

# Attacks on Science Tracker

## *Tracking Attacks on Science & Potential Scientific Integrity Violations*

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### HIGHLIGHTS

*Since Inauguration Day on January 20, 2025, the second Trump administration has launched a systemic attack on the federal scientific enterprise. The Union of Concerned Scientists (UCS) has tracked attacks on science at the federal level since 2001, but the pace and scope of attacks under this new administration is truly unprecedented. In response to this rapid and broad-ranging dismantling of federal scientific structures, the Center for Science and Democracy at UCS has evolved its methodology to meet the current moment. This methodology, informed by UCS's longstanding work tracking attacks on science, includes a new approach to collecting, screening, and analyzing data to identify and categorize attacks on science.*

*Based on previous experience tracking attacks on science, UCS researchers programmed R scripts, through an iterative process, to automate the collection and organization of news coverage. The articles surfaced through this process are reviewed and analyzed by researchers to identify and categorize attacks on science. This system will allow UCS to more consistently and comprehensively track attacks on science and potential violations of scientific integrity in perpetuity.*

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# Attacks on Science Tracker

## Methodology

The Union of Concerned Scientists (UCS) has been tracking attacks on science and advocating for scientific integrity (SI) protections since 2001 (Desikan 2023; Shulman and Gottfried 2004; UCS 2025). In brief, attacks on science are instances of political interference in federal science (UCS 2025). Attacks on science and scientific integrity are closely linked; not all attacks (as UCS defines them) are considered violations of scientific integrity, but potential SI violations are a form of political interference in science.

UCS defines scientific integrity as keeping science independent from political interference and using the best available science (Phillips 2025) to inform policy and decisionmaking (Barbati-Dajches 2025; Goldman, Reed et al. 2017). UCS defines potential SI violations as attacks on science that result in the suppression, delay, or alteration of scientific studies or data or that result in censorship, retaliation, or increased scrutiny of federal scientists and their work (see, for example, Goldman, Reed et al. 2017).

Starting in January 2025, the newly inaugurated second Trump administration began a systemic attack on the federal scientific enterprise, characterized by an increased scope and pace of attacks on science compared with what UCS had tracked previously. To better capture the greater number and types of attack, the Center for Science and Democracy (the Center) developed a new methodology to track and analyze attacks on science and potential SI violations. The evolved methodology, informed by UCS's longstanding work around attacks on science, includes a new approach to collecting, screening, and analyzing data to identify and categorize attacks on science. This approach is designed to systematically capture a more comprehensive breadth of attacks in perpetuity.

### Initial Human-Driven Data Collection and Organization

As of January 2025, UCS has defined “attacks on science” as actions, statements, or decisions originating from an elected official or political appointee in a federal agency that result in the censoring, manipulation, forging, or misinforming of scientific data, results, or conclusions conducted within the government or with federal funds (Minovi et al. 2025). On January 20, 2025, a researcher in the Center began compiling news articles that could potentially meet that new UCS definition. Original data collection began by searching daily news email alerts, supplemented with articles from other publications. The Center used this human-driven process while developing an automated system to collect, screen, and organize attack on science data.

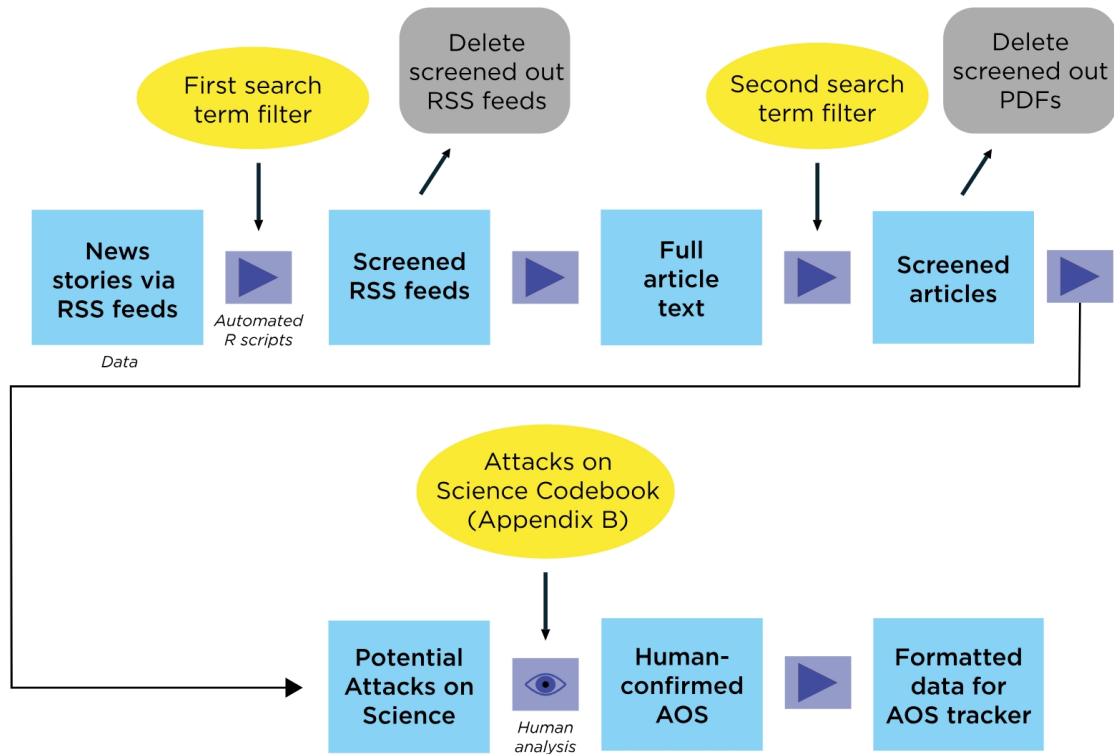
*See Minovi et al. (2025) for more information on the human-driven data collection and organization of news articles.*

## Automated Data Collection and Screening

Starting on December 20, 2025, the Center for Science and Democracy automated data collection and organization with a series of scheduled R scripts that collect RSS feeds from 13 news outlets, screen articles for search terms indicative of a potential attack on science, and organize screened articles into a spreadsheet to be analyzed by trained human coders (Figure 1). Researchers used Microsoft's Task Scheduler to schedule the R scripts as per the timeline detailed on [UCS's GitHub page](#).

The Center adheres to “polite principles” with the automated navigation and targeted URL scraping of web content (Perepolkin 2023; Wickham et al. 2023). These principles include asking for data only once, accessing websites with institutional or personal subscriptions, appropriately citing sources, storing data locally, and promptly deleting data after analysis. Researchers also use crawl delays and schedule targeted URL scraping during low web traffic hours to avoid overwhelming website capacity.

Figure 1. Tracking Through Automated and Human-Driven Processes



Both automated and human-driven processes are used to collect, screen, analyze, and format attacks on science data to include in the Attacks on Science Tracker. This process was designed to systematically capture a more comprehensive breadth of attacks in perpetuity.

Notes: AOS = Attacks on Science. “Potential Attacks on Science” are news articles that pass both search term filters and then go through the subsequent three data processing steps before human coding. “Human-confirmed AOS” are attacks that human coders have confirmed the presence of and categorized by type, topic, and completion stage.

## Data Collection with RSS Feeds

Researchers in the Center programmed an R script to run at the same time every day to chronologically compile news outlet RSS feeds from the previous day. RSS feeds typically include a short description of each article generated by the news outlet, along with each article’s headline and date of publication. Researchers chose outlets based on three criteria:

- The public accessibility of outlets’ content;
- The prevalence of attacks on science in news coverage—determined from the human-driven data collection process; and
- In alignment with polite principles, outlets’ allowance of targeted URL scraping.

Thus, RSS feeds are pulled from *The Hill*, *AP News*, *STAT News*, all *E&E News* publications (*ClimateWire*, *E&E Daily*, *E&E News PM*, *EnergyWire*, *GreenWire*), *Government Executive*, *NBC News*, *NPR*, and the Democracy news from *Stateline*.

## Screening Articles with Search Terms

Researchers in the Center developed a search function to pare down articles from the list of news sources to those that human coders reviewed (see Appendix A). Best practices for systematic reviews informed the filtering process (Shaheen et al. 2023). The process reflected a desire to limit articles that human coders review to a number achievable with existing resources, test the search criteria using human-coded data, and ensure that newer articles clearly describing attacks on science made it through the filtering process.

Researchers used a “true” dataset to test how liberal or restrictive a set of search terms would be and then applied the terms to the automated data collection system. The “true” dataset included 649 articles that human coders reviewed to determine whether an attack on science were present or absent.

### Developing and Testing Search Terms

Creating the search function was an iterative process. Researchers developed an initial list of words to act as “search terms” by analyzing the text of a subset of news articles from the “true” dataset and consulting with experts across UCS. The researchers grouped the search terms into four categories: government terms, negative verbs, science terms, and topic terms. (See Appendix A for how each category is defined and was created, and a link<sup>1</sup> to the full list of search terms.)

To test the search function’s accuracy, researchers implemented a text search of the “true” dataset using a set of specific search terms. They iterated on and refined the list of search terms until the prevalence of “false negatives” and “false positives” both fell below 10 percent of the “true” dataset:

- Potential attack on science: The text search identified the search terms in the article’s text, and human coders identified an attack on science in the article.
- False negative: The text search did not identify the search terms in the article’s text, but human coders identified an attack on science in the article.
- False positive: The text search identified search terms in the article’s text, but human coders did not identify an attack on science in the article.

### Applying Search Terms

Based on these benchmarks and informed by the accuracy testing, researchers integrated two search-term filters into the automated data collection system to narrow the field of articles for

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<sup>1</sup> The full list of search terms is located on UCS’s Harvard Dataverse page: <https://doi.org/10.7910/DVN/PFIZPS>

humans to code. Search filters identify the articles most likely to merit examination and evaluation by human coders as potentially describing attacks on science.

Articles must meet two criteria to be reviewed by human coders:

- First filter: Article titles and descriptions from RSS feeds must contain [any government or science term] AND [a topic term] AND [a negative verb]. If the first criterion is met, the article’s full text is collected by targeted URL scraping from news outlets or by downloading PDFs of the article’s text (see [UCS’s GitHub](#) page).
- Second filter: If the first criterion is met, then the article’s full text must contain [any government term] AND [any science term] AND [any topic term] AND [any negative verb].

### **Creating Descriptive Data**

Articles that pass both search filters move to the next stage of the data collection process. R scripts create three variables based on article text—mentions of government agencies, gold standard science, and scientific integrity—as well as relevant acronyms and related variations (e.g., “gold-standard science”). Before the data process was automated, researchers in the Center recorded implicated federal agencies by hand. The researchers intended to document all federal agencies involved in federal science or science policy that could be implicated in attacks on science. They supplemented a list of agencies at the forefront of UCS experts’ science policy work by adding any other agency that received federal appropriations for research, experimental development, and R&D in the 2023-2024 fiscal years (NCSES 2025).

As informed by human coding training, the R script only documents these federal agencies or their acronyms in the first third of news article text. This increases the chance of recording perpetrators and targets of attacks rather than contextual information that latter parts of news articles tend to include.

### **Identifying Duplicate Potential Attacks on Science**

The descriptive data are used to help identify articles with a higher potential of describing the same attack on science before the human coding step. Researchers in the Center programmed R scripts to:

- Aggregate articles published within an estimated news cycle of two days of one another;
- Mention the same federal agencies; and
- Have more than 30 percent of words in common in their RSS feed descriptions or, if descriptions are not present, in headlines.

To determine which outlets to prioritize for inclusion when multiple news outlets discuss the same potential attacks, researchers considered the relevance of outlets’ content to attack types and topics, as well as the public accessibility of their articles. Thus, a single article per duplicate group is chosen for human coding based on the following order of news outlets: *The*

*Hill, AP News, STAT News, E&E News publications, Stateline, Government Executive, NBC News, and NPR.*

## Identifying and Categorizing Attacks on Science

Researchers employ content analysis to confirm the presence of attacks on science in news articles as they are published, and they categorize them by type, topic, and completion stage (see Appendix B). This is an extension of the methodology used in the Center's report documenting the second Trump administration's attacks on science in its first six months (Minovi et al. 2025). A researcher in the Center followed best practices (Krippendorff 2004; Neuendorf 2017) while developing this methodology by:

- Developing mutually exclusive definitions of each variable;
- Creating a codebook to operationalize the definitions so they are measurable;
- Training human coders to identify the presence of variables; and
- Calculating intercoder reliability statistics (Gwet's  $AC_1$ ) regularly to confirm consistent application of the codebook, during and beyond coder training.

### Human Coder Training and Intercoder Reliability

Initially, four researchers in the Center reviewed a set of news articles identified as containing potential attacks on science to help test and revise the codebook and coding procedure (see Appendix B). After this initial period, three researchers received training in identifying variables in news articles. This coder training spanned 12 coding sessions over the course of 12 weeks. In each coding session:

- Human coders independently coded the same set of articles.
- The project lead calculated Gwet's  $AC_1$  for each variable to track how intercoder reliability improved over time.
- The coders discussed coding discrepancies and reached consensus on disagreements.
- The project lead updated the codebook to clarify definitions and examples.

This continued until each variable reached an acceptable threshold of intercoder reliability during coder training (Gwet's  $AC_1 \geq .70$ ) (Neuendorf 2017), indicating moderate coder agreement beyond chance. After this point, coders began to review and analyze news articles independently. See Table 1 for the Gwet's  $AC_1$  value of each variable at the last round of coder training.

Table 1. Measures Met Intercoder Reliability Standards Using Gwet’s AC<sub>1</sub>

Variables	Purpose & Measures	Gwet’s AC <sub>1</sub>
<b>Attacks on Science Presence</b>	<i>See Appendix B for definition.</i>	1.0
<b>AOS Types</b>	<i>Contextualize the methods by which elected or politically appointed officials attack science.</i>	-
	Agency Appointments	1.0
	Rules/Regulations/Orders	0.88
	Scientific Advisory Committees/Boards	1.0
	Altering Study Results	0.91
	Data Accessibility	1.0
	Data Collection	0.91
	Politicization of Grants and Funding	0.74
	Censorship	0.93
	Losing Positions	1.0
	Restrictions from Professional Engagement	1.0
Targeting Scientists Based on Identity	1.0	
<b>AOS Topics</b>	<i>Situate attacks on science within different public policy areas.</i>	-
	Climate Science	0.63 <sup>2</sup>
	Elections and Voting	1.0
	Energy	0.72
	Environmental	1.0
	Equity	0.88
	Health & Safety	0.87
	Any	1.0
<b>AOS Stage of Completion</b>	<i>Communicate whether attacks are described in news articles as having tangible impacts.</i>	-
	Threatened	0.74
	Completed	0.81

All variables reached acceptable levels of intercoder reliability during coder training (Gwet’s AC<sub>1</sub> ≥ .70) before human coders began to code news articles independently.

Notes: AOS = Attack on Science. One AOS type, *Suppression of Scientific Findings*, was removed during the coder training process because it overlapped with other types of attack.

## Attacks on Science Variables

Previous research, much of which UCS used in its previous approach to tracking attacks on science, informed variables developed and defined in the current method. These variables build on original UCS concepts and definitions (Desikan 2023; Desikan et al. 2023; UCS 2025) by using language and examples both from other UCS research (Berman and Carter 2018;

<sup>2</sup> As of the most recent check on coder drift (April 2026), intercoder reliability for climate science was near perfect (Gwet’s AC<sub>1</sub> = .95). This was also true of the intercoder reliability estimates in the two coder training rounds (Gwet’s AC<sub>1</sub> = .83; Gwet’s AC<sub>1</sub> = 1.0) that preceded the last round recorded in Table 1.

Carter et al. 2017, 2020, 2021; Desikan et al. 2019; Goldman, Berman et al. 2017; Goldman, Reed et al. 2017; Tormos-Aponte et al. 2023) and from relevant external scientific analyses (NCAC n.d.; Rosenstock and Lee 2002). Before human coder training began, researchers in the Center and other UCS experts reviewed the updated variables and definitions for validity and comprehension. See Appendix B for full definitions.

## Defining Attacks on Science

As of January 2025, UCS defines attacks on science as actions, statements, or decisions originating from an elected official or political appointee in a federal agency that result in the censoring, manipulation, forging, or misinforming of scientific data, results, or conclusions conducted within the government or with federal funds. This definition evolves from the previous one in three key ways:

- It encompasses attacks that are rumored or that have not yet been initiated because such attacks can still have a chilling effect (e.g., Crampton et al. 2025; Kozlov and Garisto 2025). The Stage of Completion variables created as part of this methodology help capture this distinction.
- It assumes that elected or politically appointed officials' actions, statements, or policies are politically motivated (Callander 2008; Mayhew 2004).
- It does not limit targets of attacks to scientific work conducted exclusively within the federal government. It also includes federally funded scientific research, such as in academic institutions.

## Attacks on Science Types

Preceding the second Trump administration, UCS had placed *attack types* into six categories (Berman and Carter 2018; Carter et al. 2017, 2020; Desikan 2023; Desikan et al. 2023; UCS 2025). A researcher in the Center adapted these categories for the current approach, making three structural changes to encourage data quality (Neuendorf 2017) and capture a greater breadth of attacks:

- Dividing themes that covered more than one type of attack (e.g., “rolling back data collection or data accessibility;” “studies halted, edited, or suppressed”) into distinct attack types;
- Expanding the “restrictions on conference attendance” theme to encompass interference in federal scientists’ professional engagement more broadly (excluding federal advisory committee participation); and
- Adding three attack types (agency appointments, losing positions, and targeting scientists based on identity) based on other UCS analyses (e.g., Berman and Carter 2018; Carter et al. 2017, 2020).

## Attacks on Science Topics

Preceding the second Trump administration, UCS typically assigned *attack topics* to one of six categories (Desikan 2023; Desikan et al. 2023; UCS 2025). A researcher in the Center adapted these categories for the current approach with notable changes. The last two changes were informed by consultation with experts across UCS to ensure that attack topics represent all UCS policy advocacy work:

- Collapsing similar topics (e.g., “COVID-19” and “public health”; “endangered species” and “environmental”) under a single broad topic area;
- Adding election and energy science topics, as well as an “any” topic to encompass attacks that could be applicable to any of the other attack topics (e.g., attacks on Census data or the Office of Management and Budget); and
- Expanding climate change to include attacks on climate science.

## Attacks on Science Stage of Completion

Stage of completion variables were newly conceptualized with the updated methodology (see Appendix B). They help differentiate attacks at different stages of execution to contextualize when attacks (or “threatened” attacks) are more likely to cause chilling effects and when attacks (or “completed” attacks) are more likely to cause changes to policy, the federal workforce, or federal data availability, to name a few examples.

## Post Data Analysis Processing

Researchers in the Center programmed a second sequential set of R scripts (see [UCS’s GitHub page](#)) to prepare the human-coded dataset for the [Attacks on Science Tracker](#):

1. A second duplicate check is performed. R script aggregates articles with identical attack types, topics, completion stage, and implicated federal agencies that occur within two days of one another to help identify duplicate attacks on science.
2. If duplicate attacks are identified, the same news outlet priority system used in the first duplicate check is applied to allow the inclusion of only one article per duplicate group.

Subsequent R scripts create additional variables, including the timing of each attack based on date of article publication and a unique object identification code. Two variables are also created based on human coding data with R scripts:

- Certain attack types are automatically classified as potential scientific integrity violations based on the most current text of the proposed Scientific Integrity Act (Scientific Integrity Act 2025). These attack types include Altering Study Results, Censorship, Data Accessibility, Data Collection, and Restrictions from Professional Engagement.

- Short narratives are created to help describe each attack on science by pasting abbreviated definitions of attack types, topics, and completion stage into a consistent sentence structure based on human coding data (see Appendix C).

Using R scripts, researchers append new attacks to a spreadsheet of chronologically ordered attacks. Updated spreadsheets are used to routinely update the Attacks on Science Tracker<sup>3</sup>.

## Limitations

### Data Collection and Organization

Using news article data introduces its own limitations. News outlets may not describe all possible attacks on science that occur, sources may describe the same attacks differently, and the way news outlets describe attacks may change over time. Screening for duplicates and applying the news-outlet tier system helps mitigate the inclusion of duplicate attacks. To accommodate the last limitation, the Center plans to revisit attack types and topics at least annually to ensure the data remain a timely representation.

### Screening Articles with Search Terms

Researchers in the Center developed an automated data and filtering system that produced a low rate of false negatives and false positives (less than 10 percent) during testing. However, the presence of any false negatives or false positives means the system is not completely accurate, and its accuracy may decrease over time as news coverage of attacks on science changes. Researchers will confirm the accuracy of search terms at least biannually, and they will continue to iterate on the list of search terms if false negative or positive rates increase.

### Measures to Capture Attacks and Potential SI Violations

Due to a lack of definitions in the text of current bills before Congress, there may be discrepancies between attacks on science type definitions in the research and what is considered a scientific integrity violation based on current bill text (Scientific Integrity Act 2025). The potential SI violation variable can be used for informational purposes, but it should not be used in the final determination of the presence of an SI violation.

The current methodology captures attacks as they are reported using attack types, topics, and completion stages. It does not capture immediate or longer-term effects of attacks on science. It also does not capture when attacks on science are reversed or temporarily paused (e.g., due to court decisions that demand federal agencies rehire scientists or when agencies release funding previously terminated for ideological reasons).

### Identifying and Categorizing Attacks on Science

The last set of limitations concerns data analysis. During the last round of coder training, the Gwet's AC<sub>1</sub> value of the climate science topic was below the conventional threshold of acceptable intercoder reliability (Gwet's AC<sub>1</sub> ≥ .70). The definitions of attacks on science

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<sup>3</sup> The data that support the Attacks on Science Tracker can be found in Harvard Dataverse here: <https://doi.org/10.7910/DVN/PFIZPS>. It will be routinely updated.

topics are conceptually distinct from one another; however, they still overlap substantially. Coders are trained to identify seven attack topics and can assign multiple topics to the same attack. Altogether, this can make it difficult to distinguish between certain attack topics consistently (e.g., climate science and environment attacks).

In some research, including in clinical practices, scholars interpret Gwet's  $AC_1$  values using the Landis and Koch (1977) benchmark of reliability standards. In such cases, Gwet's  $AC_1 \geq .60$  is considered an acceptable level of agreement (e.g., Walsh et al. 2022). However, there is debate as to whether this should be common practice (Gwet 2014; Landis and Koch 1977; Neuendorf 2017; Vach and Gerke 2023; Walsh et al. 2022).

A researcher in the Center followed best practices for content analysis to develop this method, and human coders underwent rigorous training to consistently and reliably identify variables in text. However, it is still possible for human coders to miss variables or code text differently when analyzing news articles. Such methodological rigor does not make the chance of coders miscoding variables impossible, but it does make it much less likely.

To combat the chance of coder drift and to ensure the accuracy and reliability of human coding over time (Neuendorf 2017), coders will analyze a small set of the same news articles and a researcher in the Center will recalculate Gwet's  $AC_1$  values once per quarter. In the chance there is coder drift or a decrease in intercoder reliability, human coders will undergo an additional round of coder training to ensure the consistency of their coding moving forward.

# Appendix A. Attacks on Science Search Function

Last Updated March 10, 2026

Format and Strategy Adapted from: Virginia (Ginny) Pannabecker (2018)

## Topic

Attacks on science or acts of political interference in federal scientific processes, as well as on federal scientists and their work, originating from the federal government

## General Question

How does the US federal government interfere in the scientific process or use science to inform policy?

## Research Questions

- What types of attack on science occur?
- What public policy areas do attacks on science implicate?
- In which topic areas do they occur the most?
- Are there different stages of completion of attacks on science?
- What are the prevalence and types of potential scientific integrity violations?
- How do all these factors (i.e., types, topics, stage of completion, potential SI violations) intersect with one another?

## Outcomes/Categories of Information Desired

- Frequency of attacks on science
- Categories of types of attack on science
- Topics of attacks on science
- Attacks on science stage of completion
- Potential SI violations

## Inclusion / Exclusion Criteria

### Sources

Articles pulled from RSS feeds from the following news outlets: [The Hill](#), [Associated Press News](#) (or *AP News*), [STAT News](#), all the [E&E News](#) publications (*Climate Wire*, *E&E Daily*, *E&E News PM*, *Energy Wire*, *Green Wire*), Democracy news from [Stateline](#), [Government Executive](#), [NBC News](#), and [NPR](#).

### Timeline

Researchers in the Center implemented the search-term filtering system to identify potential attacks on science in news coverage starting on December 20, 2025.

### Search-Term Filter Process

- R script compiles RSS feeds from news outlets.
- Articles must meet two criteria to be reviewed by human coders:
  - First filter: Article titles and descriptions from RSS feeds must contain: [any government or science term] AND [a topic term] AND [a negative verb]

*If the first criterion is met: the article's full text is collected by targeted URL scraping from news outlets or by downloading PDFs of the article's text (see [UCS's GitHub](#) page)*
  - Second filter: If the first criterion is met, then the article's full text must contain: [any government term] AND [any science term] AND [any topic term] AND [any negative verb]
- Articles that meet both criteria (or pass both filters) are deemed to contain a potential attack on science and are reviewed and analyzed by human coders.

See UCS's *Harvard Dataverse* for the full list of search terms and their categories:  
<https://doi.org/10.7910/DVN/PFIZPS>

### Search Term Category One: Government Terms

- Definition: Words that are associated with the federal government and name specific federal agencies
- A Center researcher supplemented agencies at the forefront of UCS experts' science policy work with any other agency that received federal appropriations for research, experimental development, and R&D in the 2023-2024 fiscal years (NCSES 2025).

### Search Term Category Two: Negative Verbs

- Definition: Verbs that have been identified in articles describing attacks on science

- A Center researcher developed the initial list of negative verbs by analyzing the text of news articles from January to April 2025 that human coders identified as containing an attack on science. The researcher annotated this subset of data using the udpipe R package (Wijffels et al. 2026). That package can be used to annotate parts of speech (e.g., nouns, verbs, pronouns) in text data based on pre-trained linguistic models (Straka and Straková 2017; Wijffels and Selivanov 2026). The researcher annotated the text data using the English Web Treebank, which was created and trained based on English language use in online contexts (Silveira et al. 2014; Silveira et al. 2025). The researcher only retained verbs from the annotated data that are used to describe negative actions (e.g., cut, argue) for the initial list of terms in the negative verb category. See [UCS's GitHub page](#) for the full R script.

### **Search Term Category Three: Science Terms**

- Definition: Words that are associated with scientific research and practices, federal agencies at the forefront of UCS science policy work, and federal agencies whose workforce consisted of at least 40 percent scientists as of January 1, 2025 (OPM 2025)

*NOTE: In addition to words and phrases specifically marked as “science terms,” four additional groups of word pairings are integrated into this category. R script combines words marked as prefixes (e.g., anti and anti-) and suffixes (e.g., skeptic, denier) with topic terms to create a more comprehensive search strategy. Thus, word pairings such as “climate skeptic” also appear in this category based on such combinations.*

### **Search Term Category Four: Topic Terms**

- Definition: Words that are associated with attacks on science topics
- The initial list of topic terms was informed by consulting with experts across UCS, as attacks on science topics correspond to UCS’s areas of science advocacy work.

### **Search Term Category Five: Prefixes**

- Definition: Terms that are programmed to precede topic terms to capture a greater breadth of attacks on science

### **Search Term Category Six: Suffixes**

- Definition: Terms that are programmed to be inserted after topic terms to capture a greater breadth of attacks on science

# Appendix B. Attacks on Science Codebook and Coding Procedure

Version 12; Last Updated April 27, 2026

## Coding Process

- Open the coding spreadsheet to begin.
- Articles already coded are identified with initials in the “Coders” column. Identify an article that still needs to be coded and, in the “Coders” column, write your initials to show other coders that you are coding that row of data.
- Follow the URL (in column labeled “LINK”) to read the articles.
- Identify whether there is *at least one* attack on science based on the definition (see the next section) in the column labeled “AOS PRESENCE.”
  - If yes, change the “0” in that column to “1.”
- If an attack on science is present, please identify which category (or categories) the attack belongs to based on the definitions in the following pages (e.g., agency appointments, rules/regulations/orders).
  - If an attack belongs to a category, please change the “0” in the respective column to a “1.”
  - When coding the *type of attack*, ask yourself whether the action, statement, or decision being described:
    1. Originates from an elected or politically appointed person in a federal agency or department AND
    2. Results in the censoring, manipulation, forging, or misinforming on scientific data (inclusive to mean raw or processed data, analysis process/methodologies, or results/conclusions)

*If the action, statement, or decision does not meet both criteria, it cannot be considered an attack on science.*
  - Typically, news articles review other attacks on science that previously occurred (i.e., “sharing context”). Do your best to code the attack type(s) that are the focus of the article to minimize duplicate attacks in the dataset.
  - In addition to articles having a “main focus” attack type, some articles also describe an attack’s direct implications. For example, an article may describe

how grant funding at an agency is halted because of political motivations (e.g., Politicization of Grants and Funding), and data collection on relevant studies may halt as a result (e.g., Data Collection). It is ideal to code both types of attack if they are described this way.

- If an attack on science is present, please identify which topic(s) the attack correspond(s) to (e.g., climate change, health & safety).
  - If an attack belongs to a category, please change the “0” in the respective column to a “1.”
- If an attack on science is present, please identify whether it has been threatened or completed based on the definitions below.
  - “Threatened” and “Completed” are two separate variables to assess the stage of an attack. Each attack type has been developed with a “target” in mind that identifies who the attack will most immediately impact. A completed attack means that the article covering the attack describes the target as feeling its tangible impact. For example, layoffs in a science agency would be completed once the first person is laid off.
  - These columns should correspond to the attack types chosen in the previous columns, as well as *the target of the impact* identified under each type of attack.
  - Please change the “0” in the respective column to a “1” if an attack is threatened or completed under the respective column. *An attack cannot be both threatened and completed.*
- If an attack type, topic, or completion status is not explicitly stated in the article or if you are not sure if it is present, err on the side of *not coding it*.
- “Summary” articles either describe attacks that happened in the past or describe attacks in the context of others. These are distinct from articles that “break” new attacks on science. Do not code attacks presented in summary articles. A good rule of thumb is to not code attacks described in articles if the attacks occurred more than three days prior to publication. This *excludes* instances in which outlets publish attacks on science that were gathered through Freedom of Information Act (FOIA) requests and that were previously unknown to the public.

## Scope of Work

Moving forward, the scope of our work on Attacks on Science (AOS) will encompass an action, statement, or decision that:

- Originates from an elected or politically appointed person in a federal agency or department; and
- Involves the misuse (or noticeable absence) of science in the federal government or scientific work that receives federal funding.

*Where the more general definition of an “attack on science” is an action, statement, or decision that results in the censoring, manipulation, forging, or misinforming on scientific data (raw or processed), analysis processes/methodologies, or results and conclusions conducted within the federal government or with federal funds.*

“Attacks on science” can span many areas, topics, and types. The Center focuses on attacks on science in three main areas:

- Attacks on science in federal processes;
- Attacks on scientific research; and
- Attacks on scientists.

An attack can be coded as more than one category (e.g., Scientific Advisory Committee/Board AND Politicization of Grants and Funding) and as more than one topic (e.g., Climate Science AND Health & Safety). However, an attack can only be coded as “threatened” OR “completed.”

## **Codebook: Types of Attack on Science**

### **Category 1: Attacks on Science in Federal Processes**

**Category Definition:** Describes the misuse, absence, and/or contradiction of the best available science [or “the most reliable, valid, up-to-date, and relevant empirical knowledge” (Phillips 2025)] in federal processes, groups, or positions in which science should intuitively be consulted. Three types of attack on science in federal processes are in regard to Agency Appointments, Rules/Regulations/Orders, and Scientific Advisory Committees/Boards.

#### Agency Appointments

- A person with an on-record history of anti-science attitudes and/or behaviors (i.e., rejects or ignores the best available science, scientific consensus, scientific methods, or scientific principles) is appointed or nominated to a federal agency or committee.
- This does *not* include people with a lack of experience or qualifications or people with conflict of interests not explicitly related to science.

**Target of this attack type** = the people who are overseen/working with the person nominated or appointed

- “Threatened” instances of agency appointments would include either the consideration of nominating someone with history of anti-science attitudes OR nominating someone with history of anti-science attitudes, but the source article qualifies that the person is not yet in an acting capacity (for example, because the person has not started the position or has not left their previous job).
- “Completed” instances of agency appointments would include someone being nominated and in an acting capacity OR someone confirmed and appointed to the position. Anything up to these specific outcomes would be considered “threatened.”

## Rules/Regulations/Orders

- Congress, a federal agency, or a federal commission enacts a rule, regulation, order, legislation, directive, or otherwise official federal decision that is [anti-science](#) (i.e., rejects or ignores the best-available science, scientific consensus, scientific methods, and/or scientific principles), *OR*
- Congress, a federal agency, or federal commission rescinds, refuses to enforce, or delays the finalization of a rule, regulation, order, legislation, directive, or otherwise official federal decision that is informed by the best available science.

*Do not code* to categorize internal agency guidance that is being used to describe a different attack on science (e.g., an internal agency memo saying that the agency will no longer fund research on public health effects of climate change [politicization of grants and funding]).

One example of this attack type would be a political appointee (e.g., the Secretary of Health and Human Services) directing scientists to conduct an anti-science study (e.g., to study the debunked link between vaccines and autism) despite existing scientific consensus of the contrary.

**Target of this attack type** = entities (e.g., members of the public, animals, the environment) that are affected by the threatened or completed rule, regulation, or order

- “Threatened” instances of rules/regulations/orders would include a bill being introduced, written, voted on; a regulation or rule being written, drafted, or posted for public comment in the *Federal Register*; a rule proposed to be modified; and a signed executive order.
- “Completed” instances of rules/regulations/orders would include delaying the effective date of rules; a final rule is published; or a law is enacted, finalized, or takes effect. Anything up to these specific outcomes would be considered “threatened.”

## Scientific Advisory Committees/Boards

- The composition of a scientific advisory committee/board is changed or dissolved to reduce the number of scientists, *OR*
- Conflicts of interest in a scientific advisory committee/board are increased, not acknowledged, or not made public, *OR*
- Meetings or convenings of a scientific advisory committee/board are disrupted or delayed.

*NOTE: This category only applies to federal advisory committees (FACs) classified as scientific/technical advisory committees in the online FACA database.*

**Target of this attack type** = the members of the scientific advisory committee/board

- “Threatened” example of scientific advisory committees/boards: An official suggests that a scientific advisory committee should be reset or cancelled.

- “Completed” instances of scientific advisory committees/boards would include a reduction in the number of scientists serving on the scientific advisory committee/board (including if the board’s composition is changed or dissolved to reduce the number of scientists); conflicts of interest in the committee are increased, not acknowledged, or not made public; its meetings or convenings are disrupted or delayed. Anything up to these specific outcomes would be considered “threatened.”

## Category 2: Attacks on Scientific Research

**Category Definition:** This category concerns any research conducted, or data collected/analyzed, by federal scientists or funded by the federal government. Any actions, statements, or decisions related to these types of attack must originate from an elected or politically appointed official in the federal government. Four types of attack on scientific research are Altering Study Results, Data Accessibility, Data Collection, and Politicization of Grants and Funding.

### Altering Study Results

Editing, misrepresenting, or manipulating the data processing, data analysis, or results of a scientific study, or the scientific weight of evidence, including that within reports, publications, or scientifically informed guidance.

**Target of this attack type** = those accessing or using the study

- “Threatened” examples: The administration is considering misrepresenting scientific consensus in an upcoming report or analysis; the administration is pressuring scientists to alter study results to support a predetermined conclusion.
- “Completed” instances of altering study results would include reports of editing, misrepresenting, or manipulating the data processing, analysis, or results of a scientific study, or the scientific weight of evidence (including within reports, publications, or scientifically informed guidance). Anything up to these specific outcomes would be considered “threatened.”

*“Completed” examples: Evidence of identification of data fabrication or manipulation in a government analysis; studies are designed or altered to support a predetermined conclusion; agency misrepresents scientific consensus in report.*

### Data Accessibility

Eliminating or minimizing the availability and accessibility of publicly available scientific data or information, including that within reports, publications, or scientifically informed guidance.

**Target of this attack type** = those accessing or using the reports, publications, or scientifically informed guidance

- “Threatened” example: An agency creates an internal review process that could prevent manuscript publication or data sharing.

- “Completed” instances of data accessibility would include evidence of eliminating or minimizing the availability or accessibility of publicly available scientific data or information (including within reports, publications, or scientifically informed guidance). Anything up to these specific outcomes would be considered “threatened.”

*“Completed” examples: Scientific data, databases, or government reports are inactivated or removed from websites.*

## Data Collection

Halting or modifying (after the event) collection in a scientific study.

**Target of this attack type** = those who are collecting data being halted or their work modified

- “Threatened” example: Federal funding disruptions might interfere with ongoing data collection, but funding has not yet stopped.
- “Completed” instances of data collection would include evidence of halting, delaying, or modifying data collection of a scientific study. Anything up to these specific outcomes would be considered “threatened.”

*“Completed” examples: Reports of grant terminations or federal funding disruptions halting or impeding data collection.*

## Politicization of Grants and Funding

Federal funding for research is withheld, dictated, or eliminated based on blatant political motivations. This does not include when research entities are dissolved or terminated unless politicized federal funding is explicitly mentioned.

**Target of this attack type** = the funding applicants and awardees

- “Threatened” examples: Administration has created and may be employing lists of forbidden words in screening federal grant applications; there are delays in hearing back about grant applications or funding.
- “Completed” instances of politicization of grants and funding would include evidence of federal funding for research being withheld, dictated, delayed, or eliminated. Anything up to these specific outcomes would be considered “threatened.”

*“Completed” examples: Federal grants on topics that have been deemed “prohibited” by political officials (e.g., equity, diversity, environmental justice, LGBTQ+) are suspended, terminated, or denied.*

## Category 3: Attacks on Scientists

**Category Definition:** The title “federal scientist” encompasses any person who is involved in scientific review, inquiry, or research and is also either employed by the federal government or whose research is funded by federal funds. This does *not* include members of federal

advisory committees. Four types of attack on scientists are Censorship, Losing Positions, Restrictions from Professional Engagement, and Targeting Scientists Based on Identity.

### Censorship

- Federal scientists are unable to communicate externally their scientific findings or expertise due to direct orders, intimidation, or perceived harm, *OR*
- Federal scientists' external messages are controlled to the point that they are omitting facts and results.

**Target of this attack type** = the federal scientists whose communication is being limited or silenced

- “Threatened” examples: It is reported that federal scientists may not be able to write or present on work related to prohibited topics (e.g., equity, diversity, environmental justice, LGBTQ+).
- “Completed” instances of censorship would include confirmed reporting of federal scientists' external communication or messaging being halted, delayed, or controlled to the point that facts and results are omitted. Anything up to these specific outcomes would be considered “threatened.”

*“Completed” examples: It has been confirmed that federal scientists report that their presentations, publications, or study messaging are being scrubbed of prohibited topics or words.*

### Losing Positions

- Federal scientists are demoted and/or replaced by political loyalists, *OR*
- Federal scientist positions are eliminated, *OR*
- Federal research entities/programs are closed, dissolved, or eliminated, *OR*
- A portion of federal scientists' roles are eliminated (e.g., roles in the Department of Transportation's Climate Change Center were eliminated, but these same employees still hold their other positions in the department).

*Note: To be considered an attack on science, these changes must be unrelated to job performance.*

This type of attack can also apply to federal workers in agencies that had a high percentage (40 percent or more) of scientists as of January 1, 2025, if the source article does not explicitly mention scientists losing their positions. These include the:

- Administration for Children and Families of the Department of Health and Human Services;
- Arctic Research Commission;

- Assistant Secretary for Policy Development and Research of the Department of Housing and Urban Development;
- Bureau of Economic Analysis of the Department of Commerce;
- Bureau of International Labor Affairs of the Department of Labor;
- Bureau of Labor Statistics of the Department of Labor;
- Bureau of Ocean Energy Management of the Department of the Interior;
- Commission on Civil Rights;
- Community Relations Service of the Department of Justice;
- Economic Research Service of the Department of Agriculture;
- Environmental Protection Agency;
- Institute of Education Sciences of the Department of Education;
- National Institute of Food and Agriculture of the Department of Agriculture;
- Natural Resources Conservation Service of the Department of Agriculture;
- National Oceanic and Atmospheric Administration of the Department of Commerce;
- Office of the Chief Economist of the Department of Agriculture;
- US Army Intelligence and Security Command of the US Army;
- US Fish and Wildlife Service of the Department of the Interior; and
- US Geological Survey of the Department of the Interior.

**Target of this attack type** = the federal scientists whose positions are being changed or terminated

- “Threatened” example: Reports of potential layoffs or reductions in force at scientific agencies/subagencies or agencies/subagencies with a higher percentage of scientists (40 percent or more, as indicated in the list above).
- “Completed” instances of losing positions would include evidence of federal scientists being demoted and/or replaced by political loyalists, one or more of their positions are eliminated, or federal research entities/programs are closed, dissolved, or eliminated. Anything up to these specific outcomes would be considered “threatened.”

*“Completed” examples: Federal scientists are fired (either in isolation or because of grant funding being suspended or terminated); grant-funded scientist training programs are suspended or terminated.*

## Restrictions from Professional Engagement

- Federally funded or sponsored conferences, virtual convenings, public forums, community meetings, or grant review panels are cancelled, OR
- Federal scientists are not allowed to attend conferences, virtual convenings, public forums, community meetings, or grant review panels, OR
- Federal scientists are probed or investigated due to involvement in conferences.

**Target of this attack type** = the federal scientists whose professional engagement is being restricted

- “Threatened” examples: Agencies considering not letting federal scientists participate in conferences; agencies placing barriers or stricter review processes for requests for travel.
- “Completed” instances of restrictions from professional engagement include evidence of federal scientists not being allowed to attend conferences, virtual convenings, public forums, community meetings, or grant review panels; cancelation or delay of these types of events; or investigation of federal scientists due to their involvement in such activities. Anything up to these specific outcomes would be considered “threatened.”

*“Completed” examples: Federal scientists are ordered to pull out of meetings; requests for travel to conferences are denied; federal scientists’ travel or involvement in conferences is investigated; grant review panels are canceled, delayed, or rescheduled.*

## Targeting Scientists Based on Identity

- Scientists are disproportionately and/or directly affected (regardless of whether intention is stated) based on their gender identity, sex at birth, sexual orientation, ethnic/racial identity, religious identity, immigration status, or other identity markers. Impacts to the federal scientists must be explicitly stated in the source article.
- A few examples are federal travel bans that impact federal scientists’ ability to enter or leave the United States, threats to immigration status, programs such as the China Initiative. This is not a comprehensive list.

**Target of this attack type** = the federal scientists who are singled out because of their identity marker(s)

- “Threatened” examples: Agencies announce that they are considering disproportionate scrutiny of groups of scientists based on identity.
- “Completed” instances of targeting scientists based on identity would include evidence of scientists being disproportionately and/or directly affected based on an identity marker(s). Anything up to these specific outcomes would be considered “threatened.”

*“Completed” examples: Chinese scientists are investigated for travel activities; LGBTQ+ scientists are punished for displaying a Pride flag at work.*

## Codebook: Topics of Attacks on Science

**Category Definition:** An attack on science is often associated with a scientific topic or field such as those listed below. The Center documents seven types of attack on science by name. These categories are not exclusive: an attack on science can be coded as more than one topic. This list is also not comprehensive: if a distinct topic that is present is not covered by one of the first seven topics listed, please mark “other” and write in a topic name that would best describe the attack.

### Climate Science

The coverage of the attacks on science explicitly mentions implications, impacts, or connections to:

- Climate change, including extreme weather events (excluding tornados) or slow-moving hazards like droughts, coastal flooding, or sea level rise, *OR*
- Climate adaptation (adjusting to the effects of climate change on our planet), *OR*
  - *Examples of climate adaptation include but are not limited to planting drought-resistant crops, designing/building walls to prevent roadway flooding, and implementing early disaster warning systems.*
- Climate mitigation (reducing greenhouse gas emissions), *OR*
  - *Examples of climate mitigation include but are not limited to capping emissions rates, changing to renewable forms of energy, fertilizer production/use, or preventing/treating damaged wetlands.*
- Climate resilience (long-term commitments to building people’s capacity to adapt to hazards and/or changes in the climate). This can occur before, immediately after, and between disasters/hazards.
  - *Examples of climate resilience include but are not limited to building new structures (e.g., buildings, bridges) to be more resistant to extreme weather and designing stormwater storage/drainage systems to prevent flooding.*

### Elections and Voting

The coverage of the attacks on science explicitly mentions implications, impacts, and/or connections to:

- Fair representation, including redistricting or reapportionment, gerrymandering, the Census Bureau (including its decennial Census and its data), and voter representation, *OR*
  - *Examples of attacks on fair representation include but are not limited to changing voting maps/districts between decennial Census collections or despite what was found in the most recent decennial Census, interference in Census data collection*

*or analysis, or changing voting maps/districts with the intention of minimizing voter representation of marginalized voters.*

- Election data transparency, including election/voter fraud and voter file maintenance, voter rolls, and voter data, *OR*
  - *Examples of attacks on election data transparency include but are not limited to changing policy due to false perceptions of high voter fraud, using voter data to investigate immigrant status or voting, or making election processes/data less transparent to the public.*
- Voter access, like ballot design & disability/language accessibility, *OR*
  - *Examples of attacks on voter access include but are not limited to changing voter ballot design (resulting in less accessible ballots), decreasing access to mail-in voting, or policing polling locations.*
- Election security and cybersecurity.
  - *Examples include but are not limited to appointing physical observers to polling places due to false perceptions of fraud, instituting policies that make elections less secure (e.g., mandating the use of voting equipment that is less secure), or an attack on science that implicates the Cybersecurity and Infrastructure Security Agency (CISA).*

## **Energy**

The coverage of the attack on science directly mentions renewable (e.g., wind, solar, geothermal, hydroelectric, hydrokinetic, bioenergy) or nonrenewable (e.g., nuclear, coal, oil, natural/methane gas) forms of energy or connections to these forms of energy.

Such attacks can pertain to (but are not limited to):

- Electric vehicles
- Grids and grid infrastructure, such as distribution & transmission lines, energy stationaries, and storage technologies (e.g., batteries)
- The Greenhouse Gas Reduction Fund

## **Environment**

The coverage of the attack on science explicitly mentions implications for or impacts on the environment. This encompasses plant life, animal life, land, water, or air.

Such attacks can pertain to (but are not limited to):

- Air, soil, and water quality
- Agricultural impacts of growing biofuels

- Conservation of land and living organisms (e.g. animals, plants)
- Effects of mining for clean tech/batteries
- Laws and rules specifically directed at protecting human health and the environment (e.g., Toxic Substances Control Act, Clean Air Act, Safe Drinking Water Act), many of which the US Environmental Protection Agency [implements and promulgates](#)
- The use and disposal of fertilizers (including the creation of dead zones)
- Toxic chemicals and pollutants impacting food, soil, air, and/or water quality
- Wetland loss, draining, or pollution

## **Equity**

The coverage of the attack on science explicitly mentions implications and/or impacts on susceptible/vulnerable, disadvantaged, oppressed, marginalized, disinvested/underinvested, pollution-burdened, frontline, fenceline, or disenfranchised communities, groups, or people.

Such attacks can pertain to (but are not limited to):

- Affordability of utility services (energy and water) and climate resilient affordable housing
- Equitable access to federal resources, like USDA farming programs
- Funding for small/family farms (vs. mega corporations)
- Pollution equity (e.g., cumulative impacts, environmental justice)
- Transportation mobility and equity

## **Health & Safety**

The coverage of the attack on science explicitly mentions implications for or impacts on the physical, mental, social, and/or emotional health and safety of individual people, groups (e.g., workers), communities, or the public.

Such attacks can pertain to (but are not limited to):

- Individual toxicants or classes of toxicants like PFAS or ethylene oxide
- Laws and rules specifically directed at protecting human health and the environment (e.g., Toxic Substances Control Act, Clean Air Act, Safe Drinking Water Act), many of which the US Environmental Protection Agency implements and promulgates
- Public health effects of climate change, flooding, and wildfires
- Radiation public health and safety

- Regulations on air and water quality
- Tilling impacts of food and farming on communities and farmers
- Vaccine safety or testing

### Any

The coverage of the attack on science does not explicitly mention any of the above topics, but the attack could be applicable to all of them.

Such attacks could pertain to (but are not limited to):

- The Census Bureau or Census Bureau data, because of its widespread use across public policy issues
- The Office of Management and Budget, because of its involvement in the federal government budget and spending, which could have an impact across public policy issues

### Other (write-in)

## Codebook: Attacks on Science Stage of Completion

**Code Definition:** This captures whether an attack on science is threatened or described to have had a tangible impact on the target of the attack on science. The target of each attack type is spelled out under each attack on science type (e.g., “*The target of this attack type =...*”), with examples of how threatened and completed would look for each. To the extent possible, this should categorize the “main” attack described in the article. *At no time should both threatened AND completed be coded to describe the same line of data.*

- *Threatened:* An attack on science occurs but no tangible impact for the target of the attack has not been described as having yet occurred.
  - 0 = not threatened
  - 1 = threatened
- *Completed:* An attack on science occurs and the article spells out tangible impacts for the target of the attack.
  - 0 = not completed
  - 1 = completed

# Appendix C. Abbreviated Definitions for Attacks on Science Descriptions

Last Updated March 3, 2026

## Sentence Stem to Build Sentences

*“This attack includes [insert attack type sentence(s)]. This reduces or undermines federal scientific capacity or knowledge [insert attack topic sentence(s)]. This attack has been [insert stage of attack on science] on those most at risk of being impacted.”*

## Attack on Science Types

- When a human coder tags “**agency appointments**” in a news article, the following phrase will appear in the summary:

*a political appointee with a history of anti-science positions and/or decisions being nominated or confirmed*
- When a human coder tags “**rules/regulations/orders**” in a news article, the following phrase will appear in the summary:

*the making or changing of a law or regulation that is anti-science or ignores the best available science*
- When a human coder tags “**scientific advisory committees/boards**” in a news article, the following phrase will appear in the summary:

*disrupting meetings, interfering with expertise, or increasing conflicts of interest in a federal advisory committee*
- When a human coder tags “**altering study results**” in a news article, the following phrase will appear in the summary:

*a federal (or federally funded) scientific study being misrepresented or manipulated*
- When a human coder tags “**data accessibility**” in a news article, the following phrase will appear in the summary:

*federal data or information being eliminated or made less accessible*
- When a human coder tags “**data collection**” in a news article, the following phrase will appear in the summary:

*the data collection for a federal scientific study being interfered with or halted*

- When a human coder tags “**politicization of grants and funding**” in a news article, the following phrase will appear in the summary:

*federal funding for research being withheld, directed, or eliminated with explicit political motivations*

- When a human coder tags “ **censorship**” in a news article, the following phrase will appear in the summary:

*public communication by federal scientists being stopped or controlled*

- When a human coder tags “**losing positions**” in a news article, the following phrase will appear in the summary:

*a federal research program being terminated, or a federal scientist being replaced by a political loyalist or losing their position*

- When a human coder tags “**restrictions from professional engagement**” in a news article, the following phrase will appear in the summary:

*federally sponsored research events being canceled, or federal scientists being barred from attending or investigated for their involvement in an event*

- When a human coder tags “**targeting scientists based on identity**” in a news article, the following phrase will appear in the summary:

*federal scientists being disproportionately targeted based on their identity, including sex, gender, race, or others*

## **Attack Topics**

- When a human coder tags “**climate science**” in a news article, the following phrase will appear in the summary:

*on climate change, climate adaptation, climate mitigation, or climate resilience*

- When a human coder tags “**elections and voting**” in a news article, the following phrase will appear in the summary:

*on election science or voter representation*

- When a human coder tags “**energy**” in a news article, the following phrase will appear in the summary:

*of renewable energy, fossil fuels, or other nonrenewable forms of energy*

- When a human coder tags “**environment**” in a news article, the following phrase will appear in the summary:

*to protect plants or animal health or the quality of land, water, or air*

- When a human coder tags “**equity**” in a news article, the following phrase will appear in the summary:

*to prevent disproportionate impacts on overburdened, minoritized, or disenfranchised groups*

- When a human coder tags “**health & safety**” in a news article, the following phrase will appear in the summary:

*to protect the health and safety of people*

- When a human coder tags “**any**” in a news article, the following phrase will appear in the summary:

*of a broad range of science and policy topics and could disproportionately impact overburdened, minoritized, or disenfranchised groups*

### **Stage of Attack on Science**

- When a human coder tags “**threatened**” in a news article, the following phrase will appear in the summary:

*threatened and is not known to have had a tangible effect*

- When a human coder tags “**completed**” in a news article, the following phrase will appear in the summary:

*completed and is likely to have had a tangible effect*

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