

Measuring the Social Media Response: An Actuarial Perspective on Catastrophe Loss Control and Prevention

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National Tornado Summit
March 1, 2016



Evolution of social media in insurance loss prevention and loss control

- Social Media becoming an increasing part of the insurance industry communication message
 - Natural extension of messaging for policyholders & public affairs
 - Increasingly important in communication prior to, during and after catastrophes

PCI - Property Casualty Insurers Association of America shared a link.
February 3 at 2:39pm



California offering grants to strengthen homes against earthquakes

Homeowners in 18 cities can now apply for grants of up to \$3,000 to shore up foundations.

PROPERTYCASUALTY360.COM

IBHS @disastersafety

Just how bad were wildfires in 2015? IBHS #infographic offers a quick glimpse: bit.ly/1QcZlg0 #WildfirePrep



ACRES BURNED BY YEAR

The most acres burned on record.*

RETWEETS 25 LIKES 5

12:35 PM - 3 Feb 2016

PropertyCasualty360 @PC_360

While #naturaldisasters cannot be prevented, businesses can protect themselves ow.ly/Y5l0N #insurance

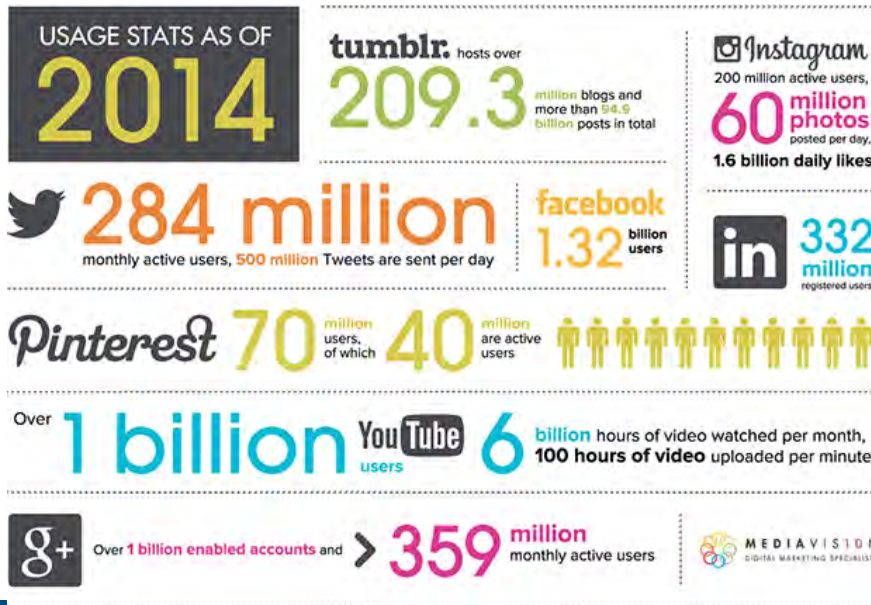


RETWEETS 9 LIKES 8

11:45 AM - 8 Feb 2016

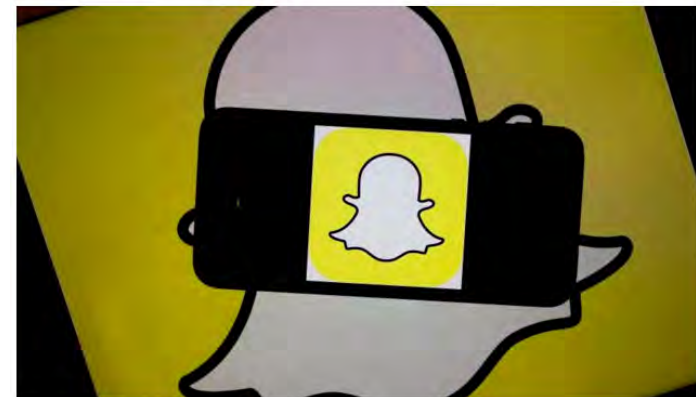
Evolution of social media in insurance loss prevention and loss control

- Social Media evolution is dynamic... Where are your policyholders today? Where will they be tomorrow?
- Blurring of lines between “social interaction” and “information flow”



The hottest club in town is Snapchat Discover

by Erin Griffith @eringriffith · SEPTEMBER 21, 2015, 8:00 AM EST



Media companies are desperate to get in.

Photograph by Bloomberg via Getty Images

New York media executives used to feel anxiety over landing a prime lunch reservation at Michael's in Midtown Manhattan. Now, they're dying to get into a much more exclusive club: Snapchat Discover.

Data intensity

- Actuarial focus on data... plenty to be collected through catastrophic events
- Objective: Use social media as a source of data and information
 - Most common and available information source is Twitter
 - Hypothesis: Each unique cat event has its own distinct Catastrophe Communication Signature (CCS)
 - Evidence and Measurement
 - Early Warning System effectiveness
 - Information flow
 - Loss Control
- Society of Actuaries 2015 study
 - Tweets from 3 recent catastrophes
 - Observe changes in signatures & outcomes

Tornados Studied

Location	Joplin, MO	Washington, IL	Rochelle, IL
Date	Sunday May 22 2011	Sunday November 17 2013	Thursday April 9 2015
Touchdown	5:34 PM	10:59 AM	6:40 PM
Severity	EF-5	EF-4	EF-4
Casualties	158 deaths 1000+ injuries	8 deaths 190 injuries	2 deaths 30 injuries

Methodology

- Data collected over a two-week period (3 days prior, 11 days after) each event
- Data sorted for catastrophe relevance
 - Example: “TORNADO” OR “EF” OR [contains “INJUR*”] OR [contains “INSUR*”] OR AND {Cat Location Identifier}
- Approximately 500,000 - 800,000 tweets and 70+ pieces of information for each tweet
- Foreign language filtering to get to final 100,000 – 200,000 tweets
- Groupings of tweets into 5-minute intervals;
- Main focus in visuals over a 24-hour period
 - 6 hours prior to touchdown
 - 4 hours “During Event”
 - 14 hours “After Event”
- Categorization of tweet volume for comparison

Joplin 2011 CCS

Tweet Volume in 5-Minute Intervals
Joplin, MO; May 22, 2011

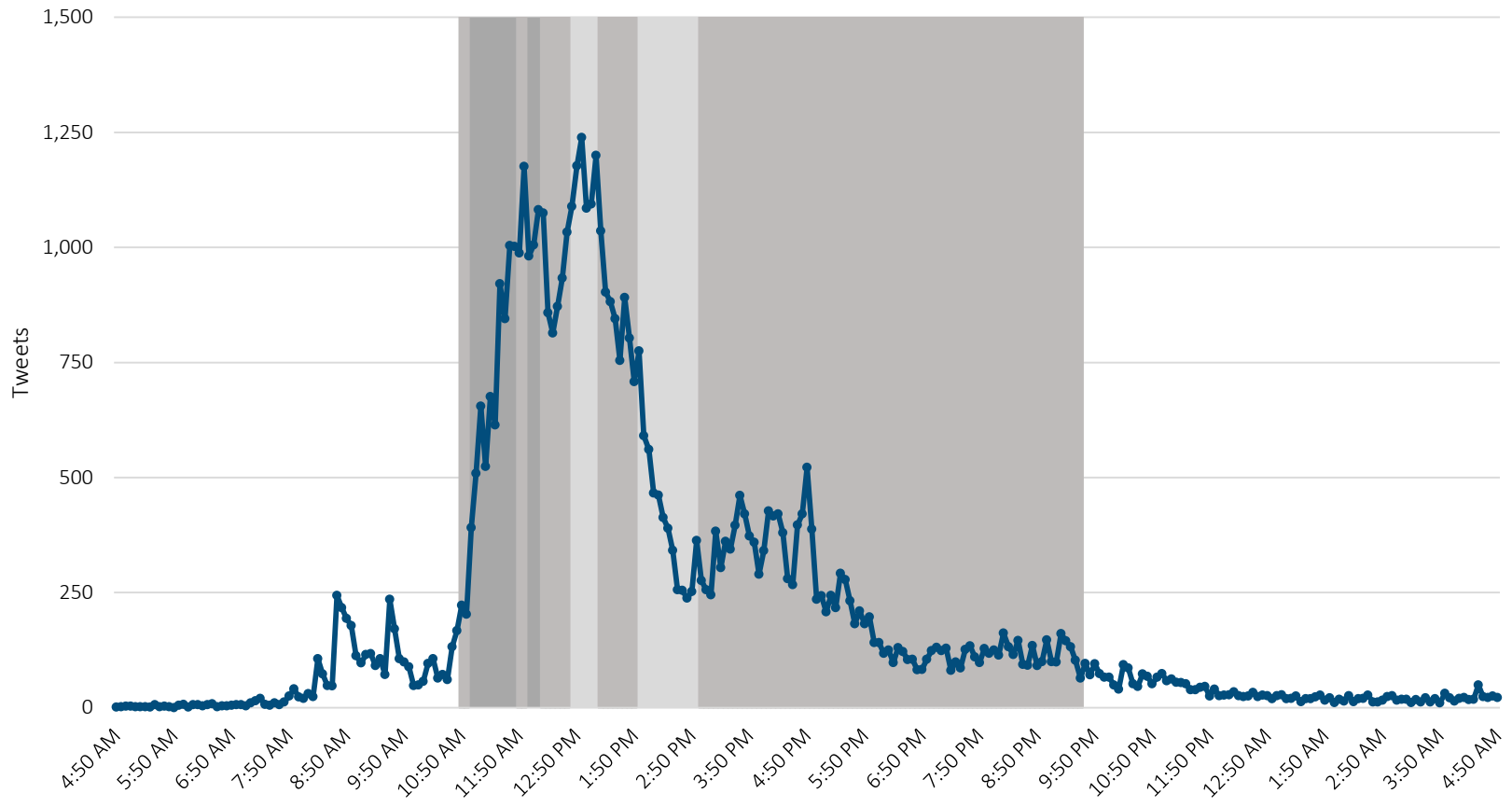


Industry Examples

- Prior:
 - Loss Prevention
- During:
 - Insurance System Awareness
- After:
 - Loss Control & Communication

Washington 2013 CCS

Tweet Volume in 5-Minute Intervals
Washington, IL; Nov 17, 2013

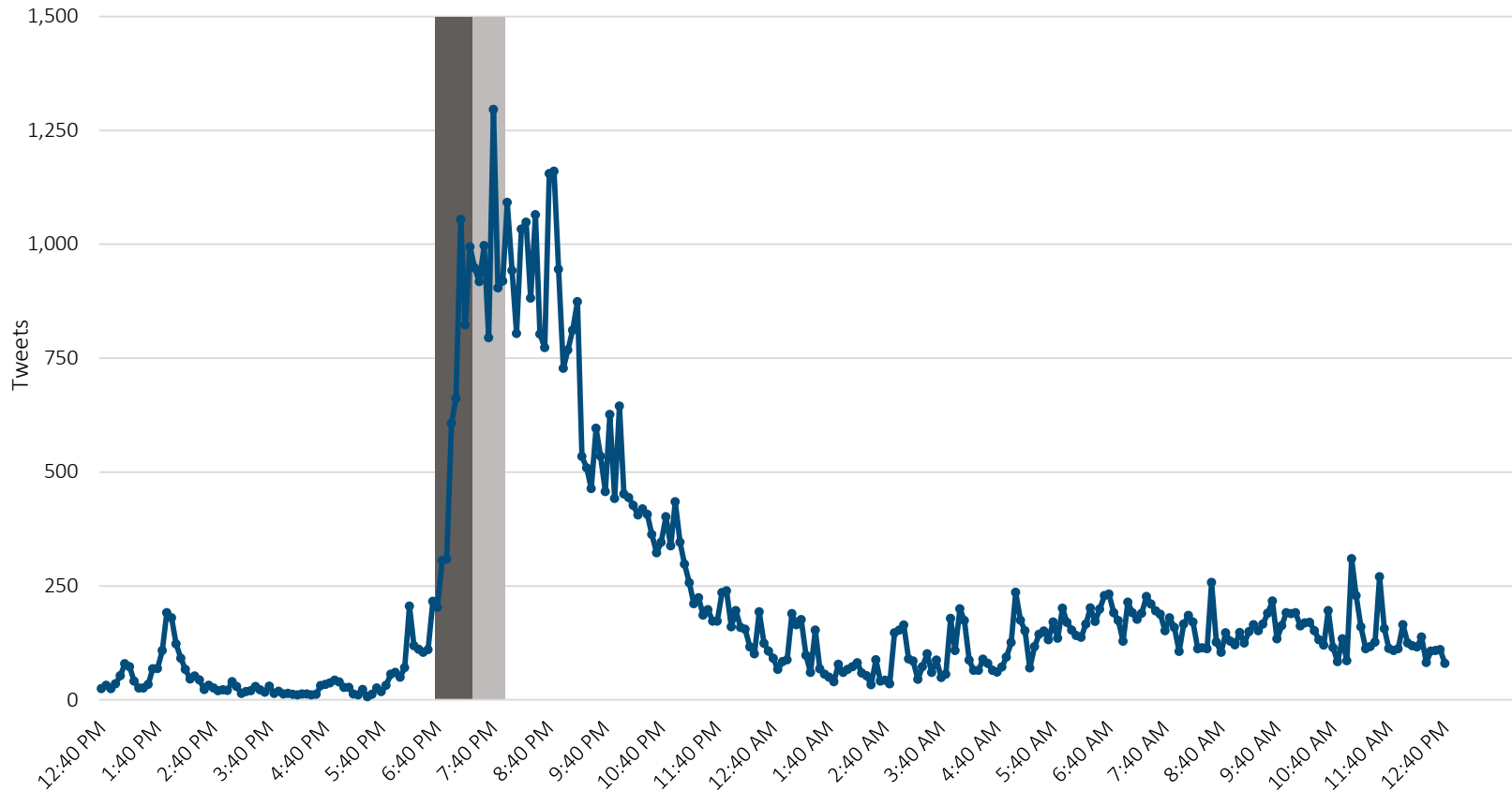


Industry Examples

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Rochelle 2015 CCS

Tweet Volume in 5-Minute Intervals
Rochelle, IL; Apr 9, 2015



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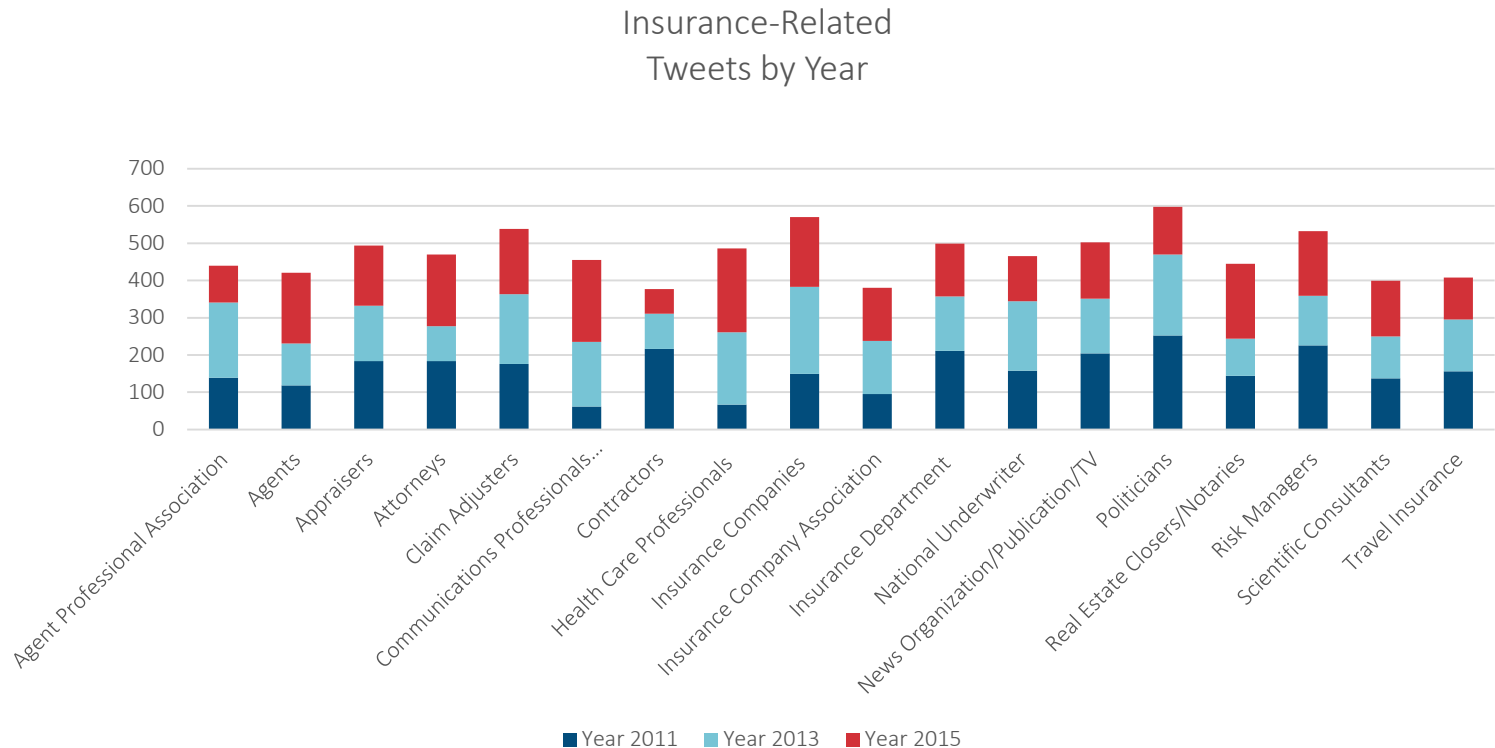
Observations

- Growth of Social Media Communications
- Importance of Early Warning Systems
 - April 2012: Commercial Mobile Alert System (CMAS), interface to the Wireless Emergency Alerts (WEA) service goes live
- Time of Day / Day of Week Influence
- Location Influence

Washington 2013: Location of Tweet by Illinois County for November 17, 2013	Latitude	Longitude	# of Tweets			
			Total	Before	During	After
Peoria-EF2	40.57	-89.63	7355	36	45	7274
Woodford,LaSalle,Livingston,Tazewell (Washington City)-EF4	40.62	-89.55	26761	1655	889	24217
Macoupin,Montgomery-EF0	39.23	-89.72	454	338	8	108
Clinton-EF1	38.7	-89.51	235	3	168	64
Washington County-EF4	38.42	-89.45	405	27	25	353
Christian-EF1	39.39	-89.07	228	201	1	26
Fayette,Effingham-EF2	38.99	-88.92	413	99	65	249
Grundy-EF2	41.24	-88.3	351	200	75	76
Will-EF2	41.41	-87.93	2502	459	326	1717
Jasper-EF1	38.85	-88.08	169	7	41	121
Moultrie-EF1	39.77	-88.56	11	7	0	4
Douglas-EF3	39.84	-88.28	96	7	74	15
Champaign,Vermillion,Iroquois-EF3	40.24	-88.06	725	152	383	190
Kankakee-EF1	41.3	-87.55	121	100	0	21
Jefferson-EF1	38.27	-88.78	172	86	0	86
Wayne,Edwards-EF2	38.45	-88.15	506	209	196	101
Wabash-EF2	38.38	-87.91	197	123	16	58
Massac,Pope-EF3	37.1	-88.74	311	56	169	86

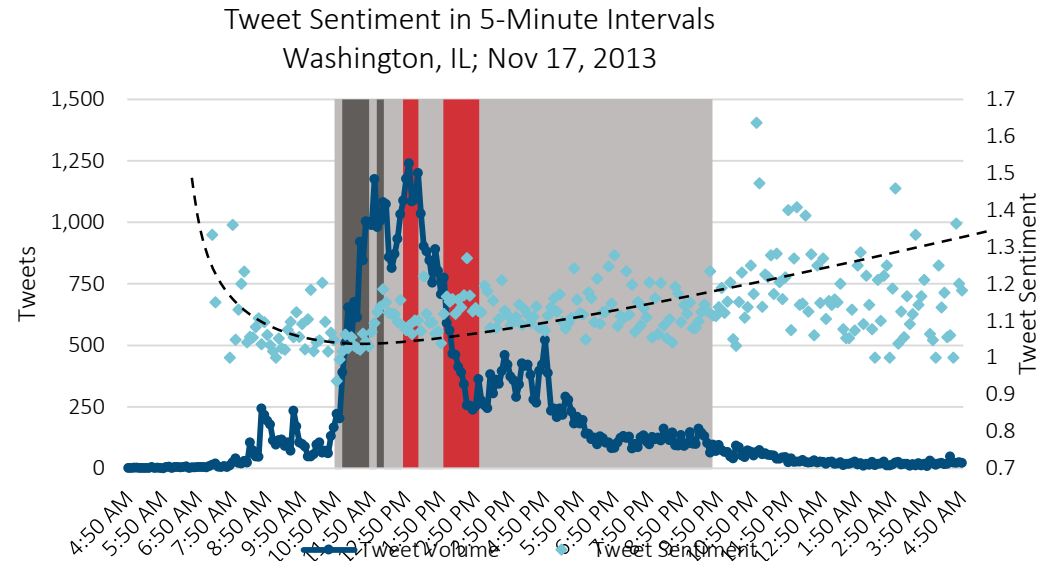
Loss Prevention / Control / Recovery

- Comparison of Communication Efforts
- Pre/During/Post (6/4/14 hours) by Category



Other Uses for Study

- Tweet Sentiment
- Communication Effectiveness



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