

Climate discussion on Twitter



Dmitry Erokhin, Speaker



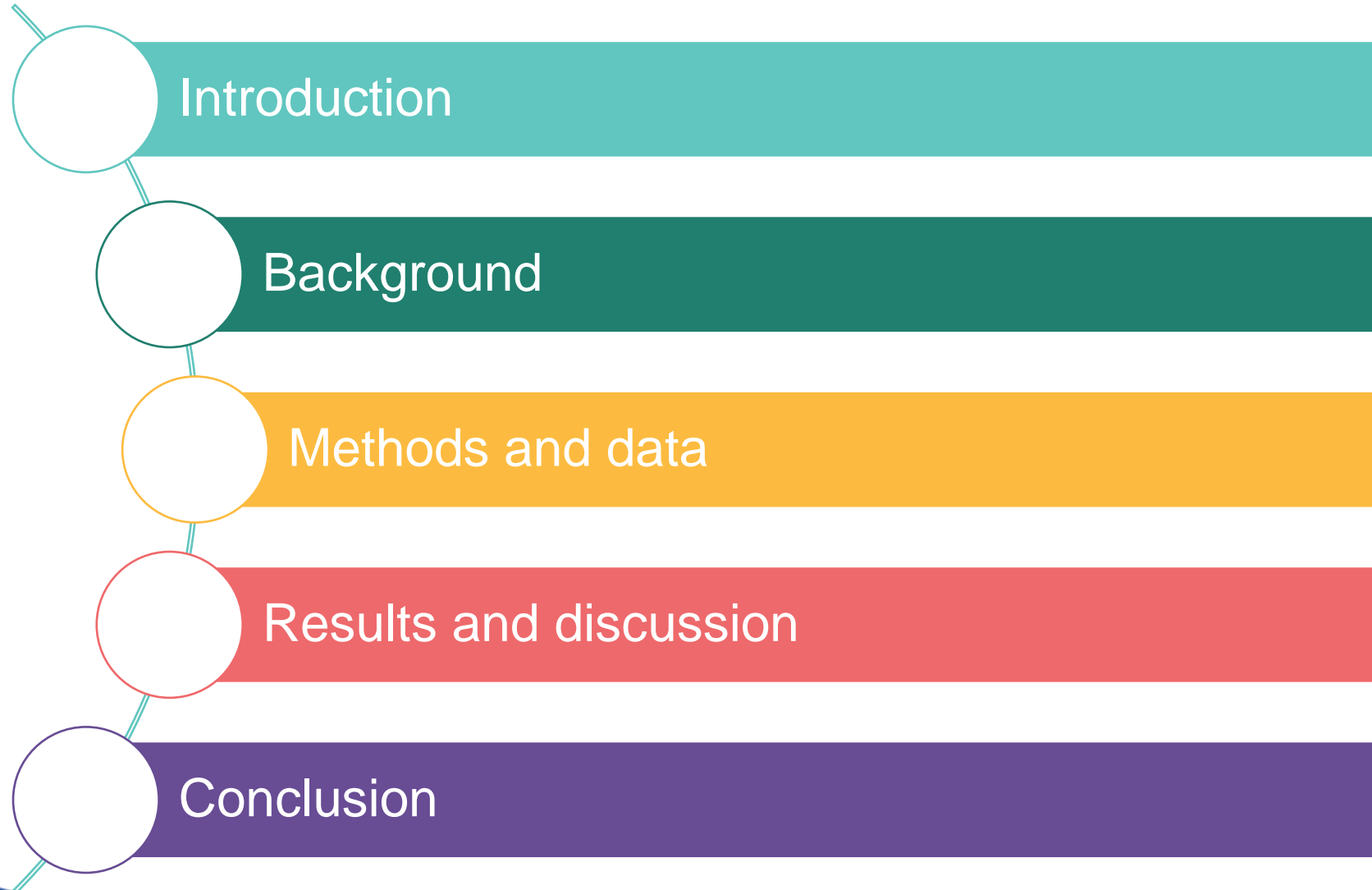
**Nadejda Komendantova,
Author**



**International Institute for
Applied Systems Analysis,
Austria**



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Introduction

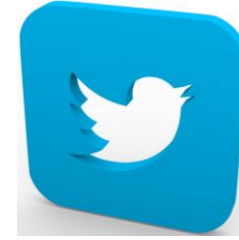
Introduction

- Climate change as a significant challenge requires urgent attention.
- Research on social media platforms, like Twitter, is crucial for understanding their role in shaping and reflecting public discourse on climate change.
- Twitter serves as a vital platform for communication, information sharing, and discussion of important issues, including climate change.
- Our study collected over 250,000 tweets on climate change during March 30-31, 2023, using the Twitter API.
- The study conducted topical and sentiment analysis of tweets to identify commonly discussed topics and gauge the overall tone of the conversation on climate change.
- Valuable insights were gained regarding public perception, priorities, and concerns related to climate change.



Background

Climate discussion on Twitter



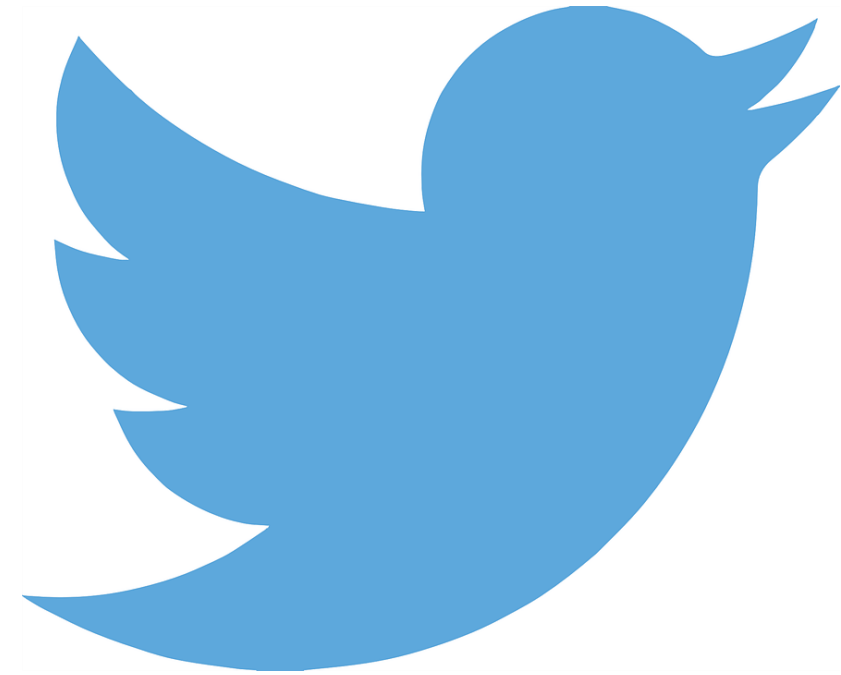
- Social media platforms, such as Twitter, have transformed communication and become essential for discussing important issues, including climate change. They shape and reflect public discourse on climate change, serving as a form of public engagement and participation.
- Increased participation through social media allows for diverse perspectives and more effective solutions.
- Social media platforms can be used to organize and mobilize individuals around climate-related issues, facilitating collective action.
- Twitter provides real-time data on public sentiment, opinions, and concerns about climate change, enabling researchers to study various aspects. It has been used to examine public perception, climate policies, climate-related disasters, and climate activism. However, social media platforms, including Twitter, are also associated with the spread of misinformation and conspiracy theories related to climate change.
- Research is crucial to leverage social media for mobilizing action, promoting accurate information, and combating misinformation and conspiracy theories.



Methods and data

Data collection

- Data collection was done using the Twitter Academic API, focusing on English language tweets discussing climate-related topics.
- Tweets were filtered using the keyword "climate" to target relevant content.
- Data collection period was on March 30-31, 2023.
- Sentiment analysis was performed using Microsoft Azure Sentiment Analysis, providing a sentiment score between 0 and 1 for each tweet.
- Median sentiment was calculated to assess the overall attitude towards climate-related issues on Twitter during the observed period.
- Topical analysis involved determining the frequency of different words in the tweet text, excluding stop words.
- The top 30 most frequent words were analyzed to gain insight into the topics of discussion related to climate on Twitter.
- Further analysis was conducted on the most frequent words to identify trends or patterns in the topics discussed.



Results and discussion

Climate Discussion on Twitter (March 30-31, 2023)

- Widespread discussion on Twitter regarding climate change with 253,482 related tweets.
- Topics of discussion included concerns about oceans, forests, soil, megafauna, and insects.
- Growing consensus on climate change as an existential threat requiring immediate action.



1. Environmental Degradation:
 1. State of the world's oceans
 2. State of forests
 3. State of fertile soil
 4. Megafauna
 5. Insects
2. Existential Threat of Climate Change:
 1. Existential threat of climate change
 2. Immediate action needed from governments and individuals
 3. Risk of climate catastrophe
 4. Criticism of climate denial
 5. Need for better action from governments
 6. Comparison of attention to climate change and COVID-19 pandemic
 7. Conspiracy discussions on climate change
3. Transition to Renewable Energy:
 1. Renewable energy
 2. Finite nature of fossil fuels
3. Investing in clean energy and creating jobs
4. Potential solutions like wind energy
5. Impact of climate change on wildfires
4. Political and Policy Issues:
 1. Political parties voting against climate action
 2. Recent legislation and agreements related to climate change
 3. Concerns about giving up democratic choice in addressing climate change
 4. Criticism of Republican party's stance on climate change
5. Global Collaboration and Action:
 1. Unity and collaboration in the face of natural disasters and climate change
 2. U.S.-Tanzania relationship and the importance of addressing the climate crisis
 3. UN's efforts to address climate change
4. Calls to action and petitions for climate change efforts
5. Urgency of taking action on climate change
6. Criticism of political leaders' positions on climate change
6. Economic and Job Opportunities:
 1. Intersection of climate change and job creation
 2. California's push for electric trucks
 3. Ban or super tax on private jets for a greener future
7. Science and Solutions:
 1. Consequences of not believing in science and climate change
 2. Use of new, natural sources of energy to reduce carbon emissions
 3. Negative impact of oil, gas, and fossil fuels on the planet
 4. Need for science-based solutions to address the climate crisis

Topics Discussed on Twitter

1. Information:

- Urgent need for renewable energy due to finite fossil fuel resources.
- Concerns about the impact of climate change on oceans, forests, fertile soil, and wildlife.
- Calls for better action from governments at all levels.

2. Misinformation:

- Conspiracy discussions claiming climate change as the next fear factor after COVID-19.

Tweet	Quotes
<p>Climate change is an existential threat to our nation and world.</p> <p>But when I think of solutions, I think about good-paying jobs.</p> <p>In clean energy, electric vehicle manufacturing, and battery and charger development.</p>	254
<p>Climate totalitarians at the World Economic Forum intend to use individual carbon footprint trackers to severely restrict where you can travel, how you can travel, what you can eat and much more, under the guise of solving the non-existent "climate crisis".</p> <p>#ClimateScam</p>	172
Tweet	Likes
<p>There are no natural boundaries between human beings on this earth, we are one family. At a time of increasing natural disasters, climate change and global warming affect all of us. We must learn to live together, to work together, and to share what we have together.</p>	11,552
<p>All the narratives are falling apart: The 'vaccines', Ukraine, the gender BS, and the climate scam. All falling to pieces!</p>	11,536



Sentiment Analysis of Tweets

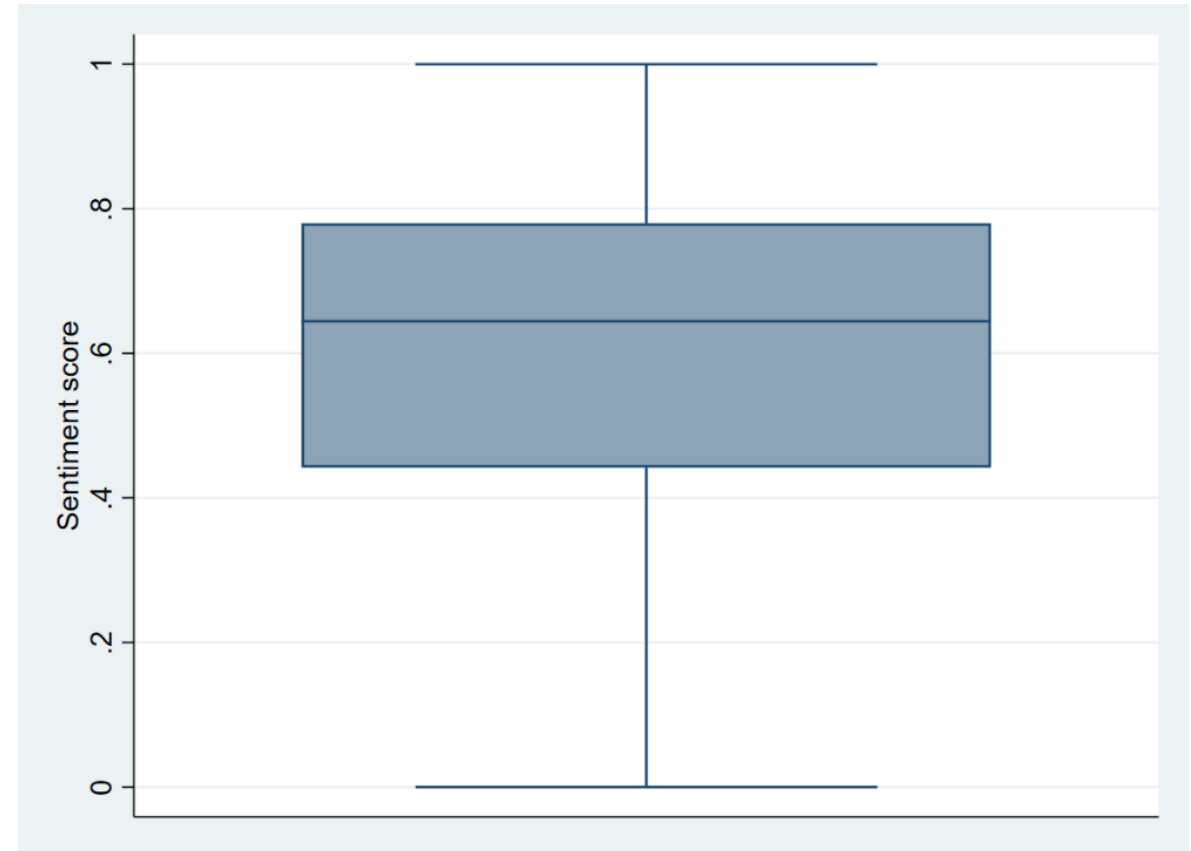
Sentiment breakdown of analyzed tweets:

- 143,954 tweets were positive, reflecting predominantly positive sentiment.
- 43,525 tweets were neutral, indicating a lack of strong positive or negative sentiment.
- 66,002 tweets were negative, representing critical or pessimistic viewpoints.

Median sentiment fell within the 0.45 to 0.80 range, indicating a relatively neutral or slightly positive sentiment.

Majority of tweets categorized as positive, outweighing the negative sentiments.

Variation in sentiment values (0 to 1) indicates a wide range of sentiment in the climate discussion on Twitter.



Conclusion

Conclusion

- Data collection: Twitter Academic API used to collect 253,482 climate-related tweets during the observed period.
- Sentiment analysis: Microsoft Azure Sentiment Analysis employed to assess sentiment.
- Findings: Tweets reflect a sense of urgency and consensus on the need for immediate action on climate change.
- Topics: Discussions cover various areas, including the impact on natural resources, renewable energy, and government involvement.
- Diversity of perspectives: The paper highlights the range of viewpoints and concerns related to climate change.
- Engagement and interest: The findings indicate a significant level of engagement and interest in the topic on Twitter.



Thank you!



erokhin@iiasa.ac.at