

Fourteenth Meeting of the NOAA Science Advisory Board's Environmental Information Services Working Group (EISWG)

December 9-10, 2015
Silver Spring Regional Center – Colesville Room
One Veterans Place
Silver Spring, Maryland 20910

SUMMARY

The following summarizes the Fourteenth Meeting of the Environmental Information Services Working Group (EISWG) of the NOAA Science Advisory Board (SAB).

EISWG Members in attendance:

Dr. Phil Ardanuy, Innovim
Mr. Ron Birk, Northrop Grumman
Dr. Ann Bostrom, University of Washington
Ms. Nancy Colleton, IGES (Co-Chair)
Dr. Walter F. Dabberdt, Vaisala Group (Co-Chair)
Mr. Eddie Hicks, Morgan County, Alabama (*by phone*)
Dr. William Hooke, American Meteorological Society
Ms. Veronica Johnson, NBC4, Washington, DC
Mr. Barry L. Myers, AccuWeather, Inc.
Dr. Peter P. Neilley, The Weather Channel Companies
Mr. Warren Qualley, Harris Corp.
Dr. Justin Sharp, Sharply Focused, Portland, OR
Dr. John Snow, University of Oklahoma
Dr. Bob Weller, Woods Hole Oceanographic Institution
Dr. Julie Ann Winkler, Michigan State University
Dr. May Yuan, University of Texas - Dallas
Ms. Jean Vieux, Vieux and Associates
Dr. Xubin Zeng, University of Arizona

SAB Liaison:

Mr. Robert Winokur, Retired NOAA and the Navy (SAB Liaison)

EISWG Members unable to attend:

Mr. John Toohey-Morales, ClimaData Corp.

Presenters and Guests:

Dr. Louis Uccellini, NOAA Asst. Administrator for Weather Services, and Director, NWS
Ms. Laura Furgione, NOAA Deputy Assistant Administrator for Weather Services,
and Deputy Director, NWS
Ms. Courtney Draggon, Director, NWS Office of International Affairs, and Acting Director,
NWS Office of Organizational Excellence
Ms. Andrea Bleistein, Physical Scientist, NWS Office of Organizational Excellence
Mr. Kevin Cooley, Director, Office of Planning and Programming for Service Delivery
Mr. John Sokich, Senior Policy Advisor, Congressional Affairs Division, NWS
Ms. Donna Franklin, Management & Program Analyst, Office of the Chief of Staff, NWS
Ms. Katie Labelle, Executive Officer, NWS Office of Communications
Mr. Conor Maginn, Special Assistant, Deputy Director, NWS
Mr. Tom Graziano, NWS Chief of Staff, and Acting Director, NWS National Water Center
Mr. Peter Colohan, Senior Advisor, Office of the Chief Scientist, NOAA
Dr. Kevin Werner, Incoming Director, NWS Office of Organizational Excellence
Mr. Matt Borgia, Congressional Liaison for Weather, Office of Legislative Affairs, NOAA
Mr. Rob Moller, Congressional Affairs Specialist, Office of Public and Constituent Affairs, NOAA
Mr. Coby Dolan, Director, Office of Legislative Affairs, NOAA
Dr. David Hermreck, Assistant Director, Earth Observations, Environment and Energy Division,
Office of Science and Technology Policy, Executive Office of the President

AGENDA – DAY ONE

Wednesday, December 9, 2015

TIME	TOPIC	SPEAKER/FACILITATOR	EXPECTED OUTCOME
8:00-8:30	Meet and Greet	<i>All</i>	
8:30-8:45	Welcome, Introductions, and Overview	<i>Nancy Colleton & Walt Dabberdt, EISWG Co-Chairs</i>	<i>Adoption of Agenda</i>
8:45-9:00	Update on NOAA Support to EISWG & Status of NOAA EISC	<i>Courtney Draggon, Acting Director, NWS Office of Organizational Excellence; Director, NWS International Affairs Office</i>	<i>Informational.</i>
9:00-9:30	The Evolving National Weather Service	<i>Louis Uccellini, Director, NWS</i>	<i>Informational</i>
9:30-10:15	NWS Organizational Review by McKinsey & Co.	<i>Leah Sullivan-Pollack, Engagement Manager & Co-PI McKinsey & Co.</i>	<i>Relevance to partnership policy and IDSS; informational</i>
10:15—10:30	Morning Break		
10:30—11:30	Impact-Based Decision Support Services (IDSS) Philosophy	<i>Laura Furgione, Deputy Director, National Weather Service</i>	<i>Informational and Discussion</i>
11:30—12:00	NOAA Legislative Affairs Update	<i>Matt Borgia, Congressional Liaison Weather, NOAA Office of Legislative Affairs; Rob Moller, Deputy Director of the Office of Legislative; Colby Dolan, Director, NOAA Office of Legislative Affairs</i>	<i>Informational</i>
12:00—1:15	Lunch Break		
1:15—1:30	SAB Update	<i>Bob Winokur, SAB Liaison to EISWG</i>	<i>Informational—Determine impacts and opportunities for EISWG in updated vision for the NOAA SAB</i>
1:30—2:15	OSTP Observing Systems Assessment	<i>David Hermreck, OSTP</i>	<i>Informational</i>
2:15—3:00	The State of Ocean Observations and Applications	<i>Bob Weller, WHOI and EISWG Member</i>	<i>Informational</i>
3:00—3:15	Afternoon Break		
3:15—4:00	NOAA's New Water Initiative	<i>Peter Colohan, Senior Advisor, Office of Chief Scientist, NOAA</i>	<i>Informational</i>
4:00—5:00	EISWG Member Vacancies & New Member Criteria	<i>Walt Dabberdt & Nancy Colleton</i>	<i>Identify the number of new members and the needed areas of expertise</i>
5:00—6:00	Adjourn		
6:00—8:15	Dinner	<i>All EISWG Members and Guests</i>	<i>Olazzo, 8235 Georgia Ave, S.S.</i>

AGENDA – DAY TWO

Thursday, December 10, 2015

TIME	TOPIC	SPEAKER/FACILITATOR	EXPECTED OUTCOME
8:30-9:00	Meet & Greet and Opening Remarks	<i>Nancy Colleton & Walt Dabberdt, EISWG Co-Chairs</i>	<i>Modification of Agenda (as necessary)</i>
9:00—10:00	Integration of Social & Behavioral Research Into Meteorological Products, Practices and Policies	<i>Ann Bostrom, Univ. Washington and EISWG Member</i>	<i>Summary of a recent meeting and relevance to future EISWG activities</i>
10:00—10:15	Morning Break		
10:15—12:15	EISWG Review of the NOAA Partnership Policy: Discussion of the Current EISWG Draft Review Document	<i>Ron Birk, Northrop Grumman & EISWG Member; Nancy Colleton & Walt Dabberdt</i>	<i>Reach agreement on content and recommendations</i>
12:15—1:15	Lunch Break		
1:15 -1:45	Spring Meeting Agenda Topics	<i>Walt Dabberdt & Nancy Colleton</i>	<i>Identify possible agenda topics and meeting venue & dates</i>
1:45—2:30	Summary and Adjourn	<i>All EISWG Members</i>	<i>Review actions and update work plan</i>

Update on NOAA Support to EISWG & Status of NOAA EISC

Courtney Draggon, NWS Office of Organizational Excellence, Director (Acting) provided a brief update on the status of the proposed NOAA Environmental Information Services Committee (EISC) and the future support of NOAA SAB Working Groups. The NOAA EISC Terms of Reference are presently under review with the NOAA CIO. In February 2016, there is an expectation that SAB working groups will be provided logistical support for their meeting activities through the SAB support contract.

The Evolving National Weather Service

Dr. Louis Uccellini, NWS Director, noted that NOAA has completed a number of actions on Open Data. One of these was the completion of the Global Ensemble Forecast System with links to NOMADS. He looked back to profound improvements his team has made since 2012-13, when model implementation was lagging, disseminations systems were subcritical (e.g., three different outages during November 17 severe weather outbreak), travel and training had been slashed, facilities were in disrepair, and CSTAR was not functional. Today, there is a new portfolio approach in place, with key leads: Joe Pica, Dave Michaud, Andrew Stern, Luis Cano, Ming Ji, and Deidre Jones. The six portfolio categories are mapped 1:1 into six offices. NWS COO, John Murphy, is on top of field offices; these

drive the 1-year operating plan. Kevin Werner was introduced; he starts January 10 to lead the Office of Operational Excellence. With respect to the National Water Center (a legacy effort for Kathy Sullivan), Don Cline is going to USGS and is succeeded by Tom Graziano (acting). With respect to “Building a Weather Ready Nation,” Uccellini noted that: the Arctic is becoming really important—e.g., ice forecasting in Weeks 3-4; social science also becoming very important; NWS is working to connect observations/forecasts/warnings to “key decision points” in all service areas. Important NWS priorities include: observational readiness for JPSS/GOES-R, NEXRAD service extension, autosondes, sustaining buoys; central computer upgrades, AHPS & AWIPS evolution; STI (close to \$5M in grants in 2016 with CSTAR and global prediction system) point-n-click icons, model implementation, NWC, storm surge, FACETS concept, warn-on forecast; facilities colocation with universities and emergency managers; dissemination via one-NWS network, MADIS, MRMS, NIDS; AFS 11 service areas, integrated environmental systems, simplify WAWA (watches and warnings), national impacts catalog, emergency response specialists.

Dr. Uccellini noted that there is now a 5.6 petaFLOPS hybrid computing capacity that is now operational between the IBM and Cray; moving models; HPC-based water modeling. Looking to NOAA’s Weather Ready Nation focus, the rationale for change was twofold. With regard to the Southeast outbreak of April 27, 2011, and although 96% of tornadoes were located within the SPC watch area with an average warning lead time of 24 minutes, there were 311 fatalities. The Joplin tornado, an EF5, was the deadliest tornado since recordkeeping began with 158 fatalities and the 7th deadliest in US history.

The community recognized that NWS had to go beyond the forecast to people making lifesaving decisions. This led to the workshop “Weather Ready Nation: A Vital Conversation” and the subsequent NWS refocus on weather readiness, and not just weather forecasting. In summary, the WRN vision is becoming reality: there are 2,100 WRN Ambassadors, IDSS is embraced by NWS forecasts and partner agencies, NOAA is becoming an Earth System Science based agency, including social sciences; and the next-generation global prediction system (NGGPS) has identified two candidate dynamical cores (NCAR and GFDL), and will down-select to one (with continues model diversity provided internationally). He noted that, “given dedication of the workforce, their commitment to mission, and progress being made across all budget portfolios, the NWS is positioned to be a weather agency that is second to none.”

NWS Organizational Review

Leah Sullivan-Pollack, Engagement Manager & Co-PI McKinsey & Co., presented the methods for and findings from Phase 1 study of the NWS Operations and Workforce Analysis. The phase 1 study focused on the current state baseline and gap assessment. McKinsey conducted a survey of external stakeholders conducted by MICs on IDSS and a survey of NWS staff on organization health from June 8, 2015 to June 24, 2015 and received 2,162 responses. In addition, McKinsey visited 42 WFO and RFC offices across 6 regions and interviewed ~360 internal staff and ~200 external stakeholders on a one-on-one basis or in focus groups. Findings were benchmarked against McKinsey’s databases from other organizations. Phase 1 study found that while NWS employees currently eligible for retirement was

comparable to the 20% rate in the federal government, NWS workforce needs were evident with another 21% of eligible retirements in the next five years resulting in 42% of total NWS employees (especially 53% at the headquarter) eligible for retirement by 2020. Based on workload at individual offices and in a given year from 2008-2014, McKinsey developed a multivariate regression model with 9 significant workload drivers, together explaining 54% of the variance in office workload. The multivariate regression model suggested significant variations across WFOs with the 2014 distribution of workload-workforce discrepancies.

On the existing workforce, the stakeholder survey by MICs showed skills of written communication, oral communication, and customer service ranked at the bottom quartile of McKinsey's organization data pool. The survey also identified that Computer and IT tech, written communication, and oral communication were three most important skills for IDSS, but much in need of improvements. Computer and IT tech skills were ranked in the second quantile of McKinsey's pool. Nevertheless, external stakeholders reported high overall satisfaction (>70%) with NWS IDSS and the majority (80%) of stakeholders used NWS products in decision making more than 50% of the time, even though how WFOs align their staff to perform IDSS varied widely. McKinsey identified three primary archetypes of IDSS implementation at WFOs: only selected staff handling public relations on behalf of the office; operational staff rotating through dedicated IDSS, media, or public desk shifts; and all staff providing IDSS support but flexing during severe weather events. Such discrepancies among WFOs were consistent with various rankings on direction, leadership, culture, and climate in the organization health survey.

Organization health indices showed that NWS employees reported high motivation at the outcome level: 66% of NWS staff highly motivated; 75% of NWS staff enthusiastic about their jobs. McKinsey suggested the highly motivated workforce serve to build a platform for potential solutions at practices. Phase I study concluded with identified workforce-workload mismatch, high customer satisfaction with IDSS and needs for improvements in communication and other skills, and highly motivated workforce with opportunities to improve organization health. Phase 2 study aims to address gaps in workforce, IDSS operating model and organization model, and engagement with internal and external stakeholders. Subsequent studies for Phase 3, 4, and 5 will explore solutions, large-scale implementation, and new programs for expansion and advancement.

Impact-Based Decision Support Services (IDSS) Philosophy

NWS Deputy Director Laura Furgione briefed EISWG on the ongoing process to develop Impact-based Decision Support Services (IDSS) within the NWS. IDSS is considered an important addition to NWS services in order to evolve the NWS to meet the changing needs of the nation. The NWS envisions a 3 year, 5 phase process to develop the IDSS capability, and is currently completing phase 3 and year 1. Laura notes that IDSSs currently exist within the NWS although there are not yet consistent guidelines to local WFOs on what, how, who and when IDSS offerings should be provided and this is creating inconsistency and uncertainty both internal and external to the NWS. In order to develop a more clear

and consistent approach to IDSS across the NWS, three different service models were developed (“Core Competency”, “Broad Reach” and “Deep Relationships”) that differ in the scope, reach and delivery of IDSS. The NWS is gravitating to the “Deep Relationships” model with a broad range of services (including possibly embedded services) being delivered on an episodic and recurring basis to core partners defined as emergency managers, government officials and a subset of media with dissemination capabilities. The NWS is seeking input in the coming months and expects to further refine its options. EISWG comments focused on the scope of IDSS, the impact of IDSS and the inconsistency/uncertainty of current ad hoc IDSS services across the NWS WFOs.

NOAA Legislative Affairs Update

Coby Dolan, with help from Rob Moller and Matt Borgia, provided EISWG a legislative update on the 114th Congress. The briefing touched on the current NOAA detailees and Sea Grant Fellows on the Hill, and provided a quick look at the current House and Senate leadership of the relevant NOAA committees and (likely) pending changes. Mr. Dolan focused on the Congressional calendar for 2016, noting that Congress would be in session perhaps 108 days (only 54 full days, due in large part to the election cycle). The briefing was purely informational, requiring no EISWG action.

OSTP Observing Systems Assessment

David Hermreck, Assistant Director, Earth Observations, Environment and Energy Division, Office of Science and Technology Policy (OSTP), Executive Office of the President provided an overview of the process for the developing the National Plan for Civil Earth Observations. Hermreck reported that OSTP is implementing an assessment-based planning framework on behalf of the US Group on Earth Observations (USGEO) Assessment Working Group (AWG). The synthesis prepared by the AWG informs the development of the National Plan. The first government-wide Assessment was produced in 2012 with the next installation due in 2016. The goal is to ensure linkages between 13 societal benefit areas and various Earth observations.

The EISWG members responded with two key points: 1) the need to incorporate a gap analysis into the current assessment format; and 2) the need to reach beyond just Federal representatives and engage the private sector.

The State of Ocean Observations and Applications

Bob Weller provided a presentation on the present state of ocean data collection, with some attention to the importance of the ocean to climate variability and change. The ocean has a large heat capacity and a complex three-dimensional circulation. Time scales for exchange with the deep ocean are hundreds of years. Modern ocean observing now provides data to quantify the state of the ocean, and warming is now observed at depth as well as at the sea surface. With more complete coverage of the ocean than ever before now available over the last two decades, there is the potential for the new

knowledge of the ocean state to be used to good effect in NOAA research and operations. In particular, prediction of the environment at seasonal and longer time scales should benefit from skill derived from modes of ocean variability. The EISWG discussed how to carry forward a discussion more broadly across NOAA and its SAB working groups of how best to integrate and facilitate access to the diverse types of environmental information, such as ocean data, that are being acquired.

NOAA's New Water Initiative

The National Water Initiative is new for NOAA. Its biggest focus currently is on water prediction at the new National Water Center in Tuscaloosa, AL. This is where hydrologic modeling will be advanced and further aimed at precipitation, evaporation, snowmelt, runoff, channel flow, river flooding, flash flooding, and drought just to name a few. The principle tool that will be developed is a very high resolution coupled, nationwide (CONUS) hydrological model. Over the coming year the program will continue to develop through a series of events designed to get feedback from the user community as well as other entities that may utilize its new products and services. Feedback will help design a 5-year plan for water services at NOAA..

EISWG Member Vacancies

With the conclusion of its December 2015 meeting, EISWG now has three vacancies, and following its December 2016 meeting there will be an additional four vacancies due to term limitations. The three current vacancies are by design so that EISWG may have maximum flexibility to match its subject matter expertise with a potentially broadened EISWG charge that might result from weather legislation being considered in the Congress. At its Spring 2016 meeting, EISWG will prepare a slate of nominations for consideration and approval by the NOAA SAB at its Summer 2016 meeting.

Integration of Social and Behavioral Research Into Meteorological Products, Practices and Policies

Ann Bostrom led a brief discussion of the National Academies July 2015 scoping meeting and prospectus for a new study on "Incorporating Integration of Social and Behavioral Research into Meteorological Products, Practices, and Policies." The presentation and discussion put this effort into the context of NOAA's new (July 2015) vision and strategy for end-to-end integration of social, behavioral and economic science in NOAA's mission and priorities, and the September 2015 Executive Order that federal agencies use behavioral science insights to better serve the American people, as well as sbst.gov. Topics in the ensuing discussion included: America's Preparathon (community.fema.gov); the importance of recognizing global warming as a driver of high-amplitude weather events; the importance of recognizing the significant heterogeneity of the relevant social and behavioral sciences, ranging from human factors and user interface design, to social and organizational interactions and decision-making within and beyond the weather enterprise; the importance of recognizing how humans design values into engineered systems, in addition to addressing humans-in-

the-loop processes in the weather enterprise; and the challenges for government (NOAA) that are inherent in addressing rapid, intergenerational change in information use. EISWG discussed recommending to the SAB that they be aware of the upcoming National Academies study, suggesting that the NOAA SAB include a brief overview of the proposed study at their next meeting, offering EISWG as a resource to the National Academies (as potential report reviewers, to provide comments or other input to committee), and potentially nominating a member of the EISWG to serve on the NAS study committee. EISWG also discussed following up with NOAA regarding how it is currently implementing its new vision and strategy for integrating social, behavioral and economic sciences into its mission and priorities.

EISWG Review of the NOAA Policy on Partnerships in the Provision of Environmental Information

EISWG members discussed the working draft report on its review of the Partnership Policy. Several changes and clarifications were made to the report, which will be finalized in the next one-to-two weeks and then submitted to the NOAA SAB as EISWG's formal set of recommendations. In brief, the major recommendations include the following: The Partnerships Policy requires changes in several areas. It needs to identify and address differences between information and information services. In addition to pertaining to the provision of environmental information and services, it should also apply to their creation and acquisition. NOAA must develop and sustain an effective training program, and clearly define terminology used in the Policy and its implementation. And it is further recommended that NOAA formally establish an internal Environmental Information Services Committee to serve as the lead internal entity to address conflicts and disagreements within NOAA and with non-NOAA entities, and guide the Policy's implementation.

The EISWG offers its support to assist NOAA in its efforts to update this important Policy.