

Environmental Information Services Working Group (EISWG) of the
NOAA Science Advisory Board (SAB)

MEMO

28 March 2018

To: Lynn Scarlett, Chair, NOAA SAB

CC: Cynthia Decker, SAB Executive Director

Robert Winokur, SAB Liaison to EISWG

From: John T. Snow, Principal, Snow & Associates, LLC, and Co-Chair, EISWG
Bradley R. Colman, Director of Science - Weather Science, The Climate
Corporation, and Co-Chair, EISWG

SUBJECT: NOAA SAB EISWG report to the US Congress as required by the Weather Research and Forecasting Improvement Act of 2017 (Public Law 115-25, signed 18 April 2017)

This memorandum, together with its attachments, constitutes the first report from the NOAA SAB EISWG to the Congress. This report is made in accordance with the Weather Research and Forecasting Improvement Act of 2017 (Public Law 115-25, signed 18 April 2017) (hereafter “the Weather Act”), which in Title IV, Sec. 401(c) of the Act assigns to the EISWG the following responsibility:

“ANNUAL REPORT.—Not less frequently than once each year, the Working Group shall transmit to the Science Advisory Board for submission to the Under Secretary a report on progress made by National Oceanic and Atmospheric Administration in adopting the Working Group’s recommendations. ...”

During this first year since the signing of the Weather Act, the NOAA SAB EISWG did not make recommendations to NOAA regarding the elements of the Weather Act.

EISWG, as a working group reporting to the NOAA SAB, is subject to FACA rules. The constraints of these rules, together with the Working Group’s small number of members, modest staff support, and infrequent face-to-face meetings (usually twice per year), require that the Working Group develop a collaborative, consultative annual process with NOAA Line Offices in order to play its assigned role in the attainment of the objectives of the Weather Act. This first year was spent in discussions with NOAA Line Office leadership regarding the development of such an annual process.

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The results of those discussions are compiled in the memorandum at Attachment 1. This memorandum, "EISWG response to requests from NOAA OAR and NWS for assistance," has been forwarded to the NOAA SAB for its review and comment, and then will be further forwarded to the NOAA Administrator or his/her designee for NOAA's review and comments, and implementation by the Line Offices.

In accordance with the memorandum in Attachment 1, the EISWG anticipates NOAA Line Offices will soon begin sharing copies of those Offices' spring 2018 reports to the Congress required under the Weather Act. These forty-three reports will inform the EISWG about the actions being taken by the Line Offices to comply with the provisions of the Weather Act.

In addition to reviewing the Line Offices' reports for 2018, the EISWG will seek to hear as soon as possible from Dr. Neil Jacobs, Assistant Secretary of Commerce for Environmental Observation and Prediction, regarding his views on implementation of the many provisions of the Weather Act.

Further, for its 2018 meetings, the EISWG will be inviting representatives from 1) other NOAA SAB working groups that have special expertise regarding certain parts of NOAA, and 2) groups of technical experts that have been working with NOAA elements on upgrades and enhancement of the nation's weather observing and forecasting systems. Examples of the former are the NOAA SAB's Climate Working Group and the Data Archive and Access Requirements Working Group; examples of the latter are the University Corporation for Atmospheric Research Community Advisory Committee for the National Centers for Environmental Prediction and its Model Advisory Committee. In addition, in early 2019, the EISWG will invite representatives of the American Meteorological Society's Forecast Improvement Committee to meet with the Working Group.

The foundational information gained by the EISWG from these and other individuals and groups will allow the Working Group to make appropriate recommendations to NOAA during the course of 2018 and early 2019.

In March 2016, EISWG completed and forwarded through the SAB "A Review of the NOAA Policy on Partnerships in the Provision of Environmental Information." This review is accessible at the link in Attachment 2c, while the SAB transmittal letter is accessible at the link in Attachment 2b. While this review was completed and forwarded prior to the enactment of the Weather Act, the NOAA response (Attachment 2a) came in October 2017. This review and NOAA response are mentioned here since this

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partnership policy has many connections with provisions of the Weather Act, specifically those that deal with arrangements for in-depth coordination and collaboration with the private sector.

Attachments:

1. Memorandum, dated 19 March 2018, to NOAA SAB. Subject: EISWG response to requests from NOAA OAR and NWS for assistance

2a. NOAA Response (October 2017). Downloaded 27 March 2018 from https://sab.noaa.gov/sites/SAB/Reports/EISWG/20171011_VNEC-NEP_ResponseToSAB_EISWGR_signedNDM.pdf

2b. Transmittal Letter from SAB Chair on A Review of the NOAA Policy on Partnerships in the Provision of Environmental Information (March 2016). Downloaded 27 March 2018 from https://sab.noaa.gov/sites/SAB/Reports/EISWG/SAB-transmittal_letter_to_NOAA-EISWG%20report%20final%20_03_03_16.pdf

2c. A Review of the NOAA Policy on Partnerships in the Provision of Environmental Information (March 2016). Downloaded 27 March 2018 from https://sab.noaa.gov/sites/SAB/Reports/EISWG/SAB_PartnershipsPolicyReport_03_03_16.pdf

ATTACHMENT 1

**Environmental Information Services Working Group (EISWG) of the
NOAA Science Advisory Board (SAB)**

MEMO

xx March 2018

To: Lynn Scarlett, Chair, Chair, NOAA SAB

CC: Cynthia Decker, SAB Executive Director

Andrea Bleistein, NWS Liaison to EISWG

John Cortinas, OAR Liaison to EISWG

Robert Winokur, SAB Liaison to EISWG

From: John T. Snow, Principal, Snow & Associates, LLC and Co-Chair, EISWG
Bradley R. Colman, Director of Science - Weather Science, The Climate
Corporation, and Co-Chair, EISWG

SUBJECT: EISWG response to requests from NOAA OAR and NWS for assistance

In meetings and teleconferences over the last six months, Mr. Craig McLean, NOAA Assistant Administrator for Oceanic and Atmospheric Research (OAR), and Dr. Louis W. Uccellini, Assistant Administrator for Weather Services and Director of the National Weather Service (NWS), have requested the assistance and advice of EISWG in addressing the requirements of the Weather Research and Forecasting Innovation Act of 2017 (hereafter the “Weather Act of 2017”). Their requests can be paraphrased as follows:

- Mr. McLean: EISWG needs to characterize the nature of research investments that OAR must make to move ahead. The Weather Act designates less funding for weather research than currently provided: how does OAR invest properly?
- Dr. Uccellini: We have a wide range of research that is needed and the whole community can contribute. EISWG needs to help by calling it out and helping in setting priorities. It's time for support for U.S. weather research programs.

This memorandum provides EISWG’s response to these requests for assistance.

The EISWG appreciates the opportunity to assist OAR and NWS, as well as NESDIS and the other NOAA line offices, in addressing the requirements of the Weather Act of 2017. The issues raised by Mr. McLean and Dr. Uccellini in their requests present not

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TO: Lynn Scarlett, Chair, NOAA SAB

SUBJECT: EISWG response to requests from NOAA OAR and NWS for assistance

only challenges but also opportunities for innovation and new connections within NOAA and with academia and the commercial weather communities (often called America's Weather Industry). It is important not just for NOAA but also for the environmental, economic, and physical security of the Nation that these issues be addressed in timely, thoughtful ways.

EISWG notes that the Weather Act of 2017 begins with the statement that it is

“An Act To improve the National Oceanic and Atmospheric Administration’s weather research through a focused program of investment on affordable and attainable advances in observational, computing, and modeling capabilities to support substantial improvement in weather forecasting and prediction of high impact weather events, ...”.

Further, Title IV, Sec. 401(a) of the Act states that the role of the EISWG is

“... (1) to provide advice for prioritizing weather research initiatives at the National Oceanic and Atmospheric Administration to produce real improvement in weather forecasting;

(2) to provide advice on existing or emerging technologies or techniques that can be found in private industry or the research community that could be incorporated into forecasting at the National Weather Service to improve forecasting skill;

(3) to identify opportunities to improve (A) communications between weather forecasters, Federal, State, local, tribal, and other emergency management personnel, and the public; and (B) communications and partnerships among the National Oceanic and Atmospheric Administration and the private and academic sectors; and

(4) to address such other matters as the Science Advisory Board requests of the Working Group.”

Finally, Title IV, Sec. 401(c) of the Act assigns to the EISWG the following responsibility:

“ANNUAL REPORT.—Not less frequently than once each year, the Working Group shall transmit to the Science Advisory Board for submission to the Under Secretary a report on progress made by National Oceanic and Atmospheric Administration in adopting the Working Group’s recommendations. ...”

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SUBJECT: EISWG response to requests from NOAA OAR and NWS for assistance

In light of the above, in responding to requests for assistance in meeting the requirements of the Act, EISWG must be an “honest broker,” balancing

- 1) Its role in providing advice and assistance to NOAA,
- 2) The FACA rules for documenting recommendations and dealing with informal discussions, particularly in regard to such difficult and challenging matters such as “divestment,” and
- 3) The requirement to submit an annual report to the Congress as described above.

In its work, EISWG will review the NOAA line offices efforts to comply with the Weather Act of 2017 – as documented in the reports that the Act requires the Line Offices to submit -- and make determinations if those efforts have potential for significantly improving the monitoring and forecasting of the High Impact Events (HIE) or addressing other matters as called out in the Act. It will then provide advice it deems necessary or as requested by the Line Offices, and make appropriate recommendations through the SAB to NOAA leadership. At the end of each year, EISWG will then report to the SAB on whether NOAA responded by adjusting its programs in accordance with that advice and those recommendations.

With the preceding paragraph in mind, it would be a mistake for the EISWG to endeavor to provide detailed, prescriptive advice or develop recommendations by itself. Rather, the EISWG proposes the development of a collaborative, consultative annual process among OAR, NWS, NESDIS, and the other NOAA line offices, and EISWG, with due recognition being given to the FACA rules and the Working Group’s limited member numbers, small staff, and infrequent face-to-face meetings. Such an approach will allow the EISWG to provide timely advice and ensure that it has the necessary information to develop appropriate recommendations. Furthermore, it is often true that some of the greatest benefits of this kind of relationship are derived through the back-and-forth dialogue and not one-way prescriptive advice.

To this end, the EISWG proposes the following initial three steps to begin the development of an annual cyclic process:

- The EISWG proposes to review the reports required by the Weather Act of 2017 of OAR, NWS, NESDIS, and other NOAA line offices. The reports provided by the line offices can be both working drafts during the report preparation phase and finalized reports ready for submission to the Congress. In keeping with the provisions of the Act, the EISWG proposes to focus its review of such reports on

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the identification of gaps; opportunities for innovation and adjustment of resource allocations; and potential synergies within NOAA, with other government agencies, and with academia and the private sector. EISWG will identify and recommend research and development areas on which NOAA should focus to continue to make real improvements to weather monitoring and forecasting, as called out in the Act.

- The EISWG proposes to set aside one-third of each EISWG face-to-face meeting for review and discussion with NOAA senior management; OAR, NWS, NESDIS, and other line office leadership; members of the NOAA SAB and other SAB Working Groups of specific challenges and opportunities associated with implementation of the provisions of the Weather Act of 2017. Where appropriate, EISWG proposes to invite outside expertise from academia and the private sector to contribute to these discussions. The gist of these sessions and any recommendations that arise in them will be documented in the meeting summary.
- Working with NOAA, the EISWG proposes to convene small groups of three or four Working Group members, supplemented as deemed necessary by outside expertise, for informal telephone discussions with NOAA staff on relatively narrow topics of immediate interest. These groups would provide immediate feedback in said discussions, and then provide a brief summary report at the next EISWG meeting; each such report will become part of the meeting summary.

EISWG sees that for NOAA in general, and for OAR, NWS, and NESDIS, in particular, to address the requirements of Weather Act of 2017 will require very high levels of coordination and collaboration among the NOAA Line Offices. To this end, EISWG requests that all relevant Line Offices always have appropriate representation in discussions with the Working Group.

In closing, the EISWG notes that the issues raised by OAR and NWS in responding to the Weather Act of 2017 must be recognized as complex, intertwined, and ongoing, and so will not be resolved in isolation or by a single set of decisions. Addressing these issues will require ongoing attention and iterative approaches that involve continuous communication, and effective coordination and collaboration among NOAA senior management, all the NOAA Line Offices, and the academic and private sector communities over a period of several years. EISWG will contribute to this process as an advisory and facilitating body, one that will serve in a variety of roles.

ATTACHMENT 2



UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary of Commerce
for Oceans and Atmosphere
Washington, D.C. 20230

October 24, 2017

Lynn Scarlett
Chair, NOAA Science Advisory Board
Managing Director for Public Policy, The Nature Conservancy
The Nature Conservancy
4245 N. Fairfax Drive
Arlington, VA 22203-1606

Dear Ms. Scarlett,

Thank you for the review of the NOAA Policy on Partnerships in the Provision of Environmental Information ("Partnership Policy"), conducted by the Environmental Information Services Working Group (EISWG) of the NOAA Science Advisory Board. NOAA is appreciative of the thoughtful work of the EISWG, and remains committed to partnerships that advance our mission and benefit our stakeholders and the public.

NOAA recognizes the need to update the Partnership Policy in light of the many changes that have occurred since it was first developed. We envision a future Partnership Policy that is more reflective of the current state of the Agency and more supportive of NOAA's collaboration with public, private, and academic institutions.

NOAA has undertaken a review of the recommendations provided by the Science Advisory Board and is pleased to provide the following responses:

Recommendation 1. Expand the current policy beyond the "provision" of environmental information to include "acquisition and creation," thus changing the focus and title to NOAA Partnership in Support of Environmental Information and Services.

Response: NOAA agrees with this recommendation, and recognizes the value of expanding the Partnership Policy to address the acquisition of environmental information from non-federal sources. NOAA is committed to extending our use of academic and commercial models, tools and observing systems.

We note, however, that as we seek to extend our use of information from outside sources, we must do so carefully to ensure that federal legal guidelines are met. The methods by which NOAA currently acquires non-federal data are governed by a robust body of laws, regulations, policies and procedures, which are designed to ensure equity among providers -- it is imperative



that NOAA continue to act consistently with these requirements. Moreover, NOAA must ensure that the Partnership Policy does not conflict with regulatory responsibilities carried out under other laws under its purview, such as the Magnuson-Stevens Fishery Conservation and Management Act and the National Marine Sanctuaries Act.

As NOAA moves forward to revise its Partnership Policy, it looks forward to receiving input from the SAB and EISWG on how best to acquire environmental information from outside sources within the existing legal framework.

Recommendation 2. Clarify the ambiguity throughout the Policy regarding the use of “information” versus “information services.”

Response: NOAA agrees with this recommendation, and acknowledges that there are key terms in the Partnership Policy that must be defined to ensure clarity. As NOAA revises the Partnership Policy it will adjust language to ensure that appropriate terms are used.

Recommendation 3. Establish a sustained and consistent effort to ensure that NOAA employees, especially those in leadership positions, are knowledgeable on the intent, provisions and implementation of the Policy.

Response: NOAA agrees with this recommendation, and is committed to ensuring that all of its employees, including leadership, are knowledgeable on the intent, provisions and implementation of such Partnership Policy. Systematic and routine communication and outreach with NOAA personnel will be key to the success of the Partnership Policy. We are continuing to examine the best methods to achieve successful implementation of the Partnership Policy, and look forward to working with the SAB and EISWG as we work through this process.

Recommendation 4. Define and communicate key terms in the Policy.

Response: As noted, NOAA agrees with this recommendation, and is committed to clearly defining key terms in the revised Partnership Policy.

Recommendation 5. Establish the proposed NOAA-wide Environmental Information Services Committee (EISC) to serve as the lead internal entity to address conflicts and disagreements within NOAA and with non-NOAA entities, guide the Policy’s implementation, and oversee agency-wide awareness and training around the Policy.

Response: NOAA fully agrees with the objective of this recommendation, and is committed to ensuring robust implementation of the Partnership Policy across NOAA. While we are supportive, in concept, of the establishment of an Environmental Information Services Committee (EISC), we continue to explore options for the best means of implementing the Partnership Policy, with a focus on the scope and governance authority of any new committee or organizational body created for this purpose.

Again, I want to thank EISWG for its thoughtful and constructive recommendations regarding the Partnership Policy. NOAA looks forward to collaborating with the SAB and EISWG in the future as it continues to develop an update Partnership Policy.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ben Friedman', with a long horizontal flourish extending to the right.

Benjamin Friedman
Deputy Under Secretary for Operations
Performing the duties of Under Secretary
of Commerce for Oceans and Atmosphere
and NOAA Administrator

cc: Bob Winokur
John Snow
Steve Volz
Craig Mclean
Louis Uccellini
Peyton Robertson
Andrea Bleistein
Cynthia Decker

ATTACHMENT 2b

March 17, 2016

The Honorable Dr. Kathryn Sullivan
Administrator
National Oceanic and Atmospheric Administration
Herbert C. Hoover Building, Room 6811
14th Street & Constitution Avenue, NW
Washington, DC 20230

Dear Dr. Sullivan:

On behalf of the NOAA Science Advisory Board (SAB), I am pleased to transmit to you the report, “Review of the NOAA Policy on Partnerships in the Provision of Environmental Information”. The SAB approved this report at its January 28, 2016 meeting.

The SAB’s Environmental Information Services Working Group (EISWG) conducted this review of the NOAA policy on partnerships, identified recommendations, and developed this report. The goal of the review report is to provide NOAA with clear recommendations for updating and improving the Policy, making it more relevant to today’s quickly evolving and expanding environmental information marketplace. It addresses the importance of the Policy’s implementation across NOAA. In addition, this review recognizes that the Policy, which up to this point is not well known or understood outside the traditional weather sector, could serve as a model for other Federal agencies.

Major review recommendations to NOAA include:

1. Expand the current policy beyond the “provision” of environmental information to include “acquisition and creation,” thus changing the focus and title to NOAA Partnership in Support of Environmental Information and Services;
2. Clarify the ambiguity throughout the Policy regarding the use of “information” versus “information services”;
3. Establish a sustained and consistent effort to ensure that NOAA employees, especially those in leadership positions, are knowledgeable on the intent, provisions and implementation of the Policy;
4. Define and communicate key terms in the Policy; and
5. Establish the proposed NOAA-wide Environmental Information Services Committee (EISC) to serve as the lead internal entity to address conflicts and disagreements within NOAA and with non-NOAA entities, guide the Policy’s implementation, and oversee agency-wide awareness and training around the Policy.

In addition to the five major recommendations, the report also includes other issues for NOAA to consider in its development of an updated partnership policy:

- There should be equity among sub-classes of the private sector. In the private sector there are two major subclasses—end users and value-added resellers.
- NOAA Line Offices should develop updated implementation guidelines that use a common format and protocol and publish them online.
- There should be a clear and concise statement of intent in the policy.

- NOAA should continue not to set hard and fast boundaries between sectors and be flexible enough to address new issues as they arise.
- NOAA should establish Tiers of Service: regulatory tier; policy and practice tier and discretionary tiers.
- The policy should reference specific types of NOAA agreements and address potential ambiguity with Circular A-130, which prohibits exclusionary arrangements. It should recognize costs to end-users, explicitly identify costs for services and charge equitably for those services which have changed since policy developed in 2006.
- NOAA should update the policy's reference to NOAA's mission goals and the policy's description of the roles and responsibilities of the three sectors.

The SAB encourages NOAA to consider incorporating these recommendations into its plans for revision of its *Policy on Partnerships in the Provision of Environmental Information*. The SAB respectfully requests a response from NOAA to these recommendations by the Fall 2016 SAB meeting. Please let me know if you have any questions, comments or concerns.

Sincerely,



Lynn Scarlett
Chair, NOAA Science Advisory Board
Managing Director for Public Policy, The Nature Conservancy

Attachment

cc: Bob Winokur
Walter Dabberdt
Nancy Colleton
Richard Spinrad
Louis Uccellini
Kevin Werner
Andrea Bleistein
Elizabeth Turner
Cynthia Decker
Mary Anne Whitcomb

ATTACHMENT 2c

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

A Report by the
NOAA Science Advisory Board

March 2016

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

Introduction

Numerous events over the last several years indicate a dramatic change is taking place in the area of environmental information and associated services. Public, academic and private sector leaders alike recognize the importance of weather, climate, water, and marine information to better manage risk and expand economic opportunities. This change has ignited not only the use of environmental data and information, but has also affected environmental intelligence, impact-based decision support, big data, open data, and advanced environmental analytics. It has also highlighted the need for effective partnerships among the sectors.

The National Oceanic and Atmospheric Administration (NOAA) has historically played a pivotal role in establishing how the government shares and delivers environmental data and information assets with non-Federal entities. This process and framework for sharing what has been primarily weather data and information has resulted in a multi-billion dollar global enterprise that delivers a wide-range of products and services to customers virtually anywhere, anytime.

NOAA's *Policy on Partnerships in the Provision of Environmental Information* has been an enabling factor in the growth and transformation of the enterprise. As noted in the very first line, the 2006 Policy "strengthens the partnership among government, academia, and the private sector which provides the Nation with high quality environmental information." Based on a recommendation from the 2003 National Research Council study, *Fair Weather: Effective Partnerships in Weather and Climate Services*, the Policy considers and ensures that NOAA "will not haphazardly institute significant changes in existing information dissemination activities, or introduce new services, without first carefully considering the full range of views and capabilities of all parties as well as the public's interest in the environmental information enterprise." The complete 2006 Partnership Policy is included in *Appendix A*.

The landscape for environmental information products and services has changed dramatically since 2006. As Federal and non-Federal entities expand their resources, capabilities and interests in this area and new actors emerge both as providers and users, it is imperative that the Policy evolve so as to continue to enable advancement and ensure that efforts are complementary rather than duplicative.

This review is intended to provide NOAA with clear recommendations for updating and improving the Policy, making it more relevant to today's quickly evolving and expanding environmental information marketplace. It addresses the importance of the Policy's implementation across NOAA. In addition, this review recognizes that the Policy, which

up to this point is not well known or understood outside the traditional weather sector, could serve as a model for other Federal agencies.

The Environmental Information Services Working Group (EISWG) of the NOAA Science Advisory Board (SAB) conducted this review of the Policy, identified recommendations, and developed this report. Consistent with its Terms of Reference to “provide a sounding board regarding implementation of NOAA’s Policy on Partnerships in the Provision of Environmental Information,” EISWG initially established a sub-group of members to develop preliminary findings, which were then vetted with the entire EISWG membership prior to being forwarded to the NOAA SAB for its consideration and approval. A listing of the EISWG members is included in *Appendix B*.

Recommendations

This review provides the results of an eight-month assessment of the Policy, which was initially conducted by a subgroup of the EISWG and subsequently reviewed, updated and confirmed by the full EISWG membership at its December 9-10, 2015 meeting.

The EISWG strongly supports the idea that the NOAA Partnership Policy should be a cornerstone in guiding how NOAA interacts with the broader environmental information enterprise. The following identifies several areas where the Policy can be strengthened, clarified or broadened in scope and applicability.

The EISWG review identifies five major recommendations:

1. Expand the current policy beyond the “provision” of environmental information to include “acquisition and creation,” thus changing the focus and title to NOAA Partnership in Support of Environmental Information and Services;
2. Clarify the ambiguity throughout the Policy regarding the use of “information” versus “information services”;
3. Establish a sustained and consistent effort to ensure that NOAA employees, especially those in leadership positions, are knowledgeable on the intent, provisions and implementation of the Policy;
4. Define and communicate key terms in the Policy; and
5. Establish the proposed NOAA-wide Environmental Information Services Committee (EISC) to serve as the lead internal entity to address conflicts and disagreements within NOAA and with non-NOAA entities, guide the Policy’s implementation, and oversee agency-wide awareness and training around the Policy.

The value chain that delivers today’s robust environmental information and services spans observations and monitoring, data handling, development of the models and algorithms that enable prediction, and decision support. To be more responsive to current activities that take place across the entire environmental information value

chain, it is recommended that the Policy framework be expanded from “provision of environmental information” to “provision, acquisition, and creation of environmental information and services”.

In other words, the Policy should enable and encourage NOAA to embrace partnering with industry and academia in acquiring data and information from non-Federal sources¹, and utilizing models, tools, algorithms and observing systems developed by (or in partnership with) academia and the private sector.

This change should also be reflected in the Policy’s title, which could be revised to “NOAA Policy on Partnerships in Support of Environmental Information and Services.”

The current policy also uses the terms “information” and “information services” as interchangeable, which they are not; in fact they are quite different. This ambiguity should be addressed and consistently presented in any revised policy.

Systematic and routine training for NOAA personnel is key to the Policy’s implementation and interpretation. Online learning modules to face-to-face workshops could be employed to introduce and train NOAA personnel on the intent, provisions and implementation of the Policy. Such awareness or training efforts should be conducted on a periodic basis, which will help to institutionalize the Policy to the various line offices and key personnel. Conferences such as the American Meteorology Society’s annual and community meetings could also be used to better communicate the Policy to the broad community.

Like any communication intended to inform or guide actions, the Policy would benefit greatly from a carefully crafted and adopted set of definitions of key terms used in the document. This will help improve the understanding of the diverse members that comprise the environmental information enterprise. As a starting point, the following words or phrases² should be considered for inclusion in a glossary of key terms and defined clearly in the context of the Policy:

¹ Aircraft meteorological data is an example of a NOAA partnership with the private sector that involves the acquisition of data from non-Federal sources. AMDAR is the generally-accepted worldwide term for automated weather reports from commercial aircraft. The contribution of the United States to AMDAR is called MDCRS. MDCRS is a partnership among the U.S. government (including NOAA) and the seven participating airlines (American, Delta, Federal Express, Northwest, Southwest, United, and United Parcel Service). These U.S. data are also sometimes called ACARS.

² New terms introduced in this review are accompanied by suggested definitions.

- America's Weather Enterprise
- Community
- Core Partner
- Cost of Service
- Customer
- End User
- Free Data
- Full and Open Data
- Institutionalize
- NOAA Agreement
- Ombudsman -- a person, appointed by NOAA and given a significant degree of independence, charged with representing the interests of a concern by reviewing, investigating and addressing complaints and making recommendations for their resolution with regard to the implementation of NOAA policy
- Partnership
- Policy
- Stakeholder
- Symbiotic development/relationship -- development or relationship between parties which results in mutually beneficial results or outcomes
- Tiers of Service -- progressive levels of service and/or associated price points

The 2006 Policy includes three sections (8, 9, and 10) that outline an unstructured mechanism for review of complaints. Because the review mechanism is unstructured, its effectiveness is a function of individuals and their commitment to understand each other's issues and work cooperatively to arrive at a beneficial and acceptable solution to resolve disagreements. NOAA's proposed, internal NOAA-wide Environmental Information Services Committee (EISC) could provide a more structured, equitable, and transparent approach for dealing with disagreements between NOAA and non-NOAA entities. The EISC—with leadership representation from each of the NOAA line offices—would serve as a standing group within the NOAA Administrator's Office to 1) provide a venue for conflict resolution; 2) oversee Policy implementation; and 3) measure effectiveness of education and communication around the Policy. Additionally, EISWG recommends that an ombudsman be identified who would serve as a neutral broker and resource for complainants challenging implementation of the Policy.

The five key recommendations presented in the previous paragraphs will help ensure that the 2006 Policy is improved to be more responsive and relevant to today's environmental information services activities. These recommendations will help to build and strengthen partnerships with the private sector and academic institutions that rely on NOAA to produce effective products and services and define pathways for complementary and productive cooperation, and avoid duplication and competition among the sectors.

In addition to the five key recommendations, the EISWG identified numerous other items to be addressed in an updated policy. These items are presented in the following section.

Policy Implementation by the NOAA Line Offices

Five NOAA Line Offices were requested to provide input on how they were implementing the current Partnership Policy:

- The National Environmental Satellite, Data, and Information Service (NESDIS)
- The National Marine Fisheries Service (NMFS)
- The National Ocean Service (NOS)
- The National Weather Service (NWS)
- Office of Oceanic and Atmospheric Research (OAR)

Current material was received from four of the five line offices while material for the fifth was previously provided in 2011; the materials were found to vary widely in format and approach. Some of the material predated the current policy. In another case, one of the line offices is planning to issue its own limited-scope policy. And it is important to note that these materials could not be easily found online (if at all) at the various line office public websites.

EISWG recommends that the NOAA Policy first be updated and revised per the recommendations in this review, and that the Line Offices then develop updated implementation guidelines using a common format and protocol. Both the updated Policy and the Line Offices' guidelines should be readily and easily accessible online.

Other Considerations and Recommendations

Statement of Intent

Many different situations will arise that can benefit from greater clarity and guidance in the Policy. The EISWG recommends the Policy open with a concise and clear statement of intent. The statement will establish a common understanding across NOAA and the non-NOAA community of what the Policy is intended to accomplish and to facilitate consistent interpretation of the Policy. An example of a possible statement of intent might read as follows:

It is the intent of this policy to guide and advance NOAA's environmental information and services through equitable and transparent partnerships with other government agencies, academia, and the private sector.

NOAA Roles

Relevant to Sections 2, 4 and 7 of the 2006 Policy, it is recognized that the Policy affects a broad and very diverse community, one that includes individuals, organizations, units and groups inside and outside NOAA, other government agencies (federal, state, local), non-governmental organizations, the academic community, and a range of private sector entities.

Recognizing that NOAA serves a dynamic and evolving community, the EISWG recommends that NOAA maintain the National Research Council's *Fair Weather* approach and not set hard and fast boundaries between the sectors. In addition, the Policy processes and mechanisms must be flexible enough to systematically address new issues as they arise.

Establishing scenario-based criteria, considering impacts across the enterprise (NOAA and non-NOAA), defining a formal, structured review process, and identifying tiers of service could all contribute to a more easily implemented and impactful policy. For example, regarding tiers of services, the context of how and to what extent NOAA may form a partnership may vary in different situations and with the extent of the information service.

NOAA should consider establishing specific Tiers of Service covered by the Policy, which could be characterized as:

- Regulatory Tier—services required of NOAA by mandate (i.e. statute, legislation, etc.)
- Policy and Practice Tier—services NOAA does as a matter of policy and/or practice
- Discretionary Tier—services NOAA engages in based on agreements, or on ad hoc decisions

For each of the tiers, it will be important to identify conditions associated with and affected by each tier; establish a distinction between a responsibility, a desire, and an option to do; and publish criteria for NOAA personnel to make decisions within a construct of the Policy and avoid inconsistent *ad hoc* approaches and activities.

Agreements

The Policy does not reference existing NOAA agreements and their applicability, nor the criteria for the use of each agreement type. As agreements will be the basis to guide any partnership, EISWG recommends that the Policy should reference specific types of NOAA agreements such as a Memorandum of Understanding, Letter of Intent, Letter Agreement or a Cooperative Research and Development Agreement.

It is also important to address the potential ambiguity with Circular A-130, which prohibits exclusionary arrangements. However, any partnership agreement between NOAA and a non-NOAA party should address issues of equity and access.

Equity

Any revised policy should consider the impact of agreements on equity. Uniform and equitable treatment of all parties must drive the Policy.

Recognizing that NOAA operates in reasonably adaptive ways, the agency will need to sometimes create exceptions. However, those exceptions should be the result of a transparent process that reviews such situations and develop solutions. Only through transparency, will the entire community better understand NOAA's thinking and approach and apply such rationale to future efforts.

Regarding application of the policy with equity across various classes of entities (Section 7d), NOAA should consider amending the policy to explicitly recognize potential subclasses of those in the value chain that produce products and services for end users within the established private and academic partner classes. For example, NOAA has a special relationship with commercial weather providers that use NOAA information wholesale as part of value-added services to the nation, a relationship that is materially different from other private sector entities that may just be end-consumers of NOAA information.

In addition, cost considerations should be addressed more clearly and consistently. Although it is understood that NOAA does not charge for data *per se*, the agency is required to charge for cost of services necessary to access data, where providing that access is outside the NOAA core missions (e.g. the development of a unique data set by the National Centers for Environmental Information).

A revised Policy should recognize cost to end-users, explicitly identify costs for services, charge equitably for those services, and state that there may be other charges associated with participating in NOAA services.

Additional Considerations:

The Introduction to the current Policy needs to be updated in regard to its reference to the four mission goals of NOAA's pre-2006 strategic plan.

The description of the roles and capabilities of the three sectors should be updated as much has changed over the past decade since the Policy was released. These descriptions should clearly identify the core roles of the three sectors: NOAA provides for the public good, academia creates knowledge, while the private sector creates wealth. In addition, all three sectors have overlapping roles that include fundamental and applied research, risk mitigation and adaptation, research and development, information dissemination and communications, technology transfer, and so forth.

Summary

The Policy on Partnerships 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 statement.

Appendix A. The NOAA Policy

National Oceanic and Atmospheric Administration Policy on Partnerships in the Provision of Environmental Information January 2006

The National Oceanic and Atmospheric Administration (NOAA) "Policy on Partnerships in the Provision of Environmental Information" strengthens the partnership among government, academia, and the private sector which provides the Nation with high quality environmental information.

History

The policy responds to recommendations contained in both the National Research Council's (NRC) study, "Fair Weather: Effective Partnerships in Weather and Climate Services," (National Academy Press, 2003) [<http://books.nap.edu/catalog11061O.html>] and extensive public comments on a proposed policy. The NRC study identified the need for a policy that would recognize advances in technology, as well as the enactment of relevant laws and implementing guidance, particularly the Paperwork Reduction Act of **1995**,⁴⁴ USC Part 45, and OMB Circular No. A-130, "Management of Federal Information Resources," 61 FR 6428 (February 20, 1996), [<http://www.whitehouse.gov/omb/circulars/a130/a130trans4.html>] which were promulgated subsequent to a previous National Weather Service (NWS) policy issued in 1991. (56 FR 1984, (January 18, 1991))

During the period January 12 through June 30, 2004, NOAA sought and received 1473 comments on a proposed policy. On December 1, 2004, NOAA promulgated a policy responding to recommendations from the NRC study, incorporating applicable law and government-wide information policies, and responding to comments on the proposed policy.

During the period August 4 through November 2, 2005, NOAA sought and received 139 comments on proposed clarifying language to more clearly express NOAA's views of the critical role played by the private sector in the environmental information enterprise as a whole. This document responds to these comments and promulgates final language for the Policy.

The complete policy history is retained at <http://www.noaa.gov/partnershippolicy/history>

Introduction

Environmental information services about weather, water, and climate are expanding to include chemical, biological, and ecological parameters. This policy uses the term "environmental information services" to capture this reality and convey the intended scope: This policy concerns provision of environmental information by all of NOAA's programs, which are organized by the NOAA strategic plan into NOAA's four mission goals:

- Protect, Restore, and Manage the Use of Coastal and Ocean Resources Through an Ecosystem Approach to Management
- Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond
- Serve Society's Needs for Weather and Water Information
- Support the Nation's Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation

Similarly, the broad enterprise providing these services and composed of government, private sector, and academic/research institutions is expanding the scope of the types of information services provided. The term "environmental information enterprise" is used throughout to refer to this growing and vigorous enterprise - both traditional and emerging elements.

The Nation's environmental information enterprise is conducted by many parties whose contributions are complementary and at times overlapping. NOAA has specific mission responsibilities as part of this enterprise, and NOAA also has a responsibility to foster the growth of this complex and diverse enterprise as a whole to serve the public interest and the Nation's economy. The Nation benefits from government information disseminated both by federal agencies and by diverse nonfederal parties, including commercial and not-for-profit entities. This policy commits NOAA to give due consideration to these abilities, and to consider the effects of its decisions on the activities of these entities in accordance with applicable law and government-wide policy. NOAA will not haphazardly institute significant changes in existing information dissemination activities, or introduce new services, without first carefully considering the full range of views and capabilities of all parties as well as the public's interest in the environmental information enterprise.

The NRC study examined the respective roles of the government, academic, and private sectors, and provided recommendations regarding how the partnership can effectively move forward in an era of rapid advances in science and technology. This three-sector system has led to an extensive and flourishing set of services that are of great benefit to the public and the economy. The NRC also found that some level of tension is an inevitable but acceptable price to pay for the excellent array of weather and climate products and services our Nation enjoys. The NRC study challenged the community to reduce the frictions and inefficiencies of the existing system, permitting the three sectors to live in greater harmony. This policy will help advance that goal.

The policy directs all NOAA offices to "establish and publish procedures to implement this policy" and identifies the NOAA Assistant Administrators and Chief Information Officer as responsible officials for implementation within the policy and management context of each office. It applies to all NOAA activities concerned with provision of environmental information services.

The policy recognizes external parties may disagree with decisions made at the program level and provides these parties recourse to cognizant leadership when they do. The policy also recognizes responsible NOAA officials may need access to independent advice to exercise their oversight of NOAA's information services.

Scope and application

The Nation's environmental information enterprise is conducted by many parties. For convenience, these parties are typically grouped into three sectors - government, private sector entities, and the academic and research community - although the enterprise as a whole also includes non-governmental organizations, private citizens, and others.

Activities of NOAA, other government agencies, the private sector, and the academic/research community include, but are not limited to:

- NOAA's mission is to provide information to understand and predict changes in the Earth's environment, and conserve and manage coastal and marine resources to meet the Nation's economic, social, and environmental needs. To carry out this mission, it conducts research, produces various assessments and information products, and develops and maintains an infrastructure of observation, communications, and prediction systems that support the entire enterprise. NOAA also has specific obligations to provide information services to other government agencies.
- Other government agencies at all levels - federal (civilian and military), regional, state, local, and tribal - carry out activities that support the enterprise.
- The private sector includes weather companies, practitioners working for private companies or as consultants, broadcasters, risk managers, and others. The private sector uses NOAA information and also develops and maintains an infrastructure of observation, communication, and prediction systems to create products and services tailored to the needs of their company or clients. A critical private sector role is working with NOAA to communicate forecasts and warnings that may affect public safety.
- Academia educates future generations of participants in the enterprise, advances the science, and develops new technologies and services. These activities contribute to advances in the public and private sectors, and spin off new private sector entities.

This policy only applies to the *provision* of environmental information services by NOAA. It sets forth basic principles NOAA will apply in making decisions regarding these information services for the purpose of advancing the Nation's environmental information enterprise. It does not apply to NOAA *acquisition* or *use* of information. Other NOAA policies apply to NOAA's acquisition and use of information in carrying out its mission responsibilities, and to publication of reports, journal articles, and the like.

And in particular, this policy does not apply to NOAA's acquisition, use, or provision of information in connection with performing its regulatory responsibilities carried out under applicable law, including the Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammal Protection Act, the National Marine Sanctuaries Act, the Coastal Zone Management Act, and the Land Remote Sensing Policy Act.

Policy

1. NOAA will adhere to the policies contained in the Paperwork Reduction Act, the Government Paperwork Elimination Act, OMB Circular No. A-130, "Management of Federal Information Resources," and other relevant laws. These policies are based on the premise that government information is a valuable national resource, and the benefits to society are maximized when government information is available in a timely and equitable manner to all.
2. In furtherance of these policies, NOAA will carry out activities that contribute to its mission, including conducting research; providing environmental assessments; collecting and archiving data; ensuring their quality; issuing forecasts, warnings, and advisories; and providing open and unrestricted access to publicly-funded observations, analyses, model results, forecasts, and related information products in a timely manner and at the lowest possible cost to users.
3. To advance the environmental information enterprise, NOAA will provide information in forms accessible to the public as well as underlying data in forms convenient to additional processing, to the extent practicable and within resource constraints. NOAA will make its data and products available in internet-accessible, vendor-neutral form and will use other dissemination technologies, e.g., satellite broadcast, NOAA Weather Radio, and wireless, as appropriate. Information will comply with recognized standards, formats, and metadata descriptions to ensure data from different observing platforms, databases, and models can be integrated and used by all interested parties.
4. The Nation benefits from government information disseminated both by federal agencies and by diverse nonfederal parties, including commercial and not-for-profit entities. NOAA recognizes cooperation, not competition, with private sector and academic and research entities best serves the public interest and best meets the varied needs of specific individuals, organizations, and economic entities. NOAA will take advantage of existing capabilities and services of commercial and academic sectors to support efficient performance of NOAA's mission and avoid duplication and competition in areas not related to the NOAA mission. NOAA will give due consideration to these abilities and consider the effects of its decisions on the activities of these entities, in accordance with its responsibilities as an agency of the U.S. Government, to serve the public interest and advance the Nation's environmental information enterprise as a whole.

Page 4 of Policy

5. NOAA is committed to open consultation with all who are affected by NOAA's

environmental information services and will use appropriate mechanisms to encourage the maximum practicable and timely input from and collaboration with interested persons and entities on decisions affecting the environmental information enterprise. These mechanisms include:

- a. Establishing orderly processes for seeking input and suggestions to create, modify, or discontinue products and services;
- b. Cooperating with, and as necessary establishing, open processes concerned with advancing the environmental information enterprise; and
- c. Seeking advice on matters of concern in accord with the Federal Advisory Committee Act.

6. NOAA will promote the open and unrestricted exchange of environmental information worldwide, and seek to improve global opportunities for developing the enterprise.
7. NOAA's participation in the environmental information enterprise will be founded on the following principles:
 - a. Mission connection: NOAA's information services will support the NOAA mission. As a government agency, NOAA recognizes its core responsibility to protect life and property.
 - b. Consultation: Unless public safety or national security concerns dictate otherwise, NOAA will provide interested persons and entities adequate notice and opportunity for input into decisions regarding the development, dissemination, and discontinuance of significant products and services.
 - c. Open information dissemination: NOAA recognizes that open and unrestricted dissemination of high quality publicly funded information, as appropriate and within resource constraints, is good policy and is the law.
 - d. Equity: NOAA will be equitable in dealings with various classes of entities and will not show favoritism toward any particular entity within a class. NOAA recognizes it has special responsibilities to some users (e.g., public safety officials) and different legal requirements for its interactions with entities of different types (e.g., other federal agencies). NOAA will not provide an information service to one entity unless it can also be provided to other similar entities.
 - e. Recognition of Roles of Others: When faced with requests for information services, NOAA will explain existing NOAA services, including their uses and

limitations, and inform the requester that others in the environmental information enterprise may be able to meet the requester's needs.

8. Implementation. NOAA offices will establish and publish procedures to implement his policy. Responsible officials include the NOAA Assistant Administrators and Chief Information Officer.
9. Complaints. Persons who believe NOAA offices' information services are being provided in a manner contrary to this policy may bring the matter to the attention of the responsible officials (see above) who will ascertain the facts and advise the complainant of their conclusions.
10. Administrative Review Mechanism. NOAA will establish discretionary administrative review processes that responsible officials may use, as appropriate, to assist in making decisions regarding the creation, modification or termination of significant environmental information services.
11. Periodic Review. NOAA will review the effectiveness of this policy every five years beginning five years after the implementation date.



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Vice Admiral, U.S. Navy (Ret.)
Under Secretary of Commerce for
Oceans and Atmosphere

Date: **JAN 19 2006**

Appendix B. EISWG Membership (December 2015)

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Nancy Colleton^{*}, Institute for Global Environment Strategies
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William Hooke, American Meteorological Society
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Warren Qualley[&], Harris Corporation
Justin Sharpe, Sharply Focused LLC
John Snow[&], University of Oklahoma
John Toohey-Morales[&], ClimaData Corporation
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Robert Weller, Woods Hole Oceanographic Institution
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