

**APPENDIX D: RESPONSES TO RECOMMENDATIONS RELATED TO CLIMATE SERVICES
EXTERNAL REVIEW AND OPTIONS FOR DEVELOPING A NATIONAL CLIMATE SERVICE**

**Climate Services External Review
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In June 2008, a review of NOAA's initial climate services strategy document, *Draft Strategic Plan for a National Climate Service*, was held in Vail, CO. The review was conducted by a 13 member external Review Team under the auspices of the Climate Working Group (CWG) of the NOAA Scientific Advisory Board (SAB).

The Review Team Report, *Climate Services External Review Report*¹ (July 15, 2008), recommended "that NOAA lead an effort, with its partners, to compare and contrast specific national options for the development of climate services." The report called for the creation of a Coordinating Committee and four Tiger Teams to explore the pros and cons of four National Climate Service organizational options:

- Create a national climate service federation that would determine how to deliver climate services to the nation;
- Create a non-profit corporation with federal sponsorship;
- Create a national climate service with NOAA as the lead agency with specifically defined partners; and
- A weather and climate service within NOAA developed from an expanded and improved weather services.

In its analysis of these options, the Coordinating Committee was asked to examine the options in the context of four specific considerations:

1. Why a climate service is needed, by providing 6 to 10 compelling examples that would show how climate services will produce actionable outcomes and serve a breadth of users.
2. The definition of a climate service.
3. How a climate service should be implemented, based on an analysis of the pros and cons of each option compared with 12 guiding principles and objectives.
4. How success will be judged.

In response to the recommendation from the June 2008 review, NOAA supported the CWG's effort to convene panels of experts to discuss the development of climate

¹ Full Review Team report can be found on the NOAA SAB report website.

services. This effort included the creation of the Climate Services Coordinating Committee, chaired by Eric Barron, and four Tiger Teams. Based on the results of the Tiger Teams' analysis and reports, the Coordinating Committee developed a final report, *Options for Developing a National Climate Service (Barron Report)*, that provides NOAA with recommendations related to the Vision, Mission, and Key Attributes of a successful National Climate Service. While the Coordinating Committee was not charged with making specific recommendations about implementation of any one of the four organizational options, it did provide five key implementation conclusions. Each of the five key implementation conclusions will be discussed in the context of NOAA's current position, progress, and plans later in this report.

Since the completion of the Barron Report, NOAA has made progress on a number of items related to the report's findings and implementation conclusions. This includes: the sponsorship of the America's Climate Choices Study performed by the National Research Council of the National Academies; the February 8, 2010 announcement by the Department of Commerce (DOC) and NOAA of the intent to create a Climate Service line office; the development of a Climate Service Vision and Strategic Framework; the external review by the National Academy of Public Administration (NAPA) of NOAA's proposed organizational changes for structuring a climate service within NOAA, which was completed on September 13, 2010; and the submission of a reorganization proposal for a Climate Service line office in NOAA to the Office of Management and Budget for review.

This document describes in greater detail the progress NOAA has made in addressing the findings of the external Review Team Report, key implementation conclusions of the Barron Report, and the plans and next steps in this process.

2. Overview of Findings and Recommendations

The Barron Report provided NOAA with a broad review of the various characteristics and components of a national climate service enterprise that will meet the growing national need for reliable information on climate. This included the most fundamental aspects of the service, such as a vision and mission, as well as more specific characteristics, such as key attributes, and the potential pros and cons of the four structural arrangements that were considered by the Tiger Teams.

As discussed in the Introduction section of this report, the Tiger Teams were charged with examining the attributes of each of the climate service implementation options in the context of 12 guiding principles. These reviews provided NOAA with a useful framework with which to shape its policy and planning decisions and ensure that the resulting proposal will most effectively contribute to the vision, mission, and associated objectives of a national climate service enterprise that will best serve the nation.

3. NOAA's Position, Progress, and Plans on SAB Findings and Recommendations

This section discusses in greater detail NOAA's position with respect to the findings of the Tiger Teams on the organizational options, the progress that NOAA has made in

laying the groundwork for a climate service that meets the guidelines specified by the Coordinating Committee, and its plans for future activities related to these objectives, which includes the necessary partnerships involved in a successful climate service.

Organizational Options for Implementing a National Climate Service:

NOAA has reviewed the findings of the Tiger Teams with respect to the four organizational options for a Climate Service, including the various pros and cons for each. Provided below is NOAA's response to the four implementation options.

The first two options presented by the Barron Report would create either a climate service federation or non-profit organization to support the national climate service enterprise. NOAA believes that these options could successfully provide the products and services needed from a national climate service enterprise. The White House Office of Science and Technology Policy (OSTP) has stated that it will review the current climate activities across the federal government and establish an OSTP-led interagency process to coordinate climate services across the relevant agencies. NOAA is prepared to work with OSTP during this process and has shared the findings of the Barron Report with them as part of a process of constructive engagement.

Regarding the second two options – establish a collaborative Federal partnership with NOAA as the lead agency, or a collaborative climate and weather service – NOAA believes that elements of each of these arrangements would enable NOAA to utilize its extensive weather and climate resources in assembling a Climate Service that bears the attributes referred to in the Review Team and Barron reports.

On February 8, 2010 the Department of Commerce and NOAA announced their intent to create a Climate Service line office. Prior to announcing this proposal to create a Climate Service, NOAA vetted our approach with its Federal partners and the Administration, including Office of Science and Technology Policy (OSTP), Office of Management and Budget (OMB) and Council on Environmental Quality (CEQ). The Climate Service proposal was developed based on extensive input and careful analysis conducted both internally and by independent external partners such as NOAA's Science Advisory Board and the National Academies of Sciences.

Key Implementation Conclusions:

1. *Internal reorganization of NOAA that enables greater connectivity of weather and climate functions is a necessary step for success.*

Position and Progress: NOAA agrees that greater connectivity of weather and climate functions is necessary and NOAA is developing a reorganization proposal that will provide the necessary management of resources to achieve this objective. This includes incorporation of existing climate science, research, and observation centers, as well as key data and service delivery infrastructure, into a new Climate

Service Line Office. The plan would include the following components from three existing NOAA Line Offices as building blocks of a new climate service:

- From NOAA's Office of Oceanic and Atmospheric Research: The Geophysical Fluid Dynamics Laboratory, the Climate Program Office, and from the Earth System Research Laboratory – the Chemical Sciences Division, the Global Monitoring Division and the Physical Sciences Division.
- From the National Environmental Satellite, Data and Information Service: The three data centers - the National Climatic Data Center, the National Oceanographic Data Center and the National Geophysical Data Center; as well as the Comprehensive Large-Array Stewardship System (CLASS) Program Office.
- The Climate Service will also assume management of the relevant climate observing networks from the National Weather Service, including the Tropical Atmosphere Ocean (TAO) array, and modernization of the Historical Climate Network (HCH-m) and the hourly precipitation gauges.

Although the Climate Prediction Center (CPC) of the National Weather Service (NWS) is not proposed to be incorporated into the organizational structure of the Climate Service, it will have a close working relationship with the new service. Just as NWS has an Ocean Prediction Center that provides operational products, warnings and forecasts outside of but complementary and relevant to the National Ocean Service, the Climate Prediction Center will provide operational products and services from the NWS Line Office that will be complementary and relevant to the Climate Service. CPC will provide an element of crucial connectivity between NOAA's weather and climate functions.

NOAA is also in the process of developing the necessary business practices that will ensure that the proposed Climate Service will meet both the internal NOAA requirements for climate and needs of external stakeholders.

As part of an ongoing effort to improve NOAA's existing climate services, and benefit a national climate service enterprise by connecting weather and climate functions, NOAA is developing a regional climate services network. Six regional directors have been hired through the National Climatic Data Center (NCDC) and will provide leadership for this network. Each regional director's office is co-located at an existing National Weather Service regional headquarters. These regional directors will have the following primary duties:

1. Responsibility for providing leadership in the development of an integrated NOAA program of climate services on a regional scale that responds to the needs of stakeholders and draws upon agency-wide assets and capabilities.
2. Management of the development and execution of a Regional Climate Services Strategic Plan that combines the unique assets and special capabilities of NOAA programs working with regional partners in other Federal agencies, state, local and tribal governments, universities, the private sector and NGOs.

Plans, Partnerships, and Next Steps: In addition to incorporating the recommendations from the SAB's Climate Working Group review, NOAA's plans for climate service development continue to evolve based on input from stakeholders and external reports.

NOAA has worked with the National Academy of Public Administration (NAPA) in their review which was called for in the Consolidated Appropriations Act of 2010. The NAPA study provides an external review of NOAA's planned approach, and has evaluated and endorsed most of NOAA's organizational design choice to ensure that it meets the criteria for an effective climate service. In particular, NAPA evaluated merging weather and climate services versus keeping them separate and concurred with NOAA's proposal to keep them separate. NOAA values NAPA's guidance and advice on implementation and planning, an area in which NAPA has extensive expertise, to ensure the successful establishment of a climate service in the agency. The final report of the study panel was submitted to Congress and to NOAA on September 13, 2010. NOAA has carefully reviewed the findings of the NAPA panel and has met individually with panel members to discuss their conclusions. Overall, NAPA is largely in agreement with the NOAA-DOC proposal about the core elements that should constitute a Climate Service and they provide an overarching recommendation which strongly supports the creation of a Climate Service.

2. *Each federal agency needs to collaboratively define its role and level of commitment in an NCS and there needs to be a lead federal entity.*

Position and Progress: NOAA is uniquely positioned to provide critical science information, data and service delivery infrastructure, and, in many cases, NOAA already provides the scientific foundation that others rely on for their climate services. NOAA continues to engage with its federal partners and OSTP to determine how all agencies can contribute to an inter-agency climate service enterprise. NOAA's participation in the US Global Change Research Program (USGCRP) will be used to insure that climate needs are met without duplicative efforts. However, it is these interagency mechanisms that will facilitate each federal agency's differentiation and delineation of roles.

As part of the effort to take a leading role in the development of a federal climate service enterprise, NOAA has worked to support and facilitate a number of major climate reports such as the Global Climate Change Impacts in the United States (GCCCI) report and the America's Climate Choices (ACC) study. Released in 2009, the GCCCI, co-chaired by Tom Karl of NOAA and produced in coordination with the USGCRP, summarizes the science and the impacts of climate change on the United States, now and in the future. It focuses on climate change impacts in different regions of the U.S. and on various aspects of society and the economy such as energy, water, agriculture, and health. It's a report written in plain language, with the goal of better informing public and private decision making at all levels.

Between 2008 and 2010, NOAA sponsored and participated in the America's Climate Choices study, which was performed by the National Research Council. The first four reports from this study were released during the summer of 2010, the fifth overarching report is expected to be released in the Fall. The study provides peer-reviewed information on climate from four panels: science, mitigation, adaptation and means of informing effective climate-related decisions and actions; plus one overarching committee report from the Committee on America's Climate Choices. The development of NOAA's plan to establish a Climate Service that is responsive to emerging needs and changing demands is consistent with recommendations in the America's Climate Choices reports. Based on the leadership roles that NOAA has held in the past, the White House continues to turn to NOAA to fill leadership appointments on interagency climate committees and working groups.

Plans, Partnerships, and Next Steps: NOAA will continue to work collaboratively to define its role in the national climate services enterprise and to understand the roles and needs of other federal entities. NOAA is working closely with OSTP, the Administration's office that is leading the inter-agency effort to establish an integrated climate service enterprise that is inclusive of all relevant Federal climate capabilities. Additionally, NOAA has participated in the roundtable discussions organized by NAPA as part of their process of reviewing the climate service organizational options within NOAA. NOAA will work to incorporate relevant recommendations, feedback, and/or priorities from the NAPA study, and from the OSTP-led National Climate Service Roundtable and the Interagency Climate Adaptation Task Force.

As an example of NOAA's ongoing efforts to engage future partners in climate service activities, NOAA has led the development of a Memorandum of Understanding (MOU) between the Department of Commerce (DOC) and the Department of Interior (DOI) that will facilitate collaboration in climate-related areas. Early examples of collaboration agreements that are being generated by this MOU are climate modeling, data sharing, and roles for regional climate services. Discussions for modeling and data sharing focus on identifying opportunities for the acquisition, integration and dissemination of climate data, and partnerships on the construction of new climate change models especially in support of the emerging regional climate services for each agency.

In addition, NOAA will continue to engage other Federal and non-Federal partners at the regional level to ensure that the services provided by a Climate Service respond appropriately to user needs. This includes agencies with which NOAA is actively developing partnerships with Federal and non-Federal partners such as DOI, the US Department of Agriculture, regional science and services programs such as the RISAs, Regional Climate Centers, and the Association of State Climatologists, as well as state and local government groups such as the National Governors Association and Council of State Governments.

3. *Success of an NCS requires recognized, clear, authoritative, responsible leadership within the Federal System at the highest level possible.*

Position and Progress: NOAA agrees with this conclusion, and has been asked by the White House to assume critical leadership roles. This includes: NOAA Administrator, Dr. Jane Lubchenco co-chairing both the Interagency Climate Change Adaptation Task Force co-organized by CEQ and OSTP, and the National Science and Technology Council (NSTC) Climate Services Roundtable; the transitional director of NOAA's Climate Service, Thomas Karl, serving as the USGCRP Chair of the Subcommittee on Global Change Research; and NOAA supporting Dr. Katherine Jacobs' role at OSTP to support the National Climate Assessment.

Plans, Partnerships, and Next Steps: Although clearly defined Federal leadership roles are essential, the authority to make these designations will come from outside NOAA. The results of activities such as the NAPA study, the OSTP-led Climate Services Roundtable, and the Climate Change Adaptation Task Force will guide the evolution of these roles. NOAA plans to work closely with OSTP to help inform development of a future governance structure for the national climate service enterprise.

4. *A national climate service enterprise requires a defined, independent budget large enough to influence the direction of the service and achieve its mission.*

Position and Progress: NOAA must rely upon OMB and OSTP to formulate the national policy and budget decisions that will ensure this requirement is met. However, NOAA's climate service proposal does not require additional funding to establish the new line office. It is a reorganization of existing assets to coordinate and integrate NOAA's existing climate capabilities for greater effectiveness, cohesiveness, and to improve service relevance and delivery. While additional funds are needed to increase the core capabilities and fully meet the rapidly growing demands for climate science and service, this proposed reorganization streamlines current capabilities to maximize effectiveness, independent of new resources.

Regardless of whether a Climate Service is established, the FY 2011 increases for climate that are already included in NOAA's budget will contribute to NOAA's ability to provide valuable climate information. These increases were chosen by NOAA, the Department of Commerce, and the Office of Management and Budget with an eye toward enhancing NOAA's climate science and service capabilities.

Plans, Partnerships, and Next Steps: Under the expectation that the future demands upon an Climate Service may require additional resources, NOAA is prepared to work with Congress, the Department of Commerce, and OMB to properly assess the budgetary needs of the Climate Service.

Recognizing that a single agency cannot provide all the functions of national climate service enterprise, NOAA will continue to work with partners, including other Federal agencies, to ensure that resources are coordinated and that duplication of effort is reduced. One mechanism to address this is the Memorandum of Understanding between NOAA and the Department of the Interior on climate activities; another is the Memorandum of Understanding between NOAA and the Department of Energy on high performance computing. Other inter-agency agreements are currently under development.

5. *A national climate service enterprise requires an interface best described by a federated structure (i.e., non-profit or federation) because it has a stronger connection to users and the research community.*

Position and Progress: The Federal government is in the process of developing a governance structure that will best meet the needs of a national climate service enterprise.

To support that effort, the NSTC is forming the National Climate Services Roundtable, which includes a variety of federal climate service providers. NOAA Administrator, Dr. Jane Lubchenco, is serving as a co-chair of this Roundtable. Examples of participants include the proposed Climate Service, the DOI landscape conservation centers and climate science centers, the Interagency National Climate Assessment partnership, and a variety of service related contributions from other agencies, including EPA. The Roundtable coordinates climate service activities across the federal government and meets at least once a month to ensure an ongoing strategic level dialogue. The Roundtable sponsors at least one in-person meeting every quarter to assess progress and plans, and provide updates to USGCRP principals.

The fourth report of the America's Climate Choices study, *Informing an Effective Response to Climate Change*, discusses options for structuring a national climate service enterprise. In its recommendations, the report cites the crucial importance of a network that links multiple agencies with regional expertise in order to provide continual monitoring of climate change and delivery of information for climate decisions. To advance the effort to implement a national system, the report offers suggestions such as increased support for agencies with regional centers, including NOAA, and new partnerships between federal agencies.

The National Academy of Public Administration (NAPA) has recently released the final report of its study entitled *Building Strong for Tomorrow: Climate Service*. This study provides the final recommendations of the ten-member panel who, over the course of six months, drew upon a wealth of supporting information about NOAA's existing climate science and services and extensive input from interviews, roundtables, and on-line dialogues with NOAA staff, local, state and federal agencies, congressional staff, the academic community and other key climate stakeholders. The study contains more than two dozen recommendations,

including its overarching one that “the Panel strongly supports the creation of a Climate Service to be established as a line office within NOAA.” The recommendations cover organizational and administrative aspects of the NOAA proposal, as well as the implementation of the new line office. The recommendations are largely supportive of NOAA’s efforts and note that a Climate Service, properly configured and implemented, would be uniquely qualified to serve the public and private sectors as a lead federal agency for climate research and services, and to provide an ongoing accessible, authoritative clearinghouse for all federal science and services related to climate.

Plans, Partnerships, and Next Steps: The initial Federal approach is to establish a national climate service enterprise as a Federally-based enterprise. This enterprise will be built first in order to organize the existing components of the Federal government’s climate activities. Concurrent with this, smaller efforts of engagement between Federal agencies and external partners such as RISAs, Regional Climate Centers, the Department of Interior’s regional Climate Science Centers, Department of Interior’s Landscape Conservation Cooperatives, and engagement efforts through the National Assessment process will be built. Subsequently there will be a call to the larger climate service community for input on the varied external components of a broader national climate service enterprise that will effectively meet user needs.

NOAA will closely review and consider all of the recommendations and observations contained in the NAPA final report. The report’s recommendations will be of great value as the Department of Commerce and NOAA continue to develop and refine the proposal to establish a new Climate Service within NOAA.

4. History and Timeline

On February 8, DOC and NOAA announced the intent to create a Climate Service. NOAA Leadership, working closely with a Climate Service Implementation team continues to work out the details of the reorganization.

As required by the Consolidated Appropriations Act of 2010 (H.Rept. 111-366, P.L. 111-117), the National Academy of Public Administration (NAPA) researched options for structuring a National Climate Service within NOAA and submitted its final report to Congress and to NOAA on September 13.

On September 14, NOAA announced the hiring of six new Regional Climate Services Directors. These new positions are employees of NOAA’s National Climatic Data Center, however, they are located in each of the six NWS regional offices.

NOAA will incorporate relevant recommendations from the NAPA report and will submit a reprogramming package to Congress for approval. This is expected to occur before the end of October.

Following congressional approval, NOAA will move quickly to implement the proposed re-organization and anticipates having a functional climate service up and running during the winter.