DISCOURSE ANALYSIS · CLIMATE CHANGE COMMUNICATION

Stance and Engagement Markers in Social Media: *A Discourse Analysis of Twitter Posts on Climate Change*

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The Problem of the Study

Climate change communication on social media has been widely studied, but **fewer studies have directly compared** how scientists, public organizations, and politicians use language to express their positions and involve readers in climate change discussions on X.

Communicators compared

1 **Scientists**

2 **Public organizations**

3 **Politicians**

Aims of the Study

1. To compare the frequencies of boosters, attitude markers, and hedges in the selected posts.

2. To determine which engagement markers occur most frequently in the selected posts.

3. To compare the use of stance and engagement markers across the scientific, institutional, and political posts.

Hypotheses of the Study

H1 Boosters and attitude markers each occur more frequently than hedges.

H2 Reader pronouns and directives are the two most frequent engagement categories.

H3 The three types of communicators show distinct patterns of stance and engagement in the selected posts.

Framework and Method

Stance includes four categories. **Hedges** qualify a claim or signal approximation. **Boosters** strengthen a claim or convey certainty. **Attitude markers** convey evaluation, such as approval, concern, or criticism. **Self-mentions** make the writer's presence explicit.

Engagement includes resources such as reader pronouns, directives, questions, appeals to shared knowledge, and personal asides.

We combined close reading with descriptive frequency counts.

The first comes from
NASA Climate

The second example comes from
UN Climate Change

The third example comes from
Bernie Sanders

Three examples from the Data:
1. NASA Climate (@NASAClimate) (NASA Climate; 2025):
"Global temperatures were around 1.28 degrees Celsius (2.30 degrees Fahrenheit) higher in 2024 than the 1951-1980 average, the baseline period used in GISTEMP."

2. UN Climate Change (@UNFCCC) (UN Climate Change; 2024)
Post:
" The latest @WMO report confirms: 2023 was the hottest year on record, alongside broken records on sea level rise, Antarctic sea ice loss and glacier retreat. But we need to remember: Limiting global warming to 1.5C is still possible. It is not too late to act."

3. Sen. Bernie Sanders (@SenSanders) (Sanders ; 2025)

Post:

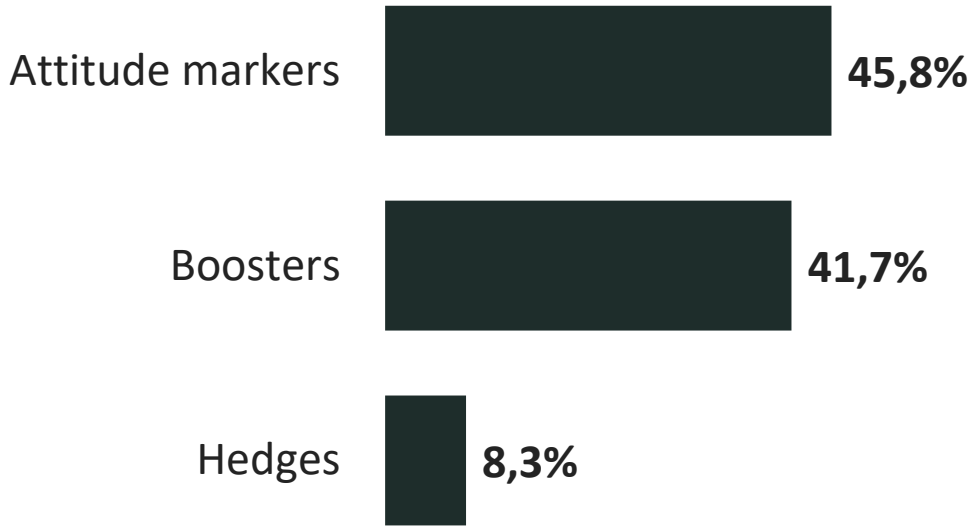
"When Trump calls climate changes a 'con job,' he is representing his fossil fuel billionaire friends, not science. Climate change is REAL. It is an existential threat to the planet and future generations. We must transform our energy systems away from fossil fuels."

The First Finding Concerns Stance

H1. Boosters and attitude markers each occur more frequently than hedges.

Supported

Boosters accounted for 41.7% and attitude markers for 45.8% of stance markers, compared with 8.3% for hedges.



Share of stance markers

The Second Finding Concerns Engagement

H2. Reader pronouns and directives are the two most frequent engagement categories.

Supported

Reader pronouns ranked first at 52.4%, followed by directives at 33.3%.



Share of engagement markers

The Third Finding Concerns Communicators

H3. The three types of communicators show distinct patterns of stance and engagement in the selected posts.

Partially supported

The posts showed overlap across the groups.

NASA

used measured, data-focused wording.

Gore and Sanders

used stronger evaluation.

Hayhoe

also used emphatic language.

UN Climate Change

called on readers to act.

Limitations and Closing

The scope of the study is important. The percentages refer to coded markers within five posts. The posts were purposively selected, so the analysis offers an exploratory comparison of these examples.

A larger, more balanced sample could examine whether these patterns recur across more accounts and across different communicative purposes.