🌍 Climate Change Modeling

Analyzing Public Opinion on NASA's Climate Communication (2020–2023)

Understanding Public Perception

How do people perceive and engage with climate change content on social media? Our goal is to extract meaningful insights from public comments using Natural Language Processing.

Dataset Overview

Our analysis is based on over 500 user comments from the NASA Climate Facebook Page, spanning from 2020 to 2023. We focused on understanding sentiment, trends, and engagement.

Source	NASA Climate Facebook Page
Records	500+ user comments
Key Columns	Date, Text, LikesCount, CommentsCount

Data Preparation

Rigorous data preprocessing was crucial for accurate analysis. We ensured data quality and prepared the text for NLP techniques.

Cleaning

Removed nulls and duplicate entries.

Text Normalization

Converted text to lowercase, removed punctuation, and stopwords.

Linguistic Processing

Applied tokenization and lemmatization for root word analysis.
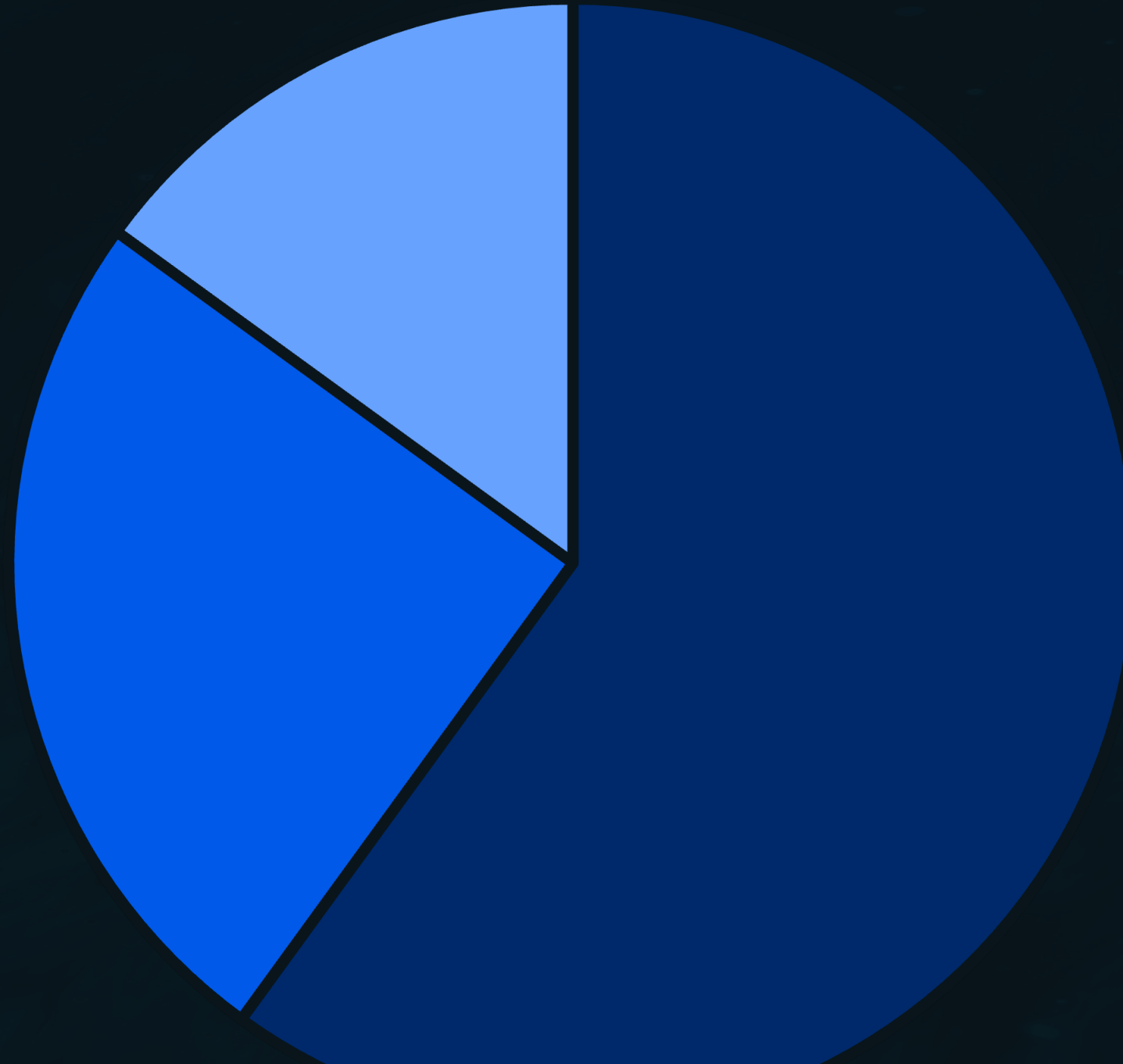
Date Conversion

Transformed dates to year/month format for trend tracking.

Sentiment Analysis Results

We classified each comment as Positive, Negative, or Neutral using TextBlob (or VADER) to gauge public sentiment towards NASA's climate communication.

Sentiment Trend Over Time (2020–2023)

Our analysis tracked how public sentiment evolved from 2020 to 2023, revealing interesting patterns and correlations with global events.
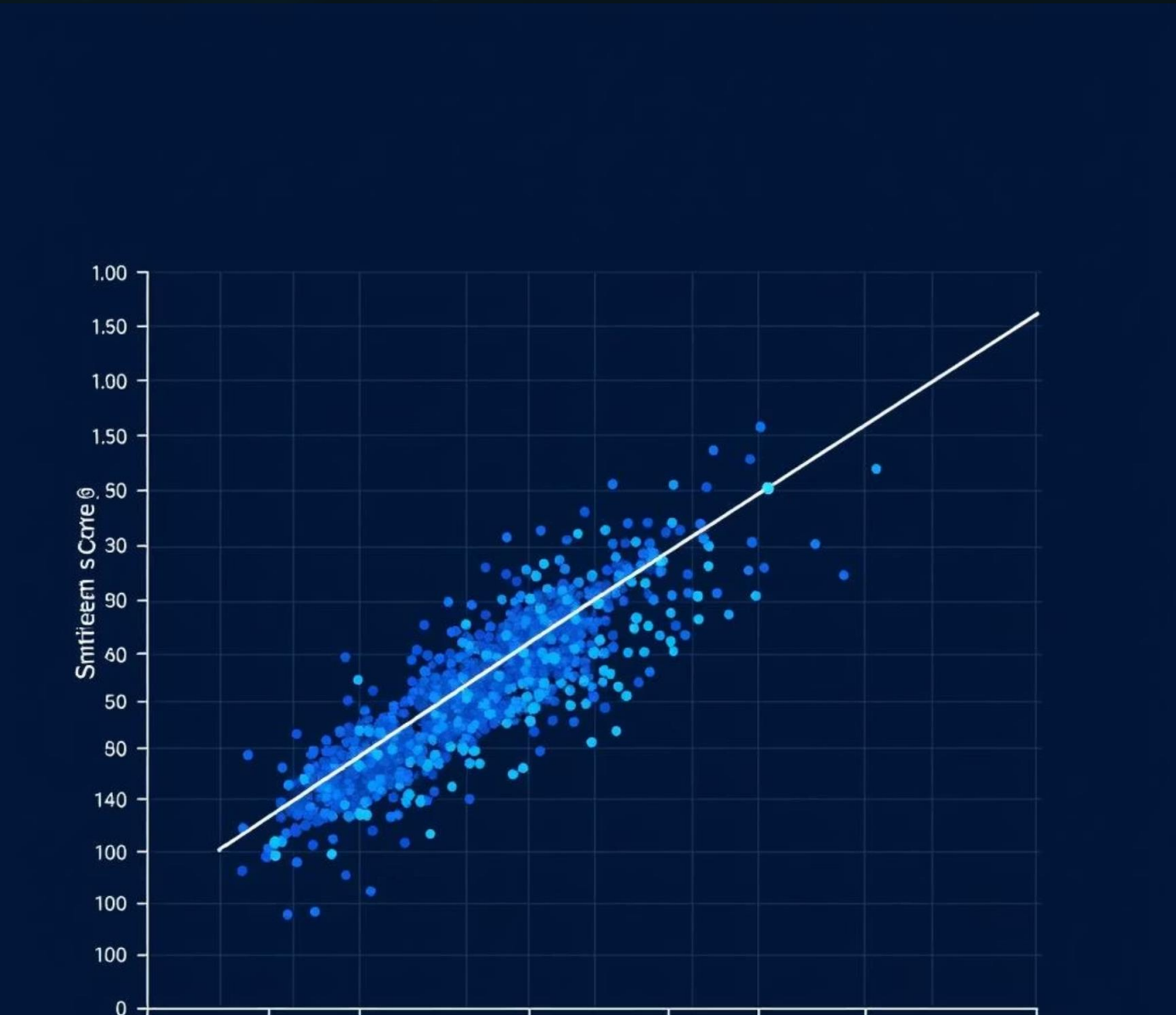
Engagement Insights

Understanding how sentiment and comment length influence engagement provides valuable insights into effective communication strategies.
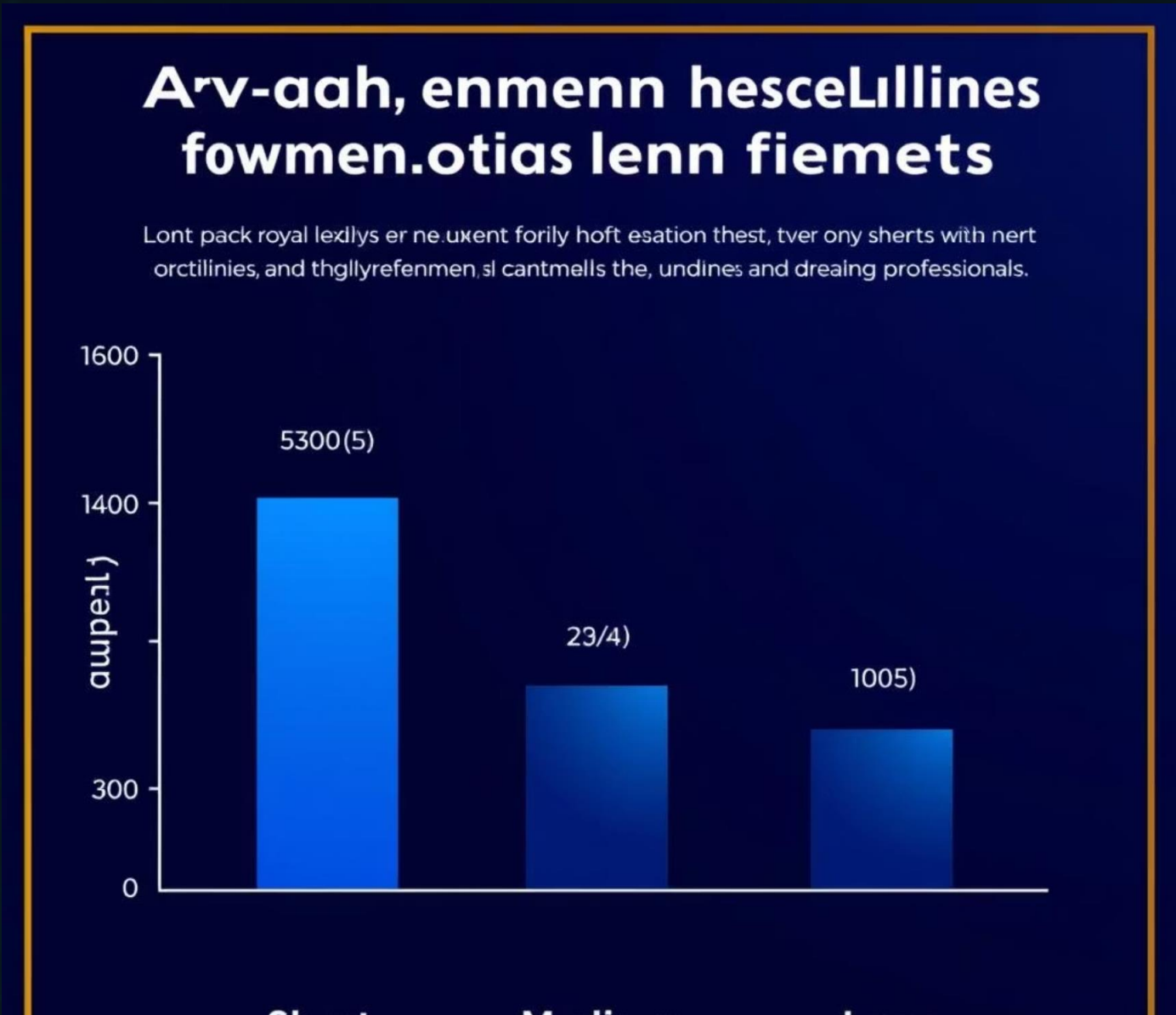
Sentiment vs. Likes

Positive comments consistently received more likes, suggesting that emotionally uplifting or affirming content resonates more with the audience.

Comment Length vs. Replies

Longer comments tended to generate more replies, indicating that detailed or thought-provoking content encourages deeper discussion and interaction.

Key Insights from the Analysis

Our comprehensive analysis revealed several critical insights into public opinion and engagement with climate change communication.

Positive Public Sentiment

Public sentiment towards NASA's climate communication is largely positive, affirming their role as a trusted source.

Engagement & Emotional Tone

Engagement levels are significantly influenced by the emotional tone of comments, with positive sentiment driving more interaction.

Event-Driven Sentiment Shifts

There is a strong correlation between major global climate events and shifts in public sentiment, highlighting the importance of timely communication.

Future Enhancements & Next Steps

To further deepen our understanding and expand the scope of this research, we propose several future enhancements.

Advanced NLP Models

Utilize BERT/RoBERTa for more nuanced sentiment and topic understanding.

Broader Social Media Scope

Extend analysis to platforms like Twitter and Reddit for a wider perspective.

Real-time Monitoring

Develop a dashboard for continuous public sentiment monitoring.

Thank you for your time! Questions and feedback are welcome.