

About this Report

Human-induced climate change is a major and growing concern to U.S. policymakers and citizens who need the best available science to inform their decisions. This report responds to that need by synthesizing the large and growing body of science that deals with how climate is changing, and the impacts of these changes on the United States, now and in the future.

The U.S. Climate Change Science Program, in coordination with the Office of Science and Technology Policy and Council on Environmental Quality, called for this report: a Unified Synthesis Product (USP) by a U.S. Department of Commerce Federal Advisory Committee operating under the authority of the Federal Advisory Committee Act. The Committee was composed of an expert team of scientists and supporting professionals.

This report is based on published, peer-reviewed data and reports including the Synthesis and Assessment Products completed by the U.S. Climate Change Science Program (CCSP, 2006 through 2008), the Intergovernmental Panel on Climate Change (IPCC, 2007) assessments, the U.S. National Assessment of the Consequences of Climate Variability and Change (NAST, 2000 through 2001), the Arctic Climate Impact Assessment (ACIA, 2004 through 2005), the National Research Council's Transportation Research Board report on the Potential Impacts of Climate Change and U.S. Transportation (NRC, 2008), and other peer-reviewed assessments.

To incorporate the latest findings and fill gaps, this report also draws directly from articles in peer-reviewed scientific journals as well as widely available government data and information compiled on a regular basis for public use, including census figures and statistics on energy usage and greenhouse gas emissions. The author team did not conduct original research for this report, but rather drew on existing peer-reviewed research. In order to convey the most relevant and up-to-date information possible, the report does contain summaries, tables, and graphics using updated data sets drawn from peer-reviewed literature and official government data.

This report seeks to synthesize this large body of information and draw the kinds of high-level insights that can come from such an activity.

While the primary focus of the report is on the impacts of climate change on the U.S., it also deals with some of the things society can do to respond to the climate challenge. Comparing the impacts of a range of heat-trapping gas emissions scenarios reveals differences related to the consequences of various emissions pathways, highlighting the choices we have with regard to human-induced emissions.

This report also explores some options for adapting to climate change and its impacts that could help in coping with the amount of additional warming that is inevitable as a result of past and ongoing emissions of heat-trapping gases and other human-induced changes. The report also highlights areas where inadequate scientific understanding hampers our ability to estimate likely future climate change impacts.

With regard to expressing the range of possible outcomes and identifying the likelihood of particular impacts, this report takes a plain language approach to expressing the expert judgment of the author team based on the best available evidence. For example, an outcome termed “likely” has at least a two-thirds chance of occurring; something termed “very likely,” at least a 90 percent chance. In using these terms, the team has taken into consideration a wide range of information including the strength and consistency of the observed evidence, the range and consistency of model projections, the reliability of particular models as tested by various methods, and so on. Statements that are not qualified with such terms are deemed virtually certain. In cases where further qualifications regarding certainty are needed, endnotes are used for those descriptions.

The goal of this report is to make the key results of the enormous body of scientific information about climate change and its impacts on the United States accessible in a single plain-English document that can help inform public and private decision making at all levels.



The icons above represent some of the major sources drawn upon for this synthesis report. A description of these sources appears in the back of this report. In the upper right hand corner of the introduction to each major section, the sources primarily drawn upon for that section are shown.