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

A Report by the
NOAA Science Advisory Board

March 2016

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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 sources[1], 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 phrases[2] should be considered for inclusion in a glossary of key terms and defined clearly in the context of the Policy:

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[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 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 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.eduicatalogl1061O.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/partnershippolicylhistory

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:

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- 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.

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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.

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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.

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 perso1!s 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.

Date: **JAN 1 9 2006**

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Appendix B. EISWG Membership (December 2015)

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Nancy Colleton[*], Institute for Global Environment Strategies
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Peter Neilley[&], The Weather Companies
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