



United States Department of the Interior
U.S. GEOLOGICAL SURVEY



December 7, 2009

Office of Global Change
U.S. Geological Survey
104 National Center
Reston, VA 20192

Re: Complaint About Information Quality

On September 28, 2009, the United States Geological Survey (USGS) received your complaint regarding information quality related to the following Memorandum:

USGS Director Mark D. Myers memorandum to the Director of the U.S. Fish and Wildlife Service (FWS) and the Solicitor of the Department of the Interior dated May 14, 2008 regarding, "The Challenges of Linking Carbon Emissions, Atmospheric Greenhouse Gas Concentrations, Global Warming, and Consequential Impacts" ("USGS memorandum").

A team of scientists from the Office of Global Change have evaluated and responded to each and every one of your points of complaint (Attachment 1). I have reviewed their responses and consider them to be satisfactory in answer. Furthermore, from these responses, I have determined that the USGS memorandum and its conclusions were derived exclusively from peer-reviewed publications, and that the USGS memorandum itself does not provide any new insights or scientific information that would either require additional peer review or evaluation under the Information Quality Act.

Sincerely,

Thomas R. Armstrong, PhD
Senior Advisor for Global Change Programs
U.S. Geological Survey

Attachment 1

Attachment 1 - USGS Response to Complaint About Information Quality

Complainant Statement

The USGS Memorandum Is Subject to IQA Requirements

The USGS memorandum from Director Myers to the FWS Director and Interior Department Solicitor unequivocally is subject to the requirements of the OMB Peer Review Bulletin and the OMB, Interior and USGS Guidelines.

First, there clearly was “dissemination” by USGS and the Interior Department of the information provided in the USGS memorandum. USGS and the Interior Department “initiated distribution of the information to the public” by making it prominently, available on the Department's web site information regarding protection of polar bears.

Second, the USGS memorandum presents “scientific information.” For example, in his memorandum, Director Myers states the following:

“In response to a request from Dale Hall, Director, U.S. Fish and Wildlife Service, the U.S. Geological Survey has summarized some of the latest climate results from the science community in defining CO₂ loading from individual actions and specific biological responses. These results indicate that current science and models cannot link individual actions that contribute to atmospheric carbon levels to specific responses of species, including polar bears.”

USGS Response Comment 1:

The statement “These results indicate that current science and models cannot link individual actions that contribute to atmospheric carbon levels to specific responses of species, including polar bears.” -- restates in non-technical language one of the findings of IPCC AR4 Working Group II:

“Limitations and gaps prevent more complete attribution of the causes of observed system responses to anthropogenic warming. First, the available analyses are limited in the number of systems and locations considered. Second, natural temperature variability is larger at the regional than at the global scale, thus affecting identification of changes due to external forcing. Finally, at the regional scale other factors (such as land-use change, pollution, and invasive species) are influential [1.4].” (IPCC AR4 Summary for Policymakers, page 9)

Complainant Statement

“It is currently beyond the scope of existing science to identify a specific source of CO₂ emissions and designate it as the cause of specific climate impacts at an exact location.”

USGS Response Comment 2:

The statement “It is currently beyond the scope of existing science to identify a specific source of CO₂ emissions and designate it as the cause of specific climate impacts at an exact location.” --is not a new conclusion but rather an accepted scientific consensus stated in non-technical language. It is articulated, for example, in the 2004 DOE Office of Fossil Energy Report on Geological Carbon Sequestration: Insurance and Legal Perspectives on Liability:

“Fundamental aspects of the GHG debate help to define which public policy options are available to policymakers.

GHG emissions, and potential future emissions reductions, in the global economy come from ten of millions of disparate sources across many sectors: energy, chemical, agriculture, forestry, urban development, and waste management. The climate change issue is inherently global in scope. Damages from climate change can not be ascribed in any particular source and atmospheric systems mix all carbon dioxide emissions uniformly around the globe.” (U.S. Department of Energy, 2004, Geological Carbon Sequestration: Insurance and Legal Perspectives on Liability, 72pp.)

Complainant Statement

The above statements undeniably constitute “scientific assessments related to such disciplines as the behavioral and social sciences, public health and medical sciences, life and earth sciences, engineering, or physical sciences.” Also, it is beyond question that the USGS memorandum is “a communication or representation of knowledge such as facts or data, in any medium or form” and further includes “information that an agency disseminates from a web page.” Director Myers’ presentation makes clear that the information conveyed in his memorandum is not his opinion or any other “individual’s opinion,” but rather that “a statement of fact or of the agency’s findings and conclusions is being offered.”

USGS Response Comment 3:

The term “**scientific assessment**,” as defined by the OMB Final Information Quality Bulletin for Peer Review, means an evaluation of a body of scientific or technical knowledge, which typically synthesizes multiple factual inputs, data, models, assumptions, and/or applies best professional judgment to bridge uncertainties in the available information. (FR 70:2664—2677).

The statements included in the subject memorandum do not evaluate a body of scientific or technical knowledge, nor do they synthesize multiple inputs or bridge uncertainties in available information. Rather, these statements restate known findings from widely available peer reviewed literature in non-technical language. The statements thus do not constitute a scientific assessment.

Complainant Statement

The scientific information presented in the USGS memorandum further clearly constitutes “influential scientific information.” The memorandum was produced in response to a request from the FWS Director for guidance. On the same date as issuance of the USGS memorandum (May 14, 2008), FWS Director Dale Hall issued a memorandum to FWS Regional Directors stating the following:

“Based on the attached memorandum to me from the Director of the U.S. Geological Survey, however, the Service does not anticipate that the mere fact that a Federal agency authorizes a project that is likely to emit GHG [greenhouse gases] will require the initiation of section 7 consultation.”

“The best scientific data available today do not allow us to draw a causal connection between GHG emissions from a given facility and effects posed to listed species or their habitats, nor are there sufficient data to establish that such impacts are reasonably certain to occur. Without sufficient data to establish the required causal connection—to the level of reasonable certainty—between a new facility's GHG emissions and impacts to listed species or critical habitat, section 7 consultation would not be required to address impacts of a facility's GHG emissions.”

On October 3, 2008, the Solicitor issued a memorandum to the Secretary of the Interior

regarding “Guidance on the Applicability of the Endangered Species Act's Consultation Requirements to Proposed Actions Involving the Emission of Greenhouse Gases.” In that memorandum, the Solicitor cited the USGS memorandum and its assessment therein that “[i]t is currently beyond the scope of existing science to identify a specific source of CO₂ emissions and designate it as the cause of specific climate impacts at an exact location.” The Solicitor then concluded:

“Based on the above statement by USGS, I concur with the guidance provided by the FWS and conclude, for the reasons explained below, that where the effects at issue result from climate change potentially induced by GHGs, a proposed action that will involve the emission of GHG cannot pass the “may affect” test, and is not subject to consultation under the ESA [Endangered Species Act] and its implementing regulations.”

The memoranda by the Solicitor and FWS Director establishing guidance on the applicability of the ESA to federal activities involving GHG emissions explicitly state that the guidance is based on statements in the May 14, 2008, USGS memorandum. As such, there can be absolutely no doubt that the USGS memorandum has “a clear and substantial impact on important public policies or private sector decisions.” Moreover, because the USGS memorandum was issued in response to a request by the FWS Director, there also can be no doubt that USGS was reasonably able to determine that it would have such an impact.

We assert, in fact, that the USGS assessment “of the latest climate results from the science community in defining CO₂ loading from individual actions and specific biological responses” constitutes a “highly influential scientific assessment” under the OMB Peer Review Bulletin. Given the reliance on this assessment by the FWS and the Solicitor in establishing their guidance that GHG emissions are not subject to consultation under the ESA, it cannot be contested that dissemination of this assessment was “novel, controversial, or precedent-setting, or has significant interagency interest.”

USGS Response Comment 4:

Please refer to Response Comment 3 above.

The subject memorandum presents no information that had not previously appeared in open, peer reviewed and published literature. Per OMB Guidelines it also does not provide any synthesis of scientific data, meaning an evaluation of a body of scientific or technical knowledge, which typically synthesizes multiple factual inputs, data, models, assumptions, and/or applies best professional judgment to bridge uncertainties in the available information. (FR 70:2664—2677). Rather, the subject memorandum restates known findings from widely available peer reviewed literature in non-technical language.

Complainant Statement

The USGS Memorandum Fails to Comply with the OMB Peer Review Bulletin and the OMB, Interior and USGS Guidelines

The highly influential scientific assessment or influential scientific information disseminated by USGS in its memorandum does not comply with the OMB, Interior and USGS Guidelines. Under the Interior Guidelines, when USGS is responsible for disseminating influential scientific information, as clearly is the case here, USGS “shall include a high degree of transparency about data.” The USGS Guidelines further state that “the scientific information it disseminates will have a high degree of transparency regarding (1) the source of the data used, (2) the various assumptions employed, (3) the methods applied, and (4) the statistical procedures employed.”

The USGS memorandum fails to provide this required transparency about data. According to the memorandum, “the U.S. Geological Survey has summarized some of the latest climate results from the science community in defining CO₂ loading from individual actions and specific biological responses.” While the USGS memorandum references the Intergovernmental Panel on Climate Change Fourth Assessment Synthesis Report (IPCC) and the Climate Change Science Program’s Synthesis and Assessment Product 1.1, *Temperature Trends in the Lower Atmosphere* (CCSP), no other literature citations or other information are included in the memorandum or as attachments to indicate the sources of the data that were included in the summary of “some of the latest climate results from the science community.” The USGS memorandum also fails to provide any information to indicate the methodology used, and the assumptions employed, to determine which of the “latest climate results” were selected for summary and how that summarization process was conducted, including any statistical analyses.

The highly influential scientific assessment disseminated in the USGS memorandum also does not comply with the OMB Peer Review Bulletin, which states, “To the extent permitted by law, each agency shall conduct a peer review on all influential scientific information that the agency intends to disseminate.” No evidence has been made available to demonstrate that such peer review was conducted on the information presented in the USGS memorandum or that an OMB-approved alternative procedure was employed to ensure the scientific information product meets applicable information-quality standards.

Even if USGS argues that the information cited from the IPCC and CCSP reports already has been subjected to adequate peer review pursuant to Section II of the OMB Peer Review Bulletin requirements for influential scientific information, no such exemption is provided for highly influential scientific assessments, such as the USGS memorandum. Instead, such assessments must either comply with the OMB-established peer review requirements in Section III of the Peer Review Bulletin or “an agency may instead (1) rely on scientific information produced by the National Academy of Sciences, (2) commission the National Academy of Sciences to peer review an agency draft scientific information product, or (3) employ an alternative procedure or set of procedures, specifically approved by the OIRA Administrator in consultation with the Office of Science and Technology Policy (OSTP), that ensures that the scientific information product meets applicable information-quality standards.”

USGS Response Comment 5:

Please refer to Response Comments 3-4 above.

The subject memorandum presents no information that had not previously appeared in open, peer reviewed and published literature. Per OMB Guidelines it also does not provide any synthesis of scientific data, meaning an evaluation of a body of scientific or technical knowledge, which typically synthesizes multiple factual inputs, data, models, assumptions, and/or applies best professional judgment to bridge uncertainties in the available information. (FR 70:2664—2677). Rather, the subject memorandum restates known findings from widely available peer reviewed literature in non-technical language.

Complainant Statement

Moreover, regardless of whether the USGS memorandum is deemed to constitute influential scientific information or a highly influential scientific assessment, there is no evidence that any peer review was conducted with respect to these two key conclusions by USGS:

“[T]he U.S. Geological Survey has summarized some of the latest climate results from the science community in defining CO₂ loading from individual actions and specific biological responses. These results indicate that current science and models cannot link individual actions that contribute to atmospheric carbon levels to specific responses of species, including polar bears.”

USGS Response Comment 6:

Please refer to Response Comment 1 above. The statement “The U.S. Geological Survey has summarized some of the latest climate results from the science community in defining CO₂ loading from individual actions and specific biological responses” is accurate; the memorandum summarizes, i.e. restates in non-technical language, several findings from open peer-reviewed literature.

The first finding is that “Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level.” (IPCC AR4 WGI, Summary for Policymakers, p. 4).

The second finding is that:

“In an ideal world, there would be reliable quantitative estimates of all climate forcings – both natural and human-induced – that have made significant contributions to surface and tropospheric temperature changes. We would have detailed knowledge of how these forcings had changed over space and time. Finally, we would have used standard sets of forcings to perform climate-change experiments with a whole suite of numerical models, thus isolating uncertainties arising from structural differences in the models themselves (see Box 5.2). Unfortunately, this ideal situation does not exist.” (Climate Change Science Program, Synthesis and Analysis Product (SAP) 1.1: Temperature Trends in the Lower Atmosphere, page 95).

This second finding highlights the fact that we do not yet have reliable quantitative estimates of all climate forcings, nor do we know how they change or what the uncertainties are, within the current state of the science.

The third finding states that:

“Difficulties remain in simulating and attributing observed temperature changes at smaller than continental scales (IPCC AR4 WGI, Summary for Policymakers, p. 9.)”

This again points out that models are most robust at continental scales rather than at regional or local scales.

The fourth finding is that

“The positive detection results obtained for “GHG-only” fingerprints were driven by model-data pattern similarities at very large spatial scales (e.g., at the scale of individual hemispheres, or land-versus-ocean behavior). Fingerprint detection of GHG effects becomes more challenging at continental or sub-continental scales. It is at these smaller scales that spatially heterogeneous forcings, such as those arising from changes in aerosol loadings and land use patterns, may have large impacts on regional climate” (SAP 1.1: Temperature Trends in the Lower Atmosphere, page 102).

This refers to the emerging capability to identify, at extremely large scales but not at smaller ones, areas where it appears that GHGs in general provide the forcing for climate change. (Note that the excerpt specifically notes that in smaller scales, other factors come into play, and that the identification is GHGs vs. other climate change forcings – **not** the identification of GHGs from any particular source as compared to another.

It is in fact a fundamental property of atmospheric CO₂ that it is considered to be “well-mixed”, i.e. its residence time in the troposphere is long enough that it becomes homogeneous both vertically and horizontally. This is not a new finding; it is contained in basic textbooks on atmospheric chemistry (e.g.

Jacob, Daniel, 1999, [Introduction to Atmospheric Chemistry](http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/wg1/016.htm). Princeton University Press. pp.25–26). and is assumed in the IPCC AR3 (http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/wg1/016.htm) and IPCC AR4 (WGI, Climate Change: The Physical Basis, p. 138).

Complainant Statement

“The final conclusion that can be reached from this information is that human-induced global warming can be observed and verified at global to continental scales where cumulative GHG concentrations can be measured and modeled. Climate impacts, however, are observed at specific locations, at much more specific and localized scales--incongruent with the global scale of the aforementioned measured and modeled climate forces. It is currently beyond the scope of existing science to identify a specific source of CO₂ emissions and designate it as the cause of specific climate impacts at an exact location.”

These conclusions go beyond the statements from the IPCC and CCSP reports that are cited in the USGS memorandum, and they explicitly are not drawn solely from these statements but also from other unspecified scientific information summarized by USGS. Consequently, the OMB Peer Review Bulletin unequivocally requires that peer review be conducted of the influential information or highly influential scientific assessment contained in these two major findings by USGS.

USGS Response Comment 7:

Please refer to Response Comment 1 above. It is in fact a fundamental property of atmospheric CO₂ that it is considered to be “well-mixed”, i.e., its residence time in the troposphere is long enough that it becomes homogeneous both vertically and horizontally. This is not a new finding; it is contained in basic textbooks on atmospheric chemistry (e.g., Jacob, Daniel, 1999, [Introduction to Atmospheric Chemistry](http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/wg1/016.htm). Princeton University Press. pp. 25–26). and is assumed in the IPCC AR3 (http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/wg1/016.htm) and IPCC AR4 (WGI, Climate Change: The Physical Basis, p. 138). The OMB Peer Review Bulletin makes no assertions that statements that are part of the accepted body of knowledge, rather than new findings, require peer review.

Complainant Statement

Description of How We Are Affected by the Information Errors

Founded in 1947, Defenders of Wildlife has more than one million members and supporters across the nation and is dedicated to the protection and restoration of wild animals and plants in their natural communities. Defenders of Wildlife is a recognized leader in the effort to protect fish and wildlife and the habitat on which they depend - habitat that will be severely stressed in the decades to come as the climate becomes generally warmer, precipitation patterns change, sea level rises, and other climate-related changes impact terrestrial and aquatic ecosystems. The depth of Defenders’ interests in protecting wildlife and wildlife habitat from the effects of global warming are demonstrated by the significant resources we have invested on protection and recovery of endangered species; conservation planning, including the state wildlife plans, transportation, sprawl and connectivity; and federal, state and private land management issues.

Recommendations for Corrective Action

First, we request that USGS provide the required transparency regarding (1) the sources of the data used to summarize “the latest climate results from the science community,” (2) the various assumptions employed in that summarization process, (3) the methods applied to select and

summarize the data sources, and (4) the statistical procedures employed in development of the highly influential scientific assessment provided by the USGS memorandum.

USGS Response Comment 8:

As previously stated, Director Myers summarized and cited several independent international reports that had analyzed data from across the climate community. These reports concluded that to pinpoint a regional or local source of CO₂ and then to further determine the regional or local impact is not possible with our current observational networks and knowledge of CO₂ source fingerprinting. The USGS memorandum does not provide any synthesis of scientific data, nor does it provide an evaluation of a body of scientific or technical knowledge; the subject memorandum restates known findings from widely available peer reviewed literature in non-technical language.

Second, once USGS provides the required transparency, we request that USGS conduct peer review of the resulting scientific assessment pursuant to the OMB Peer Review Bulletin.

USGS Response Comment 9:

The request for corrective action does not apply. The memorandum is not a scientific assessment, it presents only a summary and a compilation of information from existing, external peer reviewed sources