

# Twitcident

Filtering Twitter to obtain real-time intelligence

Richard Stronkman, Founder & CEO



# Today's challenges



*Mr. Farmer*  
*FEMA*

“

“Polling meaningful information”

“Sifting thousands of tweets during hurricane Irene”

“Getting situational awareness”

“Finding the eye's on the ground”

“Twitter is quick and timely”

“Messages can be overwhelming”

”



*Mr. Kaji*  
*Japan Cabinet Secretariat*

“

“Finding actionable information”

“Providing timely reaction”

# Contents

1. Introduction
2. What is Twitcident?
3. Two case studies

## Partners



<http://twitcident.org>



<http://tno.nl/twitcident>



<http://twitcident.com>

## Research



## Projects



**ProRail**



**UrbanFlood.eu**

# Why monitor Twitter?

- 340 million tweets per day (source: Twitter, '12)
  - Netherlands ranks #1 in Twitter penetration (source: ComScore, '11)
- Twitter users publish about “anything”
  - Work/private life
  - Interesting events
  - Etc.
- We view users as **social sensors** and **citizen journalists**

# Our goals

## 1. Prevention

- Twitter users publish early signals that might indicate an increased risk or potential incident.

## 2. Law enforcement

- (Eye-witness) Twitter users disseminate information about incidents which can support operational emergency services.

## 3. Post analyses

- Analyzing incident data in retrospect to measure the effectiveness of emergency services.



# Pukkelpop 2011

Storm incident with casualties

**80.000** tweets in four hours

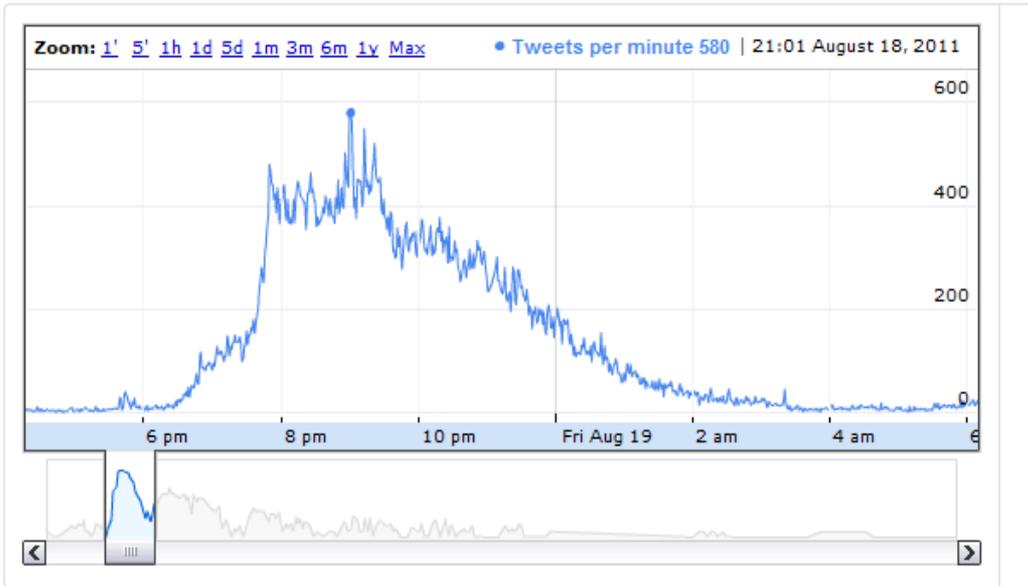


# Kiewit Storm

Started on Aug 18, 2011 6:15:00 PM

- Tweets
- Stats
- Map
- Pics
- Videos

## Number of tweets over time



Current selection:

**179,497** tweets  
**73,884** users

Search in Pukkelpop Storm tweets

Filter tweets

Tweet property

Authority

Topics of interest

Time slot

1st, 2nd, 3rd, 4th, 5th, 6th 10 minutes; 1st, 2nd, 3rd, 4th hour;

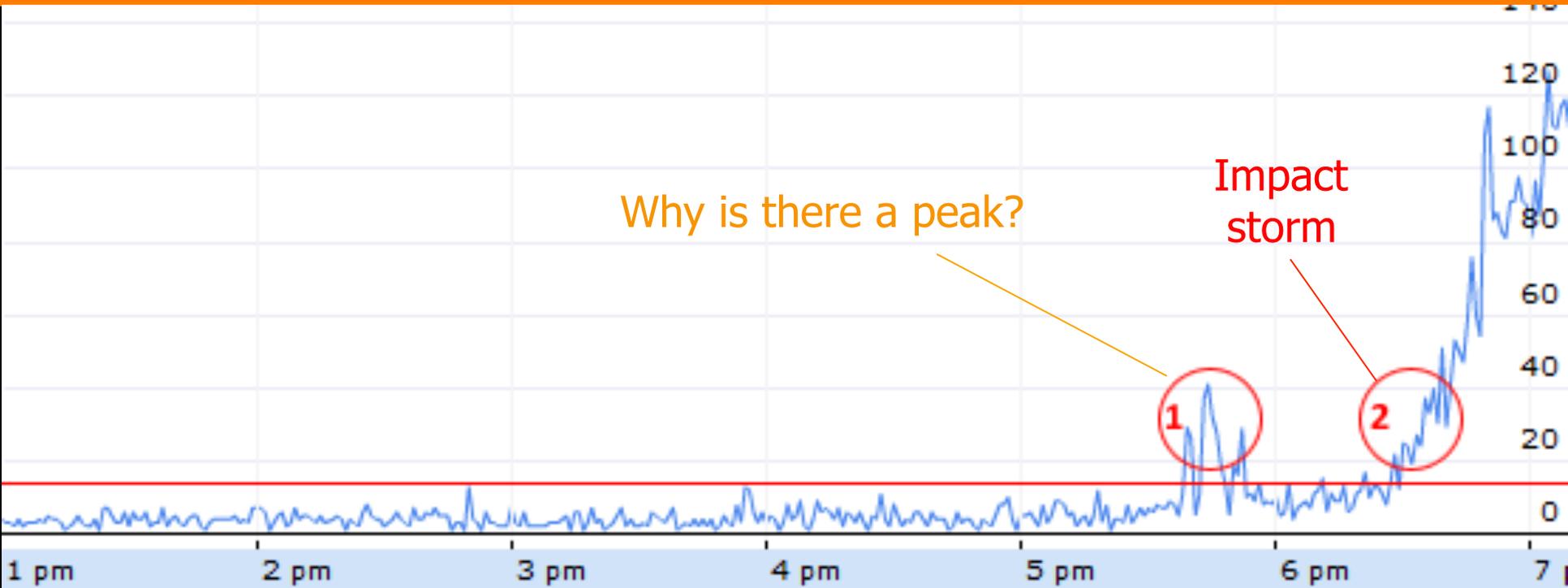
Remove filters

Sort tweets on

Sort options

600 tweets per minute

# Could we see this impact coming?



## Semantics 25 minuten before incident

“

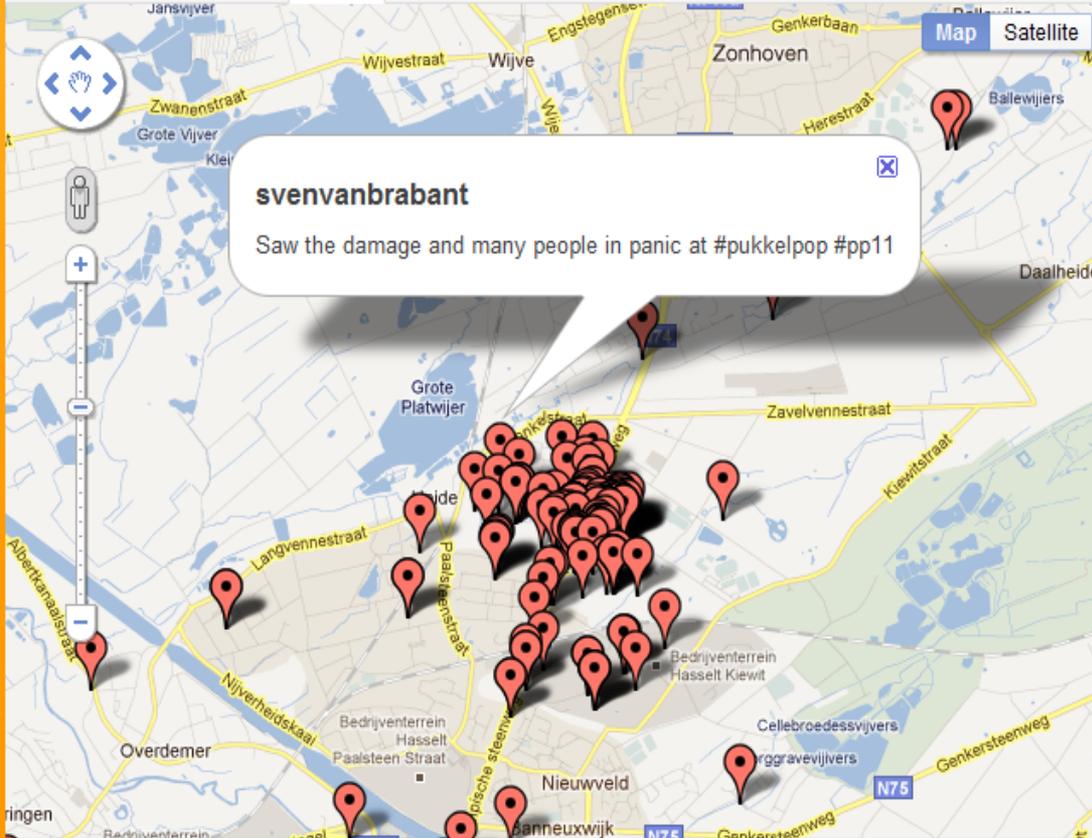
1. **Weather:** storm, cloud-burst, wind, ....
2. **Locations:** Brussel, Gent, Hasselt, ...
3. **Intensity:** heavy, crazy, massive...
4. **Impact:** hail balls, falling trees...

”

# Kiewit Storm

Started on Aug 18, 2011 6:15:00 PM

Tweets Stats Map Pics Videos



Current selection:

1,693 tweets | 1,008 users

Search in Pukkelpop Storm tweets

Filter tweets

Tweet property

Authority

Topics of interest

Time slot

1st, 2nd, 3rd, 4th, 5th, 6th 10 minutes; 1st, 2nd, 3rd, 4th hour

Remove filters

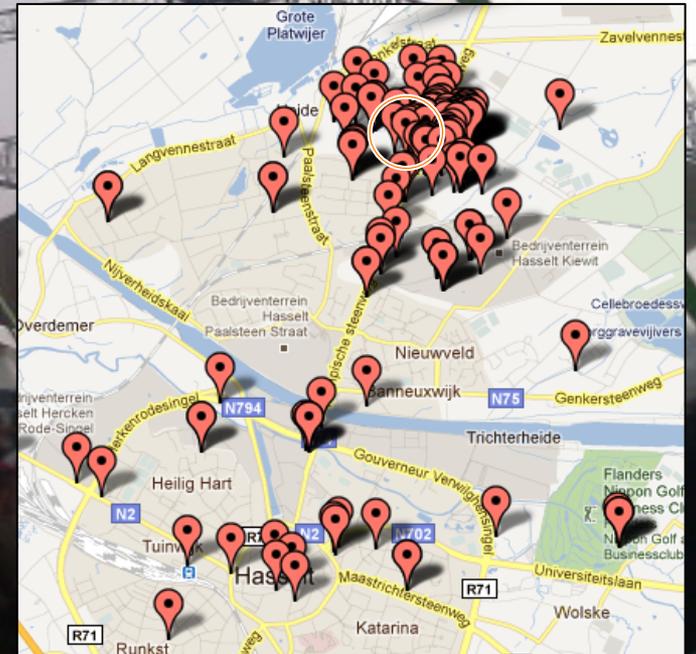
Sort tweets on

Sort options

Damage reports from the incident site



# Real-time intelligence by photos





# Case: Utrecht

Queen's Day 2012

# Real-time incident dashboard

Dashboard Time ▾ Locations ▾ Themes ▾ Filter ▾

Search

	Terrorism	Revolt	Violence	Fire	Accident	Heavy weather	Drugs	PT	Failure	Sentiment
<b>Royal house</b> 27214	46	31	47	16	3	16				
<b>Rhenen</b> 1041		22	1			1				
<b>Veenendaal</b> 4975	1		46	1	2	5		2		
<b>Utrecht</b> 15790	19	78	75		25	33		24		
<b>Amersfoort</b> 5823		10	11		7	1		2		
<b>Nieuwegein</b> 1006		8								
<b>Soest</b> 715		1	1	3						
<b>Woerden</b> 1676	2	3	1	3	1		1			
<b>Zeist</b> 956		1	11		11	27				
<b>Other</b> 3685		10	14			20	1			

catastrofe - ramp - calamiteit -  
 noodsituatie - onheil - onheilsplend -  
 ellende - illegaal - nood - grote klap -  
 rampspoed - ellende - malaise - miserie  
 - misA're - tegenslag - narigheid -  
 fataliteit - drama - tragedie - heftig - hevig  
 - gruwelijk - extreem - ongehoord -  
 ongerijmd - onmatig - onredelijk -  
 teugelloos - tomeloos - verbazend -  
 verre gaand - abnormal - exceptioneel -  
 ongekend - onvergelykelyk - verdomme -  
 klote - balen - verdorie - verduiveld -  
 vervloekt - weergaas - alle donders -  
 allemachtig - drommels - jeminee -  
 verdomd - verdorie - afgrijselyk - akelig -  
 belabberd - besodemieterd - droevig -  
 ellendig - erbarmelyk - hopeloos -  
 jammerlyk - kwakkelyk - miserabel -  
 moeilij - onaangenaam - vervelend -  
 vervloekt - afschuvelyk - bedroevend -  
 beroerd - erbarmelyk - gebrekkig -  
 hopeloos - jammerlyk - klote - lamlendig -  
 lamzalig - malheureus - miserabel -  
 ongelukkig - onzalig - rampzalig - rottig -  
 slecht - treurig - help - faya - fok op -  
 lelij - woede - klote - kut - tering -  
 godver - gvd - wtf - damn - hell - wow -  
 omg - hoerzoon - kankerlijer - kankerlyer

# Classified tweets on Terrorism

Time ▾ Locations ▾ **Terrorism** ▾ Filter ▾ Settings ▾ Search

All tweets 68 tweets 4 geo-tweets Archive Back | Next (1/2)

 **"Timon..** JustTimon  
[@asdfghjimm](#) harmelen is dood -.-  
mei 1, 18:25:02 | Link | Mark

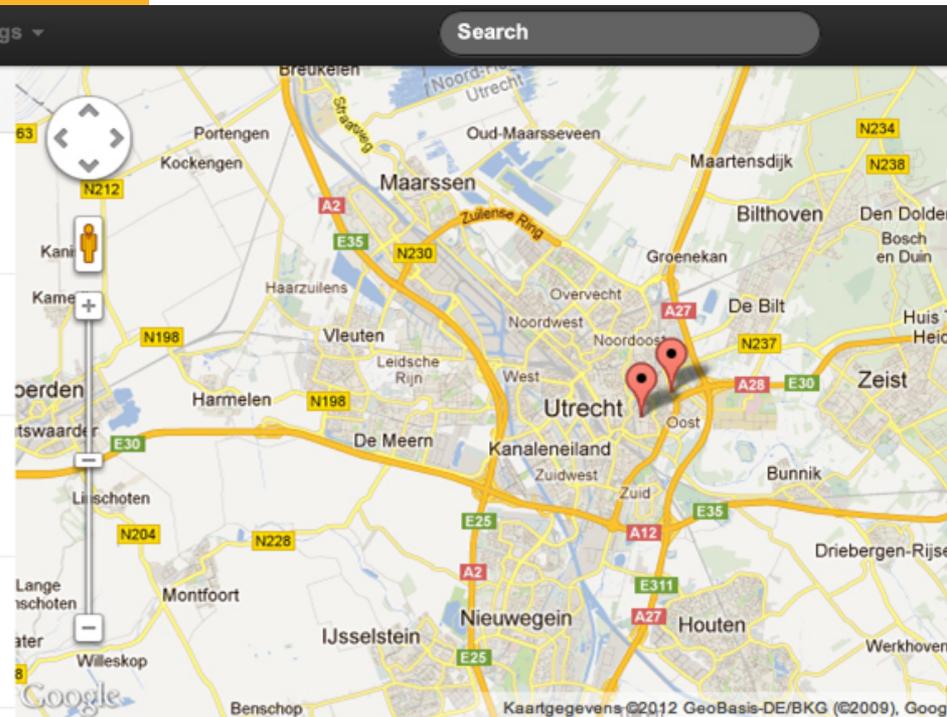
 **Rens Roeleveld** rensroleveld  
Veenendaal is trouwens een dorp waar je niet dood gevonden wilt worden.  
mei 1, 14:43:30 | Link | Mark

 **Twan van der linden** ik\_ben\_Twan  
[@xvaleriee](#) je koningin is dood  
mei 1, 10:21:09 | Link | Mark

 **sigrid van der meer** sigrid66  
Dacht ik gisteren welke idioot het bedacht Beatrix op dat gammele krukje te zetten.. Staat ze nu op de voorpag. Telegraaf en DvhN op de kruk  
mei 1, 09:55:07 | Link | Mark

 **Eva x** xoxoEvaaxoxo  
[@joeymeul](#) :maak liever een feestdag als de koninging dood is  
mei 1, 09:34:17 | Link | Mark

 **Utrecht Nieuws** Utrecht\_krant  
#Utrecht GO Tweede inval zaak dode juwelier - AD.nl: AD.nlTweede inval zaak dode juwelierAD.nlDe politie heeft i... <http://t.co/uxZlrtln>  
mei 1, 09:24:47 | Link | Mark



No pictures or video found

# Results Queen's Day

- Data
  - 24 hours: 62.491 tweets collected
  - Twitcident made it easy to find  $\pm 200$  relevant tweets
- Among relevant information
  - Increased risk towards Queen and Royal family
  - Presence of hooligans in Utrecht
- Result: Police visits suspects based on data found by Twitcident

# Challenges

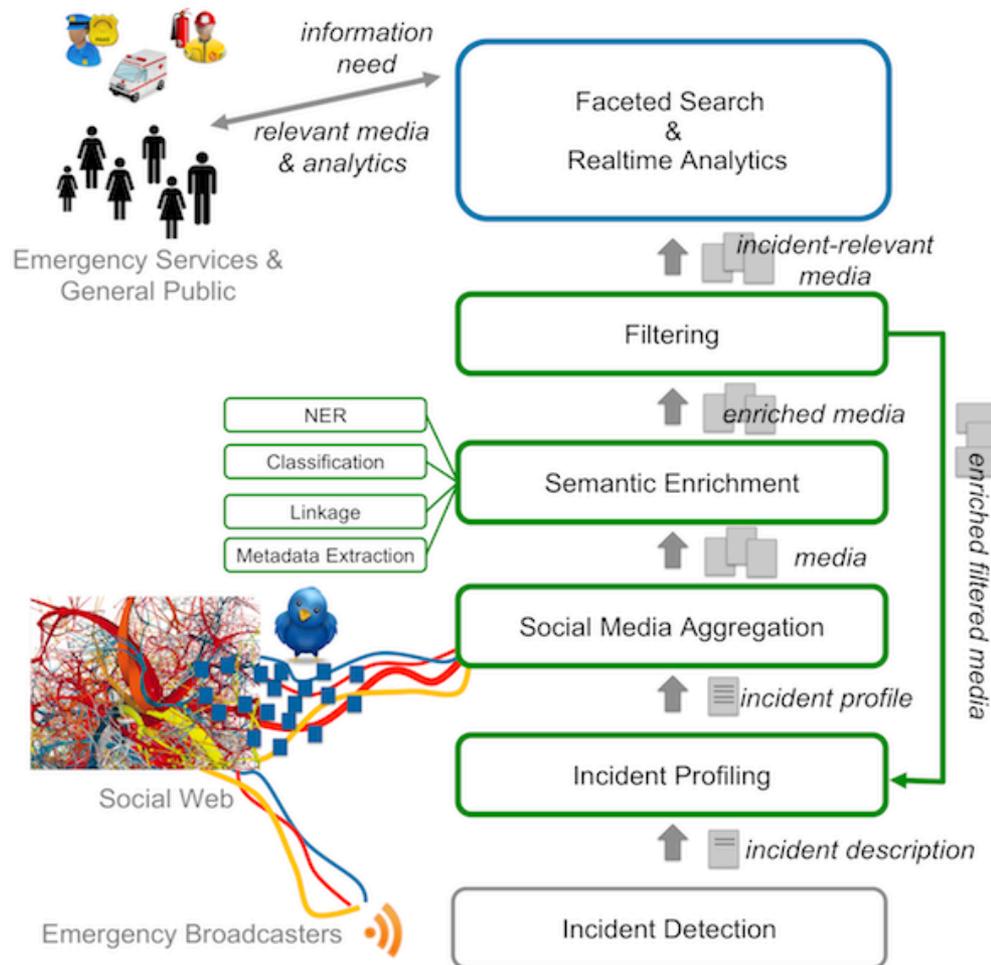
## 1. Identifying rumor propagation

- Social correcting: we try to measure 'doubt' in replies to rumors.

## 2. Finding quality information

- We try to find 'eye-witness reports' and filter away all noise

# Technology



Thank you

**twitcident.com**



@twitcidentapp

@rstronkman

**NewScientist**

**WIRED**

**BBC**

**WALL STREET  
JOURNAL**

**THE VERGE**

**Technology  
Review**