CLIMATE MISINFORMATION IN THE MEDIA

An analysis by the Alliance for Science

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Summary

We studied six months of traditional and online mainstream media coverage of climate change, in particular focusing on the extent to which **the top six Twitter-generated sceptical themes achieved prominence in traditional media.**

We found that unchallenged misinformation on the topics we investigated represented only 0.02% of the overall coverage of the climate issue in the media. This finding that 99.98% of media coverage did not contain these climate denialist themes closely parallels the finding of our earlier work that 99.7% of climate papers in the peer-reviewed literature do not dispute human-caused climate change.

However, because of the enormous volume of media coverage on climate change, even this small 0.02% proportion is estimated to have a reach of 4.4 billion, which still represents a substantial audience. The majority of this misinformation was carried on mainstream outlets like Yahoo! and MSN via PR distribution networks, as well as right-wing and conspiracist media.

Rather than denying the reality of human-caused climate change, most of the sceptical commentary on climate now criticises net zero targets and other mitigation measures, an approach that has been termed 'delayist' rather than 'denialist'. Further work is required to quantify and understand the reach and pervasiveness of these more recent themes and approaches.

Introduction

The Alliance for Science works to combat anti-science misinformation across a number of issues, from GMOs to vaccines to climate change. But to tackle misinformation we need to understand its prevalence, sources and reach. In this study we took a deep-dive on some of the more recent climate denialist themes in the mainstream media, seeking to understand how widespread they are and whether they might be having significant impact.

An earlier study led by Alliance for Science and Cornell University authors quantified the consensus on the human causes of climate change in the scientific literature. Published in the *journal Environmental Science Letters*, we found with high statistical confidence that the scientific consensus on human-caused contemporary climate change—expressed as a proportion of the total publications—exceeds 99% in the peer reviewed scientific literature.

With such as strong consensus among scientists, it is concerning if misinformation questioning the gravity or reality of human-caused climate change continues to be produced and disseminated in the media. But how much of a problem is this in reality? While it seems that overt denialism about the reality of human-caused climate change has drastically reduced in the mainstream media conversation over the last few years, in what new forms might climate-sceptic issues now be manifesting?

Misinformation can be damaging to society because it means that people make decisions based on inadequate or false information. An example is that people who choose not to vaccinate themselves expose themselves and others to preventable diseases. This is an issue which the Alliance for Science also addressed in an earlier paper quantifying the prevalence of anti-vaccine sentiments in the media. Likewise, those who do not believe climate change exists will likely not support efforts to reduce rates of carbon emissions and will undermine social and political consensus on the need to address the climate emergency.

We hope with this study that science communicators and journalists will be assisted to better understand the phenomenon of climate misinformation and thereby be in a better position to address it. While we value diversity on all issues, we believe that media must ensure that articles and opinion pieces on climate must be science-based and must not foster public misunderstandings about this vitally important issue.

Methods

In order to understand the prevalence of climate misinformation, we first needed to identify some of the recent themes and issues that climate sceptics have been focusing on in order to generate keywords for a media search. For this we built on earlier work by the Institute for Strategic Dialogue (ISD)[1] and the EU Disinfolab[2], which identified the main fringe climate sceptic websites promoted on Twitter by denialists and disinformers.

According to ISD:

"ISD's research to date has shown again and again that a small number of actors can disproportionately affect discourse on climate. In tracking the reach of these websites, we sought to map out how marginal or extremist content reaches broader audiences and may eventually make its way into the mainstream by high-traction influencers or pundits."

We analysed both pieces of work to identify the top six most-shared climate misinformation topics associated with these fringe websites on Twitter. They were:

▶ The 'World Climate Declaration' manifesto

▶ The 'Fake Climate Emergency' theme

▶ The Greenland ice mass recovery myth

▶ Claims about supposed health risks from wind turbines

▶ The stable sea levels assertion

▶ The claim that green policies are causing deforestation in Europe

1   Simmons, C., 15 March 2023. 'Mainstreaming climate scepticism: Analysing the reach of fringe websites on Twitter'. Institute for Strategic Dialogue. https://www.isdglobal.org/digital_dispatches/mainstreaming-climate-scepticism-analysing-the-reach-of-fringe-websites-on-twitter/ See Figure 3 in particular.

2   Romero-Vicente, A., 6 February 2023. 'Don't stop me now: The growing disinformation threat against climate change'. EU Disinfo Lab. https://www.disinfo.eu/publications/dont-stop-me-now-the-growing-disinformation-threat-against-climate-change/

TOP SIX CLIMATE MISINFORMATION THEMES
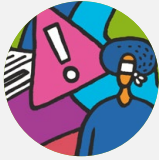
1. 'World Climate Declaration' of sceptics

This document repeats many easily-debunked myths about climate change, including that the current warming may be partly 'natural', that it is 'far slower than predicted', that models are 'inadequate' and that CO2 is 'plant food' and therefore 'not a pollutant'. Signatories include many long-time climate sceptics, as well as 1,500 other 'scientists and professionals'[3].

2. Claim that the climate emergency is 'fake'

Opularized by the pro-fossil fuels advocate Alex Epstein, this argues that the climate emergency is 'fake' because warming so far has been "mild" and that "life on Earth thrived (and was far greener) when CO2 levels were at least 5X higher than today's". The current situation, it is argued, "doesn't at all justify rapidly restricting global fossil fuel use"[4].

3. Theme that Greenland is not losing ice faster

This theme surrounds the assertion that the loss of ice on Greenland is slowing down and is therefore not a significant concern[5].

4. Assertions that wind turbines pose significant health risks

Popularized most recently on the Dutch website climategate.nl, this recurring myth asserts that people living near wind turbines suffer from various health problems. The new twist is the specific claim that erosion of wind turbine blade surfaces is releasing toxic chemicals into the environment in sufficient quantities to cause health problems[6].

5. Claim that sea levels are 'stable'

Promoted by the lobby group CFACT, which includes a number of prominent climate sceptics on its board, this claim surrounds the idea that climate change is not driving accelerated sea level rise and that "no dramatic rise is likely to occur in the coming century"[7].

6. Claim that green policies are causing deforestation in Europe

Promoted on the climate sceptic website 'No Tricks Zone', this idea surrounds the claim that Europe's "efforts to eliminate fossil fuels" are causing rampant deforestation as people turn to wood for heating and other energy[8].

3   https://clintel.org/world-climate-declaration/

4   https://energytalkingpoints.com/fake-emergency/

5   https://notrickszone.com/2022/09/24/trend-change-greenland-ice-mass-loss-has-been-decelerating-since-2012/

6   https://www.climategate.nl/2022/06/verzet-tegen-windmolens-laait-op/

7   https://www.cfact.org/2023/01/09/sea-level-is-stable-around-the-world/

8   https://notrickszone.com/2022/11/18/as-green-policies-lead-to-exploding-energy-prices-illegal-deforestation-accelerates-in-europe/

We then tracked mentions of subject matter from these fringe websites in traditional and mainstream media using Cision's NextGen platform, a comprehensive database of the world's media, in order to quantify the extent and reach of Twitter-generated climate misinformation themes in the traditional and online media. The search was restricted to NextGen outlets with a reach of 1 million or greater.

In previous work we have recognized that misinformation themes take different forms. It is important not to lump together subject mentions in a fact-checking analysis in the same way as outright unchallenged misinformation. Thus we further categorized mentions of climate misinformation themes in the following way:

▶ **Misinformation:** this is content that contains unchallenged primary misinformation and likely spreads false ideas about climate change, as defined by reference to current scientific consensus.

▶ **Fact-checking content:** this is content that clearly corrects misinformation with fact-checking analysis.

▶ **Factual content:** this is content that does not contain or refute misinformation, but only contains factual statements.

▶ **References to misinformation:** this is content that references misinformation without actively spreading it but does not challenge misinformation with correct facts.

The timeline for our search was 1 September 2022 to 28 February 2023. First we searched the entire NextGen media database with climate-related keywords in order to generate an output quantifying the scope of the full conversation on climate change. This would then enable us to quantify the extent of misinformation as a proportion of this full conversation.

We then conducted a sub-search using keywords associated with the top six most-shared climate misinformation topics. The results are outlined below.

(In order to quantify audience below, we use the term "reach" to describe the number of possible audience exposures to a media item based on an audited system for traditional media.)

Results in summary

▶ Number of articles covering climate change overall: **321,553**

▶ Total reach of all climate articles in media coverage: **19.1 trillion**

▶ Number of articles related to climate-related misinformation (including primary misinformation, fact-checking etc): **108 articles (0.03% of climate change total coverage)**

▶ Reach of misinformation-related coverage: **7.7 billion**

▶ Number of articles containing unchallenged primary misinformation: **59**

▶ Reach of unchallenged primary misinformation: **4.5 billion**

▶ Proportion of unchallenged primary misinformation in full climate media coverage: **0.02%**

Number of articles in each topic promoting unchallenged primary misinformation

- World Climate Declaration misinformation reach: **33**
- Fake Climate Emergency misinformation reach: **24**
- Greenland Ice Mass Loss misinformation reach: **1**
- Toxic Windmill misinformation reach: **1**
- Deforestation misinformation reach: **0**
- Stable Sea Level misinformation reach: **0**

Reach of each topic in promoting unchallenged primary misinformation

- World Climate Declaration misinformation reach: **3.2 billion**
- Fake Climate Emergency misinformation reach: **1.2 billion**
- Greenland Ice Mass Loss misinformation reach: **73 million**
- Toxic Windmill misinformation reach: **7 million**
- Deforestation misinformation reach: **0**
- Stable Sea Level misinformation reach: **0**

As mentioned above, many references to climate-related misinformation in media coverage are in fact fact-checking or fully factual content. Below we show how the overall 'misinformation conversation' breaks down, in terms of these different categories.
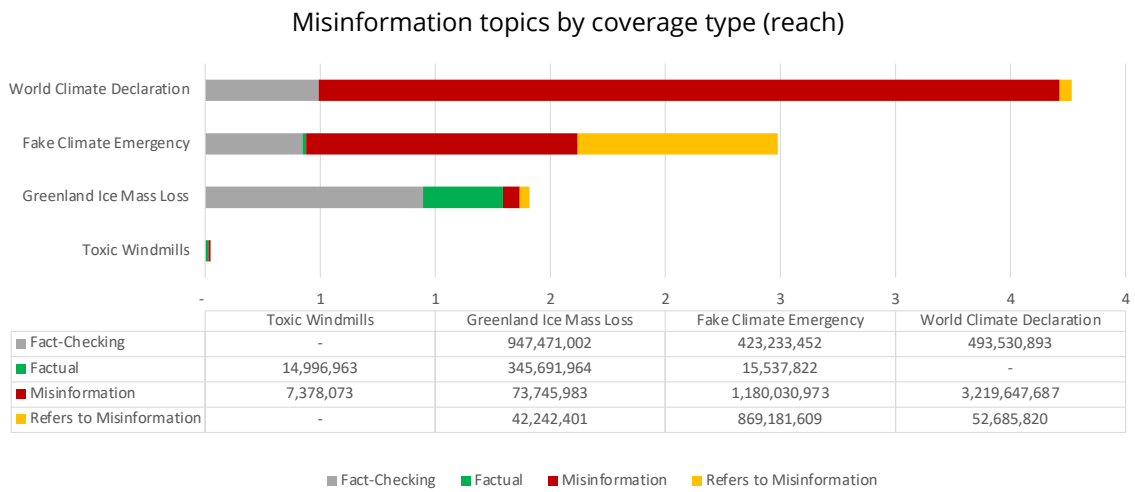
Misinformation content by reach:

- Misinformation (primary, unchallenged): **4.4 billion**
- Fact-checking: **1.9 billion**
- Factual content: **76 million**
- References to misinformation: **964 million**

In the following chart these coverage types in the misinformation conversation are broken down by issue topic.

Misinformation topics

Misinformation regarding the World Climate Declaration manifesto achieved the most visibility, while Greenland Ice Mass Loss sparked the largest amount of fact-checking

Misinformation topics by coverage type (reach)

	Toxic Windmills	Greenland Ice Mass Loss	Fake Climate Emergency	World Climate Declaration
■ Fact-Checking	-	947,471,002	423,233,452	493,530,893
■ Factual	14,996,963	345,691,964	15,537,822	-
■ Misinformation	7,378,073	73,745,983	1,180,030,973	3,219,647,687
■ Refers to Misinformation	-	42,242,401	869,181,609	52,685,820

■ Fact-Checking ■ Factual ■ Misinformation ■ Refers to Misinformation

Below are some sample headlines from the coverage, showing examples of misinformation and fact-checking coverage of our topic issues.

Article sample

Previously discredited misinformation was widely fact-checked by top-tier outlets; however, misinformation-friendly "climate delay" discourse is well represented within the same segmentation of outlets

NOTABLE FACT-CHECKING ARTICLES

USA TODAY
Fact check: Greenland still losing ice due to greenhouse gas emissions, experts say

The Guardian
The Australian reheats discredited climate claims in Cop 'fact check'

msn
Climate 'declaration' recirculates debunked claims

NOTABLE MISINFORMATION ARTICLES

Forbes
Why Single Out The Oil Industry For Supposed Disinformation?

yahoo!finance
COP27 It is All About the Money says Friends of Science; Be Glad the Climate Emergency is Over

FOX BUSINESS
Biden's EPA plans $27 billion 'green bank' for clean energy projects

Analysis and discussion

Overall we found that overt climate denialism is now a vanishingly small proportion of overall media coverage on climate change. In terms of both reach and article volume, climate misinformation is only 0.02% of the overall media conversation.

In other words, according to our analysis, 99.98% of media coverage did not spread climate misinformation, at least according to the categories within which we searched. It is notable that this closely matches the level of consensus on climate change in the scientific literature, which in earlier Alliance for Science paper we quantified as 99.6%, and possibly as high as 99.9%[9].

The two numbers (scientific consensus and media consensus) are not exactly comparable, because it is possible that there is climate-related misinformation in the traditional media which was not generated on Twitter and which we have missed because it was not included in our search terms. The studies also cover different time periods, with our media analysis covering only six months. However, the parallels are nevertheless striking.

In addition the fact that only two of our top six climate misinformation themes achieved any significant coverage in traditional media illustrates that although climate sceptic talking points continue to generate significant reach on Twitter, they have struggled to break out into wider traditional media coverage.

Out of our six top issues, 'deforestation' and 'stable sea levels' - which both achieved thousands of mentions on Twitter[10] - we saw zero breakout coverage in wider media according to our search. Two more issues, 'Greenland' and 'Toxic windmill', received coverage of only 1 article each in our search, and these were not significant (one was on Medium on an account which has been suspended, and the other a rundown of candidate opinions in a US local election).

This leaves 'Fake climate emergency' and 'World Climate Declaration' as the two significant breakout issues in terms of Twitter-generated climate misinformation in our analysis. However these two issues did achieve significant reach in traditional and online media, achieving 4.4bn in potential reach. While this only represented 0.02% of the overall climate media coverage we analyzed, it does show that misinformation on this topic is still reaching a substantial audience.

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9   Lynas, M., Houlton, B. Z., & Perry, S. (2021). Greater than 99% consensus on human caused climate change in the peer-reviewed scientific literature. Environmental Research Letters, 16(11), 114005. https://doi.org/10.1088/1748-9326/ac2966

10 See Figure 3 of Note 1.

Misinformation by Outlet

Yahoo! drove the most climate misinformation by reach and volume, distributing 58% of misinformation by reach and 19% of misinformation by volume

Outlet	Reach	Volume
Yahoo!	2,648,657,941	11
MSN	720,720,844	4
Medium	504,471,365	7
Forbes	129,606,607	2
Fox News	108,779,323	4
Daily Mail Online	90,008,197	1
Epoch Times	84,751,079	9
The New York Post	62,789,842	1
NewsBreak	41,286,079	5
Benzinga	27,456,382	6
MarketWatch	19,899,327	1
Archive PH	14,795,556	2
The Daily Wire	10,658,672	2
BitChute	10,135,246	2
Zero Hedge	6,786,256	2

The above figure shows the outlets which published primary misinformation (this total does not include fact-checking etc). In reach and volume terms, the primary offender was Yahoo!, followed by MSN, Medium and Forbes. (The URLs of all the articles listed are available as a spreadsheet supplementary information.)

Our analysis shows that a large number of these pieces are third-party PR network content carried by these larger network/portal news sites. For example, Friends of Science, a climate-sceptic NGO which believes (in contradiction to the scientific consensus) that "changes in solar activity are the primary cause of climate change" distributed press releases during COP27 which were carried on PR newswires and then ended up on Yahoo![11]. Other climate sceptic viewpoints made mainstream media coverage in the same way.

Another way for climate sceptic viewpoints to achieve wider circulation was through opinion pieces, which often do not have the same standards of factual accuracy as news coverage. MSN often reposted opinion content from other smaller outlets, such as opinion pieces by former newspaper editor Conrad Black[12] and a Manila Times columnist[13] both promoting the World Climate Declaration.

Right-wing outlets such as Fox News (an example is one opinion columnist's piece that "there is no climate emergency"[14]), the New York Post (also in an opinion piece[15]) and the Daily Mail[16] also carried misinformation. In volumetric terms, second after Yahoo! was the Epoch Times, which is owned by the Falun Gong spiritual movement and has promoted far-right views and numerous conspiracy theories in recent years.

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11 Examples are: https://finance.yahoo.com/news/cop27-money-says-friends-science-060000693.html and https://finance.yahoo.com/news/cop27-un-credible-plan-meet-070000451.html

12 https://www.msn.com/en-ca/news/world/conrad-black-a-measure-of-dissent/ar-AA11VXMS?li=AAggFp4

13 https://www.msn.com/en-ph/news/opinion/electric-cars-not-zero-emission-california-s-policy-model-a-disaster/ar-AA11UGBA

14 https://www.foxbusiness.com/media/larry-kudlow-climate-policies-lead-global-economic-financial-catastrophe

15 https://nypost.com/2022/10/06/no-biden-the-discussion-about-climate-change-hasnt-ended/

16 https://www.dailymail.co.uk/sciencetech/article-11736433/Nine-shocking-replies-highlight-woke-ChatGPTs-inherent-bias.html

Conclusion

While climate sceptic misinformation is almost entirely absent from the mainstream media in a proportional sense, the sheer volume of coverage on climate change means that misinformation still achieved a potential reach of **4.4 billion** during the six-months period of our analysis.

Rather than denying the reality of human-caused climate change, most of the misinformation now focuses on net zero targets and other mitigation measures, an approach that has been termed 'delayist' rather than 'denialist'. Further work is required to quantify and understand the reach and pervasiveness of these more recent themes and approaches.

Africa Science Media Centre provide, accurate and evidence-based information on science, technology and innovations, including health, agriculture and engineering for the benefit of the public and policy makers.