ATMOSPHERE OF PRESSURE

Political Interference in Federal Climate Science

A REPORT OF THE

Union of Concerned Scientists

AND THE

Government Accountability Project

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The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world.

The UCS Scientific Integrity Program mobilizes scientists and citizens alike to defend science from political interference and restore scientific integrity in federal policy making. More information about UCS and the Scientific Integrity Program is available online at *www.ucsusa.org/scientific_integrity*.

The Government Accountability Project (GAP) is the nation's largest whistleblower organization. GAP attorneys and organizers assist whistleblowers in taking their evidence of wrongdoing to appropriate government agencies, committees, and officials to investigate, expose, and rectify the problems they have identified. More information about GAP is available online at *www.whistleblower.org*.

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The opinions expressed in this report do not necessarily reflect the opinions of the foundations that supported our work, or the individuals who reviewed and commented on our report. Both the opinions and the information contained herein are the sole responsibility of the authors.

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About the Union of Concerned Scientists

The Union of Concerned Scientists (UCS) is the leading science-based nonprofit working for a healthy environment and a safer world. UCS combines independent scientific research and citizen action to develop innovative, practical solutions and secure responsible changes in government policy, corporate practices, and consumer choices. UCS was founded in 1969 by faculty members and students at the Massachusetts Institute of Technology who were concerned about the misuse of science and technology in society. From that beginning, UCS has become a powerful voice for change.

The UCS Scientific Integrity Program recognizes that the United States has an impressive history of investing in scientific research and respecting the independence of scientists. As a result, Americans have enjoyed sustained progress in economic and public health, as well as unequaled leadership within the global scientific community. An unprecedented level of political interference, however, threatens the integrity of government science. Because policy makers depend on impartial research to make informed decisions, UCS is mobilizing scientists and citizens alike to push for reforms that will protect our health, safety, and environment.

About the Government Accountability Project

The Government Accountability Project (GAP) is the nation's leading whistleblower protection organization. GAP was founded in 1977, in the wake of the Pentagon Papers scandal, as a project of the Institute for Policy Studies. It has been a lifeboat for more than 3,000 citizen activists providing a range of services including legal information, referrals, counseling, advocacy, litigation, legislative affairs, and media advice. GAP has also been a driving force in many legislative advances in whistleblower protection, including the Sarbanes-Oxley Act of 2002 and the Whistleblower Protection Act of 1989.

GAP has developed in-house expertise in several areas such as promoting corporate accountability, strengthening the rights and protections of whistleblowers, ensuring safe and cost-effective cleanup at nuclear weapons facilities, increasing food and drug safety, enforcing environmental protection laws, seeking better protection for whistleblowers internationally, and curtailing national security abuses. To assist whistleblowers, GAP attorneys and organizers seek to galvanize a public response to the issue, and take whistleblowers' evidence of wrongdoing to appropriate government agencies, congressional committees, and others on Capitol Hill to investigate, expose, and rectify the problems they have identified.

Executive Summary

Federal climate science research is at the forefront of assessing fundamental causes of global warming and the future dangers it could pose to our nation and the world. Such research is of tremendous value to many Americans planning for these risks, including coastal communities designing infrastructure for protecting against storm surges; civil authorities planning for heat waves; power companies preparing for higher peak energy demands; forest managers planning wildfire management programs; ski resort owners investing in snow-making equipment; and policy makers evaluating energy legislation. Therefore, it is crucial that the best available science on climate change be disseminated to the public, through government websites, reports, and press releases. In recent years, however, this science has been increasingly tailored to reflect political goals rather than scientific fact.

Out of concern that inappropriate political interference and media favoritism are compromising federal climate science, the Union of Concerned Scientists (UCS) and the Government Accountability Project (GAP) undertook independent investigations of federal climate science. UCS mailed a questionnaire to more than 1,600 climate scientists at seven federal agencies to gauge the extent to which politics was playing a role in scientists' research. Surveys were also sent to scientists at the independent (non-federal) National Center for Atmospheric Research (NCAR) to serve as a comparison with the experience of federal scientists. About 19 percent of all scientists responded (279 from federal agencies and 29 from NCAR). At the same time, GAP conducted 40 in-depth interviews with federal climate scientists and other officials and analyzed thousands of pages of government documents, obtained through the Freedom of Information Act (FOIA) and inside sources, regarding agency media policies and congressional communications.

These two complementary investigations arrived at similar conclusions regarding the state of federal climate research and the need for strong policies to protect the integrity of science and the free flow of scientific information.

Political Interference with Climate Science

The federal government needs accurate scientific information to craft effective policies. Political interference with the work of federal scientists threatens the quality and integrity of these policies. As such, no scientist should ever encounter any of the various types of political interference described in our survey questions. Yet unacceptably large numbers of federal climate scientists personally experienced instances of interference over the past five years:

- Nearly half of all respondents (46 percent of all respondents to the question) perceived or personally experienced pressure to eliminate the words "climate change," "global warming," or other similar terms from a variety of communications.

- Two in five (43 percent) perceived or personally experienced changes or edits during review that changed the meaning of scientific findings.

"I believe the line has been crossed between science informing public policy and policy manipulating the science (and trying to influence its outcome). I have personally experienced this manipulation in the area of communicating the science many times."

— A SCIENTIST AT THE EPA

- More than one-third (37 percent) perceived or personally experienced statements by officials at their agencies that misrepresented scientists' findings.

- Nearly two in five (38 percent) perceived or personally experienced the disappearance or unusual delay of websites, reports, or other science-based materials relating to climate.

- Nearly half (46 percent) perceived or personally experienced new or unusual administrative requirements that impair climate-related work.

- One-quarter (25 percent) perceived or personally experienced situations in which scientists have actively objected to, resigned from, or removed themselves from a project because of pressure to change scientific findings.

- Asked to quantify the number of incidents of interference of all types, 150 scientists (58 percent) said they had *personally experienced* one or more such incidents within the past five years, for a total of *at least* 435 incidents of political interference.

The more frequently a climate scientist's work touches on sensitive or controversial issues, the more interference he or she reported. More than three-quarters (78 percent) of those survey respondents who self-reported that their research "always" or "frequently" touches on issues that could be considered sensitive or controversial also reported they had personally experienced at least one incident of inappropriate interference. More than one-quarter (27 percent) of this same group had experienced six or more such incidents in the past five years.

In contrast to this evidence of widespread interference in climate science at federal agencies, scientists at the independent National Center for Atmospheric Research (NCAR), who are not federal employees, reported far fewer instances of interference. Only 22 percent of all NCAR respondents had personally experienced such incidents over the past five years.

Barriers to Communication

Federal scientists have a constitutional right to speak about their scientific research, and the American public has a right to be informed of the findings of taxpayer-supported research. Restrictions on scientists who report findings

contrary to an administration's preferred policies undermine these basic rights. These practices also contribute to a general misunderstanding of the findings of climate science and degrade our government's ability to make effective policies on topics ranging from public health to agriculture to disaster preparation.

The investigation uncovered numerous examples of public affairs officers at federal agencies taking a highly active role in regulating communications between agency scientists and the media—in effect serving as gatekeepers for scientific information.

Among the examples taken from interviews and FOIA documents:

- One agency scientist, whose research illustrates a possible connection between hurricanes and global warming, was repeatedly barred from speaking to the media. Press inquiries on the subject were routed to another scientist whose views more closely matched official administration policy.
- Government scientists routinely encounter difficulty in obtaining approval for official press releases that highlight research into the causes and consequences of global warming.
- Scientists report that public affairs officers are sometimes present at or listen in on interviews between certain scientists and the media.
- Both scientists and journalists report that restrictive media policies and practices have had the effect of slowing down the process by which interview requests are approved. As a result, the number of contacts between government scientists and the news media has been greatly reduced.

Highly publicized incidents of interference have led at least one agency to implement reforms; in February 2006, NASA adopted a scientific openness policy that affirms the right of open scientific communication. Perhaps as a result, 61 percent of NASA survey respondents said recent policies affirming scientific openness at their agency have improved the environment for climate research. While imperfect, the new NASA media policy stands as a model for the type of action other federal agencies should take in reforming their media policies.

"Policy should be based on sound science; results of science should not be diluted or . . . adjusted to justify policy. This particular Administration has gone beyond reasonable boundaries, on this issue. To be in denial on climate change is a crime against the Nation."

— A SCIENTIST AT THE USDA

The investigation also highlighted problems with the process by which scientific findings are communicated to policy makers in Congress. One example, taken from internal documents provided to GAP by agency staff, shows edits to official questions for the record by political appointees, which change the meaning of the scientific findings being presented.

Inadequate Funding

When adjusted for inflation, funding for federal climate science research has declined since the mid-1990s. A majority of survey respondents disagreed that the government has done a good job funding climate science, and a large number of scientists warned that inadequate levels of funding are harming the capacity of researchers to make progress in understanding the causes and effects of climate change. Budget cuts that have forced the cancellation of crucial Earth

"Scientists should be free to communicate with the media, rather than having media contacts filtered by 'Public Affairs' officers. This should be an official policy, not a 'wink and nod' policy."

— A SCIENTIST AT NOAA

observation satellite programs were of particular concern to respondents.

Poor Morale

Morale among federal climate scientists is generally poor. The UCS survey results suggest a correlation between the deterioration in morale and the politicized environment surrounding federal climate science in the present administration. One primary danger of low morale and decreased funding is that federal agencies may have more difficulty attracting and keeping the best scientists.

A large number of respondents reported decreasing job satisfaction and a worsening environment for climate science in federal agencies:

- Two-thirds of respondents said that today's environment for federal government climate research is worse compared with 5 years ago (67 percent) and 10 years ago (64 percent). Among scientists at NASA, these numbers were higher (79 percent and 77 percent, respectively).

- 45 percent said that their personal job satisfaction has decreased over the past few years. At NASA, three in five (61 percent) reported decreased job satisfaction.

- 36 percent of respondents from NASA, and 22 percent of all respondents, reported that morale in their office was "poor" or "extremely poor." Among NCAR respondents, only seven percent reported such low levels of morale.

Recommendations

This report has brought to light numerous ways in which U.S. federal climate science has been filtered, suppressed, and manipulated in the last five years. Until this political interference ends, the United States will not be able to fully protect Americans and the world from the dangers of a warming planet. Creating systems to ensure long-term independent and accessible science will require the energies of the entire federal government.

UCS and GAP recommend the following reforms and actions:

- The federal government must respect the constitutional right of scientists to speak about any subject, including policy-related matters and those outside their area of expertise, so long as the scientists make it clear that they do so in their private capacity, and such communications do not take from agency time and resources. Scientists should also be made aware of these rights and ensure they are exercised at their agencies.

- Ultimate decisions about the communication of federal scientific information should lie with scientists themselves. While non-scientists may be helpful with various aspects of writing and communication, scientists must have a "right of last review" on agency communications related to their scientific research to ensure scientific accuracy has been maintained.

- Pre-approval and monitoring of media interviews with federal scientists by public affairs officials should be eliminated. Scientists should not be subject to restrictions on media contacts beyond a policy of informing public affairs officials in advance of an interview and summarizing the interaction for them afterward.

- Federal agencies should clearly support the free exchange of scientific information in all venues. They should investigate and correct inappropriate policies, practices, and incidents that threaten scientific integrity, determine how and why problems have occurred, and make the necessary reforms to prevent further incidents.

- Congress should immediately exert pressure on the Executive branch to comply with its statutory duty under federal law and undertake periodic scientific assessments of climate change that address the consequences for the United States. (The last national assessment was conducted in 2000.)

- Funding decisions regarding climate change programs should be guided by scientific criteria, and must take into account the importance of long-term, continual climate observation programs and models.

The reality of global warming, including the role of heat-trapping gases from human activities in driving climate change, has been repeatedly affirmed by scientific experts. Every day that the government chooses to ignore climate science is a day it fails to protect future generations from the consequences of global warming. Our government must commit to ensuring basic scientific freedoms and support scientists in their endeavors to bring scientific results to the policy arena, scientific fora, and a wide array of other audiences. Addressing climate change is a matter of national preparedness.

Hurricane Katrina aftermath

CHAPTER 1

Introduction

Climate scientists in the U.S. government are leading experts on global climate change. They are entrusted to observe, analyze, and model our changing planet and convey their findings to other scientists, policy makers, and the public. Federal scientists have reported, however, that their findings are being tailored to reflect political goals rather than scientific fact. Although the reality of global warming has been repeatedly affirmed by scientific experts, our government has been obscuring the state of our knowledge by exaggerating the level of uncertainty in global warming science.

In recent years, there have been a number of high-profile instances in which political appointees in the federal government have manipulated or suppressed scientific findings or censored government research scientists. In 2006, the Union of Concerned Scientists (UCS) and the Government Accountability Project (GAP) independently undertook investigations of federal climate science in order to investigate whether such interference was widespread or relatively isolated. UCS mailed a questionnaire to more than 1,600 climate scientists at seven federal agencies and the independent (non-federal) National Center for Atmospheric Research. GAP conducted 40 in-depth interviews with federal climate scientists and government officials, and analyzed thousands of pages of government documents obtained through the Freedom of Information Act (FOIA) and inside sources.

These two complementary investigations concluded that the high-profile incidents of political interference are part of a larger pattern of attacks on scientific integrity by the Bush administration. Both investigations also arrived at similar conclusions regarding government politicization of federal climate research, and found a need for strong policies to protect the integrity of science and the free flow of scientific information. This report covers the findings of both the GAP and UCS investigations.

CHAPTER 2

Background on Federal Climate Research

Federal government research into climate change is a large yet decentralized enterprise. Government climate scientists are scattered across several federal departments, programs, and independent agencies. These scientists' development of high-tech, satellite-based Earth observation instruments and sophisticated computer models over the past few decades has contributed to the transformation of the global warming hypothesis into a testable scientific theory. These advances are the result of a significant investment of scientific work and American taxpayer dollars. This section outlines the history, organizational structure, and funding of federal climate research.

History

Scientific research into the nature of global climate change has long been recognized by Congress as a national priority. The U.S. Global Change Research Program (USGCRP) was created as a presidential initiative in 1989 and subsequently codified by Congress in the Global Change Research Act of 1990 (GCRA). The USGCRP provided funding to several government agencies to undertake scientific research into climate change.

The GCRA mandated that the USGCRP and its affiliated agencies prepare periodic scientific assessments of climate change and its likely effects and submit them to Congress, producing "information readily usable by policymakers attempting to formulate effective strategies for preventing, mitigating, and adapting to the effects of global change" (GCRIO 2006). The first of these reports, the *National Assessment of the Potential Consequences of Climate Variability and Change*, was published in November 2000.

In 2001, President George W. Bush established the U.S. Climate Change Research Initiative (CCRI), with the goal of refocusing USGCRP resources to study "areas of uncertainty [about global climate change science]" and identifying "priority areas where investments can make a difference" (CCSP 2003). In 2002, the U.S. Climate Change Science Program (CCSP) was formed as a successor to both the USGCRP and the CCRI, thereby becoming responsible for compliance with the requirements of the GCRA. The CCSP is currently led by Acting Director William Brennan, who is also deputy assistant secretary for international affairs at the National Oceanic and Atmospheric Administration.

The CCSP has announced no plans to sponsor research for a second national assessment report, and has instead decided to produce 21 separate "synthesis and assessment" products in order to meet the scientific reporting requirements of the GCRA. The first of these products, *Temperature Trends in the Lower Atmosphere: Steps for Understanding and Reconciling Differences*, was published in April 2006. The CCSP is also responsible for providing an annual report to Congress, *Our Changing Planet*, detailing the status of climate science research and funding. The National Academy of Sciences has convened a committee to provide advice to the CCSP regarding evaluation of its current goals and strategic planning for future priorities.

Organization

We estimate that more than 2,000 government scientists spend at least part of their time researching climate-related issues. The agencies where most of the scientists are employed are:

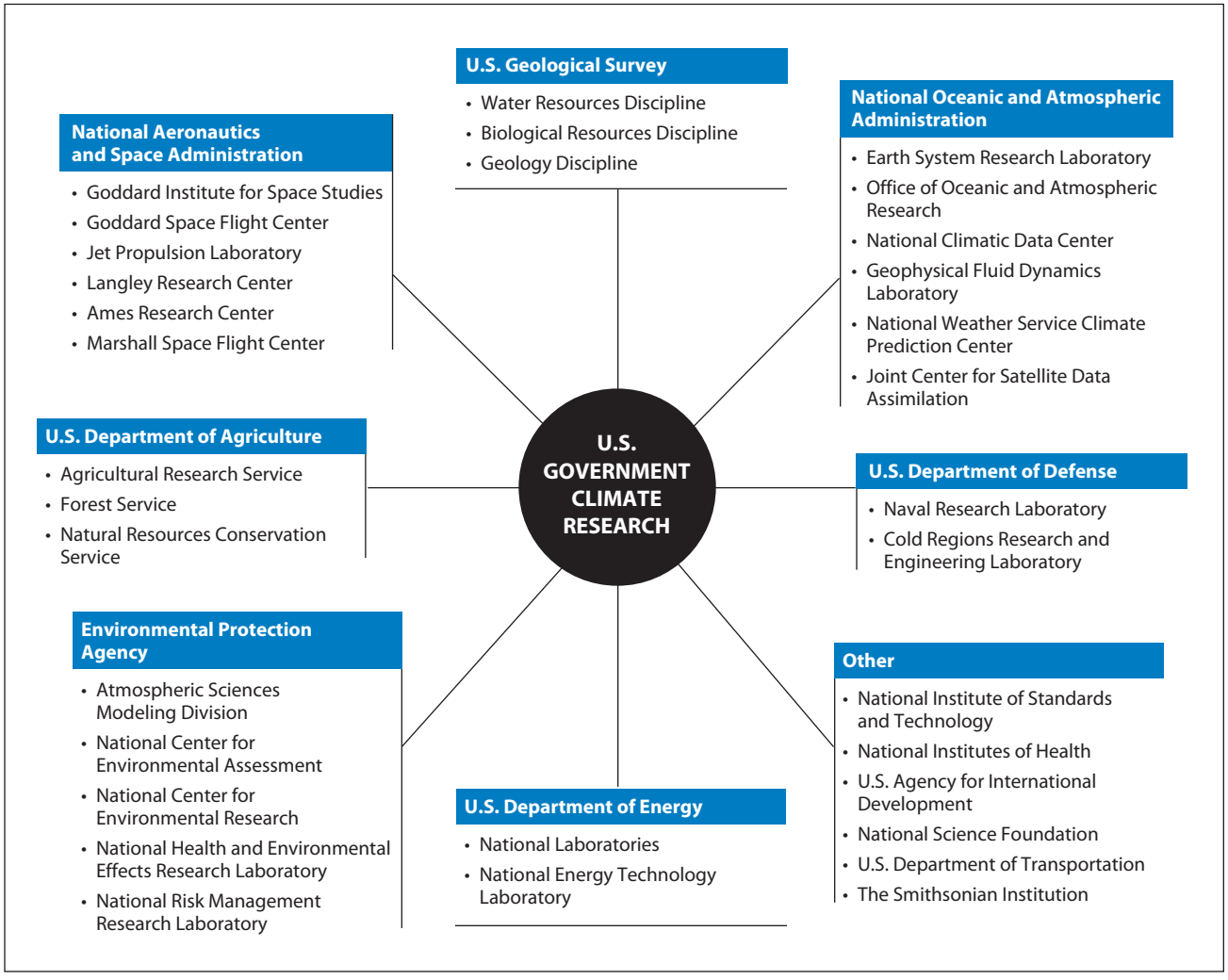
- National Oceanic & Atmospheric Administration (NOAA)
- National Aeronautics and Space Administration (NASA)
- U.S. Department of Energy (DOE)
- U.S. Department of Agriculture (USDA)
- U.S. Geological Survey (USGS)
- U.S. Environmental Protection Agency (EPA)
- U.S. Department of Defense (DOD)

The CCSP is responsible for coordinating climate science research at all of these entities except the DOD, which does not have climate change as a dedicated research program but does fund some climate science research. Climate-related programs also take place at the National Institute of Standards and Technology (NIST), the National Institutes of Health (NIH), the U.S. Agency for International Development (USAID), the Smithsonian Institution, and the Department of Transportation. The CCSP also coordinates these programs, but they are either smaller research efforts, or are not primarily focused on basic climate science.

Within each federal agency, climate research may take place in a number of discrete departments and laboratories—sometimes dozens of locations within a single agency (see Figure 1).

Federal funding also supports hundreds of climate scientists at academic centers around

FIGURE 1: **Organization of Federal Climate Research**



NOTE: Climate research is conducted at many other agency departments beyond those listed above, but for space reasons were not included in this chart.

the country. One of the biggest non-governmental climate research centers is the National Center for Atmospheric Research (NCAR), an organization of atmospheric and geoscience researchers who are funded by the National Science Foundation (NSF) but are not government employees.

While it is difficult to briefly summarize the work of large federal agencies, below are examples of the type of climate research several agencies undertake.

- Research at NOAA focuses on developing a "predictive understanding of the global climate system" by observing climate variability and modeling oceanic and atmospheric behavior. NOAA also aims to provide climate-related information "sufficient for making informed and reasoned decisions" to a wide range of policy makers (USGCRP 2006a).

- NASA researchers gather data from space-based Earth observation satellites and use the results to help develop some of the world's most sophisticated climate models. NASA researchers also use these data to study a wide range of subjects related to global climate change, from clouds to solar irradiance to potential effects of global warming (USGCRP 2006b).

- The DOE, through its Office of Science and national laboratories, conducts research into the "effects of energy production and use on the global climate system, primarily through studies of climate response." The DOE labs conduct basic and applied climate research, emphasizing new energy and carbon sequestration technologies that could reduce emissions of heat-trapping gases (USGCRP 2006c).

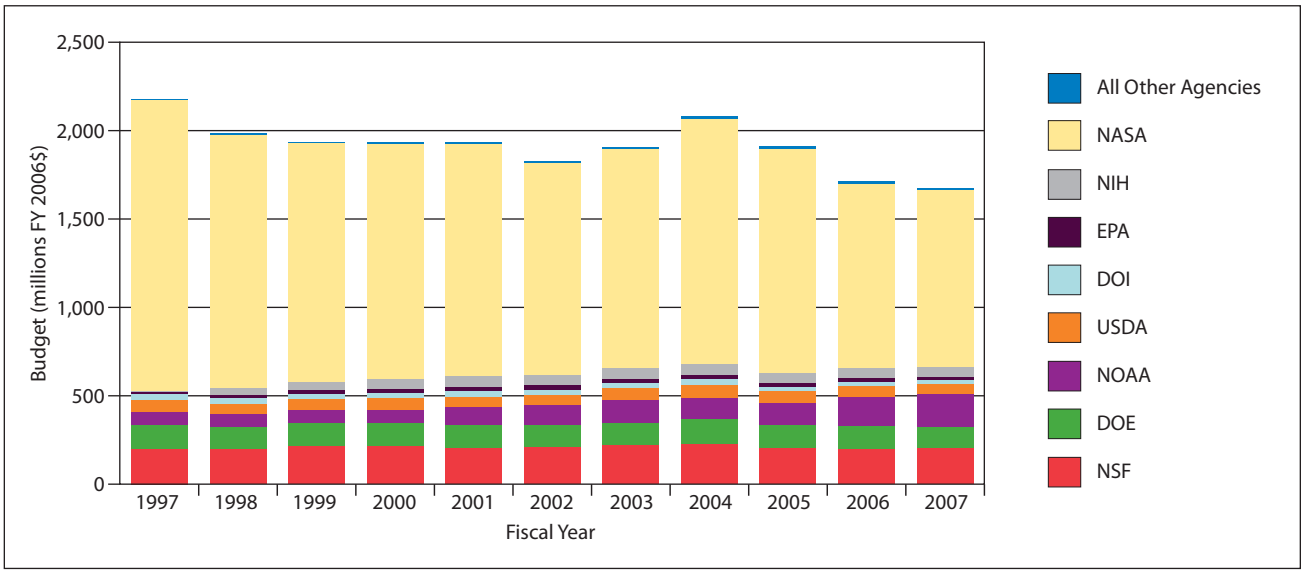
- The USDA's Agricultural Research Service focuses on how climate affects terrestrial systems, including the water and carbon cycles and species distribution. The goal of this research is to plan for the potential effects of climate change on agricultural and forest systems (USGCRP 2006d).

- The USGS, in the U.S. Department of the Interior (DOI), conducts studies designed to "understand the interactions between climate, Earth surface processes, and ecosystems on time scales ranging from years to millennia." USGS scientists observe local trends in land use, hydrologic processes, and species diversity, providing information that can be used in climate research (USGCRP 2006e).

- Climate change research at the EPA focuses on "evaluating the potential consequences of global change . . . on air quality, water quality, ecosystems, and human health in the United States" (USGCRP 2006f).

- The DOD does not have a dedicated climate change research program, but does support targeted research that concurrently satisfies its national security mission. DOD climate programs include development of satellite-based observation systems, ocean modeling software, and polar regions research (USGCRP 2006g).

FIGURE 2: **Climate Change Science Program Funding, by Agency**



NOTE: Budget figures adjusted for inflation. FY 2007 figures represent President Bush's budget request. Data prior to 2003 represent U.S. Global Change Research Program investments. Data Source: Office of Management and Budget. Data compiled by the American Association for the Advancement of Science.

Funding

According to the CCSP website, combined federal climate change research programs amount to a "more than $3 billion annual investment" (CCSP 2006). That total includes funds for technology development, overseen by the Climate Change Technology Program (a parallel organization to the CCSP), such as energy programs designed to reduce reliance on fossil fuels.

President Bush's requested budget for the CCSP alone (not including technology development) for fiscal year (FY) 2007 is approximately $1.7 billion. As Figure 2 shows, overall funding for the CCSP (when adjusted for inflation) has declined since the mid-1990s. The Bush administration has justified its substantial reductions to NASA's climate science budget by highlighting the modest increase of the NOAA budget. However, as the figure clearly shows, the NOAA budget increase does not offset the NASA budget cuts. As reported by the National Research Council (NRC, the principle operating agency of the National Academy of Sciences), funding cuts at NASA will mean canceling or not replacing several of that agency's Earth observation satellites. This will, in the words of the NRC report, cause a "severe deficit" in Earth observation capabilities and compromise the government's ability to "fulfill its obligations in . . . [the] Climate Change Science Program" (NRC 2006).

CHAPTER 3

Documented Incidents of Political Interference

The primary context and motivation for both the UCS and GAP investigations presented in this report were numerous widely reported instances of political interference with federal climate science in the last six years. These instances include the editing of government climate reports by high-level administration officials to amplify uncertainty in the scientific conclusions; delay and/or disappearance of government reports on climate change; denial of media access to prominent climate scientists; changes to agency mission statements to de-emphasize climate research; and congressional hearings seeking to discredit scientific findings on climate change. This section summarizes several of these incidents.

- In 2000, the USGCRP published the *National Assessment of the Potential Consequences of Climate Variability and Change,* a research report that clearly affirmed the reality of global warming. In subsequent years, however, references to the National Assessment were missing from government discussions of climate change including, most importantly, the CCSP's 2003 Strategic Plan. Former CCSP Senior Associate Rick Piltz resigned his position in June 2005, after 10 years of government service, in part to protest such obfuscation.

  In his resignation letter, Piltz wrote: "I have not seen a situation like the one that has developed under this administration during the past four years, in which politicization by the White House has fed back directly into the science program in such a way as to undermine the credibility and integrity of the program in its relationship to the research community, to program managers, to policymakers, and to the public interest" (Piltz 2005).

- Documents provided by Piltz and GAP to the *New York Times* indicated that Philip Cooney, the chief of staff for the White House Council on Environmental Quality (CEQ) and a former lobbyist for the American Petroleum Institute, edited government reports on climate change in ways that inflated uncertainty and cast doubt on scientific findings (Revkin 2005a). Two days after the documents were revealed, Cooney resigned his government position; it was later announced that he had accepted a job with ExxonMobil (Revkin 2005b).

- The 2002 *U.S. Climate Action Report*, prepared by the EPA as a requirement of the United Nations Framework Convention on Climate Change, was unusual for a governmental climate report from the Bush administration in that it explicitly called human activity the cause of climate change and described specific problems that global warming would bring to the United States (Revkin 2002). The report, which recommended adapting to inevitable problems rather than attempting to lower emissions, was approved by all relevant agencies. After it was sent to the United Nations, however, no press release or announcement was made by the administration. When asked about the report by reporters, President Bush dismissed it as "a report put out by the bureaucracy" (Seelye 2002).

- In September 2002, the administration removed a section on climate change from the EPA's annual air pollution report (EPA 2002), even though the topic had been discussed in the report in each of the preceding five years.

- In June 2003, the *New York Times* reported that the White House tried to substantially alter the section on climate change in the

EPA's draft Report on the Environment (Revkin and Seelye 2003). The draft report, referencing numerous scientific studies, stated that human activity is contributing significantly to climate change. Administration officials demanded that the EPA remove reference to a temperature record covering 1,000 years; statements that human activity is contributing significantly to climate change; and a summary statement that "climate change has global consequences for human health and the environment."

According to an internal EPA memo, White House officials demanded so many qualifying words, such as "potentially" and "may," that the result would have been to insert "uncertainty . . . where there is essentially none." Former NOAA official Jerry Mahlman, who served as a reviewer for the EPA report, noted in an interview, "it was obvious that senior EPA officials felt compelled to water down the conclusions" (Mahlman 2006). In the end, the entire section on climate change was deleted from the version of the report released for public comment. According to internal EPA documents and interviews with EPA researchers, agency staff chose this path rather than compromising credibility by misrepresenting the scientific consensus.

- The USDA's Natural Resources Conservation Service (NRCS) was denied a September 2003 request to reprint a popular informational brochure about carbon sequestration in the soil and what farmers could do to reduce emissions of heat-trapping gases. According to one anonymous government official, the brochure was widely viewed as one of the agency's most successful efforts in the climate change field. The NRCS had already distributed some 325,000 of the brochures and sought a modest update, as well as a proposed Spanish edition.

  Yet even this relatively routine proposal was passed to the White House CEQ for review; as a result of the CEQ's objections about the brochure, the NRCS dropped its proposal for a reprint (Hohenstein 2004). "It is not just a case of micromanagement, but really of censorship of government information," according to the official. "In nearly 15 years of government service, I can't remember ever needing clearance from the White House for such a thing" (Anonymous USDA official 2004).

- In January 2006, Dr. James Hansen reported to the *New York Times* that NASA officials had attempted to prevent him from speaking about the science behind global warming (Revkin 2006a). At a December lecture, Hansen, the long-time director of NASA's Goddard Institute for Space Studies, had called for drastic reductions in heat-trapping gases linked to climate change. Following his lecture, politically appointed public affairs officials began reviewing and filtering his public statements and press interviews. One appointee resigned after extensive media criticism of his conduct in attempting to silence Dr. Hansen. Said Hansen, "In my thirty-some years of experience in government, I've never seen control to the degree that it's occurring now. I think that it's very harmful to the way that a democracy works. We need to inform the public if they are to make the right decisions and influence policy makers" (Hansen 2006).

  In February 2006, Senator Barbara Mikulski (D-MD), citing "allegations that scientists at NASA and NOAA are routinely prevented from reporting their findings on climate change," asked the Government Accountability Office to "undertake a review of the policies and practices of our federal science agencies to ensure openness in communication of federally supported science results" (Mikulski 2006).

- In February 2006, the phrase "to understand and protect the home planet" was removed from the NASA mission statement. A NASA atmospheric chemist commented, "We refer to the mission statement in all our research proposals that go out for peer review. . . . As civil servants, we're paid to carry out NASA's mission. When there was that very easy-to-understand statement that our job is to protect the planet, that made it much easier to justify this kind of work" (Revkin 2006b). Some agency scientists expressed concern that the mission statement change presages a shift in priorities (and funding) away from Earth observation and climate change, and toward space exploration.

- The State Department had been maintaining a collection of climate-related materials on *http://usinfo.state.gov*, a website that offers information about topics ranging from economics to human rights. Articles posted to the climate change section of the website had covered new scientific developments, such as "Global Warming Topped Natural Cycles in Fueling 2005 Hurricanes" and "Tropical Ice Cores Show Two Abrupt Global Climate Shifts." In July 2006, the website was altered so that older climate change articles are no longer collected in one central location, and can only be found through the site's search function. An archive of newer climate change articles (i.e., articles posted after July 2006) exists on the site, but it contains very few articles and is no longer linked from the site homepage or the page listing prominent topics.

- After Hurricane Katrina, the possible connection between global warming and increased hurricane intensity became a frequent topic of media coverage; the debate focused on whether warmer ocean temperatures, which result in stronger hurricanes, could be attributed to global warming or natural cycles. Some critics have accused NOAA of distorting the ongoing scientific debate on this issue by alerting the media to a prominent article the agency published in its online magazine in November 2005 attributing the upswing in

Hurricane Katrina aftermath

hurricane activity to a natural multi-decadal cycle (NOAA 2005), while not mentioning other research by NOAA scientists linking increased hurricane intensity to climate change. As reported in the journal *Nature* in September 2006, NOAA declined to publish a fact sheet on Atlantic hurricanes that highlighted the global warming connection (Giles 2006). The *Nature* article quoted NOAA Administrator Conrad Lautenbacher as saying the information "could not be released because the agency cannot take an official position on a field of science that is changing so rapidly," although NOAA had in fact taken such a position on this topic in its November 2005 magazine article.

While the examples described above involved scientists who were U.S. government employees, there have also been notable incidents of interference with climate scientists outside the federal government.

- In June 2005, Representative Joe Barton (R-TX), then chairman of the House Energy and Commerce Committee, disputed climatologist Michael Mann's methods in reconstructing the historical temperature record that appeared in the Intergovernmental Panel on Climate Change's (IPCC) Third Assessment Report. Barton relied on a study published by Steve McIntyre (a mining executive) and Ross McKitrick (an environmental economist) claiming to have discovered flaws in the work of Mann and his colleagues. Barton demanded that Mann and his colleagues provide vast amounts of information to the committee, including a list of all their studies and funding sources, the location of data archives, and information about their use of data, their computer code, and their role in the IPCC (Barton 2005).

  In response, the National Academy of Sciences, the American Association for the Advancement of Science, and several members of Congress sent Barton letters expressing serious concern about the intimidation of scientists. One such letter came from Representative Sherwood Boehlert (R-NY), former chairman of the House Science Committee. Boehlert's letter was unusually strong in tone for a congressional communication; it stated, "My primary concern about your investigation is that its purpose seems to be to intimidate scientists rather than to learn from them, and to substitute Congressional political review for scientific peer review. This would be pernicious" (Boehlert 2005).

- Senator James Inhofe (R-OK), who has called man-made global warming "a hoax," invited Drs. Willie Soon and Sallie Baliunas to testify at a hearing about their study in the journal *Climate Research*, which claimed that 20th-century global warming is unremarkable compared with other climate shifts. However, this study had been heavily criticized by scientists; its publisher, Dr. Otto Kinne, and an editor (later editor-in-chief), Dr. Hans von Storch, later said that the original peer reviewers "failed to detect methodological flaws" and that after discovering these flaws they thought the paper should not have been published as written (Revkin 2003).

  In a September 28, 2005, Senate Environment and Public Works Committee hearing on global warming, Inhofe invited novelist Michael Crichton to testify as an "expert witness." Crichton, whose fiction novel *State of Fear* attempted to discredit global change research, gave testimony that similarly sought to undermine peer-reviewed climate science.

When UCS and GAP began these investigations, it was unclear whether interference such as the incidents described above was widespread or relatively isolated. Unfortunately, the results of our investigations (described in Chapters 5 and 6) demonstrate that these are not isolated incidents but rather part of a larger problem facing climate scientists to varying degrees across the federal government.

CHAPTER 4

Research Methods

UCS and GAP undertook independent yet complementary investigations into the federal climate science environment. Below is a detailed description of the research methods used for these two studies.

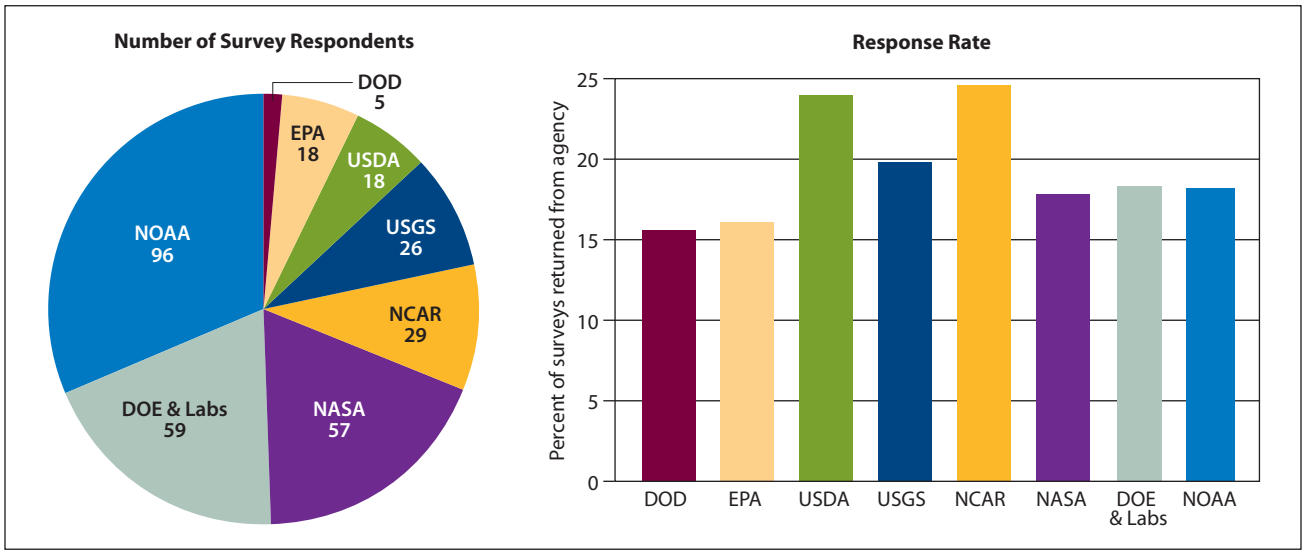
UCS: Climate Scientist Survey

The survey of federal climate scientists covered in this report is the fourth released in a series conducted by the UCS Scientific Integrity Program. Previous surveys have given voice to the concerns of more than 1,500 scientists working at the U.S. Food and Drug Administration, the U.S. Fish & Wildlife Service, and the NOAA Fisheries Service.

In summer 2006, UCS mailed printed surveys to more than 1,600 federal climate scientists throughout the United States, asking for information about the state of climate research at federal agencies. Recipients of this survey were scientists employed by the federal agencies with the highest number of scientists undertaking climate research: the National Aeronautics and Space Administration, National Oceanic and Atmospheric Administration, U.S. Environmental Protection Agency, U.S. Geological Survey, U.S. Department of Agriculture, U.S. Department of Energy, and U.S. Department of Defense. In addition, a similar survey was sent to scientists employed by the National Center for Atmospheric Research (NCAR), which receives federal research funding but is an independent (non-federal) agency. NCAR is shielded from government policies and restrictions and so it served as a "control" in order to quantify the magnitude of political interference at federal agencies.

The survey featured 40 questions, including 39 multiple-choice questions and one open-ended essay question. Survey questions were designed to be easy to comprehend and sought to be as neutral as possible in tone. For data collection purposes, the agency was identifiable in the survey responses but the individual was not (to ensure anonymity).

FIGURE 3: **Survey Response Data, by Agency**



The mailing list for the federal scientist survey was compiled by gathering information from a variety of sources, as no centralized directory of federal climate scientists exists. UCS first started with a list of federal agencies involved in climate science research, and then searched for staff names through individual agency websites as well as through other government and climate science websites such as the GCRP (*www.usgcrp.gov*) and IPCC (*www.ipcc.ch*). The list also included lead authors and reviewers of climate reports and papers, as well as panel participants at scientific conferences. Several experts in the climate science field assisted us with compiling the mailing list.

We were successful in finding email addresses for nearly all of the scientists on our mailing list. To boost the survey response rate, reminder emails were sent two to three weeks after the survey was sent. Since individuals' names were not listed on returned surveys, the reminder was sent to all survey recipients.

Three hundred eight surveys were completed and returned to UCS (279 from federal agencies and 29 from NCAR), for a response rate of 19 percent. The response rate within individual agencies was relatively consistent (see Figure 3 on p. 15), with NCAR having the highest response rate (25 percent) and DOD having the lowest (16 percent). Responses were tabulated by Office Remedies, an independent data services company. One hundred thirty-two federal scientists and 12 NCAR scientists chose to respond to the open-ended essay question, "The integrity of U.S. federal government climate science could best be improved by . . ."

Unless otherwise stated, percentages and numbers stated in this report reflect only the responses from the 279 federal agency scientists. A few respondents did not answer every question on the survey, while certain questions were designed to allow more than one response to be chosen. As a result, the number of responses to each question varies slightly. Percentages stated in this report are calculated based on the number of scientists answering each question, rather than the total number of returned surveys or the total number of responses to each question.

As Figure 4 shows, most survey respondents had extensive training in their fields and many years of experience working at their agencies. More than half of respondents had more than 10 years of experience at their current agencies, and 44 percent had more than 15 years of experience. Eighty percent had earned a Ph.D. and 40 percent had post-doctoral research experience.

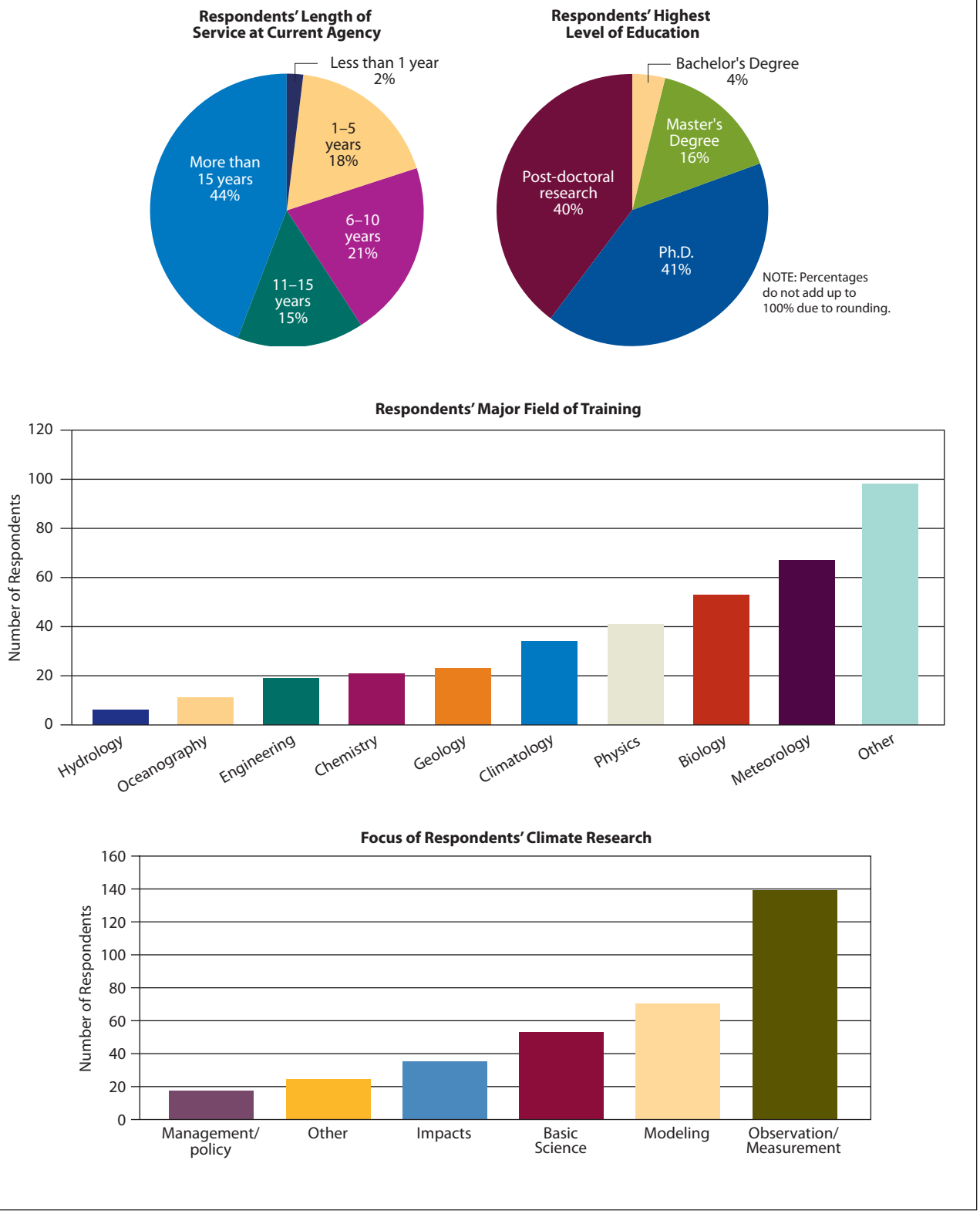
The full text of the surveys mailed to federal and NCAR scientists, along with tabulated responses, can be found located in Appendices A and B. The raw data for the additional analyses presented in this report, including responses to selected questions broken out by respondents' organization and correlated against other question responses, are located in Appendix C.

GAP: Interviews with Climate Scientists

The GAP investigation into the integrity of federal climate science commenced in February 2006. The investigation was prompted by concerns about political interference with federal climate scientists, in particular the allegations of Rick Piltz and James Hansen detailed in Chapter 3. The GAP investigation focused on the effects of restrictive agency media policies and practices, especially those applied to control communication from particular scientists on "sensitive" scientific issues. The investigation also covered efforts to control the communication of scientific information to Congress, the scientific community, and the public.

GAP conducted 40 interviews with climate scientists, communications officers, agency officials, and journalists. These sources—both named and confidential—represent inside perspectives from NOAA, NASA, the CCSP, the EPA, the USGS, and NCAR, as well as local,

FIGURE 4: **Survey Demographics**



NOTE: Charts reflect demographics for federal climate scientists only. Respondents were able to select more than one choice for Focus of Climate Research and Major Field of Training. Some respondents who listed their major field of training as "other" were distributed into other categories because the field was nearly identical. Enough respondents wrote in "hydrology" or "oceanography" to warrant creation of these categories in this chart.

national, and international media. Almost half of these interviews were conducted in person during field visits to research or administrative facilities in Boulder, CO (NCAR, NOAA's Global Monitoring Division); Princeton, NJ (NOAA's Geophysical Fluid Dynamics Laboratory); New York, NY (NASA's Goddard Institute for Space Studies); and Silver Spring, MD (NOAA's Office of Oceanic and Atmospheric Research). The remaining interviews occurred by telephone or email. More than a dozen agency and program officials either turned down or did not respond to requests for interviews.

In addition to scientist interviews, GAP reviewed thousands of pages of documentation obtained from Freedom of Information Act (FOIA) disclosures and from internal agency sources. FOIA requests were submitted in June 2006 to NASA, NOAA, and the EPA asking for any and all communications regarding or containing the words "climate change," "hurricanes," or "global warming;" any documents or communications relating to agency media policies or guidelines; and, in the case of NOAA, documents relating to official agency responses to congressional requests. More than 2,000 pages of documents were obtained from the FOIA disclosures, the vast majority of which were received from NOAA. The NASA request yielded only nine pages of documents, and the EPA allegedly found no relevant documents, despite the broad wording of the request. GAP also reviewed more than 60 published news articles and more than two dozen congressional documents including reports, testimony, and questions for the record.

CHAPTER 5

UCS Survey Results

The UCS survey uncovered evidence for political interference in federal climate science clustered in four broad categories:

- political interference with or misrepresentation of scientific results;
- excessive barriers to communication between scientists and the public, including the news media;
- inadequate levels of funding; and
- poor morale and job satisfaction among federal climate scientists.

Political Interference

Large numbers of federal climate scientists reported that they had perceived in others or personally experienced various types of interference, from the explicit to the subtle:

- Nearly half of all respondents (46 percent)[1] perceived or personally experienced pressure to eliminate the words "climate change," "global warming," or other similar terms from a variety of communications. Such pressure was personally experienced by 57 scientists (21 percent of respondents to the question).

- Two in five (43 percent) perceived or personally experienced changes or edits during review that changed the meaning of scientific findings. Such changes were personally experienced by 41 scientists (15 percent of respondents to the question).

- More than one-third (37 percent) perceived or personally experienced statements by officials at their agencies that misrepresented scientists' findings.

- Nearly two in five (38 percent) perceived or personally experienced disappearance or unusual delay of websites, reports, or other science-based materials relating to climate.

- Nearly half (46 percent) perceived or personally experienced new or unusual administrative requirements that impair climate related work.

- One-quarter (25 percent) perceived or personally experienced situations in which scientists have actively objected to, resigned from, or removed themselves from a project because of pressure to change scientific findings.

These results are summarized in Figure 5 on p. 21; responses to other questions can be found in Appendices A and B.

In response to the survey essay question asking about the best way to improve the integrity of federal climate science, 73 scientists directly called for ending political interference in the work of climate scientists. A selection of these essay responses can be found in the box on p. 20.

Survey respondents were also asked to quantify the number of incidents of interference of all types, either perceived in others or personally experienced, over the past five years. The available choices for the number of incidents were 0, 1–5, 6–10, 11–20, or more than 20. One hundred eighty-eight scientists (73 percent of all respondents to this question) said they had *perceived* one or more such incidents within the past five years, and 150 scientists (58 percent of

1 Percentages reflect the number of scientists who answered a particular question. Some survey respondents did not answer every question.

THE VOICES OF FEDERAL CLIMATE SCIENTISTS

Many survey respondents used the open-ended essay question to express in their own words their concerns about federal climate science. In response to the question "The integrity of U.S. federal government climate science could best be improved by…" the scientists wrote:

Political Interference

"Remove political pressures that try to make agencies support the administration's agenda. Allow scientific agencies to remain nonpolitical. Allow scientific results to be used as scientific facts instead of political or policy statements."
— A scientist from NOAA

"Keeping political employee appointments completely independent of the scientific research, scientific publication, and scientific communications processes."
— A scientist from NCAR

"A scientific report will now undergo three 'policy' reviews and two 'peer' reviews prior to further peer-review journal reviews. This will not only slow the reporting of results, but the chances are that significant watering-down of results will occur during the three 'policy' reviews by non-specialists."
— A scientist from the USGS

"The perception that . . . we (climate scientists) might find and write [something that] might be considered controversial is a strong one that comes down from management. It's not clear that there's a real reason for it or what the consequences would be. This perception should be actively discouraged from the highest levels!"
— A scientist from the EPA

"Administration needs to act on the best information, not try to force the information to fit their desired action."
— A scientist from NASA

Barriers to Communication

"Reduced public affairs interference, review, delay, oversight."
— A scientist from NASA

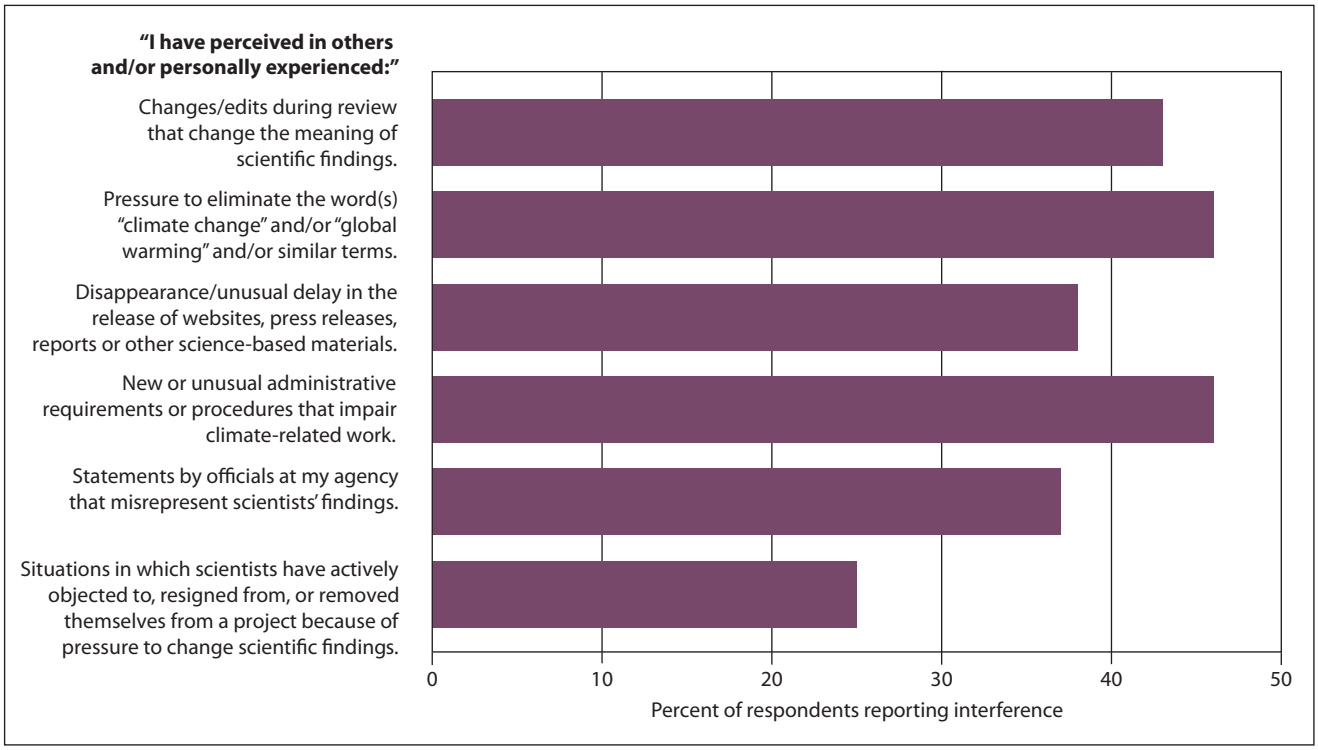
"As of March 2006, there was a marked change in NASA, and I have spoken out freely on climate change, including a NASA-approved press release. I believe scientists at other agencies (e.g. NOAA) still have restrictions."
— A scientist at NASA

"Recently a Bush appointee to the position of Public Information Officer attempted to muzzle Jim Hansen, Director of GISS . . . the NASA Administrator made it clear that such political meddling would not be tolerated. This was excellent leadership at the top and set the tone for any lower echelons that may not otherwise have been this strong. Michael Griffin is a great improvement over his recent precedents."
— A scientist at NASA

"From what I've heard, NCAR is rare among research institutes in that we are free to communicate our findings. This policy needs to apply to all research institutes and all scientists should be encouraged to communicate their results to the public."
— A scientist from NCAR

"At one point, I specifically asked my division director if there were any censorship policies at NCAR. He emphatically stated that there were none and that if we were ever pressured that we should contact him immediately and he would raise hell to eliminate the pressure."
— A scientist at NCAR

FIGURE 5: **Political Interference in Federal Climate Science**



all respondents to this question) said they had *personally experienced* one or more such incidents. Considering the low and high ranges for each available response option, those 150 scientists reported personally experiencing a collective total of *at least* 435 incidents of political interference over the past five years, and possibly more than 1,000 incidents.

The rate at which political interference occurs appears to be connected with the subject matter of a scientist's research. Survey results showed that the more frequently a climate scientist's work touches on issues that can be considered sensitive or controversial, the more likely he or she was to report interference; this trend can be clearly seen in Figure 6 on p. 23. More than three-quarters (78 percent) of respondents who self-reported that their research "always" or "frequently" touches on issues that could be considered sensitive or controversial also reported they had personally experienced at least one incident of inappropriate interference. More than one-quarter (27 percent) of this same group had experienced six or more such incidents in the past five years. Scientists whose research topics could "seldom" be considered sensitive or controversial reported notably less interference; while 60 percent of this group perceived one or more such incidents in others, only 30 percent experienced them.

"U.S. Federal government climate science does not lack integrity. Science assessments, summaries, policy papers sometimes do lack integrity. The best way to improve them would be to ensure they are written by qualified scientists, not by political hacks."

— A SCIENTIST AT THE USGS

THE VOICES OF FEDERAL CLIMATE SCIENTISTS

Many survey respondents used the open-ended essay question to express in their own words their concerns about federal climate science. In response to the question "The integrity of U.S. federal government climate science could best be improved by…" the scientists wrote:

Inadequate Funding

"I believe that climate research at NASA is being undermined by the current administration. This is accomplished not through direct threats of intimidation, but through lack of funding. Several years ago the funding focus [at NASA] was switched from Earth Science to solar system exploration (Moon and Mars). I believe this was done not for solar system exploration, but rather to curtail climate research. The emphasis needs to be switched back to Earth Science."
— A scientist at NASA

"The US Climate Change Science Program has not received sufficient funding for needed observations, monitoring, research, [and] data systems."
— A scientist at the USDA

"Problems with climate research in the federal government mainly have to do with funding. Future funding at my agency is uncertain. Future climate observational programs (crucial ones) are threatened because of lack of funds. New accounting rules at my agency require climate scientists to spend unreasonable amounts of time writing proposals, which has reduced productivity."
— A scientist at NASA

"I have not worked directly on climate change since funding was eliminated in my area. Other areas of much less importance have been emphasized as a result. Which is a tragedy."
— A scientist at the EPA

"Funding for climate research is a factor of 5-10 below critical mass to develop a designed climate observing system."
— A scientist at NASA

"Include a dedicated long-term observing program with stable funding support for about 30 more years. The current satellite program does not meet climate research needs."
— A scientist at NOAA

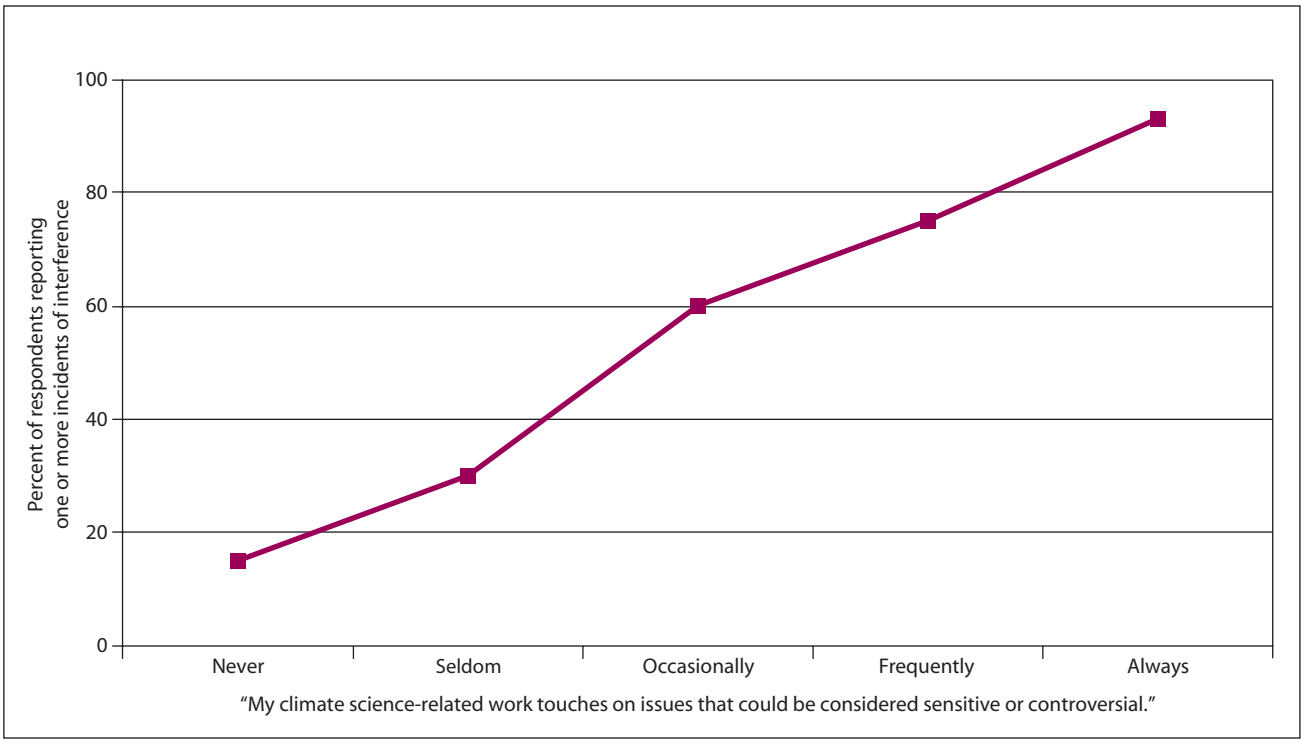
"US satellite programs are in severe jeopardy. The loss of continuity in observational satellite data will impair progress in climate science."
— A scientist at the USGS

Poor Morale

"I am [close to] retirement and feel that I will no longer be able to use my abilities to produce scientific information of relevance to the American public. The last years of my career are being squandered for political reasons. I do not think I will be able to do any more new climate science before I retire. My goal is to get out the results from past research."
— A scientist from the EPA

"Incredible bureaucratization of USGS during Bush era seems intent on crippling our scientific productivity by wasting more of our time and energy on ridiculous and counter-productive 'accountability' procedures, damag[ing] to morale."
— A scientist from the USGS

FIGURE 6: **Political Interference on Controversial Issues**



This pattern of higher reported levels of interference from scientists working on controversial topics is seen across each of the specific types of interference. In five of the six categories of interference listed in Figure 5 on p. 21, the rate of political interference among scientists who often work on sensitive or controversial issues rises to more than 50 percent. For example, 46 percent of all respondents, but 59 percent of scientists who always or frequently work on sensitive or controversial issues, perceived or experienced pressure to eliminate the words "climate change," "global warming," or other similar terms from a variety of communications.

Rates of political interference are also found to be higher among scientists who spend a larger percentage of time on climate-related work. Among respondents who spend more than half their time working on climate science, 63 percent personally experienced at least one incident of political interference in the past five years. This number is smaller (47 percent) among respondents who spend 50 percent or less of their time working on climate science.

Among respondents from NCAR, reports of incidents such as those described above were much lower than at federal agencies, irrespective of the controversial nature of the scientists' research. Only 22 percent of all NCAR respondents had personally experienced at least one incident of interference.

> **"Remove the current atmosphere where scientists who report findings truthfully may face consequences if they contradict administration policies."**
>
> — A SCIENTIST AT NOAA

ORGANIZATIONAL REFORM

Although not specifically addressed in the survey questionnaire, several scientists critiqued in their essay responses the fact that federal climate science is spread out across several federal agencies and is not the top priority of any single agency. No consensus solution exists among responding scientists; some advocate the creation of a single federal agency dedicated to climate change science, while others recommend strengthening the existing Climate Change Science Program that coordinates the climate work of many federal agencies. Below is a selection of essay responses on this topic.

"The main issue, as we often discuss, is that climate is not the primary mission of any agency, and is done piecemeal as resources permit, by a large collection of US agencies."
— A scientist at NASA

"There is the problem that the U.S. has no national framework for climate change research to guide expenditures or coordinate efforts."
— A scientist at NASA

"Need full-time, Senate-confirmed Director of CCSP/USGCRP."
— A scientist at NASA

"Formation of a US climate agency — no US agency has climate as #1 priority so no agency fails if climate science fails."
— A scientist at NASA

"Creating a separate climate science agency or, at least, assign climate science research to an existing agency. No agency is presently responsible for successfully investigating this critical area of research."
— A scientist at NOAA

"Separating meteorology and climatology organizationally. Moving NOAA out of Dept. of Commerce."
— A scientist at NOAA

None of the seven federal agencies surveyed was entirely free of incidents of political interference, and agencies with the largest numbers of climate scientists reported some of the highest rates of interference. Considering the three agencies with the highest number of climate scientists in the survey, 63 percent of NOAA respondents, 48 percent of DOE respondents, and 60 percent of NASA respondents had personally experienced at least one incident of political interference in the past five years. Notably, more than a quarter of NOAA respondents (27 percent, more than any other agency) had personally experienced pressure to eliminate the words "climate change," "global warming," or other similar terms from their communications.

Barriers to Communication

The UCS survey also investigated whether scientists experienced problems communicating to the public or media. Among all survey respondents, more than a third (39 percent) experienced or perceived "fear of retaliation for openly expressing concerns about climate change outside my agency," and a similar number (38 percent) also perceived or experienced "disappearance or unusual delay in the release of websites, reports, or other science-based materials." More than half (52 percent) said their agencies "always" or "frequently" require public affairs officials to monitor scientists' communications with the media.

These numbers rose among scientists who "always" or "frequently" worked on sensitive

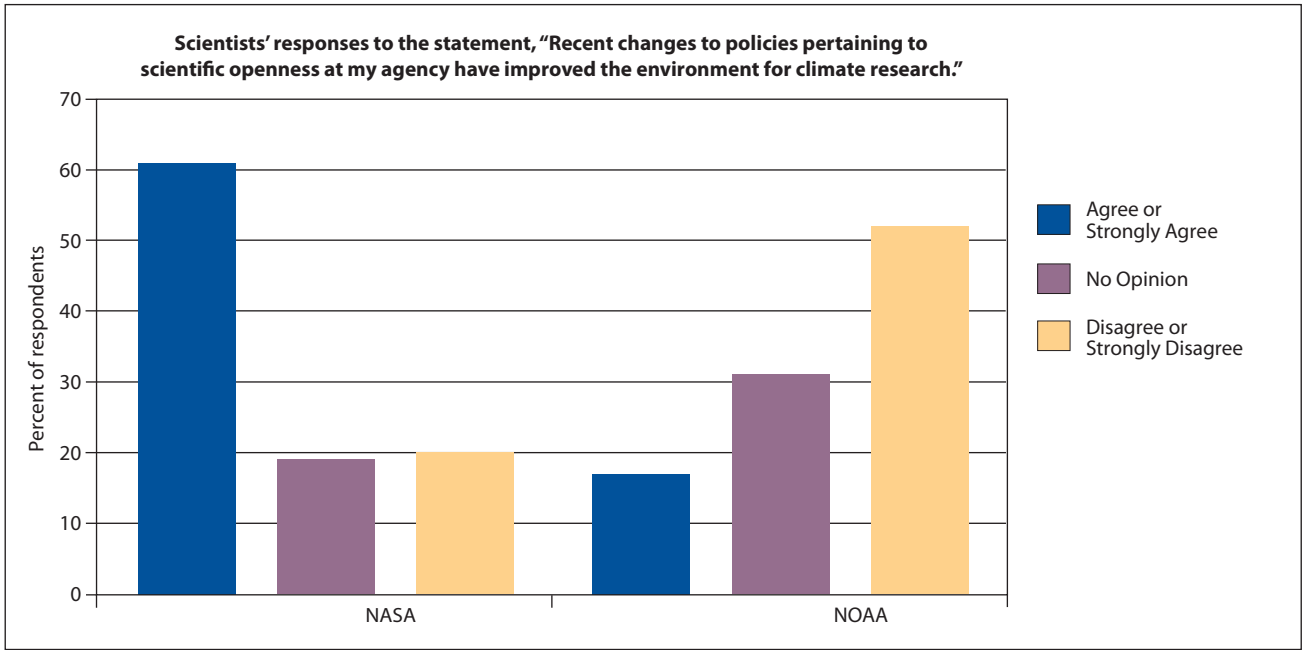
or controversial issues. Fifty-nine percent of respondents in this group perceived or experienced fear of retaliation for expressing their views outside their agencies, and 56 percent perceived or experienced the disappearance of science-based materials. Among NCAR respondents, these numbers were considerably lower. Only seven percent personally experienced the disappearance of science-based materials, or personally experienced fear of retaliation for expressing their views outside NCAR.

Survey respondents were asked about recent changes in policies pertaining to scientific openness at their agencies. Figure 7 compares the impact of scientific openness policies at NASA and NOAA (both released statements publicizing their scientific openness policies in February 2006, just four months before the surveys were mailed to scientists) as reported by survey respondents. A majority (61 percent) of respondents from NASA agreed that recent changes to policies pertaining to scientific openness have improved the environment for climate research at their agency, in contrast to 17 percent of NOAA scientists who agreed with the statement. Very small numbers of scientists at other federal agencies agreed with the statement that changes in scientific openness policies improved the environment for climate research at their agencies, but UCS has not heard about any scientific openness policies implemented by those agencies so they are not included in the comparison here.

"In general, climate change science is continuing at government agencies, and I believe we continue our world-recognized pre-eminence that we had in the 1990's. However, much of all work continues more clandestinely as we've had to amend our project titles and descriptions to get rid of key buzzwords that are not focused [on] by the current Bush administration."

— A SCIENTIST AT THE USDA

FIGURE 7: **Comparing the Impact of NASA and NOAA Scientific Openness Policies**



Inadequate Funding

Many survey respondents cited funding as a serious problem in today's federal climate science environment. As can be seen from Figure 8, although the vast majority (88 percent) of respondents agreed that federal government climate science was of generally excellent quality, a majority (53 percent) disagreed or strongly disagreed that the U.S. government has done a good job funding climate research. In addition, 40 scientists who responded to the open survey question mentioned insufficient funding as a major barrier to improving the integrity of U.S. climate science (several of these responses are included in the box on p. 22).

Poor Morale

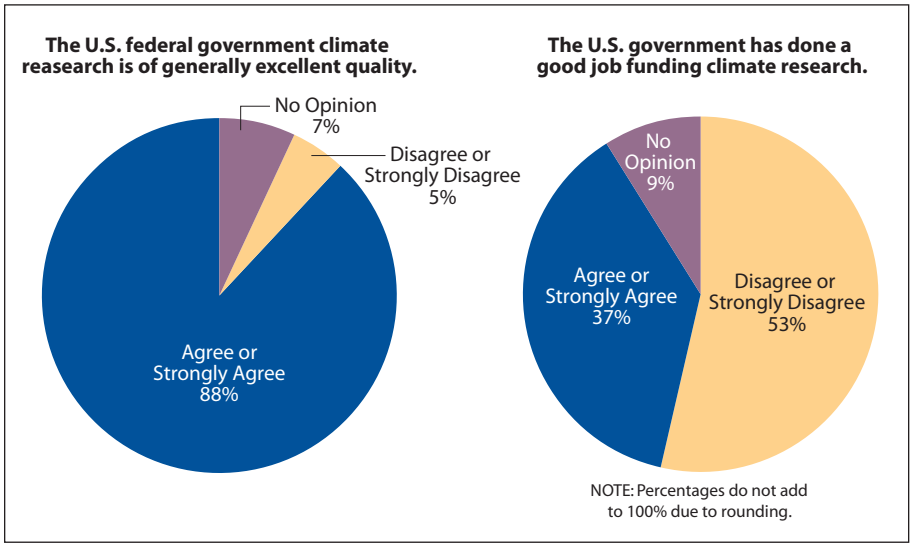
The UCS survey revealed that large numbers of federal climate scientists report low morale and general dismay with the environment for federal climate science. As shown in Figure 9, approximately two-thirds of all respondents thought the environment for federal climate science is worse today than it was 5 years ago (67 percent) and 10 years ago (64 percent). Respondents were evenly split as to whether the environment now was worse than one year ago (42 percent) or whether it was the same (40 percent).

Nearly half of respondents (45 percent) say their personal job satisfaction has decreased over the past few years, and more than half (55 percent) reported "fair," "poor," or "extremely poor" morale within their offices. The connection between decreased job satisfaction and political interference in science was explicit in some essay responses (see box on p. 22).

Survey respondents who spend most of their time working on climate science reported the most negative perceptions of the environment for climate research. Among respondents who spend more than three-quarters of their time working on climate related topics, 50 percent consider today's environment for climate science to be worse compared with one year ago, and 72 percent consider it to be worse compared with five years ago (see Figure 10). A similar, though less pronounced, trend was seen among scientists whose climate research always or frequently touched upon sensitive or controversial topics.

Interestingly, while 61 percent of NASA respondents agreed that "recent changes to policies pertaining to scientific openness at my agency have improved the environment for scientific research," the same percentage also reported decreased job satisfaction over the past few

FIGURE 8: **Funding and Quality of Federal Climate Research**



years. (Only USGS respondents were more likely to report decreased job satisfaction, at 68 percent). What's more, 57 percent of NASA respondents said that the environment for federal climate science research was worse compared with one year ago, significantly higher than the 42 percent of all respondents who felt this way. NASA respondents were the most likely to report poor or extremely poor morale in their agency (36 percent).

FIGURE 9: **A Deteriorating Environment for Federal Climate Research**

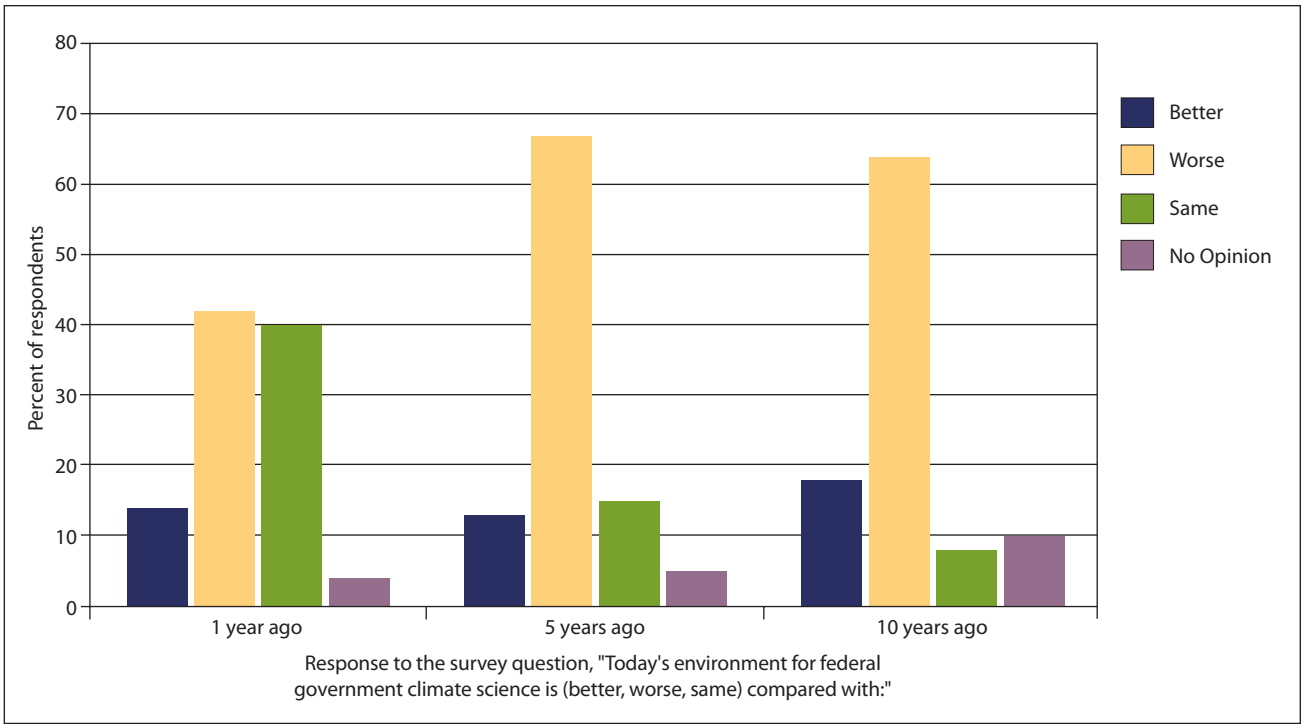


FIGURE 10: **Increased Dissatisfaction for Climate Scientists**

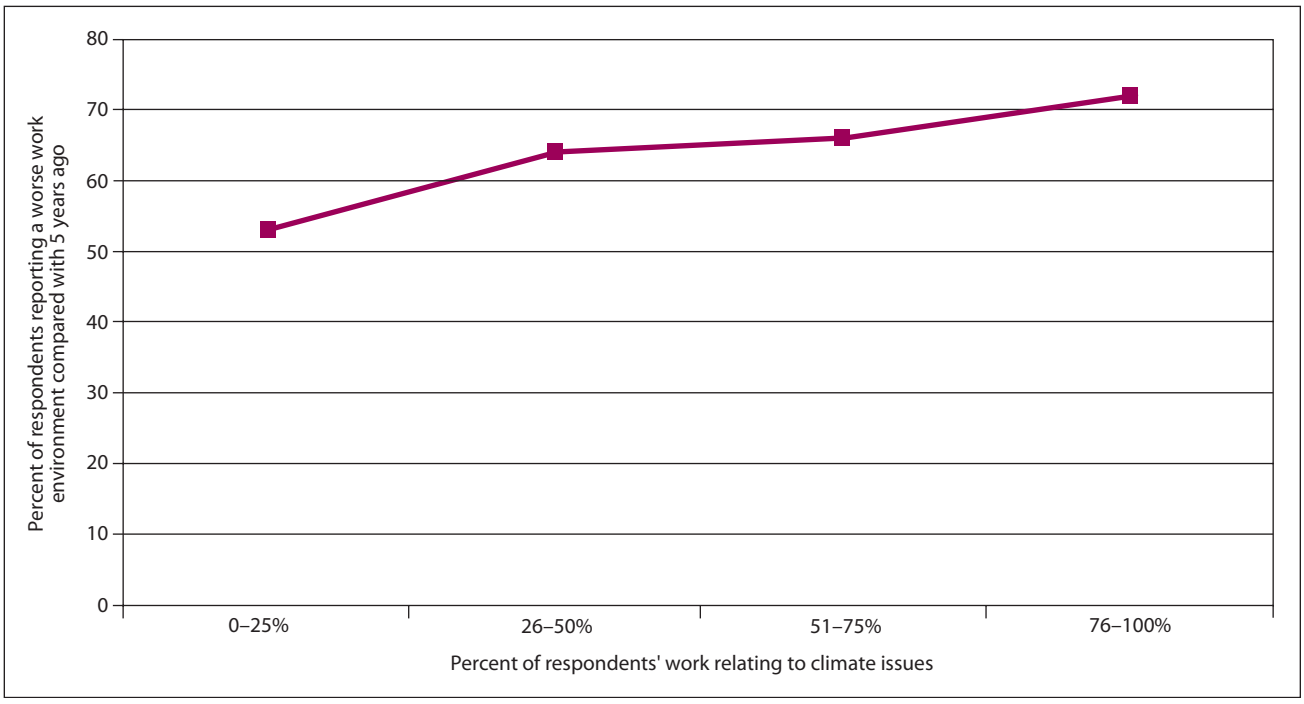
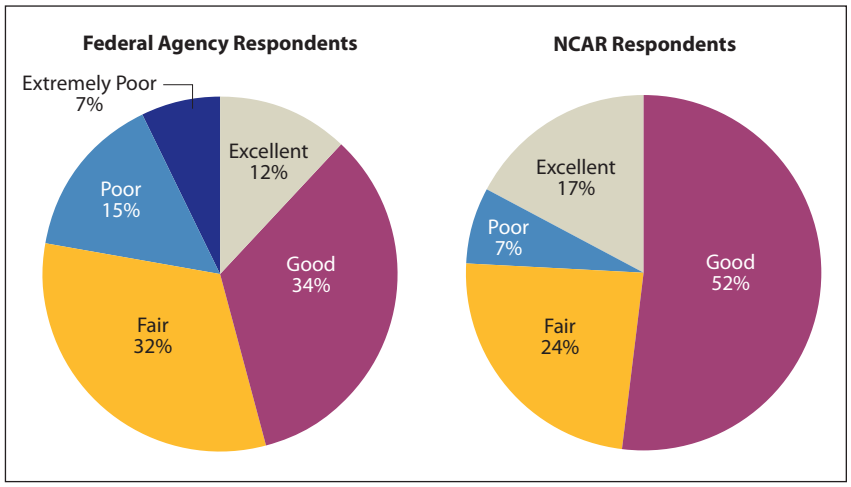


FIGURE 11: **Morale within Climate Research Offices**



NOTE: No NCAR responents reported "extremely poor" morale.

Survey responses from NCAR scientists again told a very different story than those from federal agency scientists. Among NCAR respondents, 69 percent described morale as good or excellent; only seven percent reported that morale within their office was poor and no NCAR scientists reported extremely poor morale (see Figure 11). NCAR scientists were also less likely than average (only 39 percent) to report decreased personal job satisfaction over the past few years. In addition, NCAR scientists responded most enthusiastically to the statement, "Climate science at my agency is moving in the right direction." More than 86 percent of NCAR respondents agreed or strongly agreed with this statement, compared with just 47 percent of all federal respondents (and less than a third of respondents at some individual agencies).

Despite low morale, agency scientists generally hold the managers of federal agency scientific research in high regard. More than four in five respondents to the UCS survey (83 percent) agreed or strongly agreed with the statement, "My agency's leadership aspires to and expects a high level of integrity and professionalism." However, only half of respondents (48 percent) said that their management stood behind scientific staff or managers who put forth "scientifically defensible positions that may be politically controversial."

CHAPTER 6

GAP Investigation Results

Through a series of in-depth interviews with climate scientists and other federal officials, and a review of government documents obtained through FOIA requests and inside sources, the GAP investigation uncovered policies and practices at federal agencies that seek to control the communication of scientific findings with both the media and with Congress. The evidence presented in this chapter focuses most heavily on restrictive policies at NOAA, because the greatest number of documents was obtained from that agency (2,000 pages, compared with only nine pages from NASA and zero from the EPA). However, some results are also provided from interviews with scientists at other federal agencies including the EPA, USGS, and NASA.

Media Policies and Practices

The GAP investigation found that federal agencies employ a number of restrictive policies and practices, including:

- **Pre-approval**, when agency public affairs officials (PAOs) must grant permission for any media interviews with scientists;
- **Routing**, when requests for interviews with a particular scientist about a given topic are instead transferred to a different scientist, or restricted in terms of the topics that may be discussed; and
- **Monitoring** of media contacts by PAOs, either in person or over the phone.

Scientists do not waive their first amendment rights by working for a government agency. As such, they should be legally afforded what is termed a "personal views" exception to such restrictive media policies. Such an exception allows scientists to speak freely so long as they clarify that they are not speaking on behalf of the agency and do not use government time or resources for such personal communications. However, many of the federal media policies discussed in this section do not explicitly provide such an exception and have the effect of limiting media contacts with scientists.

GAP uncovered few restrictions placed on communication between scientists and the media in documents written prior to 2001. A common procedure for media contacts was "notification and recap," whereby a scientist would inform the public affairs office of an upcoming media interview and then summarize the interview for them afterward (Anonymous NOAA official 2006a). From 2001 through 2004, media policies at NOAA slowly became more restrictive, culminating in the release of an official NOAA-wide media policy by Administrator Conrad Lautenbacher in June 2004. This new media policy gave public affairs offices the ultimate authority over all agency communications and explicitly or implicitly implemented the three types of restrictions outlined above. A similar tightening of media policies and practices was also observed at other federal agencies such as the EPA, USGS, and NASA during this time period.

Examples of Interference

There are many examples where restrictive policies (including those described above have interfered with the communication of scientists' research. The following are just a few of these incidents.

PRE-APPROVAL, ROUTING, AND FAVORITISM

The 2004 NOAA media policy implemented top-down control over all press contacts, as

Scientist Silenced on Global Warming and Hurricane Connection

Dr. Thomas Knutson is a NOAA climate modeling expert working with hurricane specialists to investigate the link between climate change and tropical cyclone activity. He has experienced several instances of political interference in his work, which illustrate the power of NOAA's new media policies and practices to control the communication of scientific results.

In September 2004, Knutson published a paper in the *Journal of Climate* suggesting that an increased concentration of carbon dioxide in the atmosphere could lead to more intense tropical cyclones with increased precipitation and flood potential. His paper coincided with the Florida hurricane season and was picked up by the *New York Times*, thereby gaining a tremendous amount of visibility for his research. On July 31, 2005, a study by Dr. Kerry Emanuel was published in the journal *Nature* linking increased hurricane intensity to increased sea-surface temperatures (primarily due to global warming). The anticipation of media requests related to Emanuel's article prompted Erica Rule to remind NOAA employees of the requirements of NOAA's media policy (see p. 31).

That weekend, after returning from a trip, Dr. Knutson received a voicemail from a NOAA public affairs officer named Kent Laborde asking whether he would be interested in appearing on Ronald Reagan, Jr.'s MSNBC talk show to discuss hurricanes and climate change (Knutson 2006). Shortly thereafter, he received a voicemail from the show's production staff. As it was the weekend, Knutson responded directly to the show staffer to confirm his appearance and requested they contact the PAO on Monday morning. That Monday, Laborde left Knutson voicemails apologizing for the confusion and stating that the "White House said no" to Knutson's appearance. Laborde also notified Knutson that he had already called the show and offered as an excuse that Knutson was too tired for the interview after his trip.

The FOIA record shows that instead of approving requests for interviews with Knutson, the NOAA public affairs office routed all media inquiries related to hurricanes and Emanuel's article to Dr. Chris Landsea, another NOAA scientist familiar with the Emanuel study, but who, unlike Knutson, contested the connection between hurricane intensity and global warming. Within a few days, Landsea was granted an interview with *USA Today* (Laborde 2005).

Following Hurricane Katrina, NOAA scientists were again in high demand for media interviews talking about the connection between hurricanes and global warming. On the morning of October 16, 2005, Knutson received a request to appear on the CNBC show "On the Money" (Knutson 2006). Knutson called Laborde for approval, and FOIA documents show that Laborde forwarded the request to Chuck Fuqua, deputy director of communications at the Department of Commerce, who responded: "What is Knutson's position on global warming vs. decadal cycles? Is he consistent with Bell and Landsea?" (Fuqua 2005) Knutson remembers that Laborde soon called back to question him about what he planned to say—especially with regard to any trends in hurricane activity—and that Knutson "supplied a guarded response." Laborde then wrote to Fuqua, "he is consistent, but a bit of a different animal. He isn't on the meteorological side. He's purely a numerical modeler. He takes existing data from observation and projects forward. His take is that even with worse [sic] case projections of green house gas concentrations, there will be a very small increase in hurricane intensity that won't be realized until almost 100 years from now." Two minutes later Fuqua responded, "why can't we have one of the other guys on then?" Knutson soon received a voicemail notifying him that the interview had been rejected.

evidenced by two emails (excerpted below) that were sent by different NOAA PAOs to large numbers of scientists and managers:

> **From Erica Rule:** A study on hurricanes and global warming by Emanuel Kerry [sic] will be released in Nature this Sunday. As this topic might generate media inquiries—consider this e-mail a reminder that ALL media requests are to be directed to NOAA Public Affairs . . . (Rule 2005)

> **From Jim Teet:** I have been informed that any request for an interview with a national media outlet/reporter must now receive prior approval by DOC [Department of Commerce, NOAA's parent agency]. Please ensure everyone on your staff is aware of this requirement . . . (Teet 2005)

These emails show that the media policies are intended to apply to all scientists, although an interview with NOAA PAO Jana Goldman confirmed that certain scientists working on controversial topics received special scrutiny (Goldman 2006). In some cases, PAOs actively denied agency scientists access to the media due to the politically sensitive nature of their work; a particularly egregious example of such interference is the case of Dr. Thomas Knutson (see box at left). In other cases, PAOs attempted to direct media attention away from the work of the agencies' own scientists.

For example, in December 2003, Dr. Kevin Trenberth, head of NCAR's Climate Analysis Section, published an article in the journal *Science* titled "Modern Climate Change." The article, coauthored with Thomas Karl, director of NOAA's National Climatic Data Center, surveyed then-current climate science research and concluded, "modern climate change is dominated by human influences." NOAA had been informed of the pending publication, which included a disclaimer stating, "this article reflects the views of the authors and does not reflect government policy" (Karl and Trenberth 2003).

Nevertheless, media inquiries for Karl were diverted to Dr. Jim Mahoney, a political appointee (now retired) who at the time served as both assistant secretary of commerce for oceans and atmosphere and NOAA deputy administrator (Trenberth 2006). In a December 4, 2003, article in the *San Francisco Chronicle*, Mahoney downplayed the significance of the peer-reviewed study, stating: "My own view is somewhat more open-minded, and from my perspective we don't really understand these things as well as we might" (Perlman 2003).

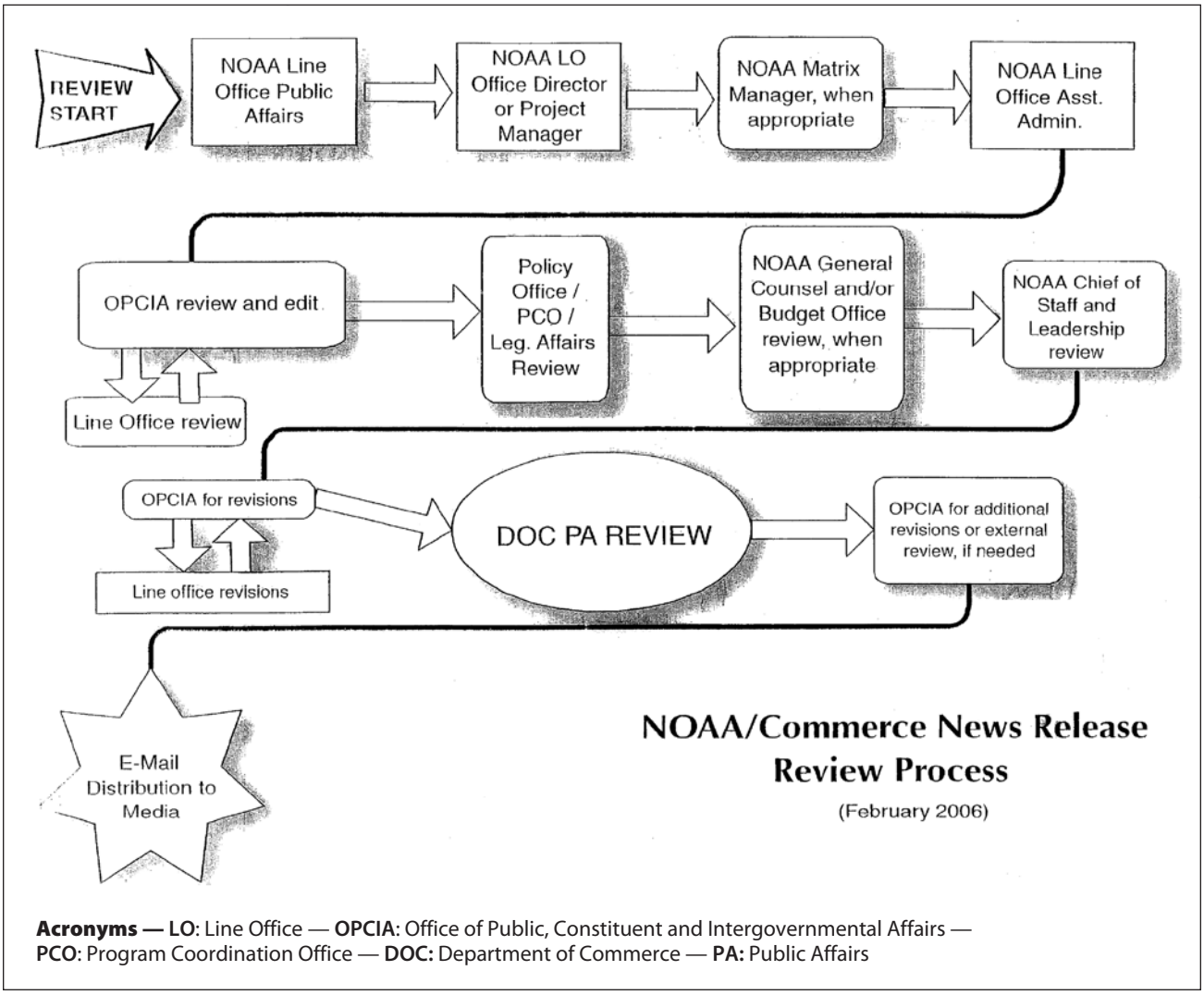
PRESS RELEASES

Agency decisions about which research to highlight with official press releases are also subject to political control. Figure 12 on p. 32 shows a flow chart (obtained through a FOIA request) detailing the extremely complicated process by which a press release is submitted, reviewed, and approved—or not—by several layers of bureaucracy within NOAA and the Department of Commerce. As is clear from the flow chart, a successful press release must pass review by several entities that primarily serve political and public relations functions, and scientists do not have a right of final review to ensure scientific accuracy of the final product.

A NOAA scientist recalls attempting in 2001 to raise media attention for a published paper that determined, from a comparison of climate models and empirical data, the influence of human activities on the warming of Earth's oceans. At first, the scientist said, there was going to be a media advisory and press conference to highlight the findings, but it "kept getting degraded until it was canceled." The scientist contrasted this experience under the Bush administration with work done on a "heat index" in the late 1990s, when then-Vice President Al Gore, on behalf of the Clinton administration, actively helped to publicize the results (Anonymous NOAA scientist 2006a).

Another NOAA scientist, Dr. Richard Wetherald, encountered similar difficulties publicizing

FIGURE 12: **NOAA Review Process Flowchart**



Acronyms — LO: Line Office — **OPCIA**: Office of Public, Constituent and Intergovernmental Affairs — **PCO**: Program Coordination Office — **DOC:** Department of Commerce — **PA:** Public Affairs

SOURCE: NOAA (obtained through FOIA request, June 2006)

scientific findings. The following excerpts are from a September 26, 2002, email conversation between NOAA public affairs staffer Jana Goldman and Wetherald, a research meteorologist at NOAA's Geophysical Fluid Dynamics Laboratory (GFDL). The conversation, obtained through a FOIA request, refers to an article Wetherald co-authored on a study of the simulated hydrological changes associated with global warming.

> **Wetherald:** ". . . I have not bothered to write a draft NOAA press release since the last time it was turned down by the Dept. of Commerce. Apparently at that time, greenhouse or global warming papers were considered to be the literary equivalent of 'persona non grata' by the current administration. I assume that this is still the case? I don't want to waste both of our times if it is. Anyway, here is the summary for your information. Please let me know if this policy has changed. . . ."

Goldman: ". . . What I think I may do is pass the abstract along downtown and see what they think. I agree with you, the attitude seems to have changed regarding climate change, but let's also avoid doing unnecessary work if it's not going to go anywhere. . . ."

> **Wetherald:** ". . . That sounds like a sensible idea. If by some miracle, you can use it as a NOAA press release, this would be fine as long as it contains the basic conclusions in the summary that I sent. I will certainly help out if it comes to that. . . ."
>
> **Goldman:** ". . . I sent the abstract down to see if it would fly -- if so, we would have to draft a release, but at least we would know that it would go through and our work would not be in vain. . . ." (Goldman 2002)

The New Jersey *Star-Ledger* reported that Wetherald has had three proposed press releases rejected—beginning with an early 2001 publication regarding "committed warming and its implications" in the prestigious peer-reviewed journal *Geophysical Research Letters*. He was told that his most recent 2004 press release accompanying the publication of another global warming paper was rejected by "officials" at the Department of Commerce. "Obviously, the papers had a message, and it was not what they wanted it to be," Dr. Wetherald stated in the *Star-Ledger* article. "A decision was made at a high level not to let it out" (MacPherson 2006).

Scientists at agencies other than NOAA also encountered difficulties with press release approval. One example is Dr. Christopher Milly, a USGS research hydrologist who studies the interaction of climate with the global water cycle. While it is Milly's understanding and experience that there is no pre-approval requirement for media contacts at USGS, he reported two incidents of interference with press releases. The first case was in 2002 when a USGS press officer indicated that the subject matter of a press release (the increased risk of extreme flooding due to global warming) was considered sensitive and could cause problems at the White House. The Department of the Interior declined to issue the release, arguing that it would probably be released by *Nature*, the journal that published the research paper on this subject. In fact, while *Nature* did issue a release, its decision to do so only occurred after the Interior Department refused to do so.

The second case was in November 2005, when a press release on the impact of climate change in water supply modeling went out but only after the PAO had altered the text and removed words such as "global warming," leaving the scientific content intact but possibly lowering its visibility. Milly does not know who made the ultimate decision in either case, but said that others have told him that personnel in USGS public affairs consider climate change and energy to be "hot-button" issues for the administration, and that reference to such sensitive issues, outside of scientific papers, are thus handled and edited with care (Milly 2006).

In mid-September 2004, Dr. Drew Shindell, an ozone specialist and NASA climatologist, submitted a press release to the Goddard Space Flight Center PAO to announce the publication of a paper on climate change in Antarctica. Shindell and the PAO together suggested the title "Cool Antarctica may warm rapidly this century, study finds," which NASA headquarters then asked to be "softened." Headquarters also rejected the next suggestion that Dr. Shindell and the PAO offered—"NASA Scientists expect temperature flip-flop at the Antarctic"—and instead, over Shindell's objections, titled it "Scientists predict Antarctic climate changes." Not surprisingly, Shindell commented, the press release generated relatively little media interest (Shindell 2006a).

Another NASA scientist spoke of a press release written by a PAO that was ready to be posted to the NASA website. However, when the press release, which was about research into the impact of climate-related flooding on agriculture, was sent for a higher level of review, it was rejected without explanation. The scientist, believing the results to be significant, had to ask high-level colleagues to lobby to get the release approved (Anonymous NASA scientist 2006).

MONITORING MEDIA INTERVIEWS

A new development over the past five years is the use of "minders"—a term used by some scientists to describe public affairs officials who listen in on scientists' interviews with the media. With restrictive media policies selectively enforced, some scientists have been more actively "minded" than others. Dr. Pieter Tans was one scientist who was monitored very actively by NOAA press officer Kent Laborde. Tans, chief scientist at NOAA's Global Monitoring Division (previously the Climate Monitoring and Diagnostics Laboratory), was accustomed to making his own appointments for press interviews under the "notification and recap" policy. But by 2004, media policies at NOAA had tightened.

In October 2004, David Shukman, a science correspondent with the BBC, contacted Tans to request a series of broadcast interviews. According to Tans, it took until February 2005 to be granted permission to give the interviews, and approval was conditioned on Laborde's presence (Tans 2006). Laborde flew from NOAA's headquarters in Washington, DC, to Boulder, CO, and Mauna Loa, HI, to be present for the March 22 and 24 interviews. When Shukman again requested an interview with Tans on February 1, 2006, the interview was again approved only under the condition that Laborde be present. When Tans asked Laborde if he was required to report on the interviews, Laborde replied that he did not report the proceedings to anyone. Tans found it unusual that NOAA public affairs would allow such extensive travel, at taxpayer expense, simply to listen in on a media interview and not report on the proceedings. At least three other scientists at NOAA's GFDL have had media requests granted provided that Laborde be present at or listen in on the interview (Stouffer 2006; Knutson 2006; Anonymous NOAA scientist 2006b).

Decreased Media Contact with Scientists

Journalists as well as scientists have said that these approval requirements have made reporting on climate research difficult, often making reporters miss their deadlines. Ronald Stouffer, senior research meteorologist at NOAA's GFDL, estimates that NOAA's clearance policy—which he nicknames the "pocket veto"—has reduced his domestic media requests (about half of all interview requests he receives) from one every two to three weeks to one every two to three months (Stouffer 2006). Interviews with the European media have remained constant, perhaps because of an increasing demand from European reporters interested in his work on ocean circulation. In interviews, NOAA's Knutson also experienced a decrease in media contact, stating that around one-fifth of his 60 to 70 annual media requests, including requests by major national media outlets, "fall through the cracks" due to the additional delays imposed by the new media policies (Knutson 2006).

Scientific Openness Policies

In February 2006, after Dr. James Hansen's widely publicized allegations of censorship (see p. 12), NASA Administrator Dr. Michael Griffin issued an agency-wide statement clarifying that the role of public affairs officers was not "to alter, filter or adjust engineering or scientific material produced by NASA's technical staff" (Griffin 2006). This statement was followed, on March 30, by an official new policy that purports to uphold the right of open communication between scientists and the media (NASA 2006).

NASA's scientific openness policy is far from perfect. It still requires scientists to obtain "preapproval" from NASA headquarters for media interviews and denies scientists the right of final review for any communication with "the potential to generate significant media or public interest." The policy also imposes restrictions on the ability of government whistleblowers to disclose non-classified information, a practice that violates two federal laws (the Anti-Gag Statute[2] and the Whistleblower Protection Act) that provide protections for federal employees disclosing evidence of government wrongdoing (GAP 2006).

Despite these problems, the policy was a move in the right direction and was widely praised by both NASA scientists and lawmakers. Representative Sherwood Boehlert (R-NY), chairman of the House Science Committee, noted in a press statement that the NASA policy "should become a model for the entire federal government" (Boehlert 2006). The *New York Times* also reported that more than 140 NASA scientists, engineers, and civil servants signed a statement "that applauded the agency's administrator, Michael D. Griffin, for following up on his Feb. 4 pledge of 'scientific openness'" (Revkin 2006c). NASA scientist Shindell noted some improvements at the agency, stating, "I've had much better experiences recently and the press corps at GSFC is no longer reluctant to use phrases like 'climate change' or 'global warming' which they were before as they had the feeling that that would 'doom' a release" (Shindell 2006b).

Around the same time that the NASA policy was implemented, NOAA claimed a similar commitment to scientific openness. On February 14, 2006, NOAA Administrator Conrad Lautenbacher wrote a memo to all NOAA employees stating:

> "Our media standards also reflect an open policy. We encourage our public affairs staff to keep abreast of media interests. I encourage our scientists to speak freely and openly….We ask only that you specify when you are communicating personal views and when you are characterizing your work as part of your specific contribution to NOAA's mission."

However, the official 2004 NOAA media policy contradicts Lautenbacher's affirmation of "personal views," and no changes to the policy have been made to address scientists' concerns.

2 The Anti-Gag Statute is a little-known law, unanimously enacted in 1988 and renewed annually, that establishes the supremacy of congressional free speech laws unless information is specifically identified in advance as classified. The statute was first passed in response to Reagan administration nondisclosure agreements that allowed felony prosecution for releasing any "classifiable" information without advance approval. The administration informed Congress that "classifiable" meant anything that could or should have been classified, or "virtually anything." In other words, without advance permission, whistleblowers could be prosecuted based on an after-the-fact decision that almost any information they released was classified.

The Anti-Gag Statute bans efforts to implement or enforce any nondisclosure policy, form, or agreement that does not include a mandatory, specifically worded addendum (see appendix D). The addendum states that the Whistleblower Protection Act of 1989 (protecting public disclosures) and the Lloyd Lafollette Act of 1912 (protecting congressional communications) supersede any restrictive language in any legally enforceable nondisclosure agreements.

Scientific Communication with Congress

The GAP investigation, through interviews with an anonymous agency source and analysis of internal documents provided by agency staff, found that restrictive agency policies affect scientific communication not only with the media but with Congress as well. Agency policies regarding congressional communication—including testimony, questions for the record (QFRs), scientific information sent to policy makers to assist the formulation of legislation, and congressionally mandated reports—closely parallel agency media policies and practices in that they seek to maintain tight control over the message that is communicated. The preparation of these communications is subject to a formal process that is dominated by non-scientific staff and high-level agency officials.

NOAA Document Review

In 2004, shortly after releasing its new media policy, NOAA issued the second edition of its "Procedures Manual for Congressional Communications." The 18-page policy is highly detailed, covering every aspect of congressional communications. Every type of scientific communication covered in the manual requires clearance by the Department of Commerce (DOC) and, with the exception of congressionally mandated reports, the Office of Management and Budget (OMB). Housed within the Executive Office of the President, the OMB oversees federal agencies with the stated mission of ensuring that "agency reports, rules, testimony, and proposed legislation are consistent with the President's Budget and with Administration policies" (OMB 2006). NOAA's Office of Legislative Affairs (OLA) is responsible for coordinating congressional communications, including input, review, and clearance by relevant parties.

For example, in the case of congressional testimony, the policy states:

> OLA will coordinate NOAA headquarters review and clearance of the testimony and obtain clearance from DOC and the Office of Management and Budget. . . . OLA will address all clearance comments received from DOC and OMB. Edits and comments not related to policy issues will be handled directly by OLA. When, in the opinion of OLA, clearance comments involve a policy issue, OLA will make every effort to obtain the views of the NOAA witness or a policy official designated to act on behalf of the witness (NOAA 2004).

While such a general clearance policy is standard, the language of the policy does not seem to give any guidelines or limitations regarding the kinds of edits and comments considered appropriate. When a document or testimony is providing scientific information, there is no guarantee of a final technical review by scientists to ensure accuracy has been maintained throughout the process. In practice, this policy affords the DOC, OMB, and NOAA management a great deal of latitude in the political review and alteration of scientific content.

According to an inside source at NOAA, communications with Congress, including those drafted in consultation with scientific experts, are handed up from OLA to what is commonly known as the "policy shop," housed within the Office of the Undersecretary, and to the NOAA assistant secretary's office. Documents—particularly those that contain sensitive subject matter—are edited in the "policy shop" to downplay certain conclusions and exaggerate uncertainty. Our source noted that this process lacks transparency: "It is very hard to trace who is initiating certain types of changes. Once an answer (the 'Administration's position') is developed to a particular question, everyone knows that the answer has to be used again whenever the topic is addressed again in the future," and that scientific content is frequently changed to conform to the favored policy position. "Realizing that it is pointless," the source said, "OLA has stopped asking certain scientists what to write in certain circumstances as it is certain to get completely rewritten anyway" (Anonymous NOAA official 2006b).

Altering Scientific Information

The OMB and interagency reviewers have sometimes altered scientific information in documents going to Congress. A set of internal documents provided to GAP by agency staff shows this political editing in action. The documents are draft responses to QFRs submitted by Senators Daniel Inouye (D-HI) and Frank Lautenberg (D-NJ) following an April 26, 2006, Senate Commerce, Science, and Transportation Committee hearing on projected and past effects of climate change. The draft responses include comments and edits from scientists, the OMB, EPA, DOE, and the White House Office of Science and Technology Policy compiled by the NOAA legislative affairs specialist in charge of coordinating clearance and review of congressional communications. A copy of the compiled edits to selected QFR responses from Senator Inouye is included in Appendix E.

In one response, the OMB recommended keeping the first sentence of the paragraph: "The full range and magnitude of the biological and biogeochemical effects of ocean acidification are still so uncertain that a reliable and quantitative estimate of the likely socio-economic effects is not yet possible," but removing the next sentence: "However, healthy coral reef ecosystems are important to both the fisheries and tourism industries and negative impacts on these ecosystems could affect these industries." The OMB's explanation for this suggested deletion was, "As written this seems to conflict with the factual first sentence of the paragraph, which adequately answers the question."

Fortunately, agency scientists were able to reverse inaccurate alterations introduced by non-scientific reviewers in another part of the document. In this instance, the OMB suggested adding text that attributed global warming to increasing water vapor, drawing from a quote taken out of context from a scientific paper by Drs. Thomas Karl and Kevin Trenberth (Butler 2006). Comments by Dr. James Butler in a subsequent draft attempted to clarify that this is not what was meant, but the OMB seemed to insist on keeping the language. Finally, the OMB appeared to accept a change to the language made by Karl himself.

These two examples show that, while federal climate scientists are occasionally able to correct distortions to scientific findings in congressional communication, political appointees can still introduce inaccurate information that goes unchecked. It is therefore essential that scientists have a right of final review to correct inaccuracies and protect the scientific integrity of these communications.

CHAPTER 7

Discussion

The UCS and GAP investigations into political interference with government climate scientists were conducted independently yet arrived at very similar conclusions regarding the state of federal climate science research. This chapter describes the key themes that surfaced from our investigations.

"The intrusion of politics into the field is making some (me and others) consider change of field or career."

— A SCIENTIST AT NOAA

Political Interference is Common

The federal government needs accurate scientific information to craft effective policies. Political interference with the work of federal scientists threatens the quality and integrity of these policies. As such, no scientists should ever encounter any of the various types of political interference described in our survey questions. Yet, as the UCS survey shows, 150 survey respondents—an unacceptably large number—personally experienced instances of interference over the past five years. Such large numbers indicate that the widely publicized incidents described in Chapter 3 are not merely isolated problems or the acts of a few overzealous political appointees. Indeed, interference in the work of federal climate scientists has become all too common.

Survey respondents reported political interference of various shapes and degrees, some as explicit as direct edits and pressure to change words in scientific documents, and others more subtle, such as excessive levels of review and prolonged delays in releasing official reports and websites. Scientists at all seven of the surveyed federal agencies reported personally experiencing these types of political interference. The fact that no single agency and no single mode of interference stood out from the others strongly indicates that this pattern of interference is *not* the consequence of poor leadership at a specific agency or a specific policy only affecting federal scientists in a limited manner.

The interference revealed in the UCS survey and through the GAP interviews support the claim made by many scientists in their essay responses that interference is used to advance pre-ordained policy positions and to avoid highlighting results that may prove politically inconvenient. Our findings indicate that political interference works to control the message being communicated by federal climate scientists.

Interference in the work of some federal scientists can have a chilling effect on others working in the same laboratory or agency. Even one highly publicized incident of interference can serve to raise concern among other scientists that their research is likely to draw similar scrutiny. The large numbers of respondents who report perceiving in others various instances of political interference show that this is an acknowledged problem among climate scientists.

Scientists at NCAR are not federal employees, although the quality and scope of their climate research is similar to that undertaken at federal agencies. Since NCAR employees are insulated from federal policies and oversight by political appointees, they served as a control group for the UCS investigation. NCAR scientists stood

out from the rest of the survey respondents in that they reported personally experiencing much lower rates of political interference than their federal colleagues.

Open communication between scientists is one of the pillars of the scientific method itself. But for society to fully reap the benefits of scientific advances, information must also flow freely among scientists, policy makers, and the general public. Our investigation has found this flow to be impeded by inappropriate political interference, the consequences of which are that government policy makers base their decisions on incomplete—or in some cases, inaccurate—scientific information, and a broader public understanding of the reality and urgency of climate change is stunted.

Restrictive Policies Silence Inconvenient Science

Federal scientists have a constitutional right to speak about their scientific results, and the American public has a right to be informed of the findings of taxpayer-supported research. Restrictions on scientists who report findings contrary to an administration's preferred policies not only undermine these basic rights, but also contribute to a general misunderstanding of climate science and impair our government's ability to craft effective policies on global warming.

The news media is a powerful means of communicating the latest advances in scientific understanding to the public, and can be a highly effective tool for popular science education. It is this tremendous potential for influencing public opinion that has caused government agencies to attempt to tightly control what message is presented to the media. The GAP investigation uncovered media policies and practices at several federal agencies that not only select which agency research gets highlighted by official press releases, but also which agency scientists can speak with reporters and about which topics. This level of control is a marked change from the previous standard of "notification and recap" that seemed to characterize the relationship between public affairs officials and scientists in years past.

The investigation found that these policies and practices have resulted in significant interference in the work of federal climate scientists. There are numerous examples in which agency PAOs sought to control, obstruct, or weaken scientific messages that undermined the administration's policy positions. In effect, PAOs at federal agencies have assumed the role of gatekeepers for scientific information, either under their own authority or more likely at the direction of their superiors.

These restrictive policies are systemic, but in practice selectively applied. In interviews, scientists noted that the policies were most stringently applied to federal climate scientists whose research results contradicted the administration's position. This distinction is evident in the UCS survey results, which showed that scientists working on issues that may be considered sensitive or controversial reported larger numbers of experienced incidents of interference and were also more likely to experience all of the various forms of interference detailed in the survey.

The investigation did uncover some signs of improvement. Perhaps as a consequence of NASA's new scientific openness policy, released in early 2006, a majority of NASA respondents reported that the new policy had improved the environment for climate research; several scientists credited the policy (and NASA Administrator Michael Griffin) in their essay responses. However, NASA stands alone among the agencies surveyed to receive commendations from its scientists for improved policies. Despite NOAA Administrator Lautenbacher's statement asserting that NOAA also respected scientific openness, the official policy fell short of this claim,

"Applied climate science is essential to manage climate impacts with increased climate variability."

— A SCIENTIST AT THE USDA

and only a small percentage of NOAA survey respondents agreed that recent policies had improved the environment at their agency. While the NASA openness policy is not perfect, it stands as a model for the type of action other agencies should take by providing clearer guidelines for both scientists and public affairs staff, and highlights the need for strong leadership affirming the right of government scientists to communicate their research findings.

Funding for Federal Climate Science is Inadequate

Federal funding for climate science research has been declining since the mid-1990s when adjusted for inflation (see chart on p. 10). Scientists find the level of funding to be inadequate to support the research needed to understand global climate change. A majority of survey respondents disagreed that the federal government has done a good job funding climate research, and dozens of scientists called for increased funding in their essay responses (see box on p. 22). Scientists highlighted two areas in particular where inadequate funding is degrading scientific capacity: satellite-based Earth observation systems and research into the effects of global warming.

Satellite-based observations of our planet's land, ocean, and atmosphere, taken continuously over many decades, are of crucial importance in understanding the ongoing processes driving global climate change, and in refining the computer models used to predict responses to these processes. However, recent cuts to the NASA climate science budget have led to the cancellation or extended delay of several Earth observation satellites, raising the possibility of a critical gap in observational coverage before the next generation of satellites is launched. The budget cuts and the rewording of NASA's mission statement were both noted with concern by survey respondents, many of whom expressed fears that climate science was being replaced by President Bush's new space exploration initiative as a top priority for NASA. Several scientists warned in their essay responses that a gap in satellite data could seriously hinder forward progress in understanding climate change.

Global climate change will have a profound impact on human societies, with serious negative consequences to public health, water supply, agriculture, the distribution of plant and animal life, and the valuable services provided by natural systems. Research into these issues is crucial to our long-term preparedness as a society for likely future climate changes. While there are a few agencies that devote resources to this line of research, several survey respondents called for increased funding and focus on research to understand and mitigate these effects.

Morale at Federal Agencies is Poor

Large numbers of federal survey respondents reported low morale, declining job satisfaction, and a worsening environment for federal climate science. The UCS survey results also

suggest a correlation between the deterioration in morale and the politicized environment surrounding federal climate science in the Bush administration. One primary danger of low morale is that federal agencies may have more difficulty attracting and keeping the best scientists.

Approximately two-thirds of all respondents said the environment for federal climate research is worse now than it was 5 or 10 years ago. Survey respondents who spend most of their time on climate research, or who work on climate science topics that are considered sensitive or controversial, are more likely to experience politicization and interference. Those same groups of scientists are also more likely to report low morale and hold a negative view of the current climate science environment. Scientists who are more insulated from political pressures, such as those whose jobs include only a small percent of climate-related work or those who never work on controversial issues, have noticeably higher morale.

These results and the essay responses are evidence that the generally negative outlook on the state of federal climate science is the cumulative effect of recent episodes of political interference, the advent of restrictive communications policies, and declining funding levels for climate science.

A comparison with scientists at NCAR also supports this connection. The pattern of low morale and declining job satisfaction among federal government climate scientists contrasts sharply with the much more positive perspectives given by NCAR respondents. When assessing the state of *federal* climate science over the past few years, NCAR respondents were nearly as pessimistic as federal respondents, with 65 percent saying they thought today's environment for *federal* climate science is worse compared with 10 years ago. But many respondents were quick to emphasize in essay responses that those problems did not apply to NCAR.

Scientists responding to the survey almost unanimously found federal climate science to be of generally excellent quality, but the numerous documented instances of political interference have called into question our government's respect for the scientific findings of its scientists. In a way, this is heartening. The data point to the conclusion that if the politicization, interference, and under-funding imposed on these scientists were lifted, federal climate scientists would stand ready and able to carry out their jobs. It is crucial to remove these obstacles to federal climate research so that policy makers, the media, and the public can again access the best scientific information federal agency climate scientists have to offer. Without this information, the country will not be able to respond to the threats posed by a rapidly warming climate.

"Scientists at NOAA and NASA are routinely discouraged from discussing climate change results with the media. It's exactly the opposite at NCAR. We are encouraged to get our results out there to the public by whatever means available."

— A SCIENTIST AT NCAR

CHAPTER 8

Recommendations and Conclusions

The UCS and GAP investigations have brought to light numerous ways in which U.S. federal climate science has been filtered, suppressed, and manipulated in the last six years. According to our research, political interference has extended beyond just a few leading scientists to affect hundreds of federal climate researchers. While much of the interference involves restrictions on the communication of research, it also affects what research will be funded, and the morale of scientists themselves.

Overturning these patterns of abuse and restoring scientific integrity to the federal climate science enterprise will require concerted action and the creation of new systems of governance at federal science agencies. In this section we provide some recommendations for undertaking this transformation, in particular focusing on reforms that guarantee certain fundamental rights for government scientists.

Basic Scientific Freedoms

Scientists have certain basic rights regarding the use of their expertise and dissemination of their research findings. In order to restore scientific integrity to federal climate science, scientists need to be made aware of these basic scientific freedoms and government agencies must respect them.

Scientists have a constitutional right to speak about any subject, including policy-related matters and those outside their area of expertise, so long as they make it clear that they do so in their private capacity and such personal communications do not take from agency time and resources. Ultimate decisions about the communication of scientific information, including publications, congressional testimony and reports, web postings, and presentation material, should lie with scientists themselves. Scientists must also have a "right of last review" on press releases and other agency communications related to their scientific research, to ensure scientific accuracy has been maintained.

Actions to Restore Scientific Integrity

Creating systems to ensure long-term independent and accessible science will not only require the energies of the Executive branch and Congress, but also of scientists and other federal agency staff.

Scientist Actions

- Scientists, scientific societies, and unions who represent federal scientists must work to make these basic scientific rights more widely known.

- Scientific societies should continue their efforts to include issues of scientific integrity in their public policy agendas. Possible avenues for these efforts include creating space at meetings or in publications for discussion of these issues, passing internal resolutions supporting independent science, monitoring federal agencies that do scientific research within their fields, and lobbying the government to press for reforms.

- Scientists themselves have responsibilities regarding the communication of their research. They should work with PAOs to make significant research developments accessible and comprehensible to the public, as well as follow a policy of "notification and recap," in which they inform PAOs in advance of a pending interview and recap the interaction for them afterward.

- Scientists must also be responsible for the accuracy and integrity of their communications and should not represent the agency on issues of politics or policy without prior approval from the public affairs office.

Federal Agency Actions

- Agencies should publicly affirm that the basic scientific freedoms stated above apply to their scientists and adopt policies to ensure these freedoms are upheld.

- Agencies should clearly support the free exchange of scientific information in all venues. They should not shy away from presenting conflicting scientific results by their scientists. While policies must represent choices of one path over another, policy makers must have access to the full range of scientific findings on an issue in order to make an informed decision.

- PAOs should play an active supporting role in coordinating and facilitating media interactions, connecting journalists with scientists by specialty or specific request, supplying context and background information as needed, and ensuring the timeliness of these interactions.

- Pre-approval and monitoring of media interviews with scientists should be eliminated. Scientists should not be subject to restrictions on media contacts beyond a "notification and recap" policy.

- Agencies should promptly and thoroughly investigate incidents of political interference when they occur. They should determine how and why problems have occurred, and prevent further incidents by implementing adequate disciplinary measures for those found responsible. Institutional conditions, policies, and activities that prompt problems should be reformed.

- Clear written policies governing the review and release of federal scientists' research results should be publicly available and include deadlines that will not create prolonged or unreasonable delays in releasing scientific content.

"Whether climate changes are harsh over the next 3–20 years or hundreds of years, we should be addressing the issues that impact basic societal needs. Hurricane Katrina is an excellent illustration of how costly the current policy of 'benign neglect' can be."

— A SCIENTIST WITH THE DOD

Appendix D contains a model media policy intended for use by federal agencies, which outlines the rights and responsibilities of scientists and agency staff, and provides guidelines for media and public interactions. Agency leadership must publicize and promote these policies and their broad application on a regular basis.

- Agencies must comply with the Anti-Gag Statute, a federal law that requires employers to include written notification of employees' whistleblower-related rights in any communication policy or directive. The Statute guarantees that free speech rights protected under the Whistleblower Protection Act and related laws cannot be canceled by any agency policy, form, or agreement (except those relating to classified information).

Congressional Actions

- Congress should take the necessary steps, including conducting oversight hearings and investigations or introducing legislation, to ensure the basic scientific freedoms of federal climate scientists are respected. One critical step would be for Congress to act promptly to amend the Whistleblower Protection Act to specifically protect the rights of federal scientists to conduct their work and communicate their findings without interference and ensure that those who violate those rights are disciplined.

"[The integrity of US federal government climate science could best be improved by] Remembering that the civil service scientists and engineers can and should be an unbiased reservoir of insights into different questions with impacts across international economic and cultural dividing lines. Politicizing and degrading the integrity for which we are internationally known and respected is a disservice to our country and a danger to the world. If we can't be trusted to give insights on global change and funded to do so, who in the world will do it?"

— A SCIENTIST AT NASA

- Congress should immediately exert pressure on the Executive branch to undertake periodic scientific assessments of climate change that address the consequences for the United States, consistent with the Global Change Research Act. In addition to being legally required, these assessments are important for the free flow of scientific information to the policy arena and many other audiences.

- Funding decisions regarding climate change programs should be guided by scientific criteria and must take into account the importance of programs that gather data about our climate, such as NASA's climate observation satellites. These long-term, continual observation systems are vital to climate science and other important research.

Leadership Reforms

- The Climate Change Science Program could play an important role in implementing the federal agency reforms listed above. The president should appoint a permanent director of the Climate Change Science Program to better provide the many agencies undertaking climate research with direction and oversight as well as support the free flow of scientific information out of these agencies.

The reality of global warming, including the role of heat-trapping gases from human activities in driving climate change, has been repeatedly affirmed by scientific experts. Every day that the government chooses to ignore climate science is a day it fails to protect future generations from the consequences of global warming. Until this political interference ends, the United States will not be able to fully protect Americans and the world from the dangers of a warming planet. Our government must commit to ensuring basic scientific freedoms and support scientists in their endeavors to bring scientific results to the policy arena, scientific fora, and a wide array of other audiences. Addressing climate change is a matter of national preparedness.

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APPENDIX A

UCS Climate Scientist Survey Text and Responses (FEDERAL)

Following is the text of the survey UCS mailed to 1,630 federal climate scientists at seven federal agencies and departments, along with response data for the 279 scientists who completed and returned surveys. Two numbers are listed for each response option in the survey—the number of scientists who selected that response (listed in parentheses) and the percentage of scientists answering the question who marked that response option. The results in this appendix only reflect the responses of federal scientists and do not include responses from NCAR scientists; see Appendix B for survey text and response data for NCAR. A detailed analysis of select survey questions can be found in Appendix C.

For some questions the aggregate number of responses to a given question is less than 279 because not all scientists answered the question, and for other questions the aggregate number is greater because scientists were allowed to choose more than one response to the given question. It is important to note that the percentages listed in this appendix (and in the report text) are calculated in reference to *the number of scientists answering the question*, rather than the total number of returned surveys or the aggregate number of responses to each question. Percentages listed for a given question may not total 100 percent due to rounding or multiple responses to a question by a scientist.

For example, questions 19 through 31 provide survey respondents with the option of reporting specified types of interference as "perceived in others" and/or "personally experienced." Respondents could also report "neither." In this appendix, the three response options are tabulated separately, although respondents were free to mark more than one answer for a given type of interference. The report text often cites the percentage of respondents who "perceived or personally experienced" a particular form of interference. To avoid double counting those respondents who answered both "perceived" and "experienced," this statistic is *not* obtained by summing the number of responses for those categories. Instead, it is calculated by subtracting the percentage of survey respondents reporting "neither" from 100 percent.

Questions 4, 15, and 17 include "not applicable" as a possible response and the numbers of those responses are tabulated in this appendix. However, when analyzing survey results from these questions in the report text, the "not applicable" responses are not included in the sample. This analysis results in slightly different percentages in this appendix from those quoted in the text.

2006 UCS Scientific Integrity Program
SURVEY OF FEDERAL CLIMATE SCIENTISTS

The Union of Concerned Scientists (UCS) is the leading science-based nonprofit working for a healthy environment and a safer world. UCS combines independent scientific research and citizen action to develop innovative, practical solutions and to secure responsible changes in government policy, corporate practices, and consumer choices. This survey is produced by the UCS Scientific Integrity Program.

Please fill out this survey on your personal time and mail it in the enclosed postage-paid envelope as soon as possible, but before July 30, 2006. All responses will be kept anonymous and confidential. Please feel free to write comments, but restrict your writing to the additional comments area on page 4, or a separate sheet of paper. Please do not write in the margins or edit the wording of questions—we cannot tabulate responses to questions that are edited. For more information on UCS, the Scientific Integrity Program, and our previous surveys of scientists at federal agencies, please see *www.ucsusa.org/scientific_integrity*.

RESEARCH AND TRAINING (circle one)

1. My major field of training is:

climatology	meteorology	engineering	geology
11% (31)	24% (67)	7% (19)	7% (19)
physics	**chemistry**	**biology**	**other**
14% (40)	6% (18)	14% (39)	44% (123)

optional: list field of specialization _____

2. My climate science-related work primarily involves:

basic science	observations/measurement	modeling
19% (53)	50% (139)	25% (70)
impacts	**management/policy**	**other:_____**
13% (35)	6% (17)	9% (24)

3. The percentage of my work having to do with climate-related topics is approximately:

0-25%	26-50%	51-75%	76-100%
13% (35)	14% (40)	23% (64)	50% (137)

4. I generally seek to publish my research findings in peer-reviewed literature.

yes	no	not applicable
88% (246)	4% (10)	8% (22)

FEDERAL CLIMATE SCIENCE (circle one)

5. U.S. federal government climate research is of generally excellent quality.

strongly agree	agree	no opinion	disagree	strongly disagree
35% (98)	53% (147)	7% (19)	4% (12)	1% (3)

6. The U.S. government has done a good job funding climate research.

strongly agree	agree	no opinion	disagree	strongly disagree
6% (18)	31% (86)	9% (26)	42% (117)	11% (31)

7. U.S. federal climate research is independent and impartial.

strongly agree	agree	no opinion	disagree	strongly disagree
17% (46)	54% (149)	9% (25)	18% (49)	3% (9)

8. Today's environment for federal government climate science is (better, worse, same) compared with:

	better	worse	same	no opinion
• 1 year ago?	14% (38)	42% (116)	40% (108)	4% (11)
• 5 years ago?	13% (35)	67% (182)	15% (41)	5% (14)
• 10 years ago?	18% (48)	64% (176)	8% (23)	10% (27)

9. My climate science-related work touches on issues that could be considered sensitive or controversial.

always	frequently	occasionally	seldom	never
6% (16)	24% (67)	47% (129)	18% (49)	5% (15)

AGENCY CLIMATE SCIENCE (circle one)

10. Climate science at my agency is moving in the right direction.

strongly agree	agree	no opinion	disagree	strongly disagree
4% (10)	44% (122)	9% (25)	34% (95)	9% (26)

11. My agency's leadership aspires to and expects a high level of integrity and professionalism.

strongly agree	agree	no opinion	disagree	strongly disagree
30% (83)	53% (148)	9% (24)	6% (18)	2% (6)

12. My agency's management stands behind scientific staff or managers who put forth scientifically defensible positions that may be politically controversial.

strongly agree	agree	no opinion	disagree	strongly disagree
9% (24)	40% (109)	23% (63)	25% (68)	4% (12)

13. My agency offers opportunity for advancement based on scientific expertise, not just on administrative and supervisory expertise.

strongly agree	agree	no opinion	disagree	strongly disagree
18% (49)	48% (135)	16% (44)	15% (41)	4% (10)

14. My agency has a clear policy on scientific communication with the public and the media.

strongly agree	agree	no opinion	disagree	strongly disagree	don't know
11% (31)	51% (142)	12% (33)	16% (44)	5% (13)	5% (14)

15. Recent changes to policies pertaining to scientific openness at my agency have improved the environment for climate research.

strongly agree	agree	no opinion	disagree	strongly disagree	not applicable
3% (8)	18% (50)	34% (93)	25% (69)	12% (33)	9% (24)

16. Documents, reports, and recommendations from my agency rely upon the best available science.

always	frequently	occasionally	seldom	never
24% (65)	54% (147)	21% (57)	1% (2)	0% (0)

17. My agency helps me effectively communicate relevant research findings to the public.

always	frequently	occasionally	seldom	never	not applicable
9% (24)	24% (67)	30% (84)	18% (50)	7% (20)	12% (32)

18. My agency requires public affairs officials to monitor scientists' communications with the media.

always	frequently	occasionally	seldom	never	don't know
27% (73)	26% (71)	20% (56)	6% (17)	4% (12)	17% (46)

CLIMATE SCIENCE WORK ENVIRONMENT (Please check all that apply)

I have perceived in others and/or personally experienced the following types of activities affecting climate science:

	Perceived	*Experienced*	*Neither*	
19.	32% (87)	15% (41)	57% (156)	Changes/edits during review that change the meaning of scientific findings.
20.	33% (90)	21% (57)	54% (147)	Pressure to eliminate the word(s) "climate change" and/ or "global warming," and/or similar terms.
21.	18% (49)	7% (19)	77% (210)	Requests to present opposing views for "balance" even when such views would not be scientifically credible.
22.	23% (62)	22% (60)	62% (169)	Disappearance/unusual delay in the release of websites, press releases, reports, or other science-based materials.
23.	21% (56)	14% (39)	69% (187)	Self-induced pressure to change research or reporting in order to align findings with agency policy or to avoid controversy.
24.	22% (61)	13% (36)	69% (188)	Fear of retaliation for openly expressing concerns about climate change inside my agency.

25.	29% (80)	14% (39)	61% (165)	Fear of retaliation for openly expressing concerns about climate change outside my agency.
26.	8% (21)	4% (12)	89% (243)	Requests by officials for scientists to provide incomplete, inaccurate, or misleading information to the public.
27.	14% (38)	3% (8)	84% (230)	Implicit expectation by officials for scientists to provide incomplete, inaccurate, or misleading information to the public.
28.	19% (52)	36% (97)	54% (148)	New or unusual administrative requirements or procedures that impair climate-related work.
29.	23% (63)	17% (47)	63% (170)	Statements by officials at my agency that misrepresent scientists' findings.
30.	21% (55)	6% (17)	75% (200)	Situations in which scientists have actively objected to, resigned from, or removed themselves from a project because of pressure to change scientific findings.
31.	9% (4)	17% (8)	78% (36)	Other (please elaborate below in essay question #40).

32. Number of instances of any activities listed above perceived in others in the past five years:

0	1-5	6-10	11-20	More than 20
27% (69)	49% (125)	14% (35)	7% (18)	4% (10)

33. Number of instances of any activities listed above personally experienced in the past five years:

0	1-5	6-10	11-20	More than 20
42% (108)	45% (117)	9% (23)	1% (3)	3% (7)

JOB SATISFACTION (circle one)

34. I would recommend that scientists consider a career in the federal government related to climate science.

strongly agree	agree	no opinion	disagree	strongly disagree
14% (39)	47% (130)	15% (42)	17% (46)	7% (20)

35. Morale within my office is:

excellent	good	fair	poor	extremely poor	no opinion
12% (33)	34% (93)	32% (89)	15% (42)	7% (20)	0% (0)

36. Over the past few years my personal job satisfaction at my agency has:

increased	decreased	stayed the same	no opinion
20% (55)	45% (126)	30% (83)	5% (14)

37. After I received this survey, completing and returning it was:

encouraged by management	discouraged by management	not discussed by management
3% (7)	1% (2)	97% (276)

BACKGROUND INFORMATION (circle one)

38. Highest level of education:

Post Doc	Ph.D.	Master's	Bachelor's
40% (110)	41% (113)	16% (43)	4% (11)

39. Years at current agency:

less than 1 year	1-5 years	6-10 years	11-15 years	more than 15 years
2% (6)	18% (51)	21% (57)	15% (42)	44% (122)

ESSAY (Please attach extra sheets if you need more space)

40. The integrity of U.S. federal government climate science could best be improved by:

Additional comments: _____

If you have questions or would like to discuss this survey further, please contact
Dr. Francesca Grifo, Senior Scientist, Union of Concerned Scientists, at (202) 331-5446

APPENDIX B

UCS Climate Scientist Survey Text and Responses (NCAR)

Following is the text of the survey UCS mailed to 119 climate scientists at the National Center for Atmospheric Research (NCAR), along with response data for the 29 scientists who returned completed surveys. Two numbers are listed for each response option in the survey—the number of scientists who selected that response (listed in parentheses) and the percentage of scientists answering the question who marked that response option. (See Appendix A for survey text and response data for federal climate scientists, and Appendix C for a detailed analysis of select survey questions.)

For some questions the aggregate number of responses to a given question is less than 29 because not all scientists answered the question, and for other questions the aggregate number is greater because scientists were allowed to choose more than one response to the given question. It is important to note that the percentages listed in this appendix (and in the report text) are calculated in reference to *the number of scientists answering the question*, rather than the total number of returned surveys or the aggregate number of responses to each question. Percentages listed for a given question may not total 100 percent due to rounding or multiple responses to a question by a scientist.

The text of the NCAR survey closely follows that of the survey sent to federal climate scientists; however, because NCAR scientists are not federal employees the language of some questions was changed to clarify the intent of the question. Questions 10–18, 23–25, 29, 34–36, and 39 substituted the word "NCAR" for "my agency" or "my office" to clarify that the question was asking about the scientists' experiences at NCAR rather than their perceptions of the work environment at federal agencies. Question 15, which originally addressed scientific openness policies at federal agencies, was replaced with a broader question about communication policies at NCAR. Questions 5 through 8, which ask general questions about the state of federal government climate research, were left unchanged.

2006 UCS Scientific Integrity Program
SURVEY OF CLIMATE SCIENTISTS

The Union of Concerned Scientists (UCS) is the leading science-based nonprofit working for a healthy environment and a safer world. UCS combines independent scientific research and citizen action to develop innovative, practical solutions and to secure responsible changes in government policy, corporate practices, and consumer choices. This survey is produced by the UCS Scientific Integrity Program.

We are interested in comparing your experiences at NCAR with those of federal agency climate scientists. Please fill out this survey and mail it in the enclosed postage-paid envelope as soon as possible, but before July 30, 2006. All responses will be kept anonymous and confidential. Please feel free to write comments on page 4 or a separate sheet of paper. Please do not write in the margins or edit the wording of questions—we cannot tabulate responses to questions that are edited. For more information on UCS and our previous surveys of scientists at federal agencies, please see *www.ucsusa.org/scientific_integrity*.

RESEARCH AND TRAINING (circle one)

1. My major field of training is:

climatology	meteorology	engineering	geology
10% (3)	34% (10)	3% (1)	0% (0)
physics	**chemistry**	**biology**	**other**
28% (8)	7% (2)	3% (1)	38% (11)

optional: list field of specialization _____

2. My climate science-related work primarily involves:

basic science	observation/measurement	modeling
3% (1)	38% (11)	48% (14)
impacts	**management/policy**	**other:_____**
3% (1)	3% (1)	7% (2)

3. The percentage of my work having to do with climate-related topics is approximately:

0-25%	26-50%	51-75%	76-100%
21% (6)	7% (2)	39% (11)	32% (9)

4. I generally seek to publish my research findings in peer-reviewed literature.

yes	no	not applicable
93% (26)	4% (1)	4% (1)

FEDERAL CLIMATE SCIENCE (circle one)

5. U.S. federal government climate research is of generally excellent quality.

strongly agree	agree	no opinion	disagree	strongly disagree
36% (10)	57% (16)	7% (2)	0% (0)	0% (0)

6. The U.S. government has done a good job funding climate research.

strongly agree	agree	no opinion	disagree	strongly disagree
10% (3)	45% (13)	3% (1)	34% (10)	7% (2)

7. U.S. federal government climate research is independent and impartial.

strongly agree	agree	no opinion	disagree	strongly disagree
29% (8)	50% (14)	14% (4)	7% (2)	0% (0)

8. Today's environment for federal government climate science is (better, worse, same) compared with:

• 1 year ago	better	worse	same	no opinion
	3% (1)	28% (8)	52% (15)	17% (5)
• 5 years ago	better	worse	same	no opinion
	3% (1)	59% (17)	21% (6)	17% (5)
• 10 years ago	better	worse	same	no opinion
	17% (5)	66% (19)	0% (0)	17% (5)

9. My climate science-related work touches on issues that could be considered sensitive or controversial.

always	frequently	occasionally	seldom	never
3% (1)	17% (5)	38% (11)	31% (9)	10% (3)

CLIMATE SCIENCE AT NCAR (circle one)

10. Climate science at NCAR is moving in the right direction.

strongly agree	agree	no opinion	disagree	strongly disagree
10% (3)	76% (22)	10% (3)	3% (1)	0% (0)

11. NCAR's leadership aspires to and expects a high level of integrity and professionalism.

strongly agree	agree	no opinion	disagree	strongly disagree
52% (15)	45% (13)	0% (0)	3% (1)	0% (0)

12. NCAR's management stands behind scientific staff or managers who put forth scientifically defensible positions that may be politically controversial.

strongly agree	agree	no opinion	disagree	strongly disagree
52% (15)	34% (10)	10% (3)	3% (1)	0% (0)

13. NCAR offers opportunity for advancement based on scientific expertise, not just on administrative and supervisory expertise.

strongly agree	agree	no opinion	disagree	strongly disagree
45% (13)	45% (13)	10% (3)	0% (0)	0% (0)

14. NCAR has a clear policy on scientific communication with the public and the media.

strongly agree	agree	no opinion	disagree	strongly disagree	don't know
10% (3)	72% (21)	3% (1)	10% (3)	0% (0)	3% (1)

15. Policies at NCAR pertaining to communication accurately convey climate research to the public and the media.

strongly agree	agree	no opinion	disagree	strongly disagree	not applicable
24% (7)	52% (15)	14% (4)	7% (2)	0% (0)	3% (1)

16. Documents, reports, and recommendations from NCAR rely upon the best available science.

always	frequently	occasionally	seldom	never
59% (16)	41% (11)	0% (0)	0% (0)	0% (0)

17. NCAR helps me effectively communicate relevant research findings to the public.

always	frequently	occasionally	seldom	never	not applicable
28% (8)	24% (7)	24% (7)	0% (0)	0% (0)	24% (7)

18. NCAR requires public affairs officials to monitor scientists' communications with the media.

always	frequently	occasionally	seldom	never	don't know
0% (0)	7% (2)	7% (2)	14% (4)	41% (12)	31% (9)

CLIMATE SCIENCE WORK ENVIRONMENT (Please check all that apply)

I have perceived in others and/or personally experienced the following types of activities affecting climate science:

	Perceived	*Experienced*	*Neither*	
19.	21% (6)	0% (0)	79% (23)	Changes/edits during review that change the meaning of scientific findings.
20.	28% (8)	7% (2)	66% (19)	Pressure to eliminate the word(s) "climate change" and/ or "global warming," and/or similar terms.
21.	14% (4)	7% (2)	83% (24)	Requests to present opposing views for "balance" even when such views would not be scientifically credible.
22.	7% (2)	7% (2)	86% (25)	Disappearance/unusual delay in the release of websites, press releases, reports, or other science-based materials.
23.	0% (0)	3% (1)	97% (28)	Self-induced pressure to change research or reporting in order to align findings with NCAR policy or to avoid controversy.
24.	0% (0)	0% (0)	100% (29)	Fear of retaliation for openly expressing concerns about climate change inside NCAR.

25.	14% (4)	7% (2)	83% (24)	Fear of retaliation for openly expressing concerns about climate change outside NCAR.
26.	3% (1)	0% (0)	97% (28)	Requests by officials for scientists to provide incomplete, inaccurate, or misleading information to the public.
27.	7% (2)	3% (1)	93% (27)	Implicit expectation by officials for scientists to provide incomplete, inaccurate, or mis leading information to the public.
28.	7% (2)	17% (5)	79% (23)	New or unusual administrative requirements or procedures that impair climate-related work.
29.	4% (1)	0% (0)	96% (27)	Statements by officials at NCAR that misrepresent scientists' findings.
30.	10% (3)	0% (0)	90% (26)	Situations in which scientists have actively objected to, resigned from, or removed themselves from a project because of pressure to change scientific findings.
31.	0% (0)	0% (0)	100% (7)	Other (please elaborate below in essay question #40.)

32. Number of instances of any activities listed above perceived in others in the past five years:

0	1-5	6-10	11-20	More than 20
61% (17)	29% (8)	11% (3)	0% (0)	0% (0)

33. Number of instances of any activities listed above personally experienced in the past five years:

0	1-5	6-10	11-20	More than 20
78% (21)	19% (5)	4% (1)	0% (0)	0% (0)

JOB SATISFACTION (circle one)

34. I would recommend that scientists consider a career at NCAR related to climate science.

strongly agree	agree	no opinion	disagree	strongly disagree
48% (14)	48% (14)	3% (1)	0% (0)	0% (0)

35. Morale within NCAR is:

excellent	good	fair	poor	extremely poor	no opinion
17% (5)	52% (15)	24% (7)	7% (2)	0% (0)	0% (0)

36. Over the past few years my personal job satisfaction at NCAR has:

increased	decreased	stayed the same	no opinion
25% (7)	39% (11)	32% (9)	4% (1)

37. After I received this survey, completing and returning it was:

encouraged by management	discouraged by management	not discussed
0% (0)	0% (0)	100% (29)

BACKGROUND INFORMATION (circle one)

38. Highest level of education:

Post Doc	Ph.D.	Master's	Bachelor's
34% (10)	55% (16)	10% (3)	0% (0)

39. Years at NCAR:

less than 1 year	1-5 years	6-10 years	11-15 years	more than 15 years
3% (1)	21% (6)	34% (10)	7% (2)	34% (10)

ESSAY (Please attach extra sheets if you need more space)

40. The integrity of U.S. federal government climate science could best be improved by:

Additional comments: _____

If you have questions or would like to discuss this survey further, please contact
Dr. Francesca Grifo, Senior Scientist, Union of Concerned Scientists, at 202-331-5446.

APPENDIX C

Selected Survey Results

The tables below show detailed response data for select survey questions referenced in the report text. The first set of tables show the total number of responses to a question broken down by each federal agency and the National Center for Atmospheric Research (NCAR). The second set of tables provides cross-comparisons with survey questions #3 (percentage of work having to do with climate-related topics) and #9 (how often climate science-related work touches on sensitive or controversial issues). Additional survey data and analyses are available online at *http://www.ucsusa.org/surveys*.

Selected Question Reponses by Agency

The tables below break down survey questions based on the respondents' affiliated agencies. The leftmost column in each table lists the available response options to the given question.

The column labeled "Total" lists the total number of scientists who chose each available response option and represents the sum of responses listed in the individual federal agency columns to the right (NCAR responses are listed in the rightmost column for comparison purposes only and are not included in the agency totals). The row labeled "Total Respondents" lists the total number of respondents to the given question (leftmost number) as well as the total number of respondents from each agency.

The percentages listed in each table are calculated with respect to the total number of scientists from each agency answering each question. For questions that allowed multiple responses, the sum of response numbers listed in the columns may be greater than the number listed at the bottom of the column.

QUESTION 5: **U.S. federal government climate research is of generally excellent quality.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Strongly Agree	98 35.1%	23 40.4%	39 40.6%	2 11.1%	6 23.1%	4 22.2%	22 37.3%	2 40.0%	10 35.7%
Agree	147 52.7%	28 49.1%	46 47.9%	11 61.1%	19 73.1%	13 72.2%	28 47.5%	2 40.0%	16 57.1%
No Opinion	19 6.8%	4 7.0%	6 6.3%	2 11.1%	0 0.0%	1 5.6%	5 8.5%	1 20.0%	2 7.1%
Disagree	12 4.3%	2 3.5%	4 4.2%	3 16.7%	1 3.8%	0 0.0%	2 3.4%	0 0.0%	0 0.0%
Strongly Disagree	3 1.1%	0 0.0%	1 1.0%	0 0.0%	0 0.0%	0 0.0%	2 3.4%	0 0.0%	0 0.0%
Total Respondents	279	57	96	18	26	18	59	5	28

QUESTION 6: **The U.S. government has done a good job funding climate research.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Strongly Agree	18 6.5%	7 12.3%	5 5.2%	0 0.0%	1 3.8%	2 11.1%	3 5.1%	0 0.0%	3 10.3%
Agree	86 30.9%	22 38.6%	31 32.3%	4 23.5%	7 26.9%	6 33.3%	14 23.7%	2 40.0%	13 44.8%
No Opinion	26 9.4%	3 5.3%	9 9.4%	3 17.6%	1 3.8%	1 5.6%	7 11.9%	2 40.0%	1 3.4%
Disagree	117 42.1%	17 29.8%	40 41.7%	8 47.1%	15 57.7%	8 44.4%	28 47.5%	1 20.0%	10 34.5%
Strongly Disagree	31 11.2%	8 14.0%	11 11.5%	2 11.8%	2 7.7%	1 5.6%	7 11.9%	0 0.0%	2 6.9%
Total Respondents	278	57	96	17	26	18	59	5	29

QUESTION 8a: **Today's environment for federal government climate science is (better, worse, same) compared with 1 year ago.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Better	38 13.9%	7 12.5%	11 11.7%	0 0.0%	5 19.2%	6 35.3%	9 15.8%	0 0.0%	1 3.4%
Worse	116 42.5%	32 57.1%	43 45.7%	7 38.9%	10 38.5%	4 23.5%	17 29.8%	3 60.0%	8 27.6%
Same	108 39.6%	17 30.4%	34 36.2%	10 55.6%	10 38.5%	6 35.3%	29 50.9%	2 40.0%	15 51.7%
No Opinion	11 4.0%	0 0.0%	6 6.4%	1 5.6%	1 3.8%	1 5.9%	2 3.5%	0 0.0%	5 17.2%
Total Respondents	273	56	94	18	26	17	57	5	29

QUESTION 8b: **Today's environment for federal government climate science is (better, worse, same) compared with 5 years ago.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Better	35 12.9%	4 7.1%	10 10.8%	0 0.0%	5 19.2%	2 11.8%	14 24.1%	0 0.0%	1 3.4%
Worse	182 66.9%	44 78.6%	62 66.7%	13 72.2%	16 61.5%	10 58.8%	33 56.9%	4 100.0%	17 58.6%
Same	41 15.1%	6 10.7%	14 15.1%	2 11.1%	5 19.2%	3 17.6%	11 19.0%	0 0.0%	6 20.7%
No Opinion	14 5.1%	2 3.6%	7 7.5%	3 16.7%	0 0.0%	2 11.8%	0 0.0%	0 0.0%	5 17.2%
Total Respondents	272	56	93	18	26	17	58	4	29

QUESTION 8c: **Today's environment for federal government climate science is (better, worse, same) compared with 10 years ago.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Better	48 17.5%	4 7.0%	18 19.4%	0 0.0%	5 19.2%	3 16.7%	18 31.0%	0 0.0%	5 17.2%
Worse	176 64.2%	44 77.2%	55 59.1%	13 72.2%	17 65.4%	12 66.7%	32 55.2%	3 75.0%	19 65.5%
Same	23 8.4%	5 8.8%	9 9.7%	2 11.1%	2 7.7%	1 5.6%	4 6.9%	0 0.0%	0 0.0%
No Opinion	27 9.9%	4 7.0%	11 11.8%	3 16.7%	2 7.7%	2 11.1%	4 6.9%	1 25.0%	5 17.2%
Total Respondents	274	57	93	18	26	18	58	4	29

QUESTION 10: **Climate science at my agency is moving in the right direction.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Strongly Agree	10 3.6%	1 1.8%	4 4.2%	0 0.0%	1 3.8%	1 5.6%	3 5.1%	0 0.0%	3 10.3%
Agree	122 43.9%	19 33.3%	51 53.7%	3 16.7%	8 30.8%	10 55.6%	28 47.5%	3 60.0%	22 75.9%
No Opinion	25 9.0%	1 1.8%	11 11.6%	0 0.0%	5 19.2%	3 16.7%	4 6.8%	1 20.0%	3 10.3%
Disagree	95 34.2%	26 45.6%	24 25.3%	8 44.4%	11 42.3%	4 22.2%	21 35.6%	1 20.0%	1 3.4%
Strongly Disagree	26 9.4%	10 17.5%	5 5.3%	7 38.9%	1 3.8%	0 0.0%	3 5.1%	0 0.0%	0 0.0%
Total Respondents	278	57	95	18	26	18	59	5	29

QUESTION 11: **My agency's leadership aspires to and expects a high level of integrity and professionalism.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Strongly Agree	83 29.7%	21 36.8%	20 20.8%	4 22.2%	10 38.5%	9 50.0%	18 30.5%	1 20.0%	15 51.7%
Agree	148 53.1%	29 50.9%	53 55.2%	10 55.6%	13 50.0%	8 44.4%	31 52.5%	4 80.0%	13 44.8%
No Opinion	24 8.6%	2 3.5%	12 12.5%	1 5.6%	1 3.8%	1 5.6%	7 11.9%	0 0.0%	0 0.0%
Disagree	18 6.5%	3 5.3%	10 10.4%	1 5.6%	2 7.7%	0 0.0%	2 3.4%	0 0.0%	1 3.4%
Strongly Disagree	6 2.2%	2 3.5%	1 1.0%	2 11.1%	0 0.0%	0 0.0%	1 1.7%	0 0.0%	0 0.0%
Total Respondents	279	57	96	18	26	18	59	5	29

QUESTION 12: **My agency's management stands behind scientific staff or managers who put forth scientifically defensible positions that may be politically controversial.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Strongly Agree	24 8.7%	7 12.3%	3 3.2%	0 0.0%	6 24.0%	3 16.7%	5 8.5%	0 0.0%	15 51.7%
Agree	109 39.5%	33 57.9%	30 31.6%	3 17.6%	7 28.0%	9 50.0%	25 42.4%	2 40.0%	10 34.5%
No Opinion	63 22.8%	9 15.8%	23 24.2%	4 23.5%	5 20.0%	2 11.1%	18 30.5%	2 40.0%	3 10.3%
Disagree	68 24.6%	6 10.5%	32 33.7%	8 47.1%	7 28.0%	4 22.2%	10 16.9%	1 20.0%	1 3.4%
Strongly Disagree	12 4.3%	2 3.5%	7 7.4%	2 11.8%	0 0.0%	0 0.0%	1 1.7%	0 0.0%	0 0.0%
Total Respondents	276	57	95	17	25	18	59	5	29

QUESTION 15: **Recent changes to policies pertaining to scientific openness at my agency have improved the environment for climate research.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Strongly Agree	8 2.9%	7 12.5%	1 1.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	7 24.1%
Agree	50 18.1%	26 46.4%	15 15.6%	0 0.0%	1 4.0%	1 5.6%	7 11.9%	0 0.0%	15 51.7%
No Opinion	93 33.6%	10 17.9%	29 30.2%	8 44.4%	6 24.0%	10 55.6%	27 45.8%	3 60.0%	4 13.8%
Disagree	69 24.9%	6 10.7%	33 34.4%	3 16.7%	14 56.0%	3 16.7%	9 15.3%	1 20.0%	2 6.9%
Strongly Disagree	33 11.9%	5 8.9%	15 15.6%	5 27.8%	3 12.0%	2 11.1%	3 5.1%	0 0.0%	0 0.0%
Not Applicable	24 8.7%	2 3.6%	3 3.1%	2 11.1%	1 4.0%	2 11.1%	13 22.0%	1 20.0%	1 3.4%
Total Respondents	277	56	96	18	25	18	59	5	29

QUESTION 18: **My agency requires public affairs officials to monitor scientists' communications with the media.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Always	73 26.5%	13 23.2%	22 23.2%	13 72.2%	1 3.8%	7 38.9%	15 26.3%	2 40.0%	0 0.0%
Frequently	71 25.8%	14 25.0%	29 30.5%	2 11.1%	10 38.5%	6 33.3%	9 15.8%	1 20.0%	2 6.9%
Occasionally	56 20.4%	14 25.0%	22 23.2%	1 5.6%	8 30.8%	1 5.6%	9 15.8%	1 20.0%	2 6.9%
Seldom	17 6.2%	6 10.7%	3 3.2%	0 0.0%	3 11.5%	2 11.1%	3 5.3%	0 0.0%	4 13.8%
Never	12 4.4%	2 3.6%	2 2.1%	0 0.0%	3 11.5%	1 5.6%	4 7.0%	0 0.0%	12 41.4%
Don't Know	46 16.7%	7 12.5%	17 17.9%	2 11.1%	1 3.8%	1 5.6%	17 29.8%	1 20.0%	9 31.0%
Total Respondents	275	56	95	18	26	18	57	5	29

QUESTION 19: **I have perceived in others and/or personally experienced: Changes/edits during review that change the meaning of scientific findings.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Perceived	87 31.9%	19 34.5%	38 40.9%	4 22.2%	7 26.9%	4 22.2%	15 25.9%	0 0.0%	6 20.7%
Experienced	41 15.0%	14 25.5%	9 9.7%	4 22.2%	3 11.5%	4 22.2%	7 12.1%	0 0.0%	0 0.0%
Neither	156 57.1%	26 47.3%	49 52.7%	10 55.6%	17 65.4%	11 61.1%	38 65.5%	5 100.0%	23 79.3%
Total Respondents	273	55	93	18	26	18	58	5	29

QUESTION 20: **I have perceived in others and/or personally experienced: Pressure to eliminate the word(s) "climate change" and/or "global warming" and/or similar terms.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Perceived	90 32.8%	21 38.2%	38 40.4%	6 33.3%	7 26.9%	4 22.2%	14 24.1%	0 0.0%	8 27.6%
Experienced	57 20.8%	11 20.0%	25 26.6%	4 22.2%	6 23.1%	3 16.7%	7 12.1%	1 20.0%	2 6.9%
Neither	147 53.6%	26 47.3%	39 41.5%	10 55.6%	17 65.4%	12 66.7%	39 67.2%	4 80.0%	19 65.5%
Total Respondents	274	55	94	18	26	18	58	5	29

QUESTION 22: **I have perceived in others and/or personally experienced: Disappearance/unusual delay in the release of websites, press releases, reports, or other science-based materials.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Perceived	62 22.7%	18 32.7%	22 23.4%	6 35.3%	3 11.5%	3 16.7%	10 17.2%	0 0.0%	2 6.9%
Experienced	60 22.0%	13 23.6%	23 24.5%	8 47.1%	4 15.4%	4 22.2%	7 12.1%	1 20.0%	2 6.9%
Neither	169 61.9%	29 52.7%	56 59.6%	6 35.3%	20 76.9%	12 66.7%	42 72.4%	4 80.0%	25 86.2%
Total Respondents	273	55	94	17	26	18	58	5	29

QUESTION 25: **I have perceived in others and/or personally experienced: Fear of retaliation for openly expressing concerns about climate change outside my agency.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Perceived	80 29.4%	21 38.2%	27 29.0%	4 23.5%	12 46.2%	5 27.8%	10 17.2%	1 20.0%	4 13.8%
Experienced	39 14.3%	6 10.9%	15 16.1%	3 17.6%	6 23.1%	1 5.6%	7 12.1%	1 20.0%	2 6.9%
Neither	165 60.7%	30 54.5%	54 58.1%	10 58.8%	13 50.0%	13 72.2%	42 72.4%	3 60.0%	24 82.8%
Total Respondents	272	55	93	17	26	18	58	5	29

QUESTION 28: **I have perceived in others and/or personally experienced: New or unusual administrative requirements or procedures that impair climate-related work.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Perceived	52 19.1%	14 25.0%	22 23.7%	0 0.0%	7 26.9%	2 11.1%	7 12.1%	0 0.0%	2 6.9%
Experienced	97 35.5%	21 37.5%	38 40.9%	7 41.2%	11 42.3%	3 16.7%	16 27.6%	1 20.0%	5 17.2%
Neither	148 54.2%	28 50.0%	44 47.3%	10 58.8%	11 42.3%	14 77.8%	37 63.8%	4 80.0%	23 79.3%
Total Respondents	273	56	93	17	26	18	58	5	29

QUESTION 29: **I have perceived in others and/or personally experienced: Statements by officials at my agency that misrepresent scientists' findings.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Perceived	63 23.4%	18 32.7%	28 30.1%	3 17.6%	2 8.0%	5 27.8%	7 12.5%	0 0.0%	1 3.6%
Experienced	47 17.5%	6 10.9%	26 28.0%	5 29.4%	2 8.0%	2 11.1%	6 10.7%	0 0.0%	0 0.0%
Neither	170 63.2%	34 61.8%	46 49.5%	9 52.9%	21 84.0%	11 61.1%	44 78.6%	5 100.0%	27 96.4%
Total Respondents	269	55	93	17	25	18	56	5	28

QUESTION 30: **I have perceived in others and/or personally experienced: Situations in which scientists have actively objected to, resigned from, or removed themselves from a project because of pressure to change scientific findings.**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Perceived	55 20.5%	13 23.6%	19 20.9%	2 11.8%	5 20.0%	4 22.2%	12 21.1%	0 0.0%	3 10.3%
Experienced	17 6.3%	3 5.5%	6 6.6%	2 11.8%	3 12.0%	2 11.1%	1 1.8%	0 0.0%	0 0.0%
Neither	200 74.6%	40 72.7%	68 74.7%	13 76.5%	17 68.0%	13 72.2%	44 77.2%	5 100.0%	26 89.7%
Total Respondents	268	55	91	17	25	18	57	5	29

QUESTION 32: **Number of instances of any activities listed above** perceived in others in the past five years:**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
0	69 26.8%	8 15.4%	17 19.3%	3 18.8%	8 32.0%	9 52.9%	20 37.0%	4 80.0%	17 60.7%
1– 5	125 48.6%	28 53.8%	50 56.8%	7 43.8%	13 52.0%	7 41.2%	20 37.0%	0 0.0%	8 28.6%
6–10	35 13.6%	9 17.3%	11 12.5%	4 25.0%	2 8.0%	0 0.0%	9 16.7%	0 0.0%	3 10.7%
11–20	18 7.0%	3 5.8%	8 9.1%	1 6.3%	2 8.0%	1 5.9%	3 5.6%	0 0.0%	0 0.0%
More than 20	10 3.9%	4 7.7%	2 2.3%	1 6.3%	0 0.0%	0 0.0%	2 3.7%	1 20.0%	0 0.0%
Total Respondents	257	52	88	16	25	17	54	5	28

** Number of incidents reflects activities listed in survey questions 19-31 in Appendices A and B.

QUESTION 33: **Number of instances of any activities listed above** personally experienced in the past five years:**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
0	108 41.9%	21 40.4%	33 37.1%	5 31.2%	9 36.0%	8 47.1%	28 51.9%	4 80.0%	21 77.8%
1–5	117 45.3%	24 46.2%	41 46.1%	9 56.2%	12 48.0%	9 52.9%	22 40.7%	0 0.0%	5 18.5%
6–10	23 8.9%	5 9.6%	13 14.6%	0 0.0%	3 12.0%	0 0.0%	2 3.7%	0 0.0%	1 3.7%
11–20	3 1.2%	2 3.8%	0 0.0%	0 0.0%	1 4.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
More than 20	7 2.7%	0 0.0%	2 2.2%	2 12.5%	0 0.0%	0 0.0%	2 3.7%	1 20.0%	0 0.0%
Total Respondents	258	52	89	16	25	17	54	5	27

** Number of incidents reflects activities listed in survey questions 19-31 in Appendices A and B.

QUESTION 35: **Morale within my office is:**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Excellent	32 11.6%	9 16.1%	7 7.3%	0 0.0%	1 4.2%	9 50.0%	6 10.2%	0 0.0%	5 17.2%
Good	93 33.7%	8 14.3%	43 44.8%	6 33.3%	4 16.7%	4 22.2%	27 45.8%	1 20.0%	15 51.7%
Fair	89 32.2%	19 33.9%	25 26.0%	7 38.9%	13 54.2%	4 22.2%	17 28.8%	4 80.0%	7 24.1%
Poor	42 15.2%	13 23.2%	15 15.6%	2 11.1%	4 16.7%	1 5.6%	7 11.9%	0 0.0%	2 6.9%
Extremely Poor	20 7.2%	7 12.5%	6 6.3%	3 16.7%	2 8.3%	0 0.0%	2 3.4%	0 0.0%	0 0.0%
Total Respondents	276	56	96	18	24	18	59	5	29

QUESTION 36: **Over the past few years my personal job satisfaction at my agency has:**

	Total	NASA	NOAA	EPA	USGS	USDA	DOE	DOD	NCAR
Increased	55 19.8%	11 19.3%	20 20.8%	1 5.6%	4 16.0%	10 55.6%	8 13.6%	1 20.0%	7 25.0%
Decreased	126 45.3%	35 61.4%	42 43.8%	9 50.0%	17 68.0%	3 16.7%	18 30.5%	2 40.0%	11 39.3%
Stayed the same	83 29.9%	9 15.8%	29 30.2%	7 38.9%	4 16.0%	4 22.2%	28 47.5%	2 40.0%	9 32.1%
No Opinion	14 5.0%	2 3.5%	5 5.2%	1 5.6%	0 0.0%	1 5.6%	5 8.5%	0 0.0%	1 3.6%
Total Respondents	278	57	96	18	25	18	59	5	28

Selected Survey Response Cross-Comparisons

The tables below break down survey question responses based on scientists' responses to a second question within the survey. The two columns on the left side of each table list the first survey question, the available responses to that question, and the total number of scientists who chose each available response option. The remaining columns list the second survey question (either Question 3 or Question 9), the set of available responses to the second question, and the total respondents for each available response option. The row labeled "Total Respondents" lists the total number of respondents to the first question as well as the total number of respondents for each of the response options to the second question. The totals listed for the first question will not always equal the sum of respondents for the second question because a given survey respondent may not have answered both questions being considered.

The percentages listed in each table are calculated with respect to the total number of scientists answering each question. For questions that allowed multiple responses, the sum of response numbers listed in the columns may be greater than the number listed at the bottom of the column.

Breakdown of Question 8a Responses According to the Controversial Nature of Respondents' Work (Question 9)

8a. Todays environment for federal government climate science is (better, worse, same) compared with 1 year ago.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 8a Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Better	38 13.9%	2 14.3%	13 19.7%	16 12.6%	6 12.5%	0 0.0%
Worse	116 42.5%	9 64.3%	26 39.4%	56 44.1%	18 37.5%	6 40.0%
Same	108 39.6%	3 21.4%	25 37.9%	50 39.4%	22 45.8%	7 46.7%
No Opinion	11 4.0%	0 0.0%	2 3.0%	5 3.9%	2 4.2%	2 13.3%
Total Respondents	273	14	66	127	48	15

Breakdown of Question 8b Responses According to the Controversial Nature of Respondents' Work (Question 9)

8b. Todays environment for federal government climate science is (better, worse, same) compared with 5 years ago.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 8b Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Better	35 12.9%	1 7.1%	10 14.9%	17 13.5%	6 12.8%	0 0.0%
Worse	182 66.9%	11 78.6%	44 65.7%	82 65.1%	31 66.0%	12 80.0%
Same	41 15.1%	1 7.1%	8 11.9%	21 16.7%	8 17.0%	3 20.0%
No Opinion	14 5.1%	1 7.1%	5 7.5%	6 4.8%	2 4.3%	0 0.0%
Total Respondents	272	14	67	126	47	15

Breakdown of Question 8c Responses According to the Controversial Nature of Respondents' Work (Question 9)

8c. Todays environment for federal government climate science is (better, worse, same) compared with 10 years ago.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 8c Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Better	48 17.5%	1 6.7%	12 18.2%	26 20.5%	7 14.6%	1 6.7%
Worse	176 64.2%	12 80.0%	43 65.2%	75 59.1%	35 72.9%	9 60.0%
Same	23 8.4%	1 6.7%	3 4.5%	13 10.2%	4 8.3%	2 13.3%
No Opinion	27 9.9%	1 6.7%	8 12.1%	13 10.2%	2 4.2%	3 20.0%
Total Respondents	274	15	66	127	48	15

Breakdown of Question 19 Responses According to the Controversial Nature of Respondents' Work (Question 9)

19. I have perceived in others and/or personally experienced: Changes/edits during review that change the meaning of scientific findings.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 19 Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Perceived	87 31.9%	4 25.0%	25 38.5%	41 32.5%	13 27.1%	3 20.0%
Experienced	41 15.0%	5 31.2%	18 27.7%	15 11.9%	3 6.3%	0 0.0%
Neither	156 57.1%	8 50.0%	25 38.5%	76 60.3%	33 68.8%	12 80.0%
Total Respondents	273	16	65	126	48	15

Breakdown of Question 20 Responses According to the Controversial Nature of Respondents' Work (Question 9)

20. I have perceived in others and/or personally experienced: Pressure to eliminate the word(s) "climate change" and/or "global warming" and/or similar terms.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 20 Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Perceived	90 32.8%	8 50.0%	23 35.4%	42 32.8%	10 21.3%	5 33.3%
Experienced	57 20.8%	7 43.8%	20 30.8%	22 17.2%	6 12.8%	0 0.0%
Neither	147 53.6%	4 25.0%	29 44.6%	71 55.5%	32 68.1%	10 66.7%
Total Respondents	274	16	65	128	47	15

Breakdown of Question 22 Responses According to the Controversial Nature of Respondents' Work (Question 9)

22. I have perceived in others and/or personally experienced: Disappearance/unusual delay in the release of websites, press releases, reports, or other science-based materials.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 22 Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Perceived	62 22.7%	4 25.0%	19 29.2%	31 24.4%	5 10.4%	1 7.1%
Experienced	60 22.0%	8 50.0%	25 38.5%	19 15.0%	7 14.6%	0 0.0%
Neither	169 61.9%	7 43.8%	29 44.6%	83 65.4%	36 75.0%	13 92.9%
Total Respondents	273	16	65	127	48	14

Breakdown of Question 25 Responses According to the Controversial Nature of Respondents' Work (Question 9)

25. I have perceived in others and/or personally experienced: Fear of retaliation for openly expressing concerns about climate change outside my agency.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 25 Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Perceived	80 29.4%	3 18.8%	27 40.9%	37 29.6%	11 22.9%	0 0.0%
Experienced	39 14.3%	9 56.2%	16 24.2%	11 8.8%	2 4.2%	0 0.0%
Neither	165 60.7%	5 31.2%	29 43.9%	81 64.8%	35 72.9%	14 100.0%
Total Respondents	272	16	66	125	48	14

Breakdown of Question 28 Responses According to the Controversial Nature of Respondents' Work (Question 9)

28. I have perceived in others and/or personally experienced: New or unusual administrative requirements or procedures that impair climate-related work.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 28 Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Perceived	52 19.1%	0 0.0%	18 26.9%	28 22.4%	4 8.3%	1 7.1%
Experienced	97 35.5%	11 68.8%	34 50.7%	41 32.8%	6 12.5%	4 28.6%
Neither	148 54.2%	5 31.2%	25 37.3%	68 54.4%	39 81.2%	9 64.3%
Total Respondents	273	16	67	125	48	14

Breakdown of Question 29 Responses According to the Controversial Nature of Respondents' Work (Question 9)

29. I have perceived in others and/or personally experienced: Statements by officials at my agency that misrepresent scientists' findings.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 29 Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Perceived	63 23.4%	3 18.8%	21 32.8%	29 23.4%	7 14.6%	1 7.1%
Experienced	47 17.5%	4 25.0%	17 26.6%	19 15.3%	4 8.3%	3 21.4%
Neither	170 63.2%	9 56.2%	31 48.4%	82 66.1%	37 77.1%	10 71.4%
Total Respondents	269	16	64	124	48	14

Breakdown of Question 30 Responses According to the Controversial Nature of Respondents' Work (Question 9)

30. I have perceived in others and/or personally experienced: Situations in which scientists have actively objected to, resigned from, or removed themselves from a project because of pressure to change scientific findings.		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 30 Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
Perceived	55 20.5%	4 25.0%	23 34.8%	22 18.0%	6 12.8%	0 0.0%
Experienced	17 6.3%	1 6.3%	11 16.7%	4 3.3%	1 2.1%	0 0.0%
Neither	200 74.6%	11 68.8%	35 53.0%	97 79.5%	40 85.1%	14 100.0%
Total Respondents	268	16	66	122	47	14

Breakdown of Question 32 Responses According to the Controversial Nature of Respondents' Work (Question 9)

32. Number of instances of any activities listed above** perceived in others in the past five years:		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 32 Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
0	69 26.8%	2 14.3%	10 16.1%	30 25.6%	19 40.4%	8 57.1%
1–5	125 48.6%	6 42.9%	27 43.5%	60 51.3%	24 51.1%	6 42.9%
6–10	35 13.6%	3 21.4%	11 17.7%	19 16.2%	2 4.3%	0 0.0%
11–20	18 7.0%	2 14.3%	10 16.1%	4 3.4%	1 2.1%	0 0.0%
More than 20	10 3.9%	1 7.1%	4 6.5%	4 3.4%	1 2.1%	0 0.0%
Total Respondents	257	14	62	117	47	14

** Number of incidents reflects activities listed in survey questions 19-31 in Appendices A and B.

Breakdown of Question 33 Responses According to the Controversial Nature of Respondents' Work (Question 9)

33. Number of instances of any activities listed above** personally experienced in the past five years:		9. My climate science-related work touches on issues that could be considered sensitive or controversial.				
Response	**Question 33 Total**	**Always**	**Frequently**	**Occasionally**	**Seldom**	**Never**
0	108 41.9%	1 7.1%	16 25.4%	47 39.8%	33 70.2%	11 84.6%
1–5	117 45.3%	7 50.0%	32 50.8%	62 52.5%	13 27.7%	2 15.4%
6–10	23 8.9%	5 35.7%	10 15.9%	7 5.9%	0 0.0%	0 0.0%
11–20	3 1.2%	0 0.0%	2 3.2%	0 0.0%	0 0.0%	0 0.0%
More than 20	7 2.7%	1 7.1%	3 4.8%	2 1.7%	1 2.1%	0 0.0%
Total Respondents	258	14	63	118	47	13

** Number of incidents reflects activities listed in survey questions 19-31 in Appendices A and B.

Breakdown of Question 8a Responses According to the Percent of Respondents' Time Spent on Climate-related Issues (Question 3)

8a. Today's environment for federal government climate science is (better, worse, same) compared with 1 year ago.		3. The percentage of my work having to do with climate-related topics is approximately:			
Response	**Question 8a Total**	**0%–25%**	**26%–50%**	**51%–75%**	**76%–100%**
Better	38 13.9%	7 20.0%	5 12.5%	9 14.5%	17 12.8%
Worse	116 42.5%	8 22.9%	16 40.0%	23 37.1%	66 49.6%
Same	108 39.6%	17 48.6%	18 45.0%	26 41.9%	47 35.3%
No Opinion	11 4.0%	3 8.6%	1 2.5%	4 6.5%	3 2.3%
Total Respondents	273	35	40	62	133

Breakdown of Question 8b Responses According to the Percent of Respondents' Time Spent on Climate-related Issues (Question 3)

8b. Today's environment for federal government climate science is (better, worse, same) compared with 5 years ago.		3. The percentage of my work having to do with climate-related topics is approximately:			
Response	**Question 8b Total**	**0%–25%**	**26%–50%**	**51%–75%**	**76%–100%**
Better	35 12.9%	6 17.6%	7 17.5%	6 9.8%	15 11.2%
Worse	182 66.9%	19 55.9%	26 65.0%	39 63.9%	96 71.6%
Same	41 15.1%	6 17.6%	5 12.5%	13 21.3%	17 12.7%
No Opinion	14 5.1%	3 8.8%	2 5.0%	3 4.9%	6 4.5%
Total Respondents	272	34	40	61	134

Breakdown of Question 8c Responses According to the Percent of Respondents' Time Spent on Climate-related Issues (Question 3)

8c. Today's environment for federal government climate science is (better, worse, same) compared with 10 years ago.		3. The percentage of my work having to do with climate-related topics is approximately:			
Response	**Question 8c Total**	**0%–25%**	**26%–50%**	**51%–75%**	**76%–100%**
Better	48 17.5%	7 20.6%	6 15.0%	10 16.1%	24 17.8%
Worse	176 64.2%	21 61.8%	28 70.0%	36 58.1%	90 66.7%
Same	23 8.4%	2 5.9%	2 5.0%	8 12.9%	10 7.4%
No Opinion	27 9.9%	4 11.8%	4 10.0%	8 12.9%	11 8.1%
Total Respondents	274	34	40	62	135

Responses According to the Percent of Respondents' Time Spent on Climate-related Issues (Question 3)

32. Number of instances of any activities listed above** perceived in others in the past five years:		3. The percentage of my work having to do with climate-related topics is approximately:			
Response	**Question 32 Total**	**0%–25%**	**26%–50%**	**51%–75%**	**76%–100%**
0	69 26.8%	13 40.6%	12 31.6%	18 31.6%	24 18.9%
1–5	125 48.6%	18 56.2%	19 50.0%	25 43.9%	62 48.8%
6–10	35 13.6%	0 0.0%	6 15.8%	8 14.0%	21 16.5%
11–20	18 7.0%	1 3.1%	1 2.6%	5 8.8%	11 8.7%
More than 20	10 3.9%	0 0.0%	0 0.0%	1 1.8%	9 7.1%
Total Respondents	257	32	38	57	127

** Number of incidents reflects activities listed in survey questions 19-31 in Appendices A and B.

Responses According to the Percent of Respondents' Time Spent on Climate-related Issues (Question 3)

33. Number of instances of any activities listed above** personally experienced in the past five years:		3. The percentage of my work having to do with climate-related topics is approximately:			
Response	**Question 33 Total**	**0%–25%**	**26%–50%**	**51%–75%**	**76%–100%**
0	108 41.9%	21 67.7%	16 41.0%	25 43.9%	43 33.6%
1–5	117 45.3%	9 29.0%	22 56.4%	27 47.4%	59 46.1%
6–10	23 8.9%	1 3.2%	1 2.6%	3 5.3%	18 14.1%
11–20	3 1.2%	0 0.0%	0 0.0%	1 1.8%	2 1.6%
More than 20	7 2.7%	0 0.0%	0 0.0%	1 1.8%	6 4.7%
Total Respondents	258	31	39	57	128

** Number of incidents reflects activities listed in survey questions 19-31 in Appendices A and B.

APPENDIX D

Model Media Policy

The text below serves as template for a media policy federal agencies could adopt to ensure free and open communication between scientists, the media, policy makers, and the public. This model policy was written by Tarek Maassarani, former lead investigator for the Government Accountability Project, and the language draws partially from media policies adopted at the National Aeronautics and Space Administration and the National Oceanic and Atmospheric Administration. In the first paragraph below, "(agency)" would be replaced by the official name of the agency if the agency were to adopt this policy language.

Model Media Policy

Section 1: Purpose

.01 This Order establishes the __(agency)__ media policy governing media communications including advisories, press releases, statements, interviews, news conferences, and other related media contacts. Public affairs offices have been established to facilitate the active dissemination of agency research results and to coordinate media and public relations activities. A principal goal of public affairs is to help __(agency)__ most efficiently achieve its agency mission through policy making based on sound and objective science.

Section 2: Rights

.01 Scientists and other staff ("employees") have the fundamental right to express their personal views, provided they specify that they are not speaking on behalf of, or as a representative of, the agency but rather in their private capacity. So long as this disclaimer is made, the employee is permitted to mention his or her institutional affiliation and position if this has helped inform his or her views on the matter. The employee is also allowed to make reasonable use of agency time and resources for the purposes of expressing their personal views (i.e., accommodations comparable with what would be allowed on other personal matters).

.02 Employees have the right to review, approve, and comment publicly on the final version of any proposed publication that significantly relies on their research, identifies them as an author or contributor, or purports to represent their scientific opinion.

.03 Final authority over the content of and parties to any particular media communication resides with the reporter and the scientist with whom he or she communicates.

Section 3: Responsibilities

.01 Public affairs is responsible for:

a) promoting media attention on important scientific and institutional developments;
b) coordinating and facilitating contact between journalists and the requested agency staff;
c) providing both reporters and scientists with timely, accurate, and professional media assistance; and
d) providing draft press releases or other public statements to agency scientists whose work is included, to assure the accuracy of scientific information being communicated.

.02 Employees are responsible for working with public affairs to make significant research developments accessible and comprehensible to the public.

.03 Employees are responsible for the accuracy and integrity of their communications and should not represent the agency on issues of politics or policy without prior approval from the public affairs officer (PAO).

Section 4: Media and Public Interactions

.01 To help public affairs best fulfill its responsibilities, employees should:

a) keep the PAO informed of any media interest or potential for interest in their work;

b) notify the PAO of impending media contacts and provide the PAO with a recap of the non-confidential aspects of the media conversation afterward;

c) review drafts of press releases written by the PAO both for their format and non-scientific content, as well as for the accuracy of scientific information being communicated; and

d) work with the PAO to review presentations or news conferences for their format and content to assure the accuracy of scientific information being communicated.

.02 Public affairs officers should:

a) respond to all initial media inquiries within 20 minutes, or as soon as possible;

b) do all they can to help reporters get the appropriate information needed for an article;

c) know the reporter's deadline to ensure timely response;

d) provide contact information where they will be available, even after hours, on weekends, and on holidays;

e) draft regional and national press releases whenever warranted;

f) ensure a timely turnaround on press releases (within one week or less);

g) develop (or coordinate the development of) talking points in collaboration with the relevant experts for the release of scientific papers and other agency products;

h) assure agency compliance with the No Fear Act (a federal law that holds agencies accountable for violations of employee protection laws) by informing employees of their rights under federal anti-discrimination and whistleblower protection laws; and

i) assure that as part of any relevant agency communications to its employees, the agency includes the congressional addendum required by the Anti-Gag Statute, reaffirming the supremacy of the Whistleblower Protection Act (protecting non-classified public communications) and other congressional acts over conflicting agency policies.

Section 5: Media Coverage

.01 In the spirit of openness, media representatives must be granted free access to open meetings of advisory committees and other meetings convened by this agency, as well as permission to reasonably use tape recorders, cameras, and electronic equipment for broadcast purposes.

.02 The PAO coordinating a meeting may be present, or consulted, to undertake all responsibilities of a news media nature, including but not restricted to necessary physical arrangements.

.03 It shall be the responsibility of the PAO to cooperate fully with and accede to all reasonable requests from news media representatives. In instances where conflicts or misunderstandings may arise from the expressed views, wishes, or demands on the part of news media representatives, such matters should be referred at once to the director of the Office of Public, Constituent and Intergovernmental Affairs (OPCIA) for resolution.

.04 The OPCIA director shall exercise full authority and assume responsibility for all decisions involving the news media and related activity.

Section 6: Internal Reporting

.01 The agency will offer an internal disclosure system to allow for the confidential reporting and meaningful resolution of inappropriate alterations, conduct, or conflicts of interest that arise with regard to media communications. The system shall also allow for the employee's written assessment of whether the matter was resolved to his or her satisfaction.

Section 7: Anti-gag Addendum

To comply with the Anti-Gag Statute (SEC. 820 of the Transportation, Treasury, Housing and Urban Development, the Judiciary, and Independent Agencies Appropriations Act of 2006, PL 109-115, passed November 30, 2005), the __(agency head title)__ shall issue a general memorandum to all agency and contractor employees informing them that all nondisclosure forms, policies, or agreements are modified by the addendum below, which is incorporated by reference into all relevant agency communications and supersedes any conflicting agency policies or rules.

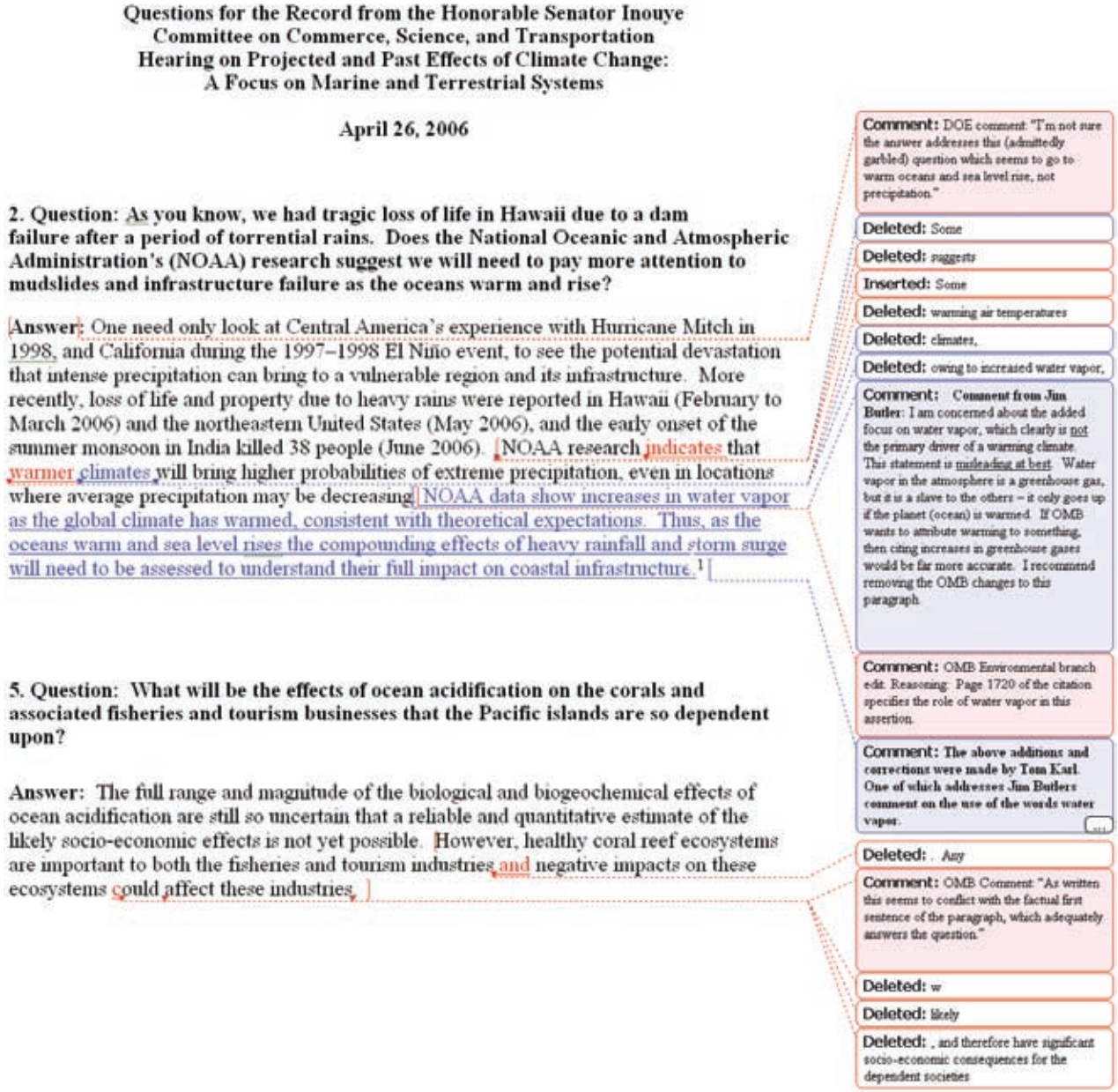
"These restrictions are consistent with and do not supersede, conflict with, or otherwise alter the employee obligations, rights, or liabilities created by Executive Order No. 12958; section 7211 of title 5, United States Code (governing disclosures to Congress); section 1034 of title 10, United States Code, as amended by the Military Whistleblower Protection Act (governing disclosure to Congress by members of the military); section 2302(b)(8) of title 5, United States Code, as amended by the Whistleblower Protection Act (governing disclosures of illegality, waste, fraud, abuse or public health or safety threats); the Intelligence Identities Protection Act of 1982 (50 U.S.C. 421 et seq.) (governing disclosures that could expose confidential Government agents); and the statutes which protect against disclosure that may compromise the national security, including sections 641, 793, 794, 798, and 952 of title 18, United States Code, and section 4(b) of the Subversive Activities Act of 1950 (50 U.S.C. 783(b)). The definitions, requirements, obligations, rights, sanctions, and liabilities created by said Executive order and listed statutes are incorporated into this agreement and are controlling.

"Provided, that notwithstanding the preceding paragraph, a nondisclosure policy form or agreement that is to be executed by a person connected with the conduct of an intelligence or intelligence-related activity, other than an employee or officer of the United States Government, may contain provisions appropriate to the particular activity for which such document is to be used. Such form or agreement shall, at a minimum, require that the person will not disclose any classified information received in the course of such activity unless specifically authorized to do so by the United States Government. Such nondisclosure forms shall also make it clear that they do not bar disclosures to Congress or to an authorized official of an executive agency or the Department of Justice that are essential to reporting a substantial violation of law."

APPENDIX E

Edits to Congressional Communications by Government Staff

Below is an excerpt of questions for the record (QFRs) asked by Senator Daniel Inouye (D-HI) following an April 26, 2006, Senate Commerce, Science, and Transportation Committee hearing on projected and past effects of climate change. The question responses include comments and edits from scientists as well as from officials at the Office of Management and Budget and the U.S. Department of Energy, compiled by the NOAA legislative affairs specialist in charge of coordinating clearance and review of congressional communications.



Questions for the Record from the Honorable Senator Inouye
Committee on Commerce, Science, and Transportation
Hearing on Projected and Past Effects of Climate Change:
A Focus on Marine and Terrestrial Systems

April 26, 2006

2. Question: As you know, we had tragic loss of life in Hawaii due to a dam failure after a period of torrential rains. Does the National Oceanic and Atmospheric Administration's (NOAA) research suggest we will need to pay more attention to mudslides and infrastructure failure as the oceans warm and rise?

Answer: One need only look at Central America's experience with Hurricane Mitch in 1998, and California during the 1997–1998 El Niño event, to see the potential devastation that intense precipitation can bring to a vulnerable region and its infrastructure. More recently, loss of life and property due to heavy rains were reported in Hawaii (February to March 2006) and the northeastern United States (May 2006), and the early onset of the summer monsoon in India killed 38 people (June 2006). [NOAA research indicates that warmer climates will bring higher probabilities of extreme precipitation, even in locations where average precipitation may be decreasing.] NOAA data show increases in water vapor as the global climate has warmed, consistent with theoretical expectations. Thus, as the oceans warm and sea level rises the compounding effects of heavy rainfall and storm surge will need to be assessed to understand their full impact on coastal infrastructure.[1]

5. Question: What will be the effects of ocean acidification on the corals and associated fisheries and tourism businesses that the Pacific islands are so dependent upon?

Answer: The full range and magnitude of the biological and biogeochemical effects of ocean acidification are still so uncertain that a reliable and quantitative estimate of the likely socio-economic effects is not yet possible. However, healthy coral reef ecosystems are important to both the fisheries and tourism industries and negative impacts on these ecosystems could affect these industries.

Comment: DOE comment "I'm not sure the answer addresses this (admittedly garbled) question which seems to go to warm oceans and sea level rise, not precipitation."

Deleted: Some

Deleted: suggests

Inserted: Some

Deleted: warming air temperatures

Deleted: climates,

Deleted: owing to increased water vapor,

Comment: **Comment from Jim Butler:** I am concerned about the added focus on water vapor, which clearly is not the primary driver of a warming climate. This statement is misleading at best. Water vapor in the atmosphere is a greenhouse gas, but it is a slave to the others – it only goes up if the planet (ocean) is warmed. If OMB wants to attribute warming to something, then citing increases in greenhouse gases would be far more accurate. I recommend removing the OMB changes to this paragraph.

Comment: OMB Environmental branch edit. Reasoning: Page 1720 of the citation specifies the role of water vapor in this assertion.

Comment: **The above additions and corrections were made by Tom Karl. One of which addresses Jim Butlers comment on the use of the words water vapor.**

Deleted: . Any

Comment: OMB Comment "As written this seems to conflict with the factual first sentence of the paragraph, which adequately answers the question."

Deleted: w

Deleted: likely

Deleted: , and therefore have significant socio-economic consequences for the dependent societies

ATMOSPHERE OF PRESSURE

Political Interference in Federal Climate Science

Climate scientists in the U.S. government are the world's leading experts on global climate change. They are entrusted to observe, analyze, and model our changing planet and convey their findings to other scientists, policy makers, media, and the public. Unfortunately, scientists report that their findings are being tailored to reflect political goals rather than scientific fact.

Out of concern that federal climate science was being compromised by inappropriate political interference, the Union of Concerned Scientists and the Government Accountability Project both undertook independent investigations of federal climate science. These two complementary investigations arrived at similar conclusions regarding the state of federal climate research and the need for strong policies protecting the integrity of science and the free flow of scientific information.

Union of Concerned Scientists

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