

Overview

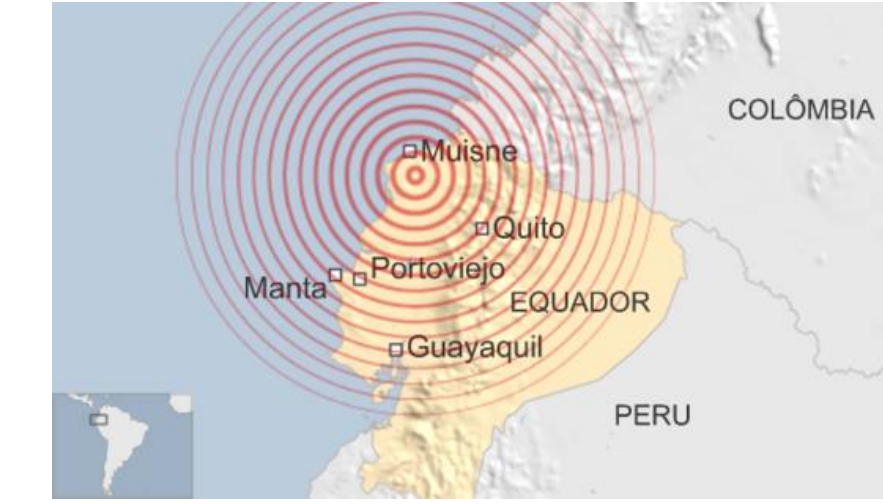
- Humanitarian organizations utilize social media platforms to broadcast information to key stakeholders.
- Social media posts are instantly transmitted to organizations' connections (i.e., followers), which represents audience size.
- To more efficiently distribute information, humanitarian organizations can increase their count of followers on social media.

Research Questions:

- What mechanisms drive follower growth for organizations involved with disaster relief?
- Are there differences before vs. after a disaster?

Data

- Ecuador earthquake in 2016 was focal disaster.
- Collected data from Twitter generated during:
 - One week before the earthquake
 - One week after the earthquake
- Sample of 64 organizations local to Ecuador that were involved with disaster relief.
- These organizations belonged to five categories:
 - Humanitarian
 - Government
 - Medical
 - Emergency services
 - News
- Data includes information about organizations' tweets, retweets, and follower growth rates.



Results Continued

Table 1. Overview of new follower relationships by category of organizations

	Pre-Earthquake			Post-Earthquake		
	Tweet count	Follower Gain	Internal Link %	Tweet count	Follower Gain	Internal Link %
Overall	12,453	43,750	39.45%	21,959	472,705	83.94%
Humanitarian	403	325	63.08%	987	9,653	89.83%
Emerg. Svcs.	1,616	5,825	35.93%	2,354	64,518	92.43%
Medical	98	77	46.75%	151	622	81.67%
Government	3,044	11,980	44.69%	6,314	176,343	93.97%
News	7,292	25,543	37.47%	12,153	221,569	73.22%

Introduction

Literature Review

- Follower link formation has been demonstrated to be associated with information diffusion¹.
 - By disseminating information, a new set of users is exposed to the source of information, which can lead to new following relationships.
 - On social media, a "share" or a "retweet" forwards the original content to the sharer or retweeter's network. This can motivate some users to directly connect with the user that supplied the original post.
 - Obtain information in a more timely manner
 - Interest in content
- Based on property of triadic closure² – your friend's friends are more likely to become your friends.
- Approximately 20% of new following relationships on social media can be attributed to information diffusion^{3,4}.

Types of New Follower Links:

Internal Links

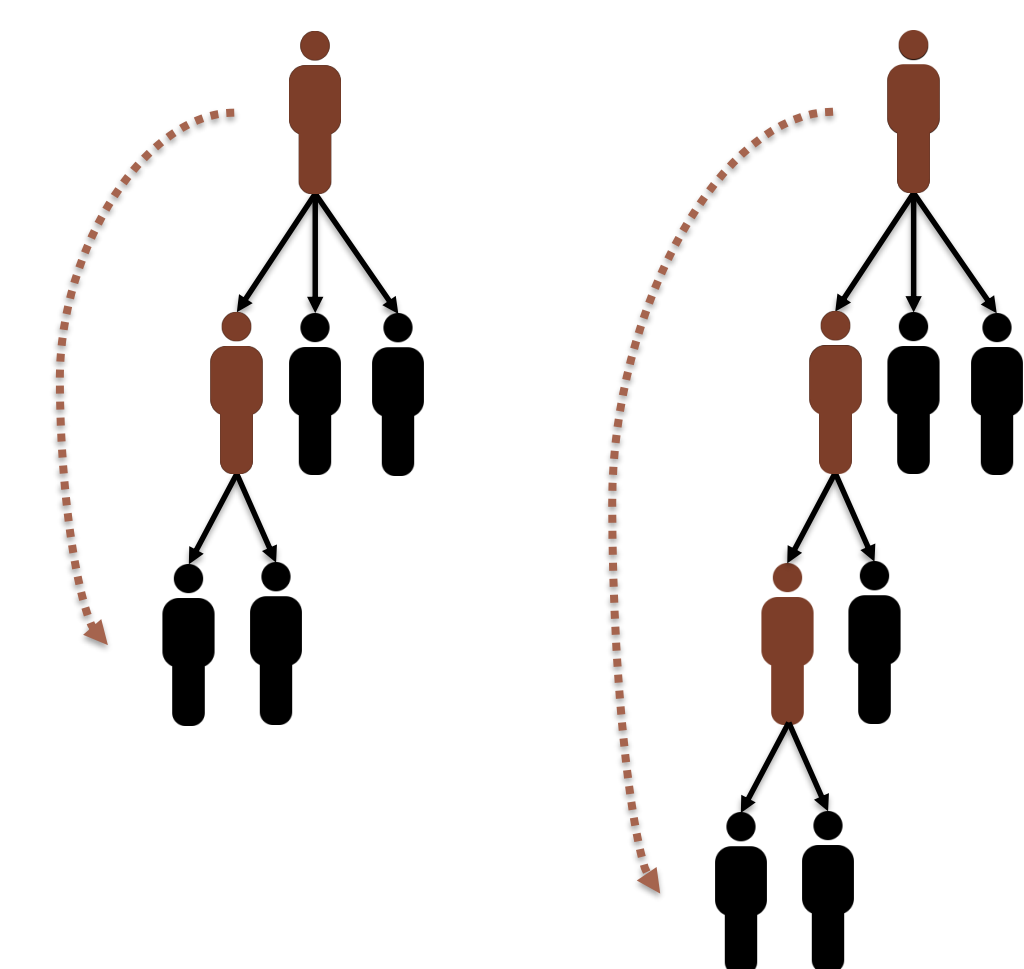
New following relationship as a result of information diffusion (occurs within the user network).

External Links

New following relationship as a result of stimuli outside of the user network.

Examples: Suggested users to follow, searching for a specific user

Figure 1. Examples of internal link formation



Results

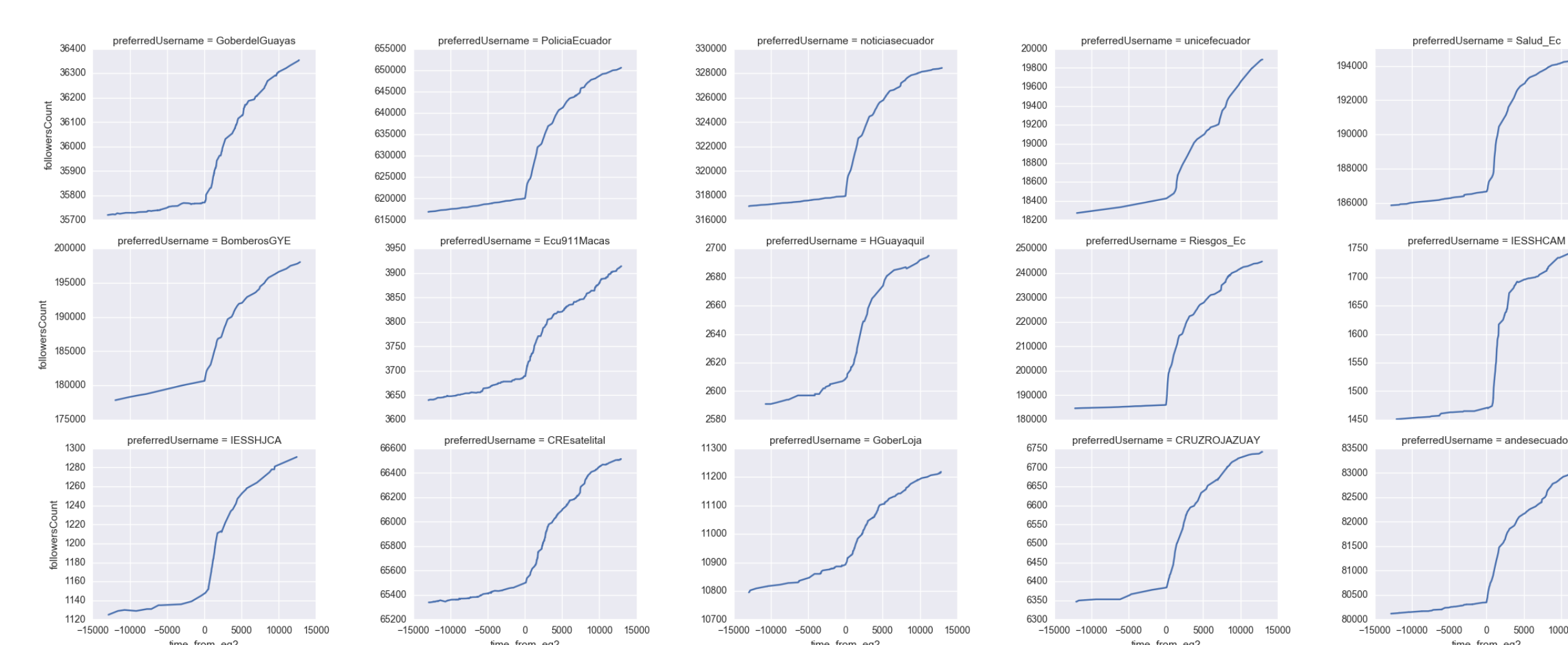
Scope of Twitter Data

- 64 organizations
 - Approximately 9.6 million followers
 - Tweeted about 35,000 times in the two weeks of the study
- 156,769 retweeters of the organizations
 - Approximately 750,000 retweets
- 113 million retweeters' followers ("candidates") exposed through retweets to the organizations

Analysis and Results

- Dramatic increase in follower counts after the earthquake

Figure 2. Follower growth rates before and after the disaster.



- Identified if new followers were internal or external by evaluating if new followers could be matched as a retweeter's follower.
- In total, the 64 organizations gained over 510,000 new followers in the weeks before and after the earthquake.
- The percentage of internal links surges after the disaster, suggesting information diffusion is a powerful driver of new follower links.

Next Steps

- Perform statistical analysis of every candidate's exposure and opportunity to follow one of the 64 organizations.
 - Determine what factors can affect a candidate's likelihood of establishing a new follower link.
 - Possible factors include delay of receiving information and the number of times exposed to the organization.
- Evaluate how new followers help organizations distribute content
 - What percentage of new followers are retweeting after they started following?
 - Is there a difference in retweeting behavior before vs. after the crisis?
 - How does the percentage of engaged new followers compare to the percentage of engaged followers that previously existed?

Conclusions

- One way for humanitarian organizations to maximize their reach on social media is to expand their follower bases.
- Studied the follower growth patterns for organizations involved with disaster relief during the 2016 Ecuador earthquake.
- Large increase in followers after the earthquake.
 - May signal increased demand for content by the organizations in our sample after the emergency.
- Results indicated that information diffusion is a strong driver of new follower relationships.
 - Especially the case after the earthquake.
- Suggests that active and engaged followers are critical to spreading information during a disaster.

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