

Meeting Minutes of the Subcommittee on Disaster Reduction

04 June 2015, 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)
Tamara Dickinson (OSTP)
Dennis Wenger (NSF)

Designated Representatives

BLM *Edwin Roberson*
CDC Mollie Mahany
DHS Mary Ellen Hynes
DHS/FEMA *Roy Wright*
DHS/USCG *Robert Thomas*
DOD *Al Johnson*
DOE *Patricia Hoffman*
DOT Sheila Duwadi
EOP/OMB *Michael Clark*
EOP/OSTP Tamara Dickinson
EPA Brendan Doyle
Stephen Clark

FERC *Marsha Palazzi*
HUD Dana Bres
NASA Craig Dobson
NGA Patricia Allen Aquinas (T)
NGB *TBD*
NIH Aubrey Miller (T)
NIST Steve Cauffman
NOAA Margaret Davidson (T)
Laura Furgione
NPS *Marcy Rockman*
NSF Dennis Wenger
OPHS Estella Jones (T)

State Fernando Echavarria
USACE *Steven Cary*
Dimitra Syriopoulou
USAID Sezin Tokar
USDA *TBD*
USFS *Elizabeth Reinhardt*
Carlos Rodriguez-Franco
Matt Rollins
USGS David Applegate
USNRC *Steven West*

Other Attendees

BLM Ron McCormick
DHS Mitch Erickson (T)
Meredith Lee (T)
DHS/FEMA Douglas Ham
DOI Rodney Cluck
EOP/OSTP Beth Kerttula
EPA Keely Maxwell
Rebecca Phillips
Gregory Sayles (T)
NASA Gerald Bawden
NIH April Bennett

NOAA John Murphy
Debbie Payton
Kerry Sawyer (T)
Paul Schlatter
NSF Greg Anderson
Jacqueline Meszaros
Donald Rice
USDA Glenn Bethel (T)
USGS John Haines (T)
Kris Ludwig
Teresa Stoepler

USNRC Patrick Madden (T)
Brett Rini
STPI Chris Clavin
Chloe Holzinger
Zoe Petropoulos
Stanford Theo Gibbs
Lindley Mease
SDR Secretariat Bret Schothorst
Barbara Haines-Parmele

Agenda

10:00 Welcome and Introductions
10:05 Report from the Co-chairs and Approval of Minutes
10:15 Update from SDR Task Forces and Working Groups
10:30 Briefing: Texas/Oklahoma Flooding and 2015 NOAA Hurricane Season Outlook
11:00 Presentation: Science Partnerships for Enabling Rapid Response
11:30 Roundtable Discussion: Agency S&T Activities in Response to the California Oil Spill
11:55 Close and Next Actions

Handouts

- June Meeting Agenda
- Draft May Meeting Minutes

I. Welcome and Introductions

National Science and Technology Council (NSTC) Subcommittee on Disaster Reduction (SDR) Co-chair David Applegate (USGS) called the June meeting to order at 10:02 a.m. in the Lincoln Room of the White House Conference Center (WHCC), and participants introduced themselves.

II. Report from the Co-chairs and Approval of Minutes

The May monthly meeting minutes draft was approved with no changes.

SDR co-chair Dennis Wenger (NSF) encouraged SDR agencies to consider joining NSF in providing funding support to the University of Colorado Boulder's Natural Hazards Center to assist the institute with their mission to advance and communicate knowledge on hazards mitigation and disaster preparedness, response, and recovery and to foster information sharing and integration of activities among researchers, practitioners, and policymakers. In addition to NSF, regular Federal contributors in the past have included Department of Homeland Security, Department of Transportation, FEMA, NASA, NOAA, U.S. Army Corps of Engineers, U.S. Forest Service, and the U.S. Geological Survey. Please contact Wenger (dwenger@nsf.gov) for more information if you are interested in contributing support.

Applegate noted that the FEMA-led interagency Mitigation Framework Leadership Group (MitFLG) will host a webinar on Thursday, June 11 from 10:00-11:00 a.m. for those who are interested in walking through the draft Phase I product for the Indicators of Community Resilience to Hazards and the Impacts of Climate Change. There were four files circulated after the meeting, including the document, an executive summary, bibliography, and the comment form to be used to submit any comments. The Phase I product is a web- and map-based information tool that illustrates the linkage between Federal program investments and community resilience, via community participation in Federal programs. The Phase I tool is available at <http://arcg.is/1x90YZd>. To access the tool, open the hyperlink and enter the following ArcGIS account information (username: DHS_CCA_Ex and password: !resilience!). The effort stems from the workstream groups that resulted from the White House roundtable held with insurers last June as part of the President's Climate Action Plan. The webinar participation information is as follows: URL: <https://fema.connectsolutions.com/resilience1/>; Conference Line: 1-800-320-4330; PIN Code: 866-936. Please provide any critical comments on the attached Phase I documentation back to Kathleen Boyer (Kathleen.Boyer@fema.dhs.gov) and Sandy Eslinger (Sandy.Eslinger@noaa.gov) by 10:00 a.m. on Monday, June 22.

Patricia Allen Aquinas (NGA) passed along information on a Climate and Human Security-Geospatial Data and Mapping Symposium/Webinar that was hosted June 3-4 at the University of Colorado at Boulder. This event was the result of the collaborative efforts of NGA and the National Center for Atmospheric Research (NCAR) with the Homeland Infrastructure Foundation Level Data (HIFLD) members and World Wide Human Geography Data (WWHGD) Working Group. Facets of climate change science and a focus on safeguarding human security formed the bedrock of this event. Robust discussions took place among members of the Federal government, private enterprise, academia, and international partners to develop a collective geospatial understanding of climate change and its societal impact.

III. Update from SDR Task Forces and Working Groups

Wenger mentioned that the International Disaster Risk Reduction (IDRR) Working Group will hold its monthly meeting on the afternoon of Thursday, June 4 with the agenda to discuss: 1) the role and membership of the U.S. National Platform as the UN International Strategy for Disaster Reduction (UNISDR) moves towards implementing the new Sendai Framework for Disaster Risk Reduction 2015-2030; 2) the ongoing update to the UNISDR Terminology on Disaster Risk Reduction document; and 3) a proposal from the International Centre for Integrated Mountain Development (ICIMOD) to support

disaster relief and reconstruction in the aftermath of the Nepal earthquake. Please contact the SDR Secretariat (bret.schothorst@mantech.com) for more information on the IDRR Working Group.

Applegate updated SDR members on the draft *National Windstorm Impact Reduction Program (NWIRP) Biennial Report to Congress for Fiscal Years 2013 and 2014* facilitated through the Windstorm Working Group (WWG) and the draft final report of the Wildland Fire Science and Technology Task Force (WFST TF). The NWIRP report is currently going through its review and concurrence with the SDR's parent body, the NSTC Committee on Environment, Natural Resources, and Sustainability. The WFST TF draft final report is currently under review by OSTP. Both reports will be circulated to SDR members once they become final in the coming weeks. Please contact the SDR Secretariat (bret.schothorst@mantech.com) for more information on the SDR's WWG or WFST TF.

Applegate added that the National Preparedness Science and Technology Task Force (NPST TF), which has been convened under SDR to serve as an interagency conduit to more fully integrate S&T into all facets of Presidential Policy Directive 8 on national preparedness, held an introductory meeting with its Hazard Review Team (HRT) Co-leads on Friday, May 15. At that meeting, the group reviewed the roles, responsibilities, and timeline of the six HRTs that will be set up to inventory S&T programs and perform a gap analysis for the following groupings of hazards: Meteorological, Geological, Chemical, Nuclear, Biological, and Space. The four core activities of the HRT's are to: 1) crosswalk Federal S&T programs with PPD-8 mission areas; 2) identify gaps in meeting PPD-8 mission area requirements that could be filled with existing or new Federal S&T capabilities; 3) recommend future S&T Actions or investments to address gaps; and 4) draft an executive summary report. If you have not done so already, please contact Chris Clavin of STPI (cclavin@ida.org) to engage your agency in the initiative.

Applegate closed by passing along a note from Meredith Lee (DHS S&T) of the Technology and Innovation for Disaster Preparedness (TIDP) Working Group reporting on a blog post by Tammy Dickinson (OSTP) and Megan Smith, U.S. Chief Technology Officer, published on June 3 highlighting the latest activities on the President's 2015 Hurricane Briefing, the White House Mapathon, and upcoming disaster resilience-related exhibits at the National Maker Faire (June 12-13):

<https://www.whitehouse.gov/blog/2015/06/03/upping-our-game-disaster-preparedness-and-response>.

The TIDP hopes SDR members can attend this year's Maker Faire at the University of the District of Columbia, where there will be huge LEGO installations for all 50 states, pop-up shelters, an Unmanned Flight Lab, and more. Please email Lee (meredith.lee@associates.hq.dhs.gov) with questions about participating or to get your agency involved with the TIDP.

IV. Briefing: Texas/Oklahoma Flooding and 2015 NOAA Hurricane Season Outlook

Applegate introduced John Murphy from the NOAA National Weather Service, who briefed the SDR on the 2015 Atlantic hurricane season outlook and the recent Texas and Oklahoma floods. NOAA annually issues seasonal hurricane outlooks for the Atlantic basin, the central Pacific, and the eastern Pacific Ocean.

According to Murphy, with a 70 percent probability of occurrence, the 2015 Atlantic outlook predicts below normal hurricane activity (6-11 named storms, 3-6 hurricanes, 0-2 major hurricanes) in this El Niño year, which officially runs from June 1 through November 30. He did, however, remind us that 1992 was also an El Niño year and had only one named storm: Hurricane Andrew. Murphy noted that Andrew was a Category 5 Major Hurricane that devastated South Florida. To help those living in hurricane-prone areas prepare, NOAA offers hurricane preparedness tips, along with video and audio public service announcements at <http://www.nhc.noaa.gov/prepare/>.

According to NOAA's website, with the new hurricane season comes a new prototype storm surge watch/warning graphic from NOAA's National Hurricane Center, which is intended to highlight areas

along the Gulf and Atlantic coasts of the U.S. that have a significant risk of life-threatening inundation by storm surge from a tropical cyclone. The new graphic will introduce the concept of a watch or warning specific to the storm surge hazard. Storm surge is often the greatest threat to life and property from a tropical cyclone, and it can occur at different times and at different locations from a storm's hazardous winds. In addition, while most coastal residents can remain in their homes and be safe from a tropical cyclone's winds, evacuations are often needed to keep people safe from storm surge. Having separate warnings for these two hazards should provide emergency managers, the media, and the general public better guidance on the hazards they face when tropical cyclones threaten.

Also new for the 2015 season is a higher resolution version (2 km near the storm area) of NOAA's Hurricane Weather Research and Forecasting model (HWRF), thanks to the upgrades to operational computing. A new 40-member HWRF ensemble-based data assimilation system will also be implemented to make better use of aircraft reconnaissance-based Tail Doppler Radar data for improved intensity forecasts. Retrospective testing of 2015 HWRF upgrades demonstrated a five percent improvement in the intensity forecasts compared to last year. HWRF data can be found online at: http://www.emc.ncep.noaa.gov/gc_wmb/vxt/HWRF/index.php.

Regarding the Texas flooding, specifically around Austin and San Antonio, Murphy highlighted that a large flash flood event generated by over 10 inches of rain occurred over portions of the Texas Hill Country on May 23-24, which caused massive runoff into the Blanco River. The Blanco River rose 31 feet in just 2.5 hours, which resulted in several fatalities, a massive search and rescue effort, and approximately 300 homes damaged or destroyed in Wimberley. Over 10 inches of rain fell in less than 6 hours in the Houston metro area in the late hours of May 24 and into the early morning of May 25. Massive urban flooding occurred with at least six fatalities reported. Numerous roads, including major interstates, were closed at the height of the flooding. Early reports estimated that perhaps more than 1,000 homes near bayous have flood damage. In Oklahoma City and Tulsa, several days of excessive rain caused major flooding along the Red and Arkansas Rivers from the Texas border northeast across Oklahoma. Lake Texoma, along the Texas/Oklahoma border, continues to reach record levels with water flowing over its spillway for only the fourth time in its history.

Contact Murphy (john.d.murphy@noaa.gov) for additional information on the recent Texas and Oklahoma floods and the NOAA 2015 Atlantic hurricane season outlook.

V. Presentation: Science Partnerships for Enabling Rapid Response

Applegate introduced Theo Gibbs and Lindley Mease, who provided the Subcommittee with a briefing on the Science Partnerships for Enabling Rapid Response (SPERR) project and the Science Action Network (SAN).

In response to a lack of science coordination during disasters, two Stanford University Institutes – the Center for Ocean Solutions and ChangeLabs – developed the SPERR initiative. Together with a team of high-level advisors from academic institutions and Federal response agencies, Gibbs and Mease conducted over 100 in-depth interviews with key stakeholders in academia, government, and industry to understand the obstacles to and enablers of effective scientific collaboration across the crisis planning and response system. After testing multiple solution ideas, the team converged on the SAN as a unique solution to this challenge.

The goals of these projects are to determine how best to enable greater scientific collaboration before, during, and after large environmental crises. According to Gibbs, an effective solution to this problem must build trust and credibility, create genuine mutual value and understanding, and catalyze relationships to prepare for the “unknown unknowns.” By linking the academic community with Federal emergency responders, the SPERR and SAN initiatives would add value for responders by increasing scientific

expertise to minimize uncertainties in planning, decreasing time and stress spent on irrelevant scientific inquiries during response, accessing local knowledge and credibility, and cross-hazards learning for social and natural science needs. Value would also be created for academic scientists through a strengthened research portfolio, improved site, sample, and data access, new cross-hazard research partnerships and funding opportunities, and a window into decision-making and research applications across hazard types.

Gibbs and Mease highlighted that the heart of the SAN would be an interconnected network of 13 Regional Academic Hubs, each associated with a regional response team region. Through the hubs, non-governmental scientists from academic institutions, professional societies, and scientific NGOs can develop and seek funding for disaster-relevant collaborative research initiatives. During a disaster response effort, Federal agencies can access hub members' scientific expertise in a rapid, streamlined manner. A leadership council composed of representatives from Federal response agencies, relevant industry and NGO stakeholders, and academic institutions would guide the network. The power of the SAN, however, would lie in its regionally-based, decentralized structure, which would enable dynamic action. The team ultimately envisions the SAN operating at a national scale, with hundreds of affiliated academic members.

Gibbs and Mease are currently looking to the Federal interagency for feedback on the objectives of these projects and funding/support for a 16-month pilot study. Reach out to Theo Gibbs (ayelen@stanford.edu) and Lindley Mease (lamease@stanford.edu) to engage your agency in providing feedback and socializing the Science Partnerships for Enabling Rapid Response initiative and the Science Action Network with Federal colleagues.

VI. Roundtable Discussion: Agency S&T Activities in Response to the California Oil Spill

Applegate led an agency roundtable discussion on S&T activities in response to the recent California oil spill at Refugio State Park near Santa Barbara. Agencies who volunteered to provide short updates at the meeting included: DOI, EPA, NASA, NIH, NOAA, NSF, and USGS. Other agency representatives involved in this environmental disaster's response and recovery were reminded to please provide the SDR Secretariat (bret.schothorst@mantech.com) with brief written summaries (1-2 paragraphs) of agency activities for OSTP's awareness by Friday, June 12.

Several highlights from the discussion stand out. Of particular interest to some members at the meeting, Debbie Payton (NOAA) highlighted the Environmental Response Management Application (ERMA) page that was activated for the incident: <https://erma.noaa.gov/southwest/erma.html#/x=-120.12889&y=34.37650&z=11&layers=12218+1433+446>. ERMA is an online mapping tool that integrates static and real-time data – such as Environmental Sensitivity Index maps, ship locations, weather, and ocean currents – in an easy-to-use format. The tool's purpose is to help emergency responders and environmental resource managers deal with incidents that may adversely impact the environment, such as oil spills, chemical spills, and vessel groundings.

According to Payton, ERMA is fairly user-intuitive when utilizing a few helpful tips: the user can get more information on any layer or feature by clicking the "i" up to the right of the map zooming and then clicking on the feature you want information on; there is a search box in the middle of the screen at the top - use it to find layers of interest (i.e., if you want to know about layers attributed to USGS, type USGS and a list will come up that you can then click to); at the top of the layer list on the right hand side, click "legend" to get a legend for items that are on the map view; if it's not scrolling correctly, the user probably doesn't have the "hand" icon highlighted in the icons to the right of the map zooming.

Rodney Cluck from the U.S. Department of the Interior's Bureau of Ocean Energy Management (BOEM) noted that his organization has been conducting research in and around the area where the spill occurred for decades, which will prove to be very useful in determining the short- and long-term effects of the

disaster. One such project, known as the Multi-Agency Rocky Intertidal Network (or MARINe), is a decade-long partnership of Federal agencies, universities, and private groups that are committed to determining the health of the rocky intertidal habitat and providing this information to the public. MARINe is funded entirely by the independent contributions of its members, who jointly publish data in peer-reviewed literature. Findings from this extensive and unique long-term monitoring program will provide critical baseline data during the investigation of the environmental damage from the spill. Cluck added that BOEM deployed go-kits for the rapid response sampling of sediment and species in the intertidal area near the spill and also provided \$1.25 million in funding to Principal Investigator Dr. Robert Miller of the University of California, Santa Barbara to look at the impacts of the spill in the north Santa Barbara Channel, including in the Channel Islands National Marine Sanctuary. That funding was made available through an existing partnership with NOAA that previously established a network to monitor marine biodiversity in the area.

Donald Rice (NSF) stated that the NSF RAPID research grants program is available to researchers in the academic community for this disaster, but the agency has received few inquiries to date. Brendan Doyle (EPA) underscored that his agency continues to support the on-the-ground emergency response activities of its Region 9 Office based in San Francisco, CA. He also noted work that is being undertaken by EPA in conjunction with NOAA and the U.S. Coast Guard under the auspices of the Interagency Coordinating Committee on Oil Pollution Research (ICCOPR). The purpose of ICCOPR is to prepare a comprehensive, coordinated Federal oil pollution research and development plan and promote cooperation with industry, universities, research institutions, state and local governments, and other nations through information sharing, coordinated planning, and the joint funding of projects. More information on ICCOPR can be found at: <http://www.uscg.mil/iccopr/>.

David Green (NASA) passed along a NASA press release that stated that his agency mobilized the Airborne Visible Infrared Imaging Spectrometer, Next Generation (AVIRIS NG) technology from the Jet Propulsion Laboratory to observe the spilled oil on water and adjacent beaches. The mission focused on applying imaging spectroscopy to the problem of remote sensing beach tar, an innovative remote sensing application that will greatly improve our ability to respond to oil spills. This effort built on the pioneering NASA campaign that provided situational awareness during the Deepwater Horizon oil spill when AVIRIS imagery was processed to provide the first-ever maps of oil on water thickness, under Principal Investigator Dr. Ira Leifer of Bubbleology Research International.

Prior to the flights, the team collected tar balls on the incident beach for laboratory spectral analysis and confirmed the presence of unique petroleum hydrocarbon spectral features in the infrared that would allow diagnostic mapping of beach tar. Green noted that this was an important discovery for fresh tar balls, given that the literature suggests that tar has no distinguishing spectral signature. In support of the AVIRIS NG overflights, the team deployed to a tar impacted beach to collect surface spectra where they mapped beach tar mass in detail over an area spanning 220 feet of beach for validation with remote sensing products. The beach tar map was forwarded to Incident Command and incorporated into the daily shoreline cleanup and assessment technique (SCAT). According to Green, SCAT is a critical component of oil spill response but is highly subjective, qualitative, and labor intensive. These breakthroughs towards beach tar remote sensing promise to transform SCAT by providing robust, rapid, and repeatable maps at currently unachievable resolution. Green added that this information and maps are guiding local, state, and Federal stakeholders for beach impact assessment and ecological restoration and recovery.

Applegate highlighted information from a project proposal from the USGS Pacific Coastal and Marine Science Center (PCMSC), which has a long history of responding to marine oil spills and developing research strategies to evaluate both short- and long-term environmental impacts. The proposal states that PCMSC will coordinate response efforts to the spill with the U.S. Coast Guard and Incident Command, NOAA, the Office of Spill Prevention and Response (OSPR) under the California Department of Fish and

Wildlife, and the California State Park Service. PCMSC will obtain samples of the original spilled oil from OSPR and collect additional tar, sediment, and water samples within the north Santa Barbara Channel in collaboration with OSPR. An analysis by the PCMSC organic geochemistry team of the hydrocarbons in these samples will provide a unique chemical fingerprint of the spilled oil and its initial end-member state of degradation. The plume of affected groundwater and additional long-term seepage of petroleum from this source can be potentially mapped and monitored with electrical resistivity surveys. Additional sampling of existing shallow wells will also be utilized as a tracer of contaminated ground water. This project proposes to carry out a systematic monitoring of selected sensitive habitats for the occurrence of oil, tar, and groundwater contamination and a detailed study of the persistence and natural degradation of tar on the shoreline and in the sediment.

VII. Adjournment

Applegate adjourned the SDR June meeting at 11:59 a.m. and noted that the group's next meeting will be held on Thursday, July 9 in Room 430ABC of the White House Eisenhower Executive Office Building (EEOB). Please note the change in date and location as the July meeting was moved to avoid proximity to the Independence Day Federal holiday and due to WHCC scheduling conflicts. More information on the meeting's details will be circulated by the end of the month.

VIII. SDR 2015 Meeting Calendar

SDR meetings in 2015 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 unless otherwise noted:

2015

- ✓ Thursday, January 8*
- ✓ Thursday, February 5
- ✓ Thursday, March 5
- ✓ Thursday, April 2
- ✓ Thursday, May 7
- ✓ Thursday, June 4
- ✓ Thursday, July 9*
- ✓ Thursday, August 6**
- ✓ Thursday, September 10*
- ✓ Thursday, October 1
- ✓ Thursday, November 5
- ✓ Thursday, December 3

* January, July, and September meetings shifted to the second Thursday of the month to avoid proximity to holidays. The January and July meetings will be held in Room 430ABC of the White House Eisenhower Executive Office Building (EEOB).

** August meeting subject to cancellation.

IX. 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 the SDR Secretariat Bret Schothorst (bret.schothorst@mantech.com).

X. Contact Information

SDR Leadership

David Applegate	Co-chair	703-648-6600	applegate@usgs.gov
Margaret Davidson	Co-chair	843-740-1220	margaret.davidson@noaa.gov

Dennis Wenger	Co-chair	703-292-8606	dwenger@nsf.gov
Tamara Dickinson	Co-chair	202-456-6105	tdickinson@ostp.eop.gov

Executive Secretariat

Bret Schothorst	703-388-0312	bret.schothorst@mantech.com
Barbara Haines-Parmelee	703-388-0309	barbara.haines-parmelee@mantech.com

XI. Summary of June Actions

Action	Lead	By When
Provide the SDR Secretariat (bret.schothorst@mantech.com) with brief written summaries (1-2 paragraphs) of agency S&T response activities to the California oil spill at Refugio State Park near Santa Barbara for OSTP's awareness.	SDR Members	Friday, June 12
Email Meredith Lee (meredith.lee@associates.hq.dhs.gov) with the TIDP, the SDR Secretariat (bret.schothorst@mantech.com) with the IDRRWG, WWG or WFST TF, or Chris Clavin (cclavin@ida.org) with the NPST TF for more information on our various task forces and working groups.	SDR Members	Standing
Contact Dennis Wenger (dwenger@nsf.gov) to provide funding support to the University of Colorado Boulder's Natural Hazards Center.	SDR Members and Federal Colleagues	Standing
Contact NOAA's John Murphy (john.d.murphy@noaa.gov) for more information on the recent Texas and Oklahoma flooding and the NOAA 2015 Atlantic hurricane season outlook.	SDR Members and Federal Colleagues	Standing
Reach out to Theo Gibbs (ayelen@stanford.edu) and Lindley Mease (lamease@stanford.edu) to engage your agency in socializing the Science Partnerships for Enabling Rapid Response (SPERR) initiative and the Science Action Network.	SDR Members and Federal Colleagues	Standing
Contact OSTP Liaison Tammy Dickinson (tdickinson@ostp.eop.gov) if it would be helpful for OSTP to issue a letter to your agency or department requesting new (or re-affirmed) designation of official representatives. Ideas for other entities that should be represented on the SDR are also welcome.	SDR Members	Standing