

Social Media's Impact on Disaster Mitigation: A Case Study of Hurricane Sandy and Typhoon Nesat



University at Albany, SUNY

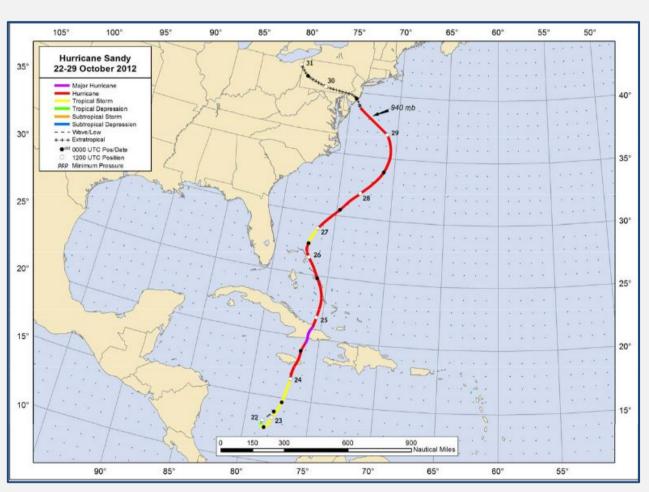
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▲ Hurricane Sandy (2012)

- 2nd Costliest Disaster in US History \$79 billion (2017)
- 8.5 million people without power
- 162 People killed
- Large portions of New York City Metro System flooded
- Largest FEMA response in Agency history
- 20 million tweets sent throughout storm
- Storm surge devestated power grid, but internet acess remained available throughout storm
- Track displayed in Figure 1A



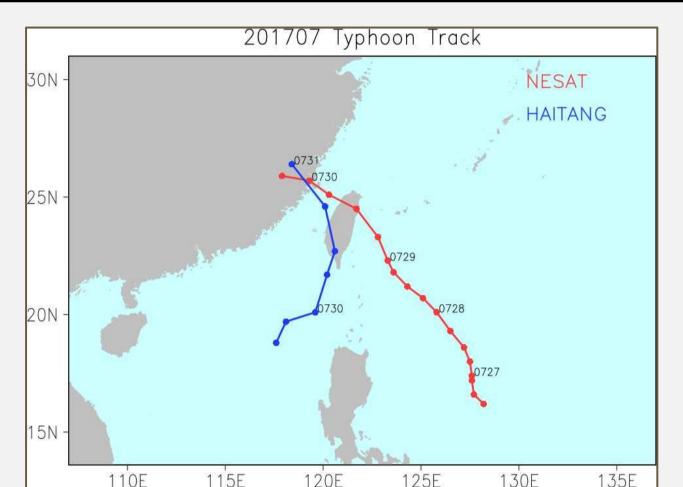


Figure 1a (left) Hurricane Sandy Track (*Source: NHC*) Figure 1b (right) Typhoon Nesat, Tropical Strom Haitang Track (*Source: NCDR*)

▲ Typhoon Nesat (2017)

- Interacted with Tropical Storm Haitang and southwesterly flow to enhance precipitation
- Maximum Rainfall: 23.5in (606mm)
- Max Hourly Rainfall Rate: 7.1in/hour (181mm/hour)
- Flooding occurred along most of south/southwestern Taiwan
- Resulted in landslide showcased on social media
- Track of Nesat and Haitang displayed in Figure 1b

▲ Traditional Crisis Communication

- Situational Crisis Communication Theory (SCCT) Coombs, 1995
- 3 Steps to the SCCT
 - Identify crisis type
 - Choose response tactic
 - Match the type and tactic
- Works in the style of one way communication
- Audience cannot engage in the conversation

ASTREMII Model

- Addresses multi-platform communication where SCCT fails
- Monitors online conversation and engages the public in conversations regarding the crisis
- Addresses online communication before, during and after the crisis to assess public perception throughout the event

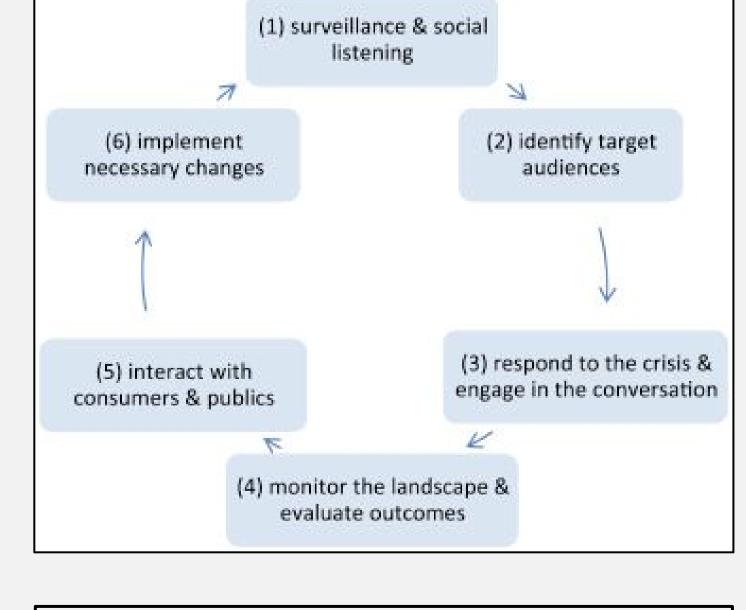


Figure 2: STREAMII Model of Communication (Source: Stewart and Wilson (2016)

▲ FEMA and NCDR's Social Media Integration

FEMA

- Before Sandy made landfall, FEMA and other government agencies used social media to get evacuation orders and other information out to the public
- FEMA issued an order to all other government agencies to create websites dedicated to information about Sandy
- FEMA Innovation Teams
 - Multifunctional group tasked with a number of disaster response activities
 - Mapping power generators
 - Rebuilding wireless internet infrastructure















- Real-time information is needed to properly monitor disaster situations
 - With social media, many people are uploading status updates and pictures at the same time, creating a useful tool for information sharing
- GIS (Geographic Information System)
 - Social media posts can be mapped to determine where resources are needed the most
 - Posts can be used to create real-time damage assessments
- Data Crawling
- Metadata: Using large amounts of data to search for keywords and phrases related to disasters
- Utilize hotspots in social media postings to determine where resources are needed the most
 - Volume of social media posts represents trends and problems

▲ Benefits of Social Media

- Growth of online followings for government agencies
- Increased intelligence sharing
- Can work in conjunction with other resources to aid in decision making
- "Eyes on the ground" for emergency managers and personnel

▲ Complications of Social Media

- Rumors, hoaxes, misinformation and malicious use
 - o Inaccurate, false reports believed to be true by the public
- Bias in data generation
- Who/who is not reached by social media
- Newsjacking
- People or brands use emergency events for their own personal gain

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