

**Department of the Interior**  
**Departmental Manual**

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**Effective Date:** 09/27/2023

**Series:** Environmental Quality Programs

**Part 526:** Climate Change Science

**Chapter 1:** Applying Climate Change Science

**Originating Office:** Office of Policy Analysis

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**526 DM 1**

1.1 **Purpose.** This chapter establishes Department of the Interior (Department) policy and provides guidance to Bureaus and Offices for incorporating into the Department's mission, programs, and operations high-quality information about current and future climate change threats and impacts using climate model simulations. The use of model simulations of Earth's changing climate is meant to inform multiple Departmental planning, policy, and regulatory processes.

1.2 **Scope.**

- A. The policy in this chapter applies to the Department and its component Bureaus and Offices.
- B. This chapter does not apply to the Office of the Inspector General.

1.3 **Definitions.** The following terms and definitions are consistent with the U.S. Global Change Research Program (USGCRP) National Climate Assessment terminology.

- A. Climate Change. Changes in averages and variability of weather conditions that persist over multiple decades or longer. Climate change encompasses both increases and decreases in temperature, as well as shifts in precipitation, changing risk of certain types of severe weather events, and changes to other features of the climate system.
- B. Climate Change Adaptation. In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.
- C. Climate Models. Mathematical models that simulate, either numerically or empirically, the physics, chemistry, and biology that influence the climate system.
- D. Climate Projections. Results from global climate models characterizing future climate conditions under climate change scenarios (see I. below).

09/27/23 #5150

Replaces 1/11/21 #5047

E. High-Quality Information. For the purposes of this chapter, high-quality information is information that promotes reasoned, fact-based agency decisions. Information that meets the standards for objectivity, utility, and integrity as set forth in the Department's Information Quality Guidelines would qualify as high-quality information.

F. Indigenous Knowledge (IK). A body of observations, oral and written knowledge, innovations, practices, and beliefs developed by Indigenous Peoples through interaction and experience with the environment. It is applied to phenomena across biological, physical, social, cultural, and spiritual systems. IK can be developed over millennia, continues to develop, and includes understanding based on evidence acquired through direct contact with the environment and long-term experiences, as well as extensive observations, lessons, and skills passed from generation to generation. IK is owned by Indigenous Peoples and is often intrinsic within customary or traditional governance structures and decision-making processes. Other terms such as Traditional Knowledge(s), Traditional Ecological Knowledge, Tribal Ecological Knowledge, Native Science, Indigenous Science, and others, are sometimes used to describe this knowledge system. This chapter uses the term Indigenous Knowledge (IK) throughout.

G. Indigenous Peoples. Native Americans, Alaska Natives, Native Hawaiians, Pacific Islanders, and others whose ancestors have occupied what is now known as the United States and its territories since time immemorial, including members of Tribal Nations.

H. Risk. Threats to life, health and safety, the environment, economic well-being, and other things of value. Risks are often evaluated in terms of how likely they are to occur (probability) and the damages that would result if they did happen (consequences).

I. Scenarios. Storylines based on assumptions used to help understand potential, plausible future conditions. For climate change scenarios, factors such as technological capabilities, societal choices, population growth, and land use are considered which can influence future climate conditions. Scenarios are neither predictions nor forecasts. Scenarios are commonly used for planning purposes.

J. Simulations. Discrete attempts using climate models to replicate physical processes of the Earth system. Simulations of the future are called projections; simulations of the past are called hindcasts.

K. Tribal Nation or Tribe. An Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges as a Federally recognized Tribe pursuant to the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. § 5130.

L. Uncertainty. An expression of the degree to which the future is unknown. Uncertainty about the future climate arises from the complexity of the climate system, the ability of models to represent it, and the inability to predict the decisions that society will make. There is also uncertainty about how climate change, in combination with other stressors, will affect people and natural systems.

**1.4 Background.** Climate change poses significant risks to the Department's mission, programs, operations, and personnel. Some Departmental operations and projects can also contribute to these risks. For Departmental decision-making purposes, assuming a static, unchanging baseline climate is no longer consistent with current knowledge about the climate system. Changing temperatures, altered precipitation patterns, stronger storms, and other rapidly changing earth system processes are impacting the resources and infrastructure under the Department's jurisdiction. Understanding and addressing the risks and effects of climate change in Departmental operations, planning, and decisions is integral to the agency's ability to adapt effectively and efficiently. Successful adaptation requires that the Department's traditional approaches to planning and decision-making are augmented and informed by high-quality information about the Earth's changing climate, including information from relevant and plausible scenarios of the future and associated state-of-the-science climate models. In considering this information for planning and decision-making purposes, uncertainty about the likelihood of future climate trajectories is expected. This adds complexity to the decision-making process but should not ordinarily result in no-action outcomes. Rather, practices as described in Departmental technical guidance *Best Practices for Incorporating Climate Change Science into Department of Interior Analyses, Consultations, and Decision Making* should be adhered to for the use of climate modeling information in Departmental actions. This enables a rational consideration of relevant uncertainties about the future and facilitates the decision-making process even when there is ambiguity about the optimal action or decision.

**1.5 Policy.** It is the policy of the Department to use high-quality information about the Earth's changing climate system to consider, plan for, and respond to the existing and projected impacts of climate change on its mission, programs, operations, and personnel. The Department will use high-quality information to improve understanding of current and future climate change impacts, inform planning and decision making, and coordinate appropriate responses to changing conditions that affect land, water, wildlife, plants, aquatic resources, cultural and tribal resources, and other assets managed by the Department. It is the policy of the Department to encourage consistent application across Bureaus unless the reason for inconsistency is documented.

A. Consistent with existing laws and regulations, it is the Department's policy to:

(1) Incorporate, as a routine practice, high-quality information from observations of current climate change and future climate change projections into planning and decision making, and when developing or revising management plans, setting priorities for scientific research and assessments, and making major investment decisions.

(2) Clearly articulate the primary uncertainties and assumptions associated with the analysis and the implications of these uncertainties on the interpretation of results.

(3) Use climate change scenarios that have been published by or developed for the Inter-governmental Panel on Climate Change (IPCC) or the USGCRP. This can include scenarios that are not time-dependent, such as 'Global Warming Level' scenarios.

(4) Use climate model projections developed for or sponsored by (1) the Coupled Model Intercomparison Project (CMIP), the World Climate Research Programme, or the USGCRP, which are accepted by the global scientific community; or, (2) other entities that are either part of the United States Government, or in which it is a participant. This can include peer-reviewed downscaling models driven by CMIP global model outputs consistent with practices described in Departmental technical guidance *Best Practices for Incorporating Climate Change Science into Department of Interior Analyses, Consultations, and Decision Making*.

(5) When selecting scenarios depicting future climate change, whenever feasible use multiple scenarios that span a wide range of potential outcomes. When time, resource, or informational constraints prevent the selection of more than one scenario, ensure that the chosen scenario will enable consideration of higher risk outcomes.

(6) When selecting climate model projections, for any scenario, whenever feasible use multiple models to capture a range of potential future climate conditions consistent with practices described in Departmental technical guidance *Best Practices for Incorporating Climate Change Science into Department of Interior Analyses, Consultations, and Decision Making*.

(7) Use the time-period for model projections of the future climate change consistent with the relevant timeframe of the policy, action, or decision being considered. For climate change models used by the Department, the full time-period of available model outputs is considered to be high-quality information.

(8) Include other high-quality information where appropriate and available, including the social sciences, other biophysical sciences, and IK, to inform understanding of climate change impacts, baseline climate and ecosystem conditions, ecosystem thresholds, and scenario selection.

(9) Ensure that scientific application of both climate-related observations and projections in Departmental planning and decision-making receives rigorous scientific peer review.

## 1.6 Responsibilities.

### A. The Assistant Secretary - Policy, Management and Budget.

(1) Oversee the Department's compliance with this policy, and provide staff support to monitor this policy's implementation and coordinate budgets and practices supporting this policy.

(2) In close consultation with the U.S. Geological Survey (USGS) Director, appoint the Chair of the Department's Climate Science Applications Coordination Team (CSACT) and ensure that CSACT abides by USGS Fundamental Science Practices.

B. Assistant Secretaries. Ensure that their Bureaus and Offices comply with the policy in this chapter.

C. The Office of Policy Analysis (PPA).

(1) Serve as the lead Office for revising this policy when warranted by changes in technical information, Federal statutes, regulations, Department policy, or other conditions. Any Bureau or Office can initiate changes by contacting the PPA.

(2) Solicit and consider the views of all interested Departmental Offices and Bureaus when the Department contemplates changes to this policy. In recommending revisions to this chapter, Bureaus and Offices will provide the PPA with appropriate supporting information.

(3) When requested, provide technical assistance and guidance to the Departmental Offices and Bureaus for understanding and implementing this policy.

D. Heads of Bureaus and Offices.

(1) Ensure that their organizations comply with this policy; report on a regular basis the progress made in implementing this policy to their respective Assistant Secretaries and the CSACT; and communicate the requirements of this policy effectively to their partners.

(2) Develop and periodically update appropriate Bureau or Office policy and guidance for incorporating the high-quality information about current and future climate conditions into decision making.

(3) Establish and support communities of practice and users within the Bureau and appoint employees with appropriate technical expertise to promote consistency, transparency, and rigor with respect to incorporating climate science information into the planning and decision-making process.

(4) Ensure that technical staff who use climate science information have access to appropriate training to promote climate literacy.

(5) Appoint Bureau representatives to CSACT and provide support and resources to CSACT members to engage in the Department-wide coordination efforts to promote efficient and consistent climate science applications across Bureaus.

(a) CSACT must include representatives of the Bureau of Indian Affairs, Bureau of Land Management, Bureau of Ocean Energy Management, Bureau of Reclamation, National Park Service, U.S. Fish and Wildlife Service, USGS, and PPA.

09/27/23 #5150

Replaces 1/11/21 #5047

(b) Bureaus and Offices not identified in 5(a) above are encouraged, but not required, to appoint a representative to serve on CSACT.

E. Climate Science Applications Coordination Team (CSACT).

(1) Update the charter, as needed, to direct the operations of the CSACT.

(2) Provide communication, coordination, and oversight of climate science application activities supporting climate change response across the Department including updating technical guidance, coordinating training, and technical assistance, including but not limited to:

(a) Synthesizing and integrating new research, best practices, and case studies that reflect the state of climate change science and its applications into Departmental Guidance for resource decision-making situations in operations, planning, and adaptive management, among others. This includes updates to the technical guidance *Best Practices for Incorporating Climate Change Science into Department of Interior Analyses, Consultations, and Decision Making* and related guidance within 12 months of publication of relevant reports by IPCC and USGCRP or otherwise every four years as climate science evolves.

(b) Developing climate science applications reporting metrics for Bureaus and Offices, collecting reporting data, and sharing reporting and lessons learned within and across Bureaus and Offices and among partners, Indigenous Peoples, and other collaborators.

(c) Preparing a biennial report on the application of this policy as it relates to Bureau and Office-specific missions and authorities, consistent with existing Departmental performance metrics.

(d) Coordinating with the Department's training service providers to build community capacity, and consulting on course topics, learning objectives and curricula.

(e) Providing a forum for Offices and Bureau communities of practice to vet emerging climate change science and application tools, working in collaboration with the Department's Science Advisors Council and USGS's Climate Adaptation Science Centers, so that emerging science and application tools may quickly be interpreted and socialized across Offices and Bureaus for their potential applications.

**1.7 Legal Effect.** This policy is intended to improve the internal management of the Department of the Interior. It does not create any right or benefit, substantive or procedural, enforceable at law or in equity by any person against the United States, its agencies, its Officers or employees, or any other person