

# Meeting Minutes of the Subcommittee on Disaster Reduction

2 February 2012, 10:00 a.m. to 12:00 p.m., White House Conference Center Lincoln Room

---

*Italics indicate absent members. "T" indicate members participating via teleconference.*

## Co-chairs

David Applegate (USGS)  
Margaret Davidson (NOAA) (T)  
Dennis Wenger (NSF)

## OSTP Liaison

Tamara Dickinson (OSTP)

## Designated Representatives

**BLM** *Edwin Roberson*  
*Daniel Lechefsky*  
**CDC** Mark Keim  
**DHS** Bruce Davis  
**DHS/FEMA** Sandra Knight  
**DHS/USCG** *Austin Gould*  
**DOD** Al Johnson  
**DOT** *Kelly Leone*  
Sheila Duwadi  
**EOP/OMB** *Grace Hu*  
**EOP/OSTP** Tamara Dickinson  
**EPA** *Peter Jutro*  
Stephen Clark

**FERC** Pamela Romano (T)  
**HUD** *Dana Bres*  
**NASA** *Craig Dobson*  
**NGA** Paul Lewis  
**NGB** *TBD*  
**NIH** Allen Dearry (T)  
**NIST** *William Grosshandler*  
**NOAA** Margaret Davidson (T)  
*Laura Furgione*  
**NPS** Marcy Rockman  
**NSF** Dennis Wenger  
**OPHS** Sven Rodenbeck (T)

**State** Nicholas Suntzeff (T)  
Fernando Echavarria  
**USACE** *Steven Cary*  
*Dimitra Syriopoulou*  
**USAID** Sezin Tokar  
**USDA** *TBD*  
**USFS** Elizabeth Reinhardt  
*Carlos Rodriguez-Franco*  
**USGS** David Applegate  
**USNRC** Brian Sheron

## Other Attendees

**DHS Contractors**  
Shakia Dorsey  
Nabil Adam  
John Galmiche  
**EPA** Brendan Doyle  
**DHS/FEMA** Rachel Sears  
Allyson Koncke-Fernandez  
Shayne Adamski  
**NASA** Michael Goodman (T)  
Frank Lindsay

**Navy** Rebecca Goolsby  
**NIST** Marc Levitan  
**NSF** Gregory Anderson  
Kishor Mehta  
**NOAA** Nell Codner  
Christopher Strager  
Margaret McCalla  
David Green  
**USAID** Rhonda Stewart  
**USGS** John Eichelberger  
Bob Hainly  
Liz Lemersal (T)

**USNRC** Brett Rini  
Holly Harrington  
Eliot Brenner  
**University of Colorado,**  
**Colorado Springs** Jeannette  
Sutton  
**Woodrow Wilson Center** Lea  
Shanley  
**Secretariat** Ross Faith  
Bret Schothorst

## Agenda

10:00 Welcome and Introductions  
10:05 Presentations on Social Media and Crowdsourcing  
11:45 Report from the Co-Chairs and Approval of Minutes  
11:50 Report from the OSTP Liaison  
11:55 Close and Next Actions

## Handouts

- Agenda
- Draft January Meeting Minutes

## **I. Welcome and Introductions**

Subcommittee on Disaster Reduction (SDR) Co-chair David Applegate (USGS) called the meeting to order at 10:02 a.m., and participants introduced themselves.

## **II. Presentation: Emergent Use of Social Media: A New Age of Opportunity for Disaster Resilience**

Applegate introduced Mark Keim (CDC), who serves as the Senior Science Advisor at the CDC and as the CDC's representative to the SDR. Keim gave the initial briefing in a series of four presentations that covered how social media and crowdsourcing are being applied to overcoming the challenges of information sharing and dissemination for disaster reduction and response. His presentation provided a general overview and background on social media and underscored some of the opportunities and challenges presented by social media in the context of how it has changed disaster management.

Social media has a growing role in disaster management due to its distinction as a novel form of information sharing. Unlike traditional media, social media technology is inherently a multi-directional, collaborative, and decentralized communication mechanism that allows for information to be disseminated by the public through social interaction. Social media is also community-driven and predicated on networking, which has proven to be more advantageous for the rapid distribution of information than the more formal, organization-based traditional media hierarchy that only permits information to flow one way – from the top down.

Peer-to-peer social media is advantageous for disaster management and streamlines disaster organizational systems as highlighted by the following characteristics laid out by Keim:

- Information flows from the public and allows multiple sources to share and contribute;
- Empowerment for information dissemination is with the individual and is immediate;
- Accessibility of information is inclusive and is not proprietary in nature;
- Information generation requires little labor and capital; and
- Collective information structure is highly scalable and adaptable.

Keim went on to discuss how human resilience, which he defined as one's ability to cope with and recover from a disaster, has shifted due to the advent of online social media tools. Human resilience in a disaster scenario is comprised of three main factors of capacity: 1) the absorptive capacity to withstand the initial loss; 2) the organizational capacity to manage the response; and 3) an adaptive capacity to acclimate to the new situation. Social media specifically builds adaptive capacity by fostering the ability to share knowledge and information virtually, by creating communication flexibility, and by enhancing collaboration opportunities that can empower local-level responders and the public to more effectively manage emergencies.

Social media first demonstrated a growing role in disaster and emergency management in 2007 during the Virginia Tech shootings and the southern California wildfires, as emphasized by Keim. That role progressed significantly through events in 2008 (Democratic National Convention and Hurricane Ike) and 2009 (protests in Iran) before culminating in January 2010 during the Haiti earthquake. According to Keim, the Haiti earthquake gave rise to a significant expansion of unique and innovative uses of social media that empowered people at the local level. By way of example, Keim cited incidents of individuals who were trapped in collapsed buildings following the earthquake but were able to text their need for help and location to emergency management centers. As a testament to the scope and scale of social media's reach, he also noted that 2.3 million tweets in first 48 hours following the Haiti earthquake included the words "Haiti" or "Red Cross" and that the Red Cross raised \$25 million in the first two weeks after the disaster through donations received via texts from mobile phones. Both were levels of digital engagement during a disaster that had never been seen before.

The increased use of social media for disaster management has its drawbacks, however. Keim underlined three main challenges associated with the increased use of social media during emergency response: 1) a lack of public awareness of how social media tools are used; 2) privacy issues with unfiltered, open source channels of information; and 3) the lack of quality assurance of information that is disseminated.

David Green (NOAA) inquired as to whether the emergence of social media is seen as an opportunity to merge different types of data and information together during disaster emergencies. Keim responded by stating that having collaborative databases of information gathered through social media available to local responders can help sort, filter, and refine that information before it's released for public consumption.

### **III. Presentation: Ready or Not, Here Comes the Crowd**

Applegate introduced Lea Shanley (Woodrow Wilson International Center for Scholars), who serves as the Director of the Commons Lab within the Science and Technology Innovation Program at the Wilson Center. Shanley spoke to the SDR on the topic of crisis informatics, which is defined as the integrated approach to the technical, social, and informational aspects of a crisis aimed at solving complex social and scientific problems, and how it is facilitated through the use of social media and crowdsourcing.

New digital technologies enabling citizen collaboration are transforming governance and public decision-making and modernizing the way communities respond to disasters and emergencies. According to Shanley, the Wilson Center is working to advance the policy analysis of social media and other emerging technologies that are providing citizens with the tools to create actionable scientific data, mobilize volunteers, obtain situational awareness, and engage more with their governments. By leveraging the power of self-organizing, collective intelligence facilitated by social media has the potential to alter the way disaster response is managed. Obtaining real-time information through social media channels as an incident unfolds can allow responders to determine where people are located, find missing persons, assess victim needs, and alert citizens and responders to changing conditions and threats.

Shanley indicated that one of the best examples of the use of social media for disaster science can be found at the USGS's National Earthquake Information Center (NEIC). NEIC earthquake scientists utilize social media to: 1) collect earthquake impact information from citizens (via an online survey entitled "Did You Feel It"); 2) monitor Twitter and other online social networks for earthquake detection in areas where dense seismic sensors don't exist; and 3) crowdsource seismometer measurements to the public.

One of the principal advantages of disaster information dissemination through social media is the element of inclusivity that allows multiple groups to engage and participate. Shanley highlighted a partial list of the current digital volunteer community surrounding social media use in crises and emergencies that encompasses, but is not limited to, the following groups:

- MapAction
- GIS Corps
- CrisisMappers
- Stand By Task Force
- CrisisCommons
- Humanity Road
- Ushahidi
- Swift River
- Sahana
- Crowdfunder
- Humanitarian Open Street Map
- Open Aerial Map
- Geeks Without Bounds
- Tweak the Tweet
- Project Epic – UC Boulder
- Harvard Humanitarian Initiative
- Tufts University Fletcher School
- American Red Cross
- ICT4Peace
- NetHope
- World Bank
- UN OCHA and UN-SPIDER
- NDU STAR-TIDES
- ESRI

- Google
- Facebook
- Twitter

Shanley then underlined some of the challenges associated with engaging digital volunteers through social media during disaster and emergency response. Some of these impediments include: volunteer management and sustainability; cross training; preparedness and prioritization; data scramble; data licensing interoperability; decision-makers' needs assessment; transition; impact evaluation framework; and overall coordination. According to Shanley, the Wilson Center is in the process of crafting a research agenda that breaks down this array of challenges into six specific focal areas:

- Challenge 1: Technology-mediated behavior
- Challenge 2: Data integration and system interoperability
- Challenge 3: Information extraction and natural language processing
- Challenge 4: Information security and reputation systems
- Challenge 5: Legal and policy issues
- Challenge 6: Ethical issues and humanitarian best practices

Within these challenge focal areas, Shanley stated that Wilson Center researchers are investigating sub-groups of issues centered on crowdsourcing and how to effectively manage groups of digital volunteers. Researchers are aiming to answer the following questions: what types of information are most suited for acquisition through volunteer efforts and under what circumstances; what factors determine the quality of volunteered information and can that quality be measured and improved; what technologies can be developed for synthesizing volunteered information and integrating it with authoritative data; what are the appropriate methods for analyzing volunteered information; and what motivates the creators of volunteered information and how can that level of motivation be sustained. Shanley underscored that when a crisis occurs, there is typically a sharp increase in the number of volunteers; however, in the interstitial period after the event, engagement declines. Further research is needed to target methods to maintain the interest level of volunteers to continue supplying streams of information in the interim.

Regarding the issues of crowdsourcing and how to sustain the interest level of volunteers that were raised by Shanley, Rebecca Goolsby (Navy) mentioned Jeff Howe's article "The Rise of Crowdsourcing" from *Wired* magazine (Issue 14.06, June 2006; <http://www.wired.com/wired/archive/14.06/crowds.html>) as an excellent reference for crowdsourcing researchers that outlines best practices on how to manage a virtual community of information contributors.

In closing her presentation, Shanley mentioned that Federal agencies within the disasters community should look at social media use for disaster management and response as an additional dynamic, low-cost way of engaging the broader population and raising situational awareness, both during a crisis and afterwards.

#### **IV. Presentation: Digital Communications**

Applegate introduced Shayne Adamski (FEMA), who is the Senior Manager of Digital Engagement at FEMA responsible for the strategy and coordination of digital communications and social media initiatives across the agency. His presentation focused on specific social media initiatives currently underway within FEMA to assist the agency with information dissemination during disaster response and management.

At FEMA, social media is seen as one element of digital communications that helps the agency broadcast their messaging during a Presidentially-declared Federal disaster. Traditional communication mediums that are commonly used by FEMA during disasters include Federal community relations teams and non-governmental organization groups in the field as well as email distribution lists, electronic billboards, and radio and television advertisements. As communication mechanisms have evolved in recent years to

include more online social media outlets, FEMA has employed several social media tools to meet the growing demand for novel digital engagement. Examples of FEMA's digital communication outreach channels include: 1) Full Website; 2) Mobile Website; 3) Blog; 4) Disaster Pages; 5) Website Widgets; 6) Facebook; 7) Twitter; 8) YouTube; and 9) Mobile Applications.

FEMA uses social media as a two-way conversation and customer-service interface tool with the public in order to share information and answer questions in the form of messages and content for each digital platform. Adamski noted two specific, recent examples of this interaction where FEMA has used social media during a disaster. The first instance occurred during Hurricane Irene in August 2011 when FEMA averaged roughly eight Facebook posts per day, 15 Twitter posts per day, and updated blog posts every two to four hours to disseminate emergency information to the citizens of affected areas and to correspond with local and state government responders. The second instance happened in February 2011 during a major winter storm near Chicago, Illinois. FEMA disaster management officials used the popular Twitter hashtag "Snowomg" on their tweets as a means to join the online conversation about the storm and to communicate winter weather preparedness tips and share local resources. Adamski stated that the public responded positively to FEMA's direct online engagement on Twitter, and many were surprised to see a government bureaucracy use such a flexible, modern, and innovative online social media tool to broadcast notifications. Goolsby added that users of social media value authenticity and trustworthiness from an information source, and their trust levels increase if they know a real person is on the other end transmitting the message. She also added that online users value accurate information, which tends to be redistributed more frequently and in a wider breadth than false or inaccurate information.

In addition to the social media tools mentioned above, FEMA also utilizes a unique text messaging program to communicate information during a disaster. Adamski believes that the agency's mass text messaging program is the first of its kind within the Federal government to have its own dedicated short code (43362, or 4FEMA), or abbreviated phone number, to streamline mass message transmission. The text messaging program and short code add an additional dynamic to FEMA's public disaster outreach strategy and are valuable tools in the agency's digital communications toolkit for enhancing work with local and state emergency responders.

## **V. Presentation: Social Media for Disaster Response**

Applegate introduced Jeannette Sutton (University of Colorado, Colorado Springs), who is a disaster sociologist currently conducting academic research related to community resilience, disaster mitigation, preparedness, response, and recovery. Her research primarily focuses on the evolving role of information exchange and communication technology, and more specifically, on the uses of social media in crises and disasters. Sutton's presentation highlighted her disaster-based social media research in three specific areas: 1) back channel communications; 2) convergence; and 3) alerts and warnings.

Back channel communications via social media have afforded an additional avenue of unofficial and informal interaction during disasters and emergencies so the public is no longer exclusively reliant on official communications for information. According to Sutton, the research record in this area shows that computer-mediated communication enables firsthand information reporting as well as information creation and information correction. Sutton noted that back channel communications are important for the disaster warning and alert process in that they can greatly enhance the reach of a notification, and in order to avoid the risk of becoming outdated, irrelevant, and excluded from the conversation, emergency response organizations must engage actively in social media to reap the full benefit of this advantage.

Sutton defined convergence, the second major area of her research, as the movement and intersection of people, supplies, and resources to a disaster scene. Social media has inherently changed the notion of disaster convergence to incorporate the movement of online resources in addition to the traditional

movement of physical assets. According to Sutton, studies have found that the behaviors associated with convergence are generally altruistic in nature immediately following a disaster and represent the collective problem-solving ability of a crowd to manage the event in the most effective way possible. Sutton stated that convergence can occasionally be unconstructive if individuals have nefarious intentions to conduct anti-social, exploitative, and intentionally misleading activities to undermine response efforts during a disaster or emergency.

Alerts and warnings comprise the third area of Sutton's research. The system of alerts before, during, and after a disaster stands to benefit the most from the expansion of online information sharing and dissemination through social media and crowdsourcing. Research shows that individuals, following a warning but prior to action, undertake a brief decision-making assessment process that occurs through informal communication and interaction within their social and personal network. Social media enables a unique and unprecedented space for this interaction that has demonstrated a growing ability to influence decision-making in response to an alert. Sutton noted that, due to the rising prevalence of social media use, surveys indicate that the public is now starting to expect that Federal agencies will monitor and validate the flow of information that is generated via social media. Because this information has been shown to diffuse very quickly across social networks, Sutton encouraged that role to be one of early, active, and trustworthy engagement as it relates to broadcasting accurate disaster and emergency alerts and warnings to the public.

Following the presentations, the four speakers engaged in a panel discussion that highlighted some of the limitations associated with the increased role of social media use for disaster reduction and response. In response to a question regarding social media's reliance on electricity and the downside of that reliance in the absence of a power source, the presenters noted that social media is only one tool in the digital communications toolkit and is not the "silver bullet" for disaster communications. It is only one of the many ways to engage with people who are affected by a disaster or emergency and aid in the transmission of vital information to the public.

Dennis Wenger (NSF) brought up the issue of cyber looting, which is the act of stealing money or goods through counterfeit online donation solicitations. This activity is another negative consequence of the increased role of social media for disaster and emergency management, but as the speakers underlined earlier, intentionally anti-social, exploitative, and misleading deeds also occur during a disaster when social media use is not present. The speakers maintained that the benefits outweigh the downsides when employing online tools to share and disseminate information for disaster reduction and response.

Responding to a question from Al Johnson (DoD) about how a decision should be reached on which pieces of online user-generated information to use in the decision-making process during disaster management, the presenters highlighted the importance of the role that Federal officials play in providing a valid conduit and trusted connection to local citizens to filter initial information and resources before broadcasting it to the public. Keim added that the CDC sees social media as a valuable way to gather grassroots reports of disease outbreaks from around the world, which can then be verified for accuracy in order to act on the most reliable information.

## **VI. Report from the Co-Chairs and Approval of Minutes**

The January meeting minutes were approved with one change requested by FEMA to stress that the findings from the study it funded on climate change impacts to the National Flood Insurance Program were not meant to be used for local level planning.

Applegate noted that the SDR's next meeting, on March 1<sup>st</sup>, will feature a rescheduled presentation by Joseph McClelland, Director of the Office of Electric Reliability at the Federal Energy Regulatory

Commission, on the reliability and resilience of the power grid as well as an OSTP-led agency roundtable discussion on challenges and opportunities of the President's FY 2013 budget for disaster reduction S&T.

Applegate mentioned that Google.org had commenced with the initial launch of their public alert system. More information on that initiative can be found at <http://www.google.org/publicalerts>.

Applegate supported Shanley's earlier suggestion of holding a follow-on social media workshop at the Wilson Center in the coming months to give the Federal agencies an opportunity to discuss the topic at more length.

## **VII. Report from the OSTP Liaison**

Tammy Dickinson (OSTP) indicated that she did not have any additional topics for discussion.

## **VIII. Adjournment**

The meeting adjourned at 12:07 p.m.

## **IX. Future Meetings**

SDR meetings will be held from 10:00 a.m. to 12:00 p.m. on the dates listed below in the Lincoln Room of the White House Conference Center.

### **2012**

Thursday, January 5	Thursday, May 3	Thursday, September 6
Thursday, February 2	Thursday, June 7	Thursday, October 4
Thursday, March 1	*Thursday, July 12	Thursday, November 1
Thursday, April 5	**Thursday, August 2	Thursday, December 6

\*We are shifting the July meeting to the second Thursday of the month to avoid proximity to the July 4th holiday.

\*\*Subject to cancellation

## **X. Agenda Items and Other Communications with the Subcommittee**

Please send proposed agenda items and any other items intended for distribution to the full Subcommittee to Bret Schothorst ([bret.schothorst@mantech.com](mailto:bret.schothorst@mantech.com)).

## **XI. Contact Information**

### **SDR Leadership**

David Applegate	Co-chair	703-648-6600	<a href="mailto:applegate@usgs.gov">applegate@usgs.gov</a>
Margaret Davidson	Co-chair	843-740-1220	<a href="mailto:margaret.davidson@noaa.gov">margaret.davidson@noaa.gov</a>
Dennis Wenger	Co-chair	703-292-8606	<a href="mailto:dwenger@nsf.gov">dwenger@nsf.gov</a>
Tamara Dickinson	OSTP Liaison	202-456-6105	<a href="mailto:tdickinson@ostp.eop.gov">tdickinson@ostp.eop.gov</a>

### **Secretariat**

Ross Faith	703-388-0308	<a href="mailto:Ross.Faith@ManTech.com">Ross.Faith@ManTech.com</a>
Bret Schothorst	703-388-0312	<a href="mailto:Bret.Schothorst@ManTech.com">Bret.Schothorst@ManTech.com</a>
Barbara Haines-Parmelee	703-388-0309	<a href="mailto:Barbara.Haines-Parmelee@ManTech.com">Barbara.Haines-Parmelee@ManTech.com</a>

## XII. Summary of February Actions

Action	Lead	By When
Let the Secretariat (bret.schothorst@mantech.com) know if you are interested in participating in a one- or two-day workshop at the Wilson Center to further discuss the issues of social media and crowdsourcing in more detail as they pertain to disasters.	SDR Members and Federal Colleagues	ASAP
Please consider supporting the work of the SDR and its Secretariat through a contribution from your agency. Let Dave (aplegate@usgs.gov) know if you need an agency-specific request letter.	SDR Members	Standing
Contact Fernando Echavarría (echavarríafr@state.gov) to engage on the EU-U.S. Dialogue on Space Cooperation.	SDR Members and Federal Colleagues	ASAP
Contact Tammy Dickinson (tdickinson@ostp.eop.gov) to pass along issues, concerns, and information from your agency to the White House Office of Science and Technology Policy.	SDR Members	Standing
Contact Tammy Dickinson (tdickinson@ostp.eop.gov) if it would be helpful for OSTP to issue a letter to your Department requesting new (or re-affirmed) designation of representatives. Ideas for other entities that should be represented on the SDR are also welcome.	SDR Members	ASAP
Contact Dennis Wenger (dwenger@nsf.gov) if your agency is able to provide funding support to the University of Colorado-Boulder's Natural Hazards Center.	SDR Members and Federal Colleagues	ASAP
Contact the Secretariat (bret.schothorst@mantech.com) if you are interested in participating in the SDR Coastal Inundation Working Group.	SDR Members and Federal Colleagues	Standing
Contact the Secretariat (bret.schothorst@mantech.com) if you are interested in participating in a task force that will be drafting a lessons learned report covering the earthquakes and tsunami in Japan, New Zealand, Chile, and Haiti.	SDR Members and Federal Colleagues	Standing
Send Sezin Tokar (stokar@usaid.gov) your ".gov" e-mail address to receive USG-only updates from USAID on global disaster response activities.	SDR Members and Federal Colleagues	Standing
Contact Bret (bret.schothorst@mantech.com) to receive copies of the Grand Challenges for Disaster Reduction Implementation Plan packets or CD.	SDR Members	Standing