Science or Spin?

Assessing the Accuracy of Cable News Coverage of Climate Science

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Appendix: Methodology

Union of Concerned Scientists

Data Sources and Collection

IDENTIFICATION OF SEGMENTS THAT DISUCUSSED CLIMATE CHANGE OR GLOBAL WARMING

The Lexis-Nexis database was used to search cable news transcripts for the terms "climate change" or "global warming" on CNN, Fox News Channel, and MSNBC between January 1, 2013, and December 31, 2013. The database includes programs that air between 5:00 p.m. and 11:00 p.m. Eastern time for Fox and MSNBC, weekend programs on both networks, and 24-hour transcripts for CNN. To fairly compare the networks, we examined transcripts across all three networks for weeknight shows that aired after 5:00 p.m. as well as weekend shows that regularly featured interviews with policy makers, including *Fareed Zakaria GPS* and *State of the Union with Candy Crowley* on CNN; *Fox News Sunday* on Fox; and *Melissa Harris-Perry*, *Up with Chris Hayes*, and *Up with Steve Kornacki* on MSNBC. While some discussion of relevant climate science may not have used the exact phrases "global warming" or "climate change," this methodology is likely to have captured the vast majority of coverage.

The unit of analysis was a program segment, defined as content aired between commercial breaks. While most instances of climate coverage were short and consisted of a single segment, some programs engaged in more in-depth coverage, and we sub-divided these into multiple segments divided by commercial breaks. Therefore, networks' performance in our analysis was more heavily influenced by longer segments than by brief mentions of climate science, reflecting the influence of networks' shorter and longer segments on their viewers' exposure to climate science information.

Since our analysis focused on the editorial choices that each program's producers made regarding climate coverage, broadcasts that were repeated on the same calendar day were counted once. However, if identical segments from a program were repeated on different calendar days, the multiple airings of these segments were each counted individually in our analysis.

Segments were analyzed based on written transcripts. Recordings of the shows were consulted (where available) only when transcripts were unclear or contained potential errors. Therefore, the analysis did not account for tone, the use of on-air graphics, or the use of other visual or audio elements that may have conveyed additional information to audiences.

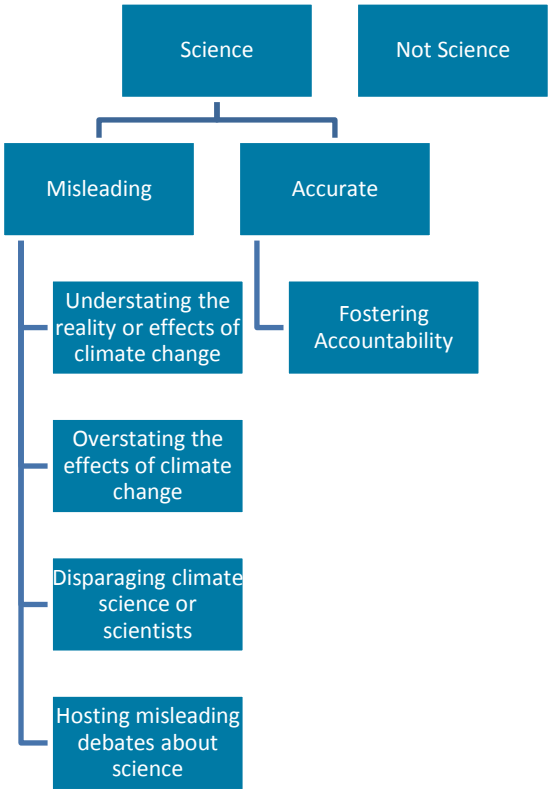
Determining If Clips Touched on Scientific Topics

Segments identified in our data collection were assessed to determine whether or not they touched on climate science. Segments tagged as "science" included discussions of the reality and causes of climate change and its effects, the study of climate science, and specific findings from climate research. Segments tagged as "not science" were those in which discussions of climate change focused exclusively on policy, politics, or actions that people or companies are taking to reduce emissions. In some cases, segments focused on policy or politics but also discussed science. These segments were marked as "science," and only their scientific content was evaluated. Segments marked as "not science" were not subjected to further analysis.

Assessing Accurate and Misleading Clips

Segments tagged as "science" were assessed to determine whether the coverage was accurate or misleading. When a segment featured any misleading characterization of climate science, the entire segment was marked as misleading, regardless of any accurate statements it might have also contained. Scientific statements and claims were compared to authoritative climate assessments available at the time segments in question were aired, including the National Academy of Science's America's Climate Choices and reports from the Intergovernmental Panel on Climate Change (IPCC), including its Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (IPCC SREX) and the IPCC's Working Group I report, released in September 2013 (IPCC 2013; IPCC 2012; NRC 2011). In several cases, program hosts or guests made specific

FIGURE 1. **Categories and Sub-Categories Used in This Analysis**



claims about new research or specific effects of climate change. In cases where the specific source was clear, scientific claims were compared to original scientific articles and institutional press releases. In cases where the claims made were more general, UCS scientists used a reliable source for the topic with which to compare the claim.

ANALYSIS OF SEGMENTS TAGGED AS "ACCURATE"

ACCURATE STATEMENTS ABOUT CLIMATE SCIENCE AND THE CAUSES AND EFFECTS OF CLIMATE CHANGE

Accurate statements were consistent with the best-available science at the time of broadcast. Much of this coverage correctly reinforced the reality of human-induced climate change. Other coverage accurately conveyed messages around the effects of climate change. In many cases, programs accurately discussed or reported on new scientific findings.

HOLDING PUBLIC FIGURES ACCOUNTABLE

In some cases, accurate coverage was tagged as "accountability" (see Figure 1). In these instances, hosts or guests criticized inaccurate statements made by politicians and other public figures regarding climate science. Often, these segments featured clips from people who question or reject the reality of climate change, including members of Congress, and hosts explained why their statements were inaccurate. In other cases, segments included hosts stating that the recorded statements by politicians or public figures were inaccurate but did not explain why. Accountability also included hosts or guests criticizing politicians, public figures or

ideological groups for rejecting the established scientific reality of climate change, criticizing overstatements on climate change, or doing extensive fact-checking. In all of these cases, the clips were tagged as "accountability," even if the mentions of climate science were cursory.

ANALYSIS OF SEGMENTS TAGGED AS "MISLEADING"

To better understand the kind of misinformation documented in our analysis, we characterized misleading coverage using the following categories (see Figure 1).

UNDERSTATING THE REALITY OR EFFECTS OF CLIMATE CHANGE

This category included segments in which program hosts or guests questioned whether or not climate change is happening, questioned whether or not it is largely human-caused, or presented selectively chosen information that downplayed established climate science, especially in a way that omitted evidence related to long-term climate trends. For instance, hosts or guests in several segments stated that global warming stopped 15 or 16 years ago, a statement that neglects longer-term temperature trends that have a high level of scientific certainty as well as multiple lines of evidence than human-induced climate change continues to influence global temperatures, sea-level rise, glacial retreat, shifts in habitable ranges for species, and other climate indicators (NASA 2013; Nuccitelli 2013).

OVERSTATING THE REALITY OR EFFECTS OF CLIMATE CHANGE

This category included segments that overstated the links between climate change and its effects on human and natural systems, overestimated the speed or consequences of climate change beyond what could be supported in the scientific literature, or overstated the findings of individual research studies.

Many of these segments included discussions of hurricane frequency and tornado frequency and intensity. This category includes segments in which program hosts or guests stated that climate change was making hurricanes more frequent or that there was a known scientific relationship between tornadoes intensity or frequency and climate change. Both the IPCC SREX and the IPCC Working Group I report concluded that while hurricane storm surge and intensity are affected by climate change, there is not enough evidence currently to link the frequency of hurricane formation to climate change (IPCC 2013; IPCC 2012). Likewise regarding tornadoes, scientific evidence does not link tornado intensity or formation to climate change in a statistically significant way. Though such a link is certainly possible, tornado records are not robust enough for scientists to draw conclusions in this field (IPCC 2013; IPCC 2012).

By contrast, if hosts or guests claimed that large storm surges from hurricanes *are likely to become* more frequent, this probabilistic, future-oriented claim was tagged as accurate and not coded as misleading. In a few cases, guests and hosts were careful to differentiate their personal views of how the science might evolve from established, mainstream science to date. In those cases, segments were also marked as accurate and not coded as misleading.

In a few cases, segments placed in this category included figurative phrases that, if interpreted literally, would be misleading. For instance, one host described the IPCC's Working Group I report as painting a "doomsday" scenario, while another described Miami turning into an "underwater" city due to sea-level rise over a relatively short time horizon. In the former case, "doomsday" implies an end to the Earth or life on Earth, a scenario not supported by scientific evidence. In the latter case, a more precise way to describe the effects of sea-level rise in Miami would be to describe the repeated flooding the city will face. These judgments, which were few, were more subjective than most others used throughout the analysis.

DISPARAGING CLIMATE SCIENCE

In segments marked as "disparaging climate science" hosts or guests questioned the credibility of climate scientists or the study of climate science. In a few cases, for instance, hosts or guests accused scientists of manipulating climate data or the communication of climate information to the public. In other cases, hosts or guests suggested that the study of climate science itself was untrustworthy.

HOSTING MISLEADING DEBATES

The presentation of a debate can imply to viewers that both sides have considerable merit or, in the case of climate science, are grounded in empirical fact. Segments marked as "misleading debates" included segments in which hosts or guests argued about established science on climate change, such as whether or not climate change is occurring or largely human-induced, and segments in which inaccurate views on established science were presented in recorded news segments.

Public debates about science are not necessarily misleading. Some debates could have been coded as "accurate" if, for example, guests had exclusively debated not established science but rather emerging science, such as the frequency of tornado formation under a changing climate. However, no such segments were identified in the dataset.

Process for Coding

Researchers divided the year by month and did the initial gathering and coding of the data for their respective months. They discussed their initial findings from four months of coverage in order to standardize the coding, re-coded those months, and proceeded with the remaining months. They then exchanged data sets and reviewed one another's data gathering and coding. At this stage, researchers did not independently assess each month; therefore, they did not track inter-coder reliability, but rather noted when they agreed or disagreed with the initial coder's assessment. Segments for which the coding differed were set aside for further review from a climate scientist. Researchers also set aside segments for scientific review that included ambiguous discussions of science, extensive discussions of extreme weather, and specific scientific claims that required in-depth fact-checking. Overall, about 10 percent of the segments were set aside for scientific review.

Analysis of the data set-aside for scientific review was blinded and all identifying information regarding program hosts, guests, and network was removed in order to avoid potential bias. Full blinding of all segments before initial coding could have removed other sources of potential bias; however, the vast majority of non-blinded segments either clearly did not touch on science or were obviously accurate or misleading because the statements were straightforward affirmations or rejections of established science and therefore would not have benefitted as strongly from blinding as more nuanced discussions. A climate scientist reviewed and coded the set-aside segments. When the scientist disagreed with the researchers on how to code a segment or when the researchers and scientist could not agree on how to interpret a discussion of climate change, those segment were coded as "not science" and not further reviewed. These included only a few segments, most of which used humor or satire, which would have been inappropriate to interpret literally. Four segments were reviewed by specialists in agriculture and marine ecosystems for appropriate coding.