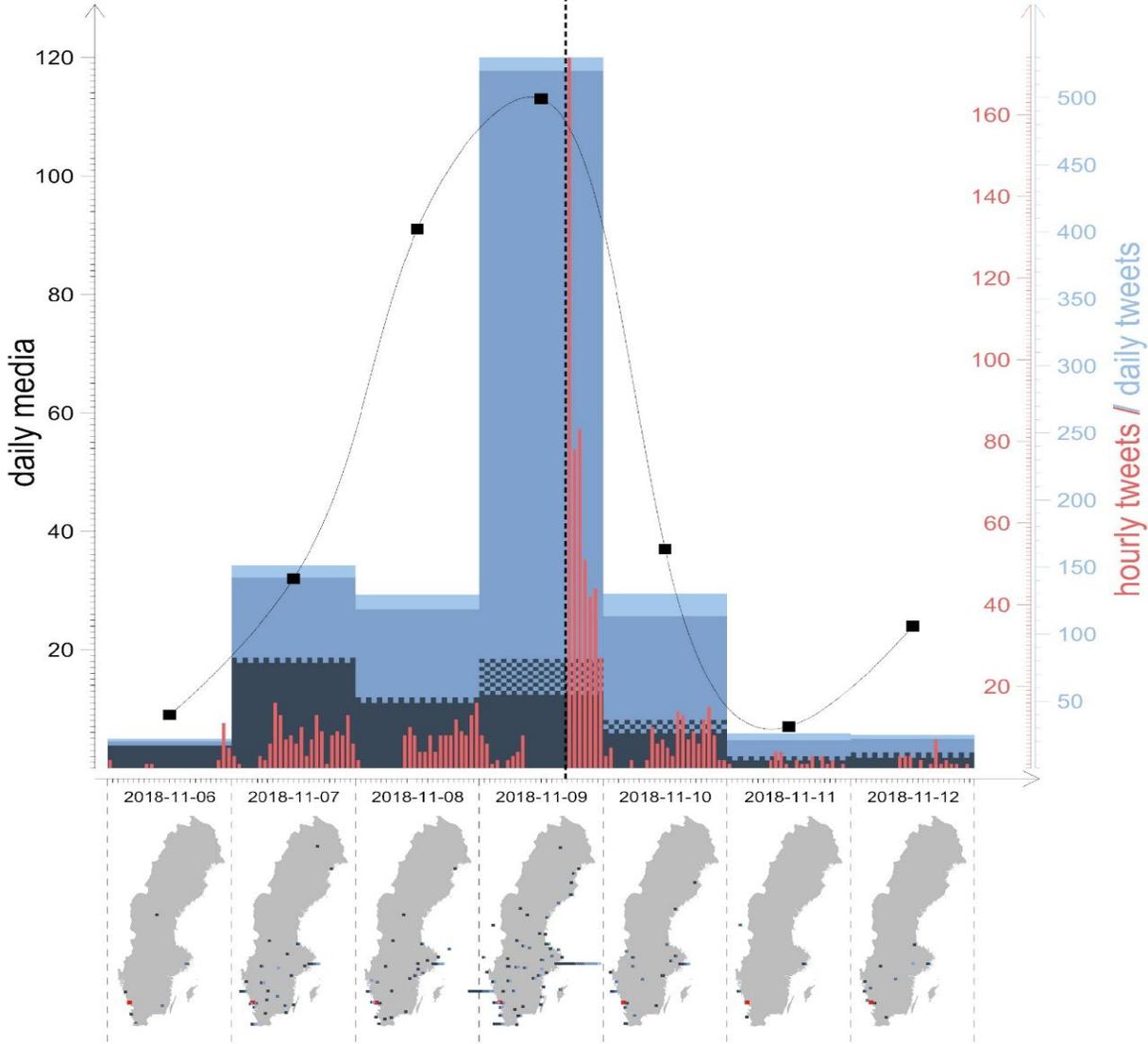
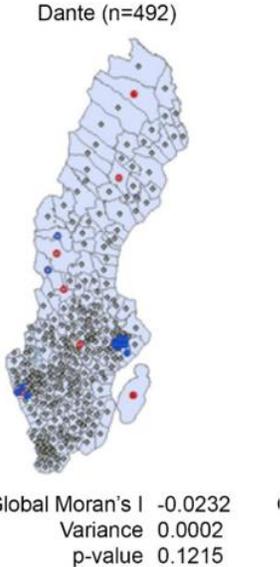


The daily proportion of tweets classified as containing mainly informational support decreases over time, while that of emotional tweets increases.

Note that the time period of analysis is not exactly the same for all three MP cases.

Temporal patterns of information sharing via Twitter are similar for all three MP cases, with a peak taking place right after the missing person is found deceased.

Spatial patterns of information sharing via Twitter concerning missing persons - it seems to be less dependent on the location of the victim than we initially expected - showing indications of **dispersion**



- Daily tweets**
- Informational support
 - Both informational & emotional
 - Emotional support
 - Neither informational or emotional
- Hourly tweets**
- ⋮ Time found
 - ↗ Daily nr of media entries
 - Falkenberg

Which types of roles can tweeters have in MP appeals?

Actors on Twitter seem to assume roles when sharing information about MP cases.

We were not able to identify the roles of the ‘**helper**’, ‘**reporter**’, ‘**retweeter**’ and ‘**repeater**’ as suggested by Reuter et al. (2013).

Some volunteers who were involved in the search for the missing persons did write about it on Twitter, but their tweets can hardly be described as informational, nor are they retweeted by others.

For MPs, the pattern is not similar to the ones found for large emergency services, fires, hurricanes.

How do tweets depict the relationship between voluntary organisations in MP cases and the police in rural contexts?

Some tweets, as the ones reported below, were able to reveal how the police and the organisations that help in the search operations are appreciated by individuals of the local community.

...Thoughts go to his's family of course, and gratitude to all who seek, police, Missing People, military and volunteers. Thanks.

Other tweets are more critical about the search operations and police strategies.

“Searched for missing X yesterday. Of the 7.5 hours during the evening / night, we searched actively only 2 hours. The remaining time was spent waiting. On maps. How is it possible with such lousy logistics @polisen_XXX and @MPSweden ?? Totally demoralizing.”

Conclusion

1. The value of information shared by social media in MP cases **may have so far been overestimated**
 - MP tweets **do not share similarities** with other types of tweets on major emergency events

2. Social media in MP cases **is similar to** traditional media coverage
 - dispersed geographic** pattern outside large cities (not clustered)

CAUTION!

”use of spatial concentrations of social media activity in cases of emergency **is not equivalent** to areas in need”.
(Shelton et al, 2014)

Thank you!

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