PSC Europe Forum Conference

30 November & 1 December 2011

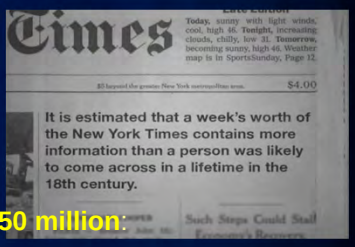
Warsaw, Poland

GIS and Social Media in Emergency Situations

Wojtek Gawecki, ESRI

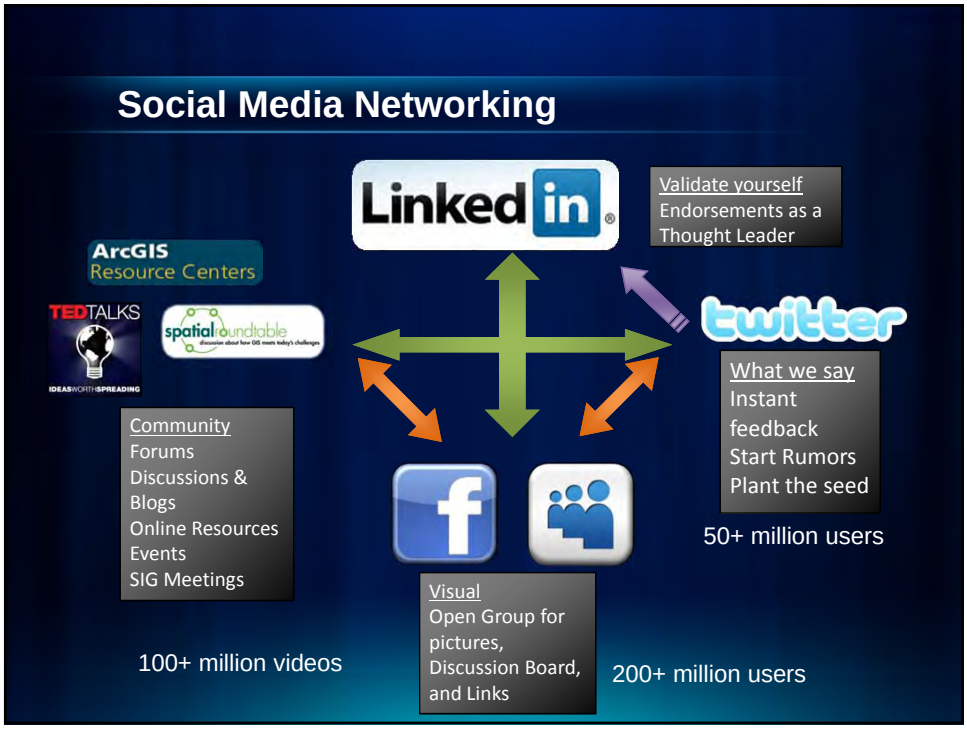
History of Modern Communication

1877 – Telephone
1969 – Internet
1991 – First website
1973 – Cell Phone
2006– Twitter launches



Years it to took to reach an audience of 50 million:

Radio	38 years
TV	13 years
Internet	4 years
iPod	3 years
Facebook	2 years
Twitter	*50 Million Tweets per day*



Social Media in Public Safety Service

- **Volunteered geographic information (VGI)**
- **Citizen science or Citizen-as-a-sensor**
- **Crowdsourcing**
- **Prosourcing**

Who is Using Social Media?

- Law Enforcement
  - Crimes/Tips
  - Accidents
  - Traffic
  - Public Information
- Emergency Management
  - Public information
  - Damage assessment
  - Safety advisories
  - Emergency notification
  - Evacuation routing
  - Weather alerts
- Dispatchers
  - Date stamping pictures
  - Photographing incidents

Traffic Management
Warwickshire Police, UK

Crime Mapping - *Slovenia Police*

Analysis of Violence - *Russia*

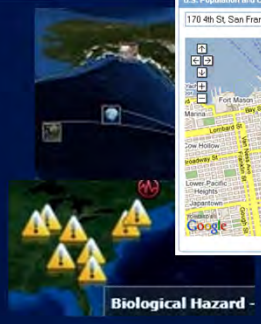
A New Generation of Geo-Apps are Emerging

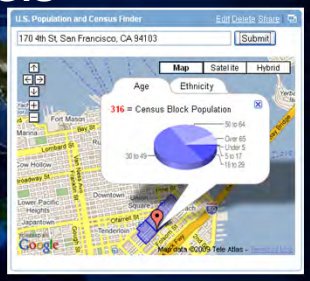
Creating Fun, Interesting and Useful Apps

CitySourced & The Omega Group

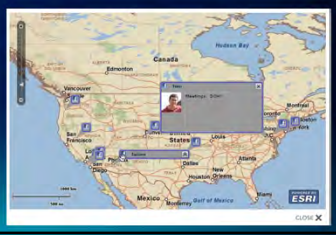
Integrating Social Media into GIS

Twitter





Facebook



San Bruno, CA Explosion

Heading off disaster, one tweet at a time

By **Jim Spellman**, CNN
September 22, 2010 -- Updated 1713 GMT (0113 HKT) | Filed under: Social Media

The Boulder, Colorado, wildfire triggered a strong response from iReport, often CNN's first source for disaster images.

Denver, Colorado (CNN) -- When word came of a huge explosion in San Bruno, California, FEMA chief Craig Fugate grabbed his cell phone and logged on to Twitter.

"I got out my little Android phone and went on Twitter and pulled up the grid to search for 'explosion' and got tweets coming out of the area," he said.

After a few minutes he says he determined the gas explosion and ensuing fire, though horrible, was a localized event and wouldn't spread to other communities.

STORY HIGHLIGHTS

- Government officials are usually wary of information on Twitter and other social media
- FEMA chief Craig Fugate uses the data for "situational awareness"

"I got better situational awareness [from Twitter] before we got official word," he said. "Four or five years ago I wouldn't have gotten that quality of information."

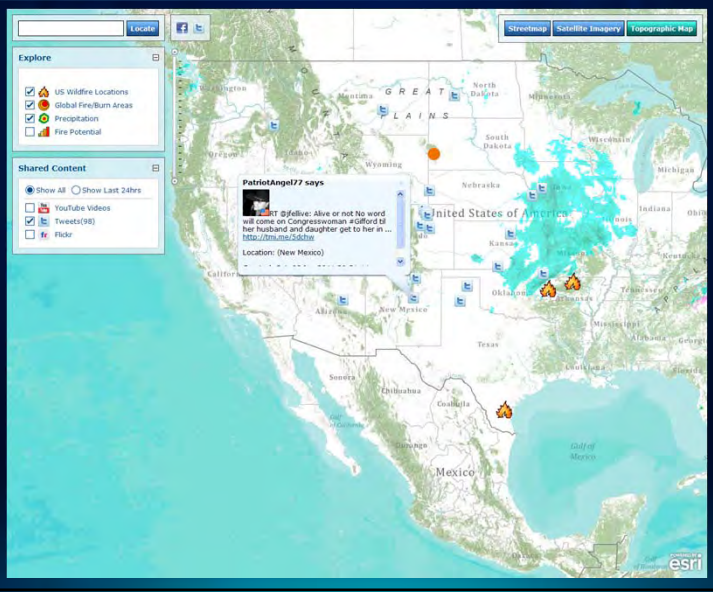
Investigative Assistance & Information

How Facebook and Twitter changed the search for Chelsea King

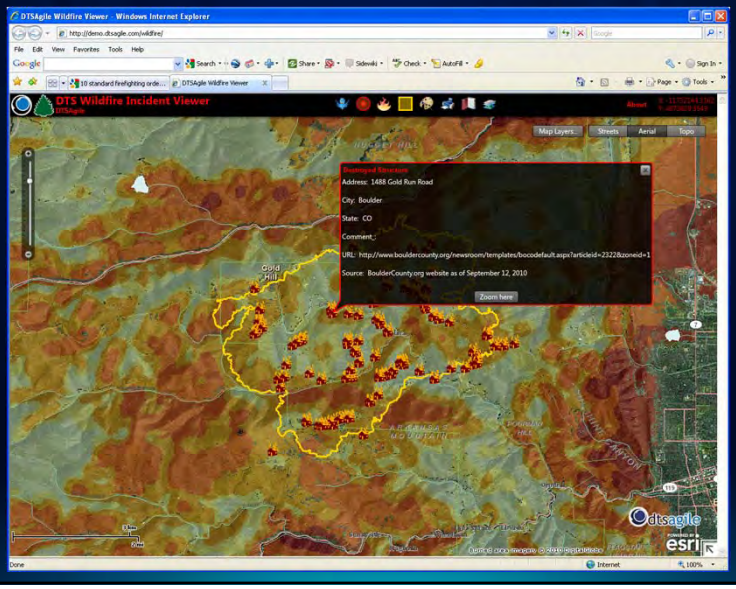
The massive effort to find San Diego-area teen Chelsea King highlights new ways technology can help in missing persons cases.

Volunteers stand in line waiting to

Tucson, AZ Shootings



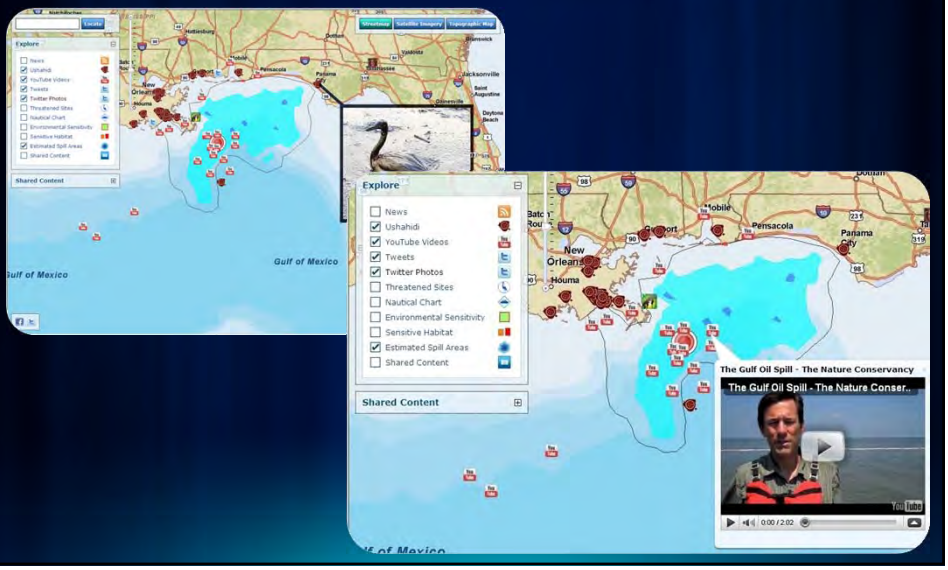
4 Mile Canyon Forest Fire (Colorado)



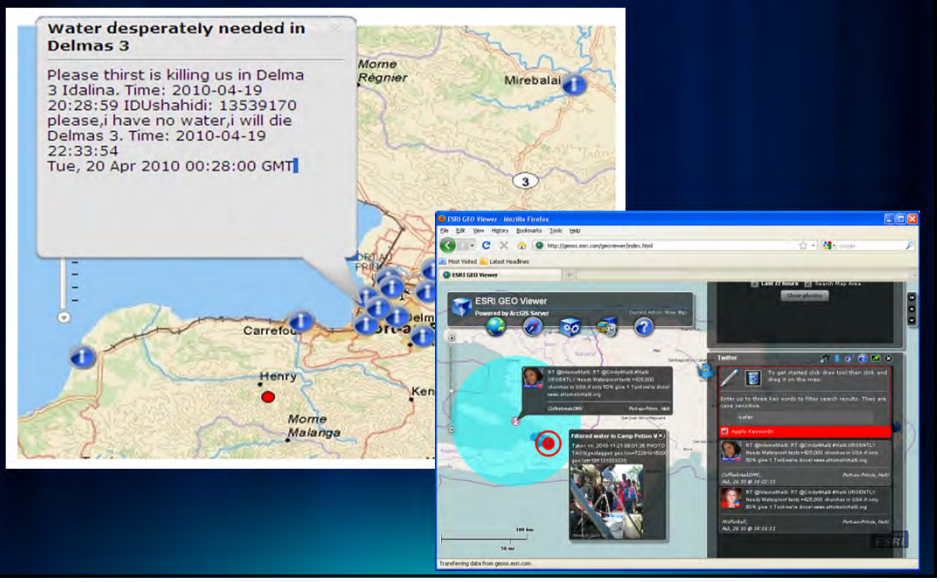
Weather Emergency

City of Boston 2010

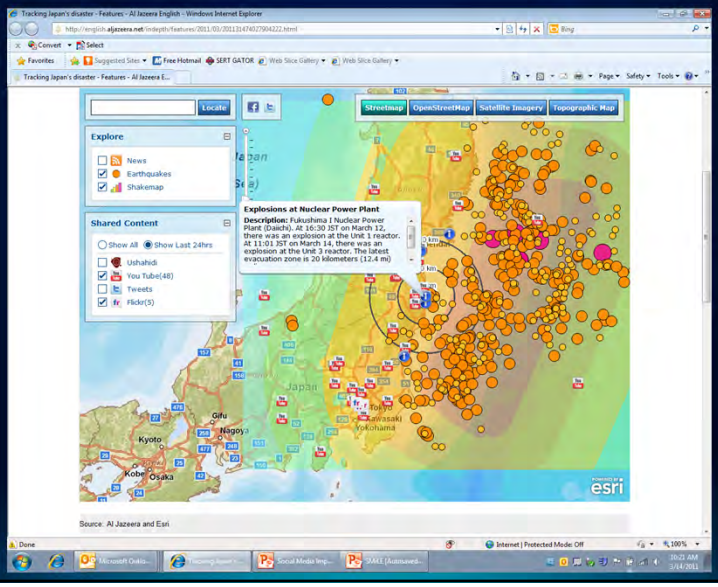
Oil Spill – 2010



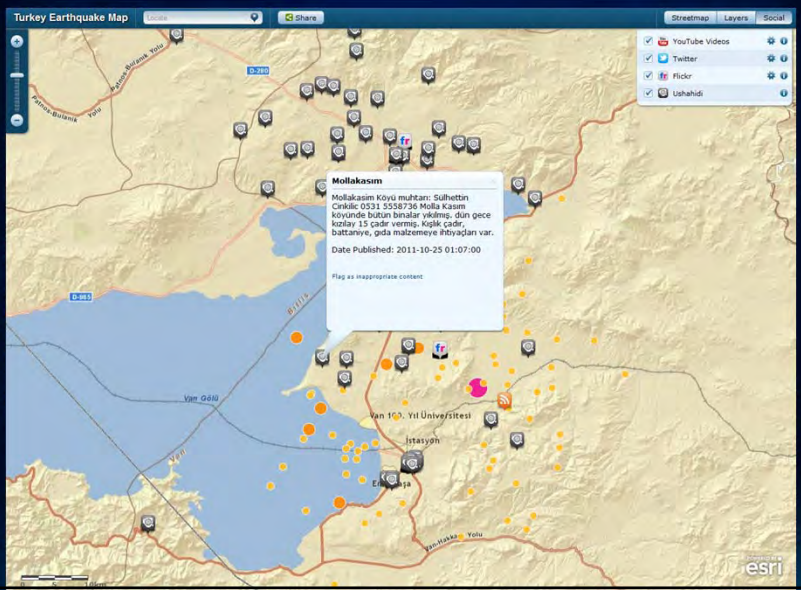
Haiti – 2010



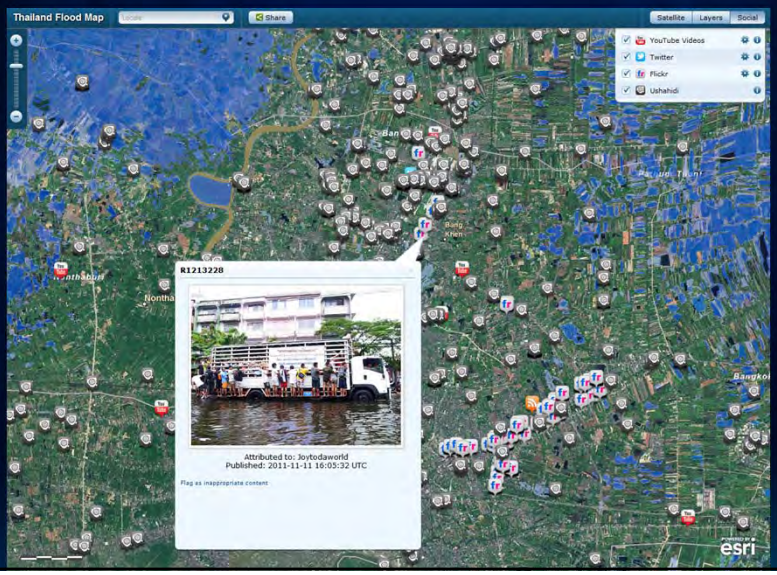
Japan earthquake



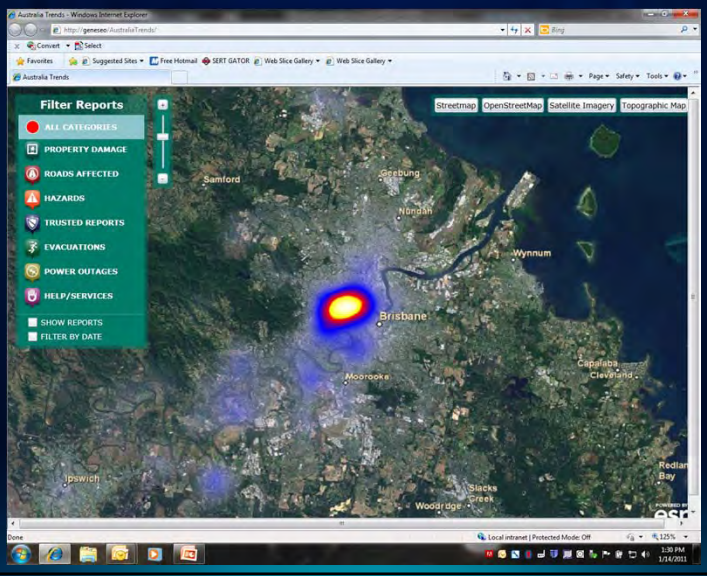
Turkey Earthquake



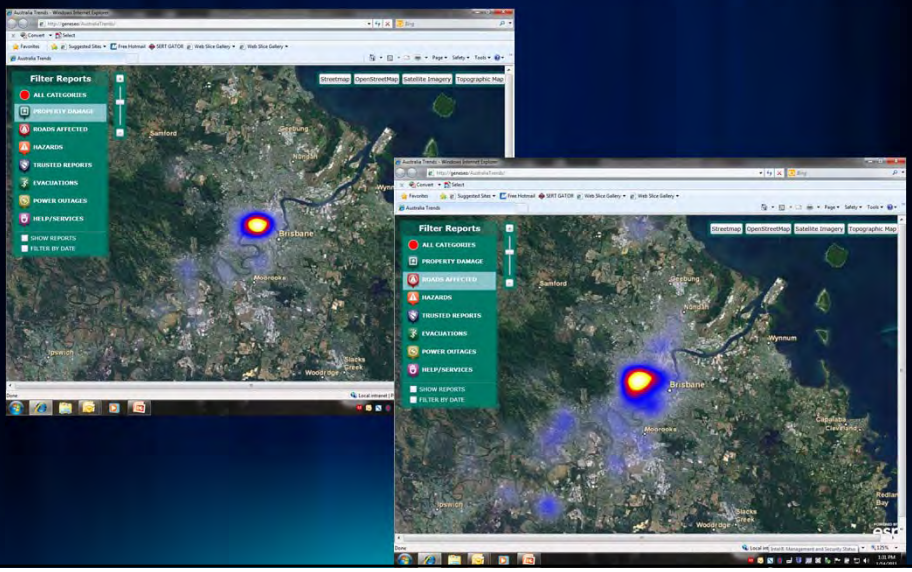
Thailand Floods



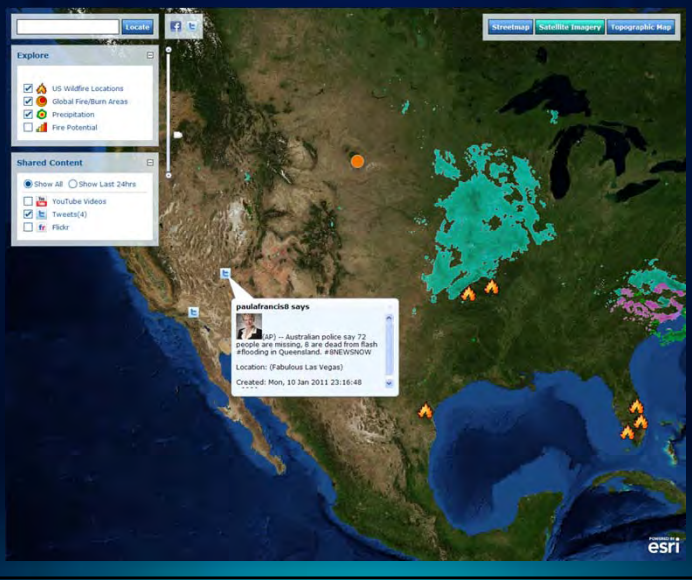
Analysis of Ushaidi Data – All Categories



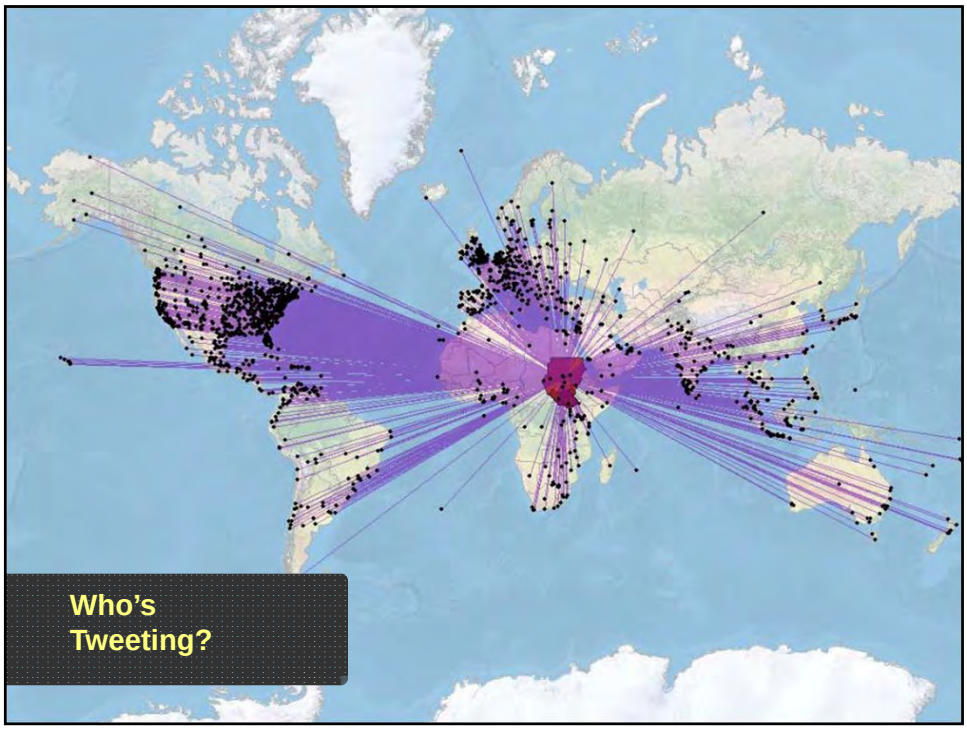
Usahidi - Property Damage & Roads Affected

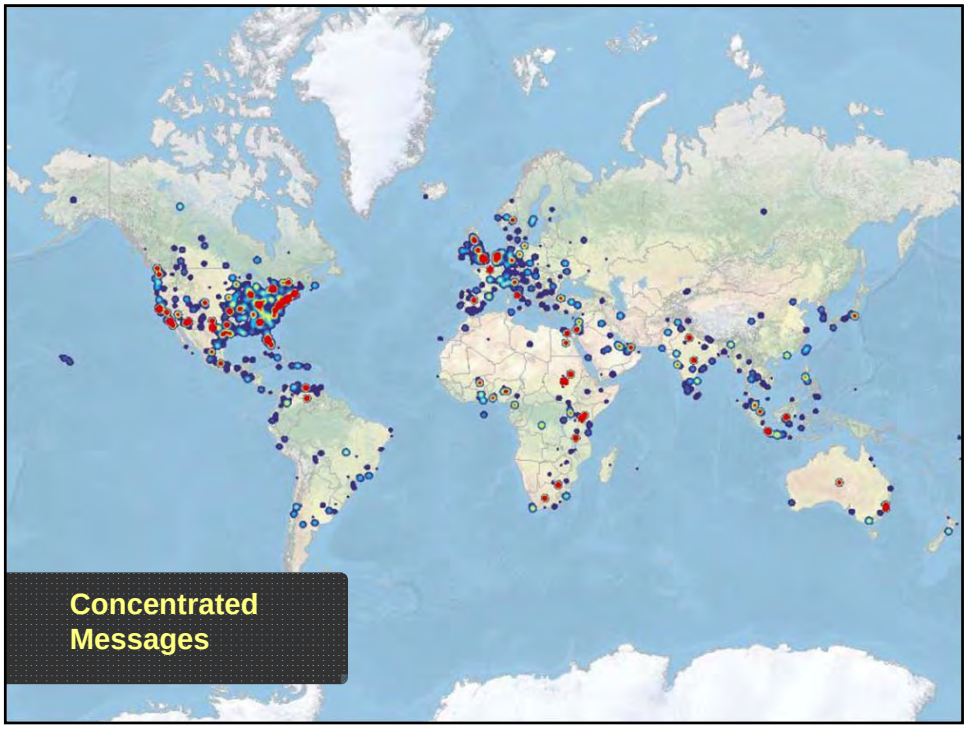


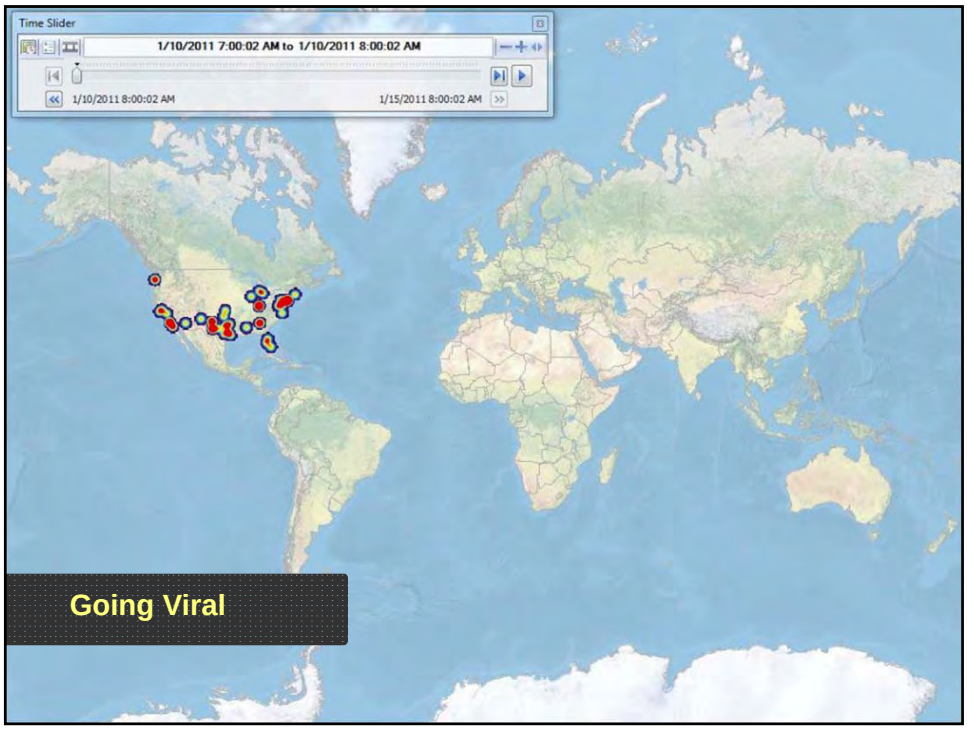
Awarness




Sudan Referendum
twitter


Who's Tweeting?

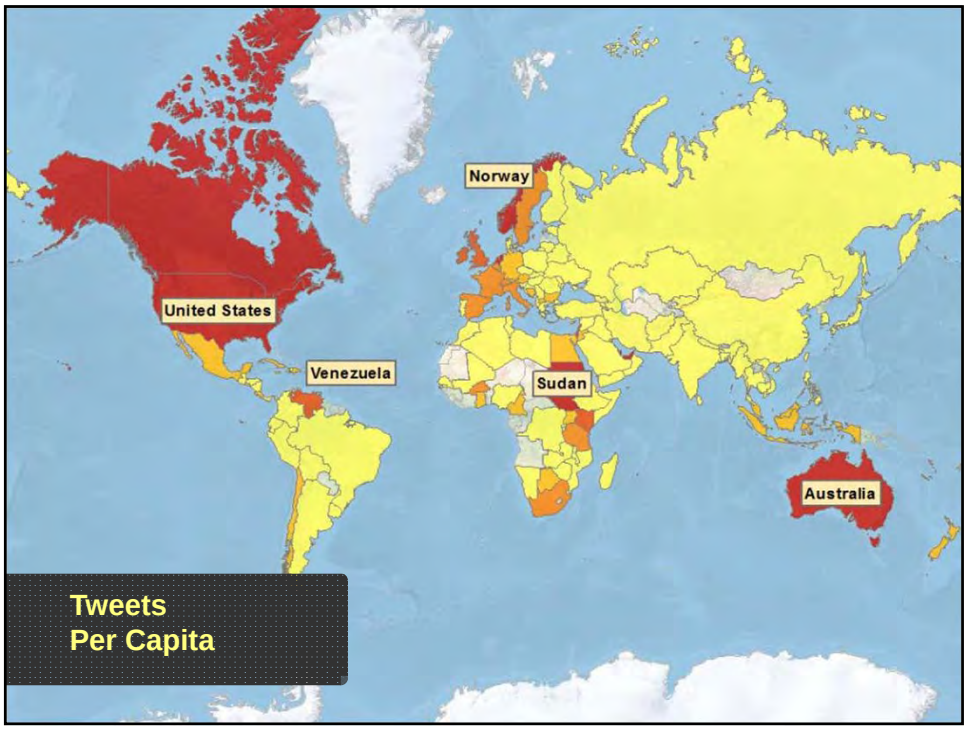

Concentrated Messages

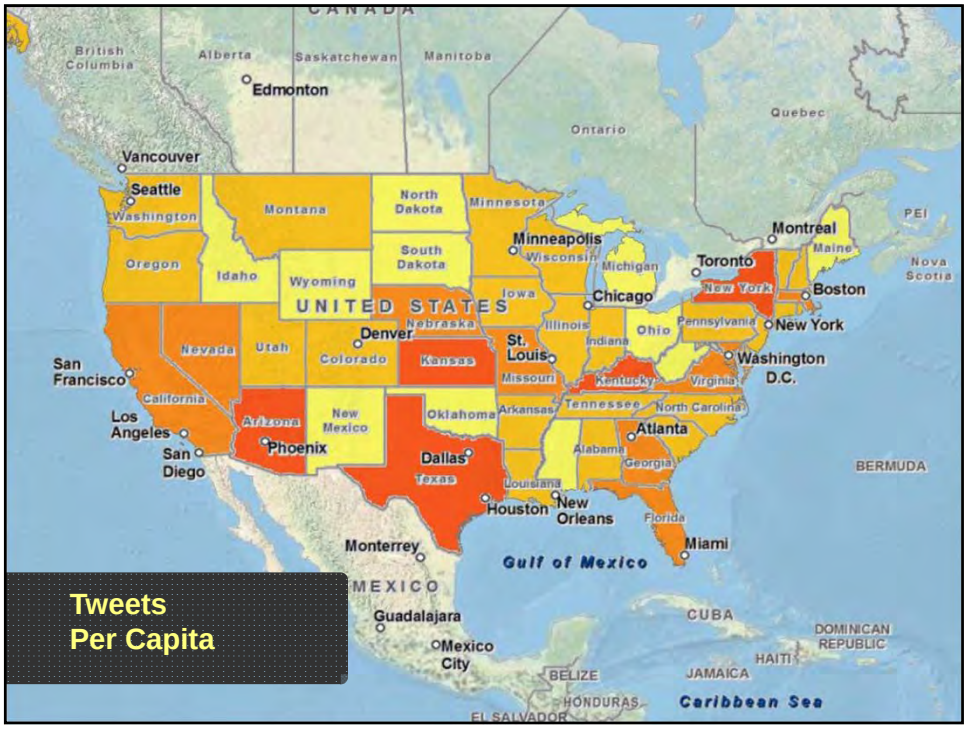

Time Slider
1/10/2011 7:00:02 AM to 1/10/2011 8:00:02 AM
1/10/2011 8:00:02 AM
1/15/2011 8:00:02 AM
Going Viral


Time Slider
1/10/2011 8:00:02 AM to 1/10/2011 9:00:02 AM
1/10/2011 8:00:02 AM
1/15/2011 8:00:02 AM
Going Viral


Time Slider
1/10/2011 12:00:02 PM to 1/10/2011 1:00:02 PM
1/10/2011 8:00:02 AM
1/15/2011 8:00:02 AM
Going Viral


Time Slider
1/10/2011 6:00:02 PM to 1/10/2011 7:00:02 PM
1/10/2011 8:00:02 AM
1/15/2011 8:00:02 AM
Going Viral

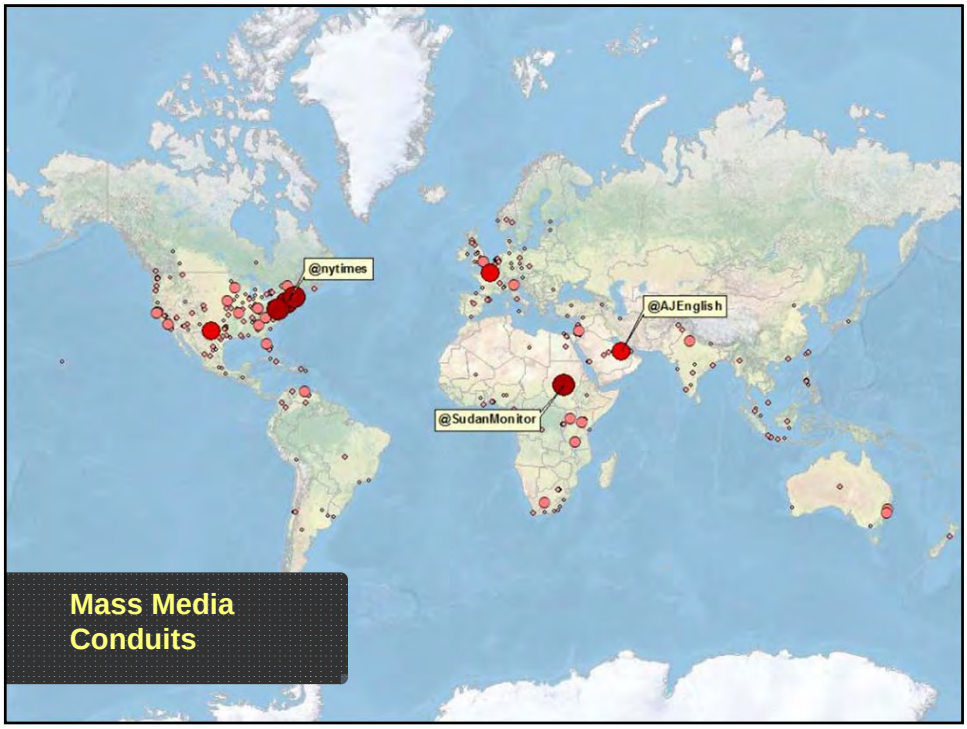

Norway
United States
Venezuela
Sudan
Australia
Tweets
Per Capita

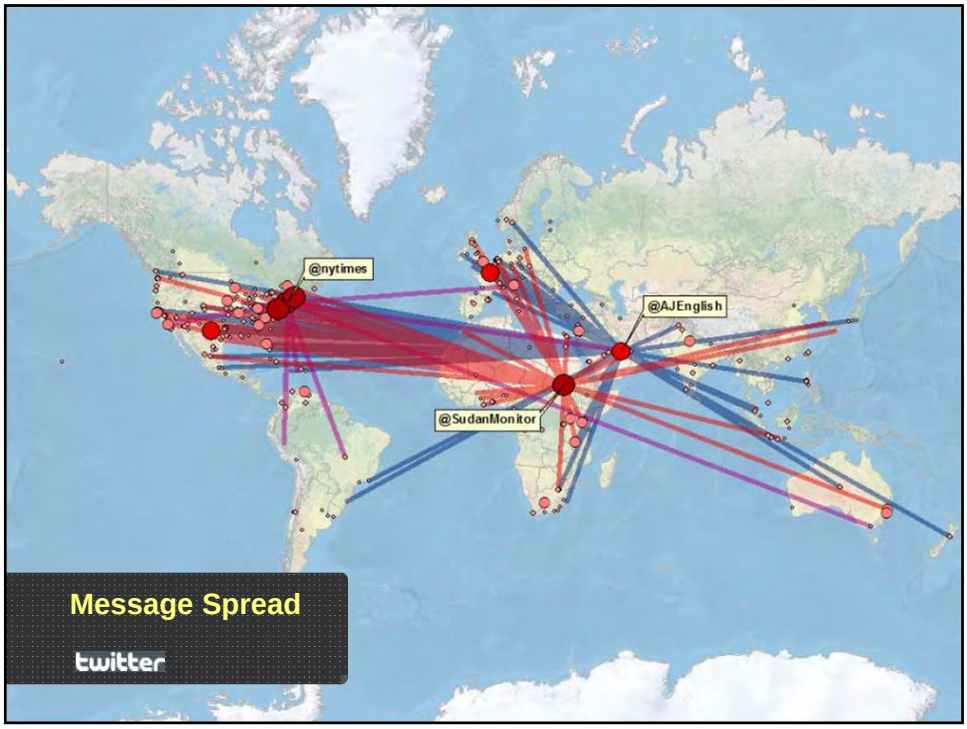

Tweets
Per Capita
CANADA
British Columbia
Alberta
Saskatchewan
Manitoba
Edmonton
Ontario
Quebec
Vancouver
Seattle
Washington
Montana
North Dakota
Minnesota
Minneapolis
Wisconsin
Michigan
Toronto
Montreal
PEI
Maine
Nova Scotia
Oregon
Idaho
Wyoming
South Dakota
UNITED STATES
Iowa
Chicago
New York
Boston
Nebraska
Illinois
Ohio
Pennsylvania
Denver
Nevada
Utah
Colorado
Kansas
St. Louis
Indiana
Washington D.C.
San Francisco
Missouri
Kentucky
Virginia
California
Oklahoma
Arkansas
Tennessee
North Carolina
Los Angeles
Arizona
New Mexico
Phoenix
Atlanta
San Diego
Dallas
Alabama
Georgia
BERMUDA
Texas
Louisiana
Houston
New Orleans
Florida
Miami
Monterrey
Gulf of Mexico
MEXICO
Guadalajara
CUBA
DOMINICAN REPUBLIC
Mexico City
HAITI
BELIZE
JAMAICA
HONDURAS
Caribbean Sea
EL SALVADOR


Original Content


Re-tweets

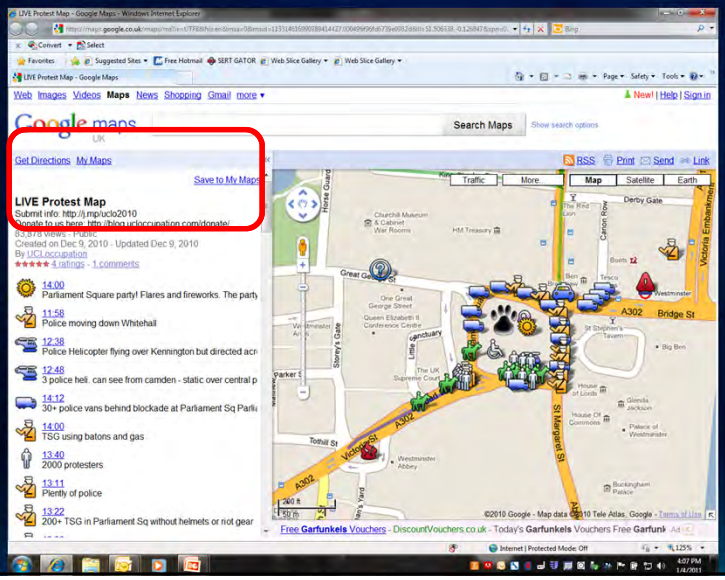

Mass Media


@nytimes
@AJEnglish
@SudanMonitor
Mass Media Conduits


@nytimes
@AJEnglish
@SudanMonitor
Message Spread
twitter

Not always good

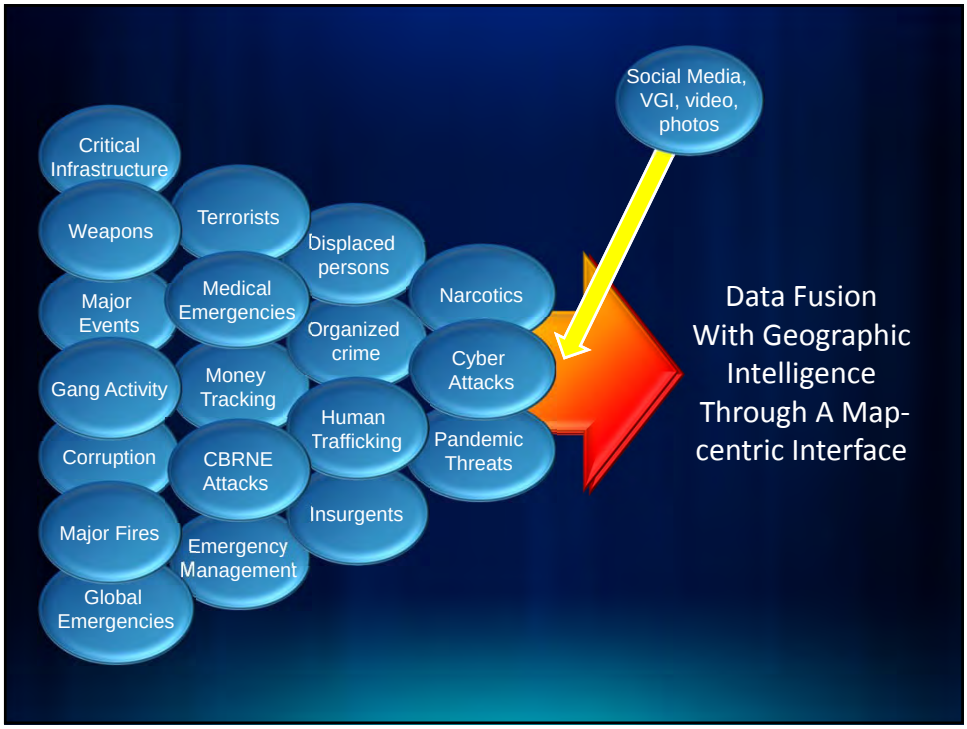
London, United Kingdom



Lessons Learned in Social Media

- By leveraging the crowd, volunteered reports and data can be used effectively to optimize scarce resources to focus on the most significant problems.
- The proliferation of smart phones creates the possibility of a volunteer sensor network.
- Further evolution of crowdsourced technology and integration with professional GIS can facilitate emergency response and routine data collection efforts in the future.
- This will raise a number of legal and policy challenges, including liability, privacy, national security and intellectual property rights.

http://spatiallaw.blogspot.com



Looking Forward: Social Media

- It's how more and more people communicate and get information.
- How do you sift and sort through all of the information? Is there value in the information? Is it telling you something you didn't know?
- Filter by geographic extent, keywords, time & relevance.
- The community and their cameras will almost always beat your agency and the media to the incident – leverage that power.

Thank you