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Science Used to Make Policy Should Be Transparent and Thoroughly Vetted

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Data bearing the imprimatur of governments should enjoy as much trust as possible, but trust is a fragile asset that can easily be lost. Discussing Stalin's brutal industrialization of the Soviet Union in *The Great Terror*, Robert Conquest writes, "Detailed comparisons were in any case impossible to make, owing to the secrecy and distortion of the Soviet system of the time." Nobody trusted Soviet data.

For the most part, U.S. federal agencies deserve our trust. They have done an admirable job of collecting and disseminating reliable data. But there have been worrisome exceptions, often associated with environmental causes. Like most Americans, I am an environmentalist. I am fully committed to a clean, healthy environment, and I have a deep respect for nature. However, parts of the modern environmental movement, including parts of government agencies, have veered into a fanaticism raising doubts about how trustworthy they are.

Data Quality Mandated

To prevent an erosion of the trust in federal agencies, the Data Quality Act of 2001 (DQA) directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies."

The response by OMB, as well as by most other federal agencies, was to mandate rigorous peer review, well beyond the haphazard peer-review employed by scientific journals. Journals' editorial bias or cronyism can ensure acceptance or rejection of manuscripts without regard to the intrinsic merits of the research.

Most federal agencies, most of the time, adhere to DQA requirements. For example, the National Oceanic and Atmospheric Administration (NOAA) subjected new findings of the effects of sonar on marine mammals to very extensive reviews, with the names of external reviewers publicized. While I am not an expert on the effects of sonar on marine mammals, I am confident the data finally released by NOAA should be taken very seriously, because the data were subjected to an extensive external peer-review process. Such action complies with the letter and the spirit of the DQA.

Data Quality Violated

In other instances, the DQA standards have been outright ignored. On June 26, 2015, the influential journal *Science* published "Possible Artifacts of Data Biases in the Recent Global Surface Temperature Warming Hiatus," a paper co-authored by Thomas R. Karl, director of NOAA's National Centers for Environmental Information. The paper announced remarkable findings: Karl and his co-authors assessed "the observational evidence related to a 'hiatus' in recent global surface warming" and concluded the evidence did not "support the notion of a 'slowdown' in the increase of global surface temperature." This claim conflicts with the previous findings of many organizations worldwide, including the Intergovernmental Panel on Climate Change.

With great fanfare at the time of publication, NOAA issued a press release stating Karl and his co-authors "[refuted] the notion that there has been a slowdown or 'hiatus' in the rate of global warming in recent years." NOAA stated the work had been carried out by a "team of scientists from the National Oceanic and Atmospheric Administration (NOAA) and the National Centers for Environmental Information (NCEI) and [the private consulting group] LMI using the latest global surface temperature data."

A month after the hiatus had been declared dead in *Science*, the publication's editor, Marcia McNutt, published an editorial titled "The Two Degree Inferno," in which she proposed a special place in Hell for "deniers" of President Barack Obama's position on climate change. Many were puzzled by this extreme position and were left wondering how questioning the supposedly scientific underpinnings of a political issue called for a declaration of religious heresy by the editor of one of the most prestigious scientific journals in the world. To many observers, the way NOAA publicized the death of the hiatus appeared to be part of a coordinated crescendo of propaganda meant to promote strong government action at the Paris Climate Conference, held in December 2015.

NOAA's R.I.P. announcement for the hiatus seems to have violated DQA, as pointed out by more than 300 expert signers in a letter delivered to the U.S. House Committee on Science, Space and Technology on January 28, 2016.

Satellite records continue to show the existence of a pronounced warming hiatus, with temperature peaks occurring every four or five years from El Niños, similar to the one in 2015, with cooling during subsequent La Niñas. A campaign to discredit the politically incorrect satellite data has recently begun. Slick, costly videos, congressional posturing, and many other propaganda tools have been unleashed to persuade the scientifically illiterate to ignore the satellite records.

Temperatures inferred from satellite radiometers agree extremely well with measurements of the same atmospheric layers taken with thermometers in weather balloons. Thermal microwave radiation is measured by satellites to determine atmospheric temperature in much

the same way as infrared radiation from a patient's ear is measured in modern hospitals to determine the patient's temperature. Satellite temperature measurements are the gold standard, and they should have been part of the external peer-review process of the paper by Karl, *et al*., which is mandated by the DQA.

It is time for federal agencies to obey the DQA, even when it is politically inconvenient.

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