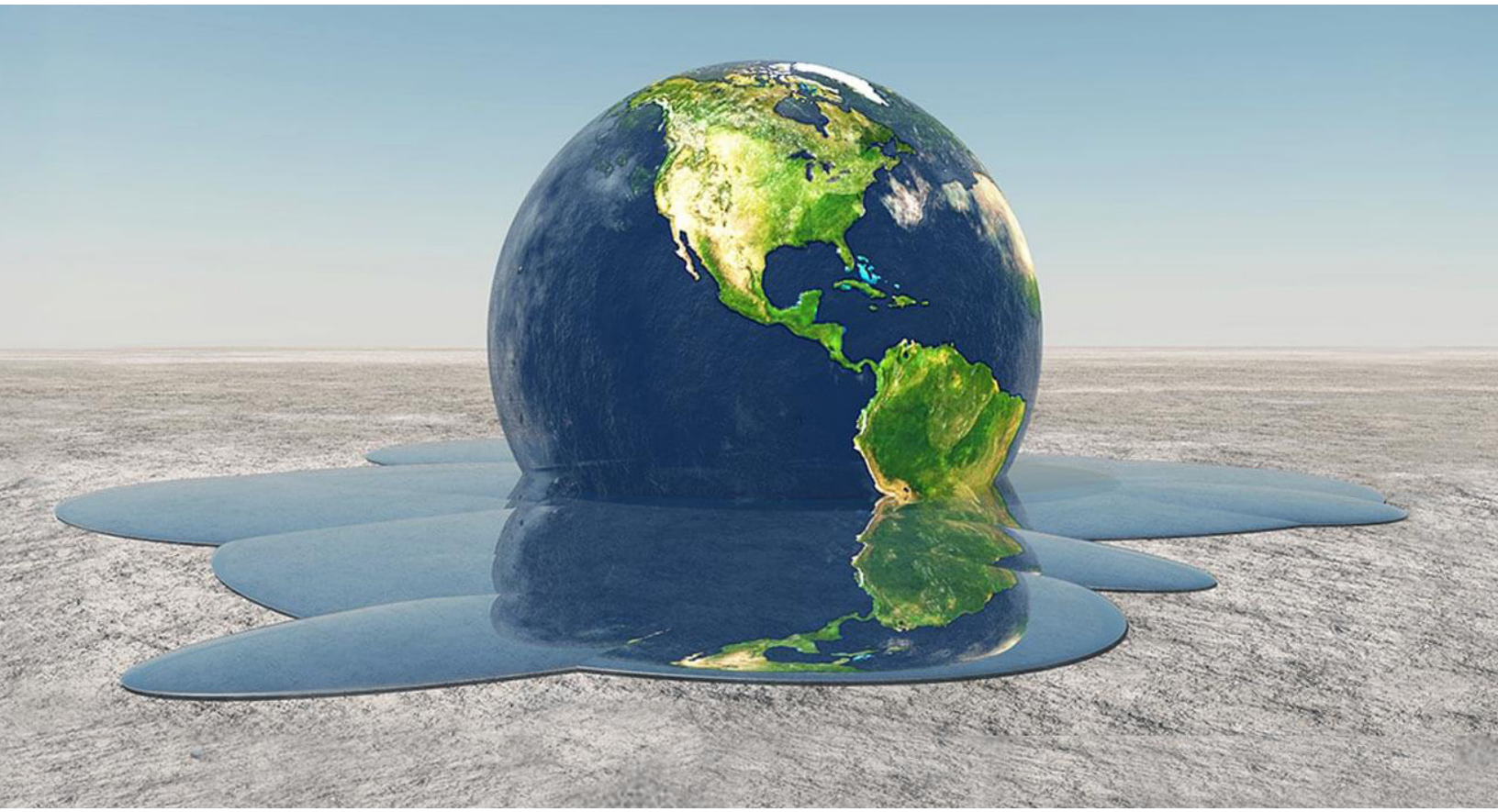
Social Listening:



Climate Change. July 2022.

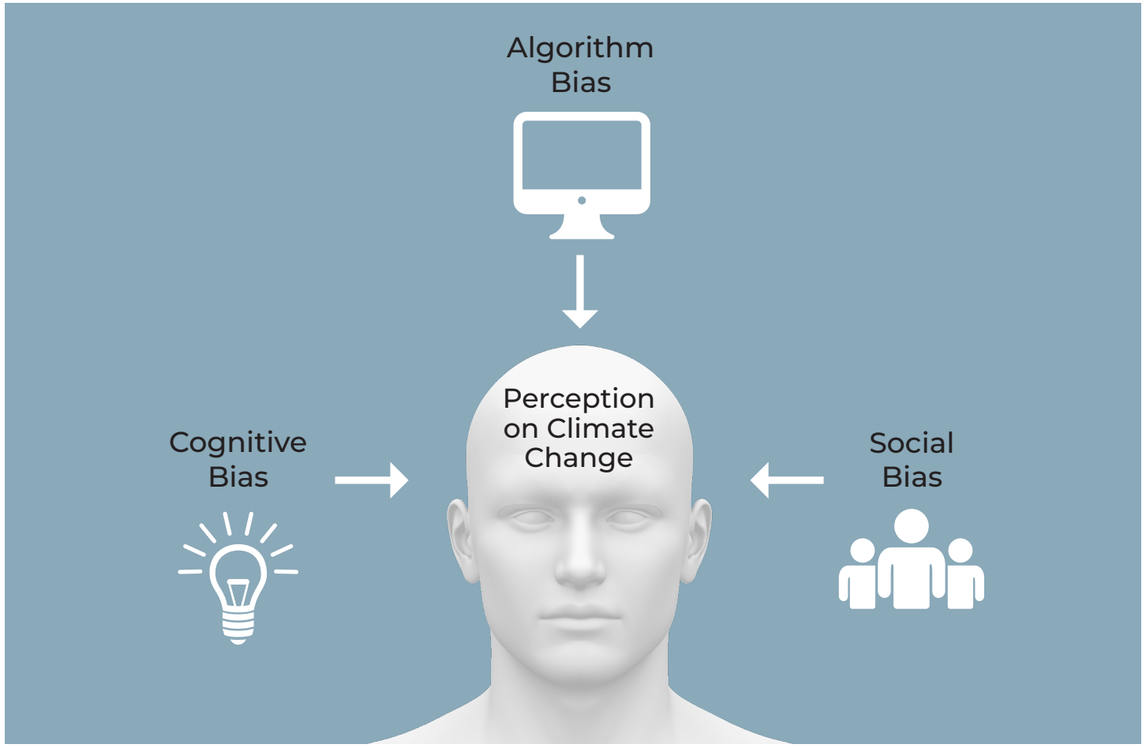
ENODO GLOBAL

SOCIAL LISTENING

OVERVIEW

ENODO's climate change analysis reveals how; (1) most people have limited knowledge or understanding of the origins and impact of climate change, (2) individuals are strongly influenced by their identity and worldviews, (3) public perception is highly polarized, (4) different biases impact identity, and (5) traditional media campaigns and paid advertising have little impact on climate change beliefs and public perception more broadly.

Organizations that harness the power of identity, understand the influence of biases, and generate more organic discussions, can optimize their online engagements and achieve their overall objectives. However, most fail to consider or even understand how biases impact identity, shape individual's worldviews, and trigger a specific reaction or behavior (e.g., donations, advocacy, protests).



SOCIAL LISTENING

KEY FINDINGS

- Identity has the greatest influence on climate change beliefs
- Identity and worldviews are influenced by three types of bias
  - ▹ Cognitive: Pre-existing beliefs formed by different socio-economic factors
  - ▹ Social: Concepts / ideas that are shaped by current events, popular opinion, and trending topics
  - ▹ Algorithm: Modifications to behavior based on social media activities (e.g., notifications, advertising prompts)
- Sentiment surrounding climate change is contentious and highly polarized – strong opinions on both sides
  - ▹ Only 5% neutral sentiment
- Organic discussions a have greater “emotional value” and influence on public perception than non-organic discussions
- Discussions in the U.S. are more politicized and have a greater amount of misinformation than in Europe
  - ▹ 38% of all discussions are not credible
    - Misinformation has little impact on public sentiment
- European identity and their worldviews on climate change create more favorable impressions than people in the U.S.
  - ▹ 20% greater positive sentiment

RECOMMENDATIONS

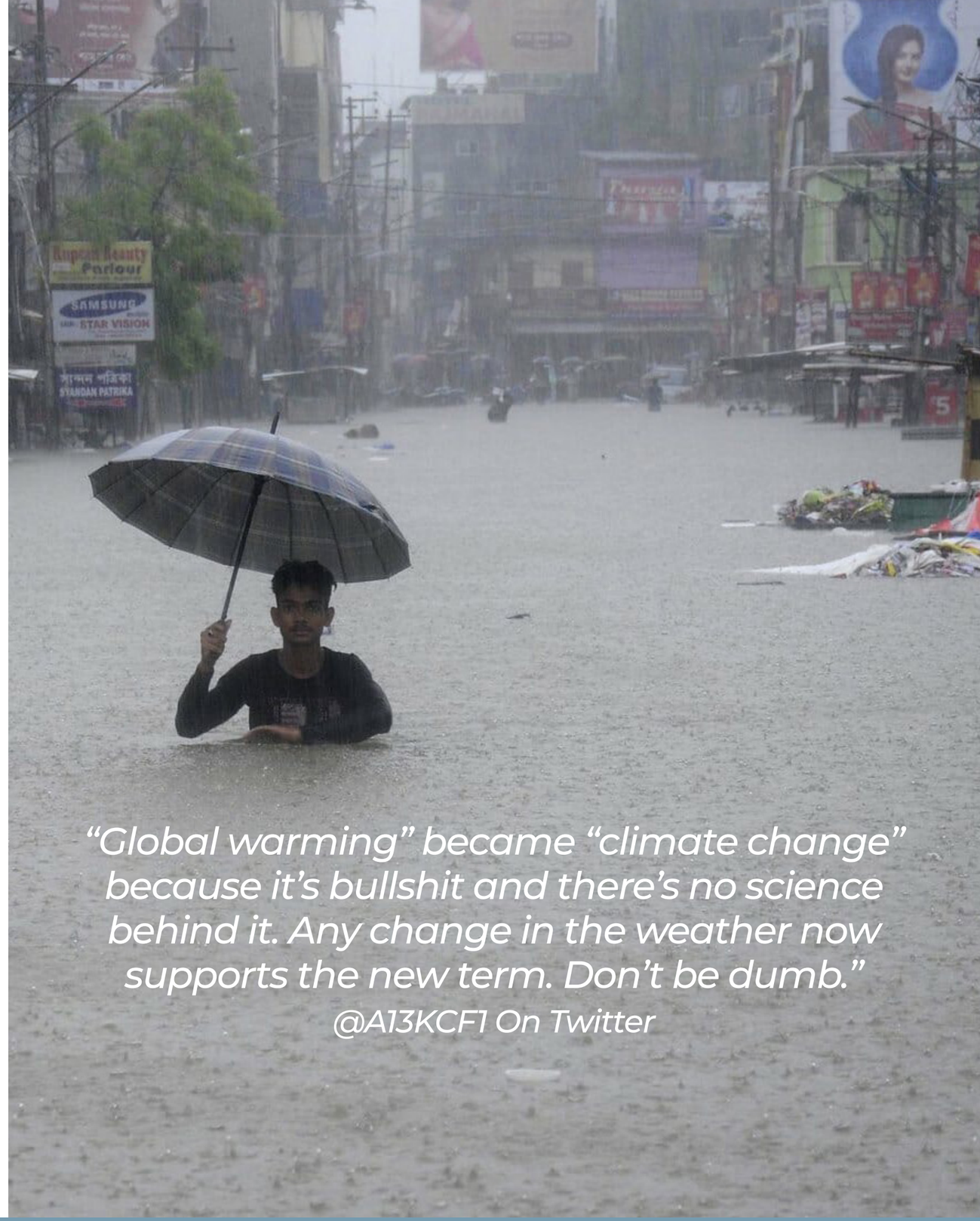
- Communications teams must place identity at the center of their engagement strategies
  - ▹ Optimize engagements by aligning content to identity
- Design content for specific demographic groups that trigger their biases
- Create messages that have greater “emotional” value and align with individual’s worldviews
- Tailor online engagements “narratives” to increase organic discussions

SOCIAL LISTENING

DATA COLLECTION

ENODO created a customized social listening platform and applied their proprietary methodology to measure public perception on climate change in the U.S. and Europe. Analysts were able to measure sentiment, identify trending discussions that dominate the topic, and quantify the impact of different biases based on the type of discussions and other factors to differentiate prevailing attitudes that are influenced by online engagements, current events, and misinformation.

ENODO customized its data collection and analysis platform to ingest over 1.7 million data points over a 90-day period—from April 11, 2022 to July 11, 2022. The data set was comprised of 572,892 Facebook posts, 382,248 Tweets, 213,489 Instagram posts, 182,290 RSS Feeds, 89,313 Discord discussions, 62,182 Telegram posts, 47,138 LinkedIn messages, and 31,425 YouTube videos that were used to produce this report.



"Global warming" became "climate change" because it's bullshit and there's no science behind it. Any change in the weather now supports the new term. Don't be dumb."

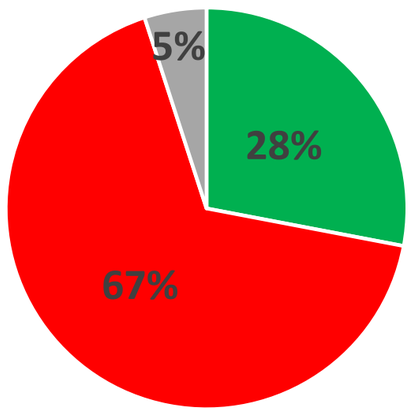
@A13KCF1 On Twitter

SENTIMENT ANALYSIS

Analysts measured the positive, negative, and neutral sentiment polarities of individual data points, which included local, national, and international news, reports and analyses, posts, online chats, discussion groups, memes, and videos on topics related to climate change in the U.S. and Europe.

U.S. SENTIMENT

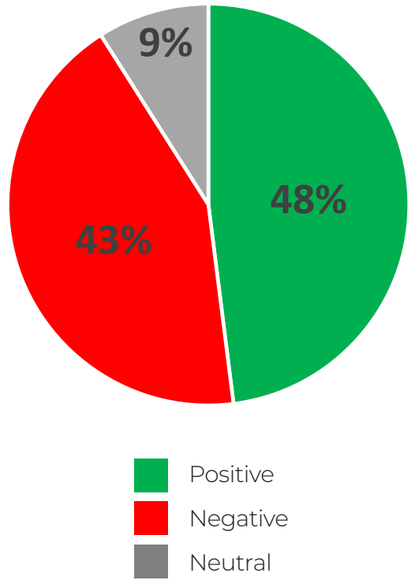
- **Positive sentiment (28%)** is attributed to support for innovative non-fossil fuel technology (e.g., electric vehicles, wind and deep-sea turbines, efficient solar power)
- **Negative sentiment (67%)** is linked to government inaction, recent policy and legislative activities (Supreme Court ruling, West Virginia v. EPA), and misinformation
- **Neutral sentiment (5%)** is attributed to strong opinions on both sides, which polarizes individuals



"Climate change is not happening. It's a political ploy the democrats use to scare the uninformed into voting their agendas."
@ThePecanPicker

EUROPEAN SENTIMENT

- **Positive sentiment (48%)** is related to initiatives and investments that address climate change issues (e.g., Europe's Green Deal, COP26 agreement)
- **Negative sentiment (43%)** is linked to record temperatures and the slow rate of new technology and initiatives being introduced
- **Neutral sentiment (9%)** is due to the low volume of organic discussions across Eastern Europe

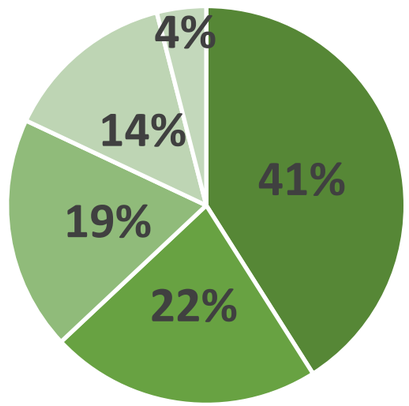


TOPIC MODELING

Analysts applied a topic model to the entire data set to categorize the most discussed and trending topics related to climate change, which were weighed by volume and significance. New topics emerge and replace older topics based on the volume of discussion and their influence on sentiment.

U.S. TOPICS

- **Policies (41%):** Discussions on recent legislative initiatives and legal policies authorized by the Biden administration and the Supreme Court
- **Misinformation (22%):** Discussions related to the abundance of fake information on climate change
- **Extreme Weather (19%):** Topics related to unusual heatwaves in different parts of the U.S.
- **Emissions (14%):** Concerns on the rising levels of CO2 emissions especially in urban areas

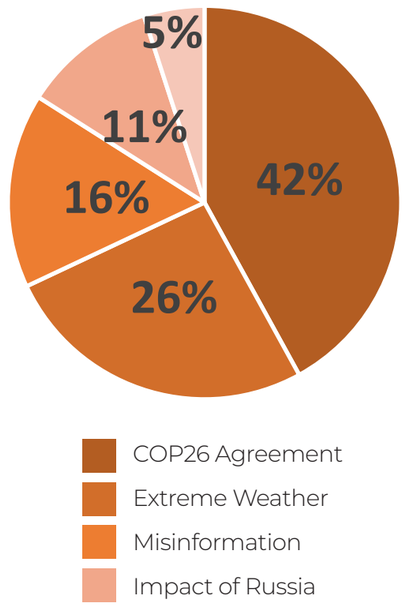


"The SCOTUS doesn't get to make that type of decision. They aren't scientists. We need to remove several Justices purely due to incompetence."

Doug Breland on Facebook

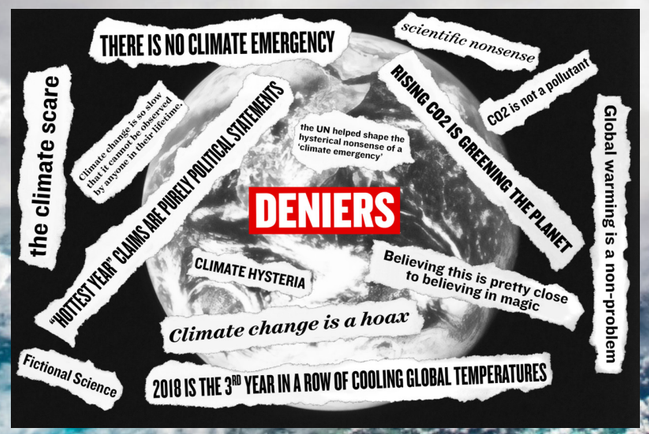
EUROPEAN TOPICS

- **COP26 Agreement (42%):** Conversations related to several European nations achieving COP26 goals
- **Extreme Weather (26%):** Concerns linked to the recent heatwaves across many regions in Western Europe
- **Misinformation (16%):** Discussions pertaining to the growing volume of misinformation related to Climate Change
- **Russian Impact (11%):** Uncertainty surrounding Russia's supply of oil and gas to Europe due to the Ukraine war



"Millennials, people like me, & others all understand the urgency of the dire situation the climate, this country and the world is in. We no longer have decades to change things, we have less than 10 years

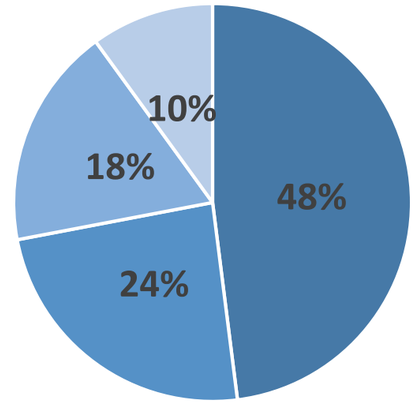
@QuancyClayborne On Twitter



BIASES

Analysts parsed the data set using keywords, narratives, hashtags, memes and unique terms related to climate change to quantify the impact of cognitive, social, and algorithm biases that exist.

- **Cognitive Bias (48%):** Contained discussions related to personal opinions and political position on climate change
- **Social Bias (24%):** Discussions related to engaging and following popular online content, climate activism, hashtag "slacktivism", etc.
- **Algorithm Bias (18%):** Discussions linked to alleged manipulation by popular social media platforms (e.g., Facebook) to present climate change information based on an individual's social media activity



COGNITIVE BIAS
Have the greatest influence on an individual's identity and shapes their worldviews.

Analysts parsed the data set to determine which beliefs and topics have the greatest influence on identity.

- **Political Stance (61%):** Discussions related to preferences of political party (e.g., Democrat vs. Republican)
- **Religious Views (22%):** Contained comments that were based on climate and environment from a religious context (e.g., "Protect God's green earth")
- **Socio-Economics (12%):** Discussions related to social and economic status in society and preference on climate change

SOCIAL BIAS
Have moderate influence on an individual's identity but significant affect on their worldviews.

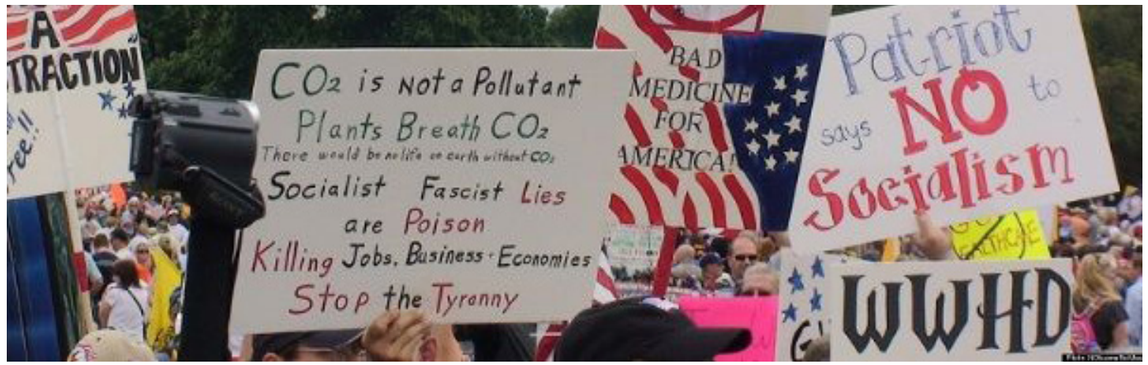
Analysts were able to identify social bias from discussions based on volume and context of discussions.

- **Celebrities (57%):** Discussions from individuals following social media groups and pages linked to celebrities who promoted climate change topics (e.g., Alissa Milano)
- **Hashtag Activism (32%):** Included topics related to comments and impressions linked to specific hashtags (e.g., #EarthDay)
- **Online Petition (21%):** Comments linked to online campaigns to obtain signatures (e.g., moveon.org) to advocate environmental activism

ALGORITHM BIAS
Have relatively little influence on an individual's identity or worldviews.

Analysts isolated the keywords, phrases, and technical information (e.g., IP masking) within online discussions to identify algorithm bias

- **Ads (56%):** Discussions pertained to concerns on Advertisement ("Ad") campaigns that were directed toward a specific stance on climate change
- **Social Engineering (22%):** Included topics related to manipulate information presented on social media platforms
- **Facebook (16%):** Discussions related to the large-scale efforts undertaken by Facebook (Meta) to influence public perception using machine learning



"Ah yes the multi million dollar, a-list celebrity circle jerk blaming the working class for climate change. Riveting stuff."
@JDKextra

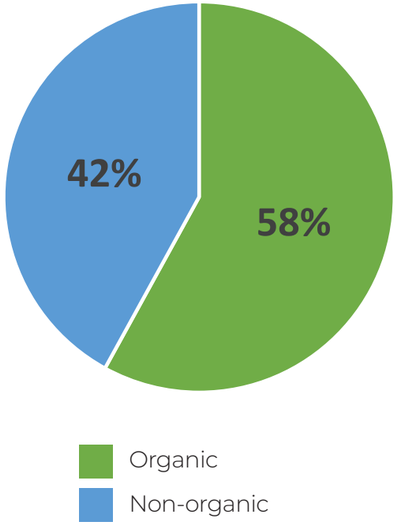
"Paid advertisements continue to bar activists from using the word climate change while FB rakes in profits from fossil-fuel ads. FB's choice to advertise climate destroying industries, jeopardizes our future on the earth."
@Facebook_Users on Twitter

DISCUSSION TYPES

Organic discussions originate from individuals and are linked to specific ideas, opinions, or events. However, they are typically in response to an existing narrative. Non-organic discussions originate from news feeds, reports, videos, or an organizations marketing or paid advertising campaign.

Analysts parsed the data set to determine the number of organic vs non-organic discussions

- **Organic: (58%)** of discussions pertained to impressions (e.g., Retweets, Comments, Shares) to social media posts made within the first 72 hours
- **Non-organic: (42%)** contained interactions made to online climate change content



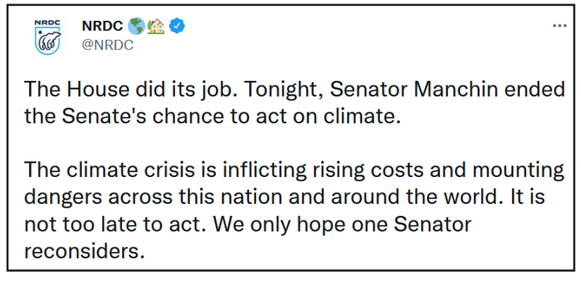
"Don't ask about Climate Change to anyone on Twitter. All ya get F'n trolls that don't know shit about anything. Call you Racists and all. Very enlightening."
@Gooseaz

CASE STUDY: ORGANIC DISCUSSIONS

Analysts compared the volume of discussions and the corresponding sentiment of a recent post made by a popular anti-climate change organization to illustrate how organic discussions have greater impact on sentiment.

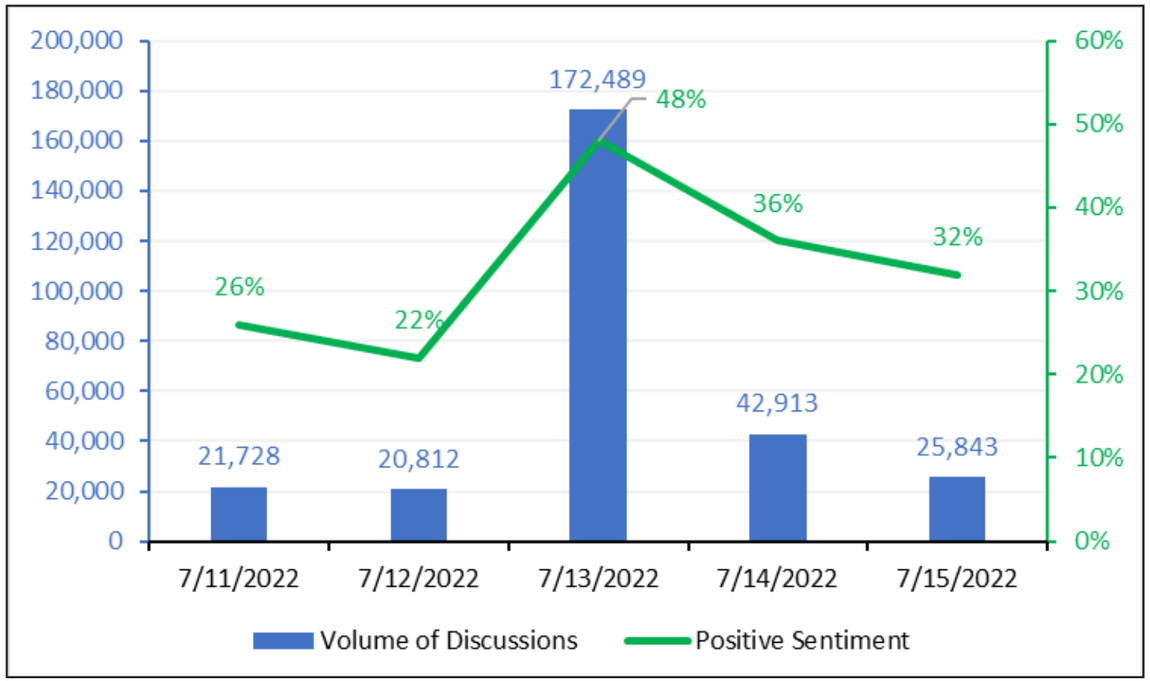
Natural Resources Defense Council (NRDC)'s Twitter post responding to Sen. Manchin

- Post made on July 13, 2022
  - ▷ 62 Retweets, 87 Comments, and 150 Likes in 48 hours
  - ▷ 22% increase in positive sentiment
  - ▷ 612% increase in the volume of discussions


NRDC 🌎🏡
@NRDC

The House did its job. Tonight, Senator Manchin ended the Senate's chance to act on climate.

The climate crisis is inflicting rising costs and mounting dangers across this nation and around the world. It is not too late to act. We only hope one Senator reconsiders.

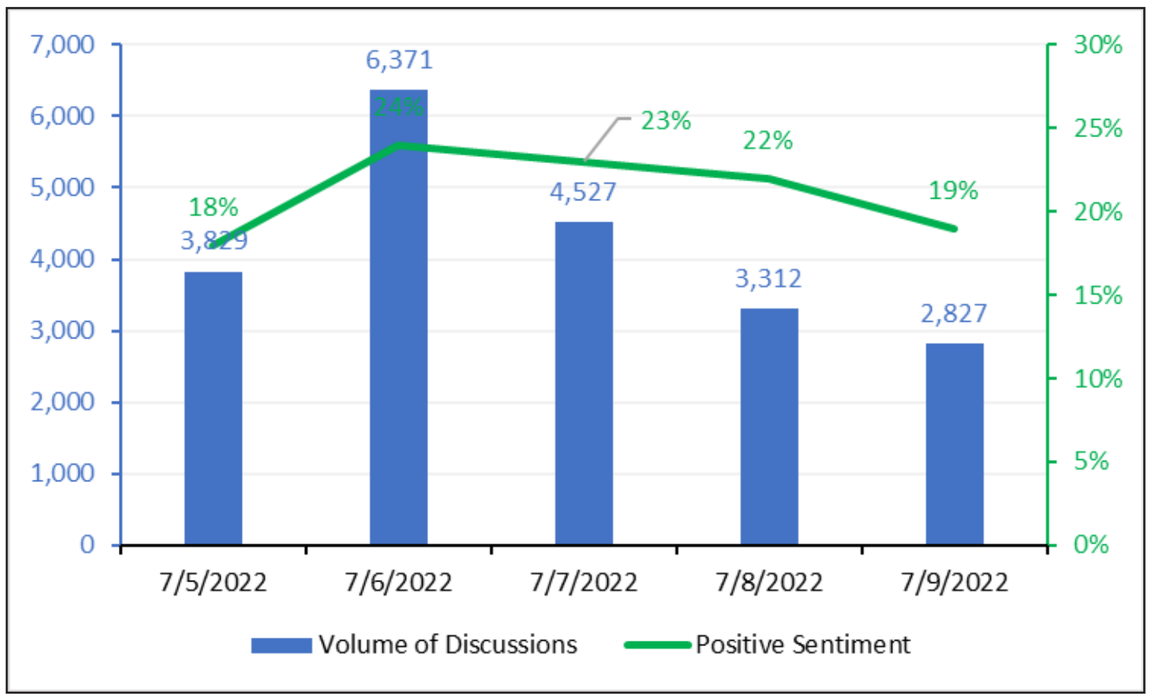


CASE STUDY: NON-ORGANIC DISCUSSIONS

Analysts compared the volume of discussions and the corresponding sentiment of a post promoted by one of the largest scientific bodies studying climate change to illustrate how non-organic discussions have less impact on sentiment.

Global Environmental Facility (GEF)

- Post made on July 6, 2022
  - ▹ 16 Retweets, 23 Comments, and 42 Likes in five days
  - ▹ 6% increase in positive sentiment
  - ▹ 48% increase in the volume of discussions



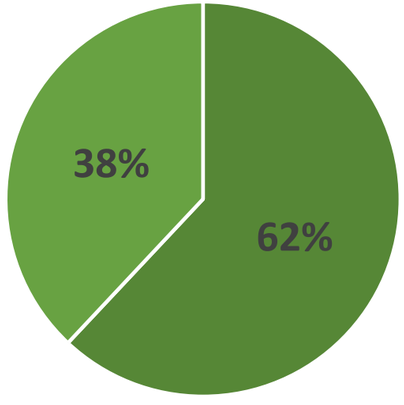
"Despite the clear links between them, so far the climate and nature crises have been addressed in silos. We must connect them and drive forward shared solutions, writes WWF's @manupulgarvidal in a new @IUCN letter"

MISINFORMATION

Analysts applied machine learning to identify data containing misinformation (e.g., bots, trolls, fake accounts). The "cleaned" data was used for the final analysis to obtain the most accurate dataset.

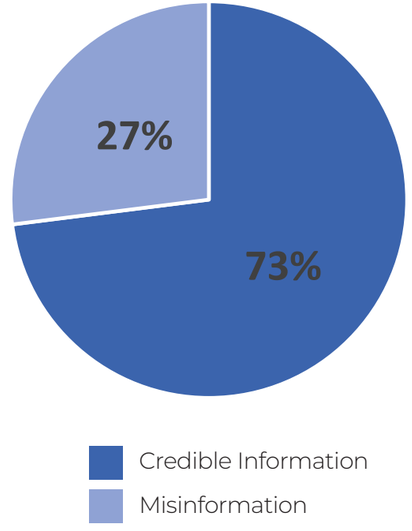
U.S.
Identified the degree of misinformation in the U.S. dataset:

- **Credible Information (62%):** Information from environment think-tanks, non-profit organizations, scientists, politicians, and the general public
- **Misinformation (38%):** Messages emanating from bots and trolls linked to environmental activist groups



EUROPE
Identified the degree of misinformation in the Europe dataset:

- **Credible Information (73%):** Messages from political organizations (e.g., EU), climate think-tanks, and non-profit organizations
- **Misinformation (27%):** Significant volume of content with Cyrillic characters with source traced to Russia



"LinkedIn removed my comment on the human influence being responsible for climate change...while leaving a climate denier's post. How can we fight climate change if we let disinformation spread?"