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Can "climate upheaval" be a more informative term than "climate change"?

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ABSTRACT

Terminology frames reality and affects how people perceive and respond to it. What makes the global climate situation concerning is not simply a change in climate, but the anthropogenic change, in addition to natural climate variations, occurring at a rapid rate relative to the pre-industrial era. However, in general language, "climate change" does not differentiate itself from natural climate variations nor reflect the rate of change. Based on theoretical reasoning, this paper argues that "climate upheaval" frames and communicates the global climate situation more informatively. This is because "climate upheaval" highlights the additional change at a rapid rate, which is crucial for (1) describing and informing the current climate status, (2) understanding the impacts of climate on natural, socioeconomic, and cultural aspects, and (3) taking climate actions. This argument can serve as a hypothesis for future exploration. Specific questions for empirical tests may include: How do people interpret "climate upheaval" and "climate change"? Do people prefer "climate upheaval", and why? Is the intended message of "climate upheaval" different from people's perceptions? As certain terms may offer more utility and information than others, it is important to weigh the advantages and drawbacks of different terms. Strategies aimed at reducing potential confusion and misunderstanding associated with "climate upheaval" may include providing scientific clarification, establishing communication channels, and conducting public education on this term. Terminology does not solely represent scientific labels but also carries significant social and cultural implications, encompassing public perceptions, social mobilization, policymaking, governance, negotiations, and international initiatives.

1. Introduction

Informing the public, decision makers, and other stakeholders about the causes and impacts of climate change is a basic prerequisite for effective decision-making and public participation in climate adaptation activities (Whitmarsh, 2009; Drews and Van den Bergh, 2016; Corner et al., 2018; Hügel and Davies, 2020). Article 6 of the United Nations Framework Convention on Climate Change (UNFCCC, 1992) recognizes the importance of education, training, public awareness, public participation, and public access to information in engaging a broad range of stakeholders in the development and implementation of climate policies. Similarly, Article 11 of the Paris Agreement (2015) underscores the role of "transparent, timely and accurate communication of information" in enhancing the capacities to address climate issues.

One of the potential strategies for informing and communicating about climate issues is adjusting the language used for communication, including terminology. Climate terminology is evolving and has been used as a form of rhetoric to instil ideologies, facilitate movements, or justify policies. While terminology is not magical, it frames reality and affects people's behaviours and attitudes towards it (Cox, 2015; Corner et al., 2018; Bruine de Bruin et al., 2021; Carvalho, 2022). Thus, adjusting climate terminology may alter the way people perceive and respond to climate issues.

This paper argues that "climate upheaval" can frame and communicate the current global climate status more informatively than "climate change". In general language, "upheaval" denotes a significant, sudden, or rapid change that can cause confusion, worry, and problems (Oxford Learner's Dictionaries, 2023). Hence, "climate upheaval" highlights the additional change to natural climate variations, occurring at a rapid rate relative to the pre-industrial era (the reference period of 1850–1900), which "climate change" in general language does not. This emphasis is crucial for (1) describing and informing about the current climate status, (2) understanding the impacts of climate on natural, socioeconomic, and cultural aspects, and (3) designing and implementing climate measures. This statement will be further explained in the subsequent sections.

This paper aims to provide an additional perspective for a more accurate understanding of the current global climate. While this paper has

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not conducted empirical survey to investigate whether "climate change" and "climate upheaval" leave people different images of the current climate, the argument that climate upheaval" is more informative than "climate change" could serve as a hypothesis for future empirical tests. This paper also suggests multiple avenues for future research and several measures for addressing potential confusion about "climate upheaval".

2. Why is "climate upheaval" a more accurate descriptor for the current climate status than "climate change"?

2.1. "Climate upheaval" more accurately fits the definition of "climate change"

Climate describes the long-term (30 years or more) pattern of weather conditions at a location (NAOO, 2022). The UNFCCC (1992) defines "climate change" as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods." The key words here are "in addition to natural climate variability". Thus, although its definition acknowledges that the change in the climate occurs in addition to natural variability, the term "climate change" itself does not reflect this. A survey of public perceptions of the term "climate change" (Whitmarsh, 2009) found that "climate change" does not imply the directions or causes of the change. In contrast, "climate upheaval", a term in existing literature (Vogel et al., 2001; Lusted, 2017) without specific justification for its usage, theoretically aligns better with the UNFCCC definition. This is because replacing "change" with "upheaval" helps to highlight the additional change at a rapid rate relative to the pre-industrial era.

Notably, the impacts of climate change involve alterations in ecosystems, weather patterns, and overall environmental conditions that can occur at varying and complex speeds, with diverse consequences. For example, some changes may be more sudden and abrupt, such as extreme weather events, including floods, droughts, wildfires, strong winds, and heatwaves (Stott, 2016; Sisco et al., 2017; Walsh et al., 2020). The 2020 North Atlantic hurricane season alone resulted in economic losses amounting to tens of billions of US dollars and numerous fatalities (World Meteorological Organization, 2020). However, some changes may be gradual and slow, such as the long-term global sea level change, which can span hundreds to thousands of years (IPCC 2021a). Thus, the rates of climate impacts are not always abrupt or rapid. However, "climate upheaval" in this paper aims to capture the additional change at a rapid rate within the overall trend of global climate shifts, rather than the rate of any specific impact associated with these shifts.

The reasons why the additional change at a rapid rate within the overall trend of global climate shifts is true and important will be further explained and discussed in the subsequent sections.

2.2. Rate of change matters to the status of Earth's current climate

What makes the global climate situation concerning is not simply a change in climate, because Earth's climate is always changing (Fig. 1). Using the term "climate change" to describe only the recent changes to Earth's climate might give some readers the incorrect impression that the past climate was stable. In fact, other natural phenomena, such as variations in solar activity, Earth's distance from the sun, oceanic activities, and volcanic eruptions, may also influence Earth's climate (NASA, 2014). However, many scientists are concerned about the climate change accelerated directly or indirectly by human activities, as these activities have led to greenhouse gas concentrations reaching the highest levels in at least 2 million years (World Meteorological Organization, 2020; United Nations 2022b). IPCC (2021a) indicated that human-caused greenhouse gas emissions are already responsible for approximately 1.1°C of global warming since the pre-industrial era. This increase in temperature has resulted in the globe being unprecedentedly warm for at least the last 1000 years (World Meteorological Organization, 2020). The rate of temperature rise is unprecedentedly fast in the last 2000 years, as the mean global temperature change between the year 0 AD and 1850 was only less than 0.5°C (Kaufman et al., 2020).

With the increasing levels of atmospheric carbon dioxide, multiple globally recognized scenarios have forecasted ongoing rapid alterations in both global temperature and weather patterns in the next a few decades compared to the pre-industrial era (as outlined in Table 1). Although the exact magnitudes of these changes may vary based on different predictive scenarios, they are expected to persist. Even if future global development adheres to a low-emission scenario and successfully limits temperature rise to 1.5°C, an aspirational international target, there is no scientific evidence suggesting that achieving the 1.5°C target will completely eliminate the risks of severe climate impacts (Knutti et al., 2016; World Economic Forum, 2023), such as those presented in Fig. 2. Thus, the current climate is not merely undergoing ordinary change. Instead, the accelerated alterations beyond natural climate variations represent a concerning and risky situation, more aptly characterized as "upheaval" rather than mere "change".

2.3. The rate of change matters to climatic impacts on humans and other species

Today's Earth is in an interglacial period, meaning that, on average, temperatures are lower compared to most of Earth's history (NAOO 2020b). Periods of warming in Earth's history were typically accompanied by increases in biodiversity (Mayhew et al., 2012). For example, around 450 million years ago, when ocean waters averaged 35–40°C (more than 20°C warmer than today), marine species diversified (Voosen, 2019). Ding (2013) also stated that if the Earth's climate must change and there is a choice between being warmer or colder, a warmer Earth might be preferable overall because it typically fosters faster

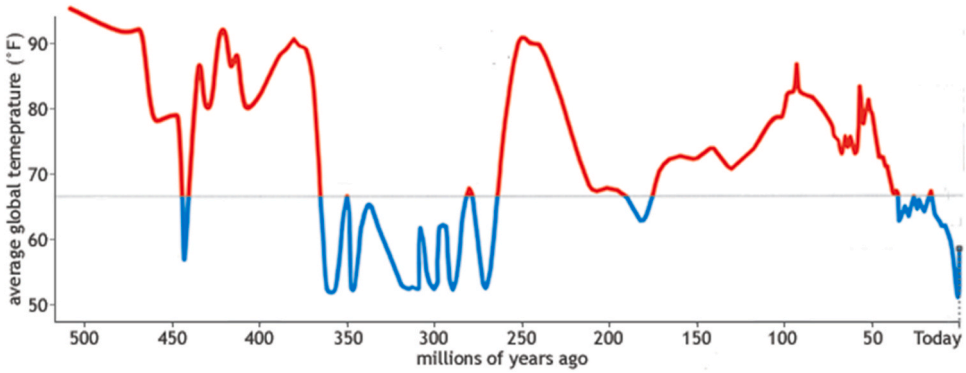

Fig. 1. Earth surface temperature in last 500 million years. Adapted from Smithsonian Institute by the (NAOO 2020a).

Table 1
Future climate forecast relative to the pre-industrial era.

Sources	Overview of predicted climate situations in different scenarios
(IPCC, 2014)	Among four "Representative Concentration Pathways" scenarios, global surface temperature at the end of 21st century will exceed 1.5 °C in three of them and 2 °C in two of them. Moreover, for the period 2081–2100 relative to 1986–2005, the global mean sea level is likely to rise by 0.26–0.82 m.
(O'Neill et al. 2016)	Based on the Scenario Model Intercomparison Project experimental design that integrates eight pathways of future emissions, concentrations, and land use, the increase in annual average global temperature could be from 1.5°C to 5°C by 2100.
(U.S. Global Change Research Program, 2017)	Four "Representative Concentration Pathways" scenarios show that the increase in annual average global temperature could be limited to 2°C or reach 5°C or more by 2100, depending on whether there are significant reductions in carbon emission. The frequency and intensity of extreme events, including high temperature and strong precipitation, are virtually certain to increase. Relative to the year 2000, the global mean sea level is very likely to rise by 30–130 cm.
(International Energy Agency, 2021)	By 2100, the global surface temperature will rise by 1.4 °C in a Net Zero Scenario, by 1.6 °C in a Sustainable Development Scenario, by 2.1 °C in an Announced Pledges Scenario, and by 2.6 °C in a Stated Policies Scenario.
(IPCC 2021b)	Five "Shared Socioeconomic Pathways" scenarios show that global surface temperature averaged over 2081–2100 is very likely to rise by 1.0°C to 1.8°C with very low greenhouse gas emissions, by 2.1°C to 3.5°C with intermediate greenhouse gas emissions, and by 3.3°C to 5.7°C with very high greenhouse gas emissions. The global water cycle, global monsoon precipitation, and the severity of wet and dry events will be intensified.

processes for producing organic matter, hence leading to more abundant biomass and food than a colder Earth.

However, even if the content described above is true, it does not guarantee that the current temperature rise will benefit biodiversity and food availability for humans. Making a choice between a warming or cooling Earth without considering the rate of temperature change is a flawed approach, as the rate of temperature change influences the consequences of climate shifts. "Warming produces both extinctions and originations, and in the past the originations of new species have outstripped the loss of old ones…. For diversity to rise new species need to evolve. And that takes between thousands and millions of years - much slower than the rate at which extinctions are likely to occur with today's rapid change" (Lovett, 2012). The rate of change is linked to whether species and ecosystems, which provide various services to humans, have sufficient time to evolve and adapt to the changing environment. As such, the rapid rate of current climate change poses a threat to the wellbeing of people and the planet (Bonan and Doney, 2018; Aze, 2022).

While many species might migrate to adapt environmental changes, including climate change (Ding, 2013; Seebacher and Post, 2015; Shaw, 2016), it remains uncertain whether species can successfully adapt the rapid rate of climate change for many reasons. For example, growing evidence suggests that the rapid rise in temperature has altered ecosystem conditions, leading to reduced food supply and availability, as well as increased pathogen and parasite pressure in colder regions (e.g., Arctic regions), for migratory species (Kubelka et al., 2022). The rapid rise in temperature may also influence the energetic costs of migration, animals' annual biological clocks, the timing of migration, and orientation during migration (Lennox et al., 2016; Cohen et al., 2018; CMS, 2023). Additionally, human impacts, such as commercial ships, light pollution, dams, wind turbines, and human-caused physical fragmentation of habitats and migration corridors, have made migration more challenging (Lennox et al., 2016; Santini et al., 2016; Szesciorka et al., 2020).

Like other species, humans have also lived with a variable climate for a long time (Berrang-Ford et al., 2011). Partly because of this, Voosen (2019) indicated that some researchers were not concerned about the

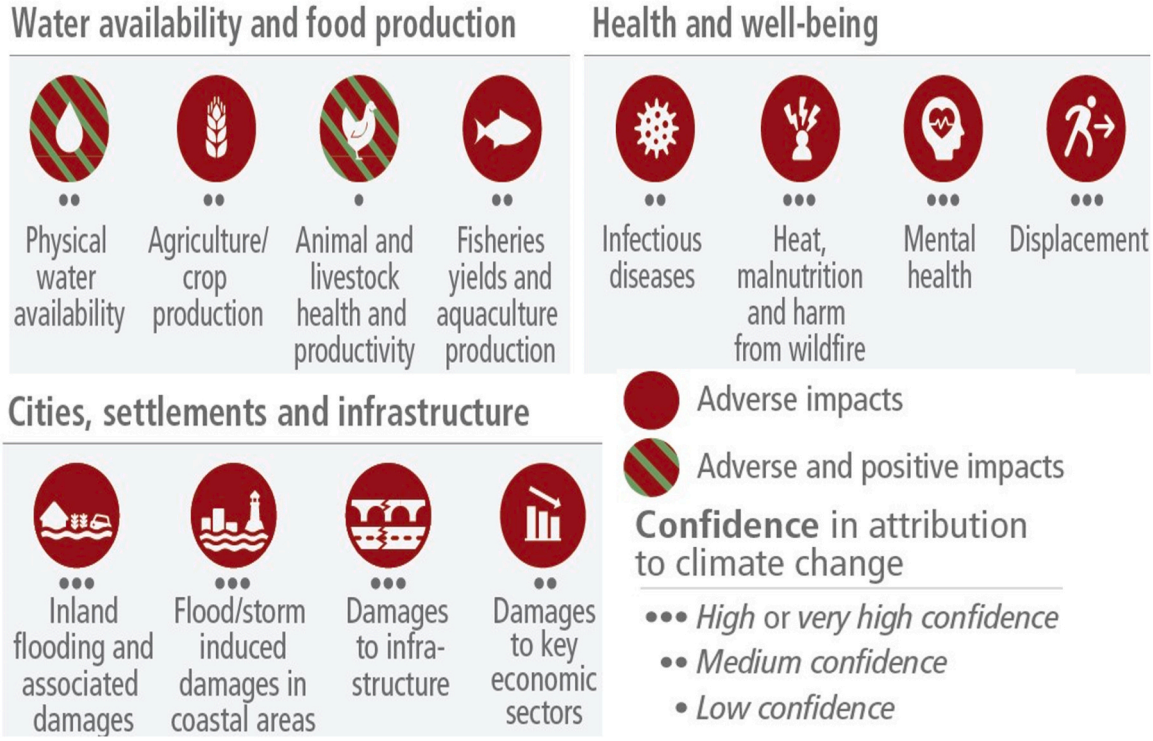

Fig. 2. Observed substantial impacts attributed to human-caused temperature rise (IPCC, 2023).

current shifts in climate. While the Earth warming by 1.5°C or more does not necessarily mean the end of world or extinction of humans (World Economic Forum, 2023), it also does not imply that every individual is capable of adapting to the changing climate and avoiding its negative consequences.

Instead, the rate of climate change influences whether as many individuals as possible have enough time to minimize negative climate impacts. Certain groups of people, such as those living on floodplains or coastlines, low-income and socially marginalized groups, individuals with chronic medical conditions or disabilities, older adults, children, and pregnant women, are more vulnerable than others (UNFCCC, 2018; U.S. Environmental Protection Agency, 2023; World Bank, 2023). Without adequate time to prepare for adapting to the changing climate, humans, especially the vulnerable groups, have endured climate impacts. These impacts include relocation, loss of livelihoods, and a higher risk of illness and death during extreme weather events. Various climate impacts are occurring across 80% of the global land area, where 85% of the population resides (Callaghan et al., 2021). Among them, an estimated 3.3–3.6 billion people live in contexts highly vulnerable to the changing climate (IPCC, 2022).

3. Social and cultural implications of "climate upheaval"

3.1. Implications for public perceptions and social mobilization

Language is integral to the way people understand reality, as it transmits information about the external environment to individuals. Terminology shapes how individuals perceive and interpret real-world issues, as the choice of words creates cognitive or mental structures that organize information, guide understanding, and influence how individuals categorize, remember, and reason about facts (Lakoff, 2010; Cox, 2015; Drews and Van den Bergh, 2016). Terminology also acts as a filter through which information is perceived, potentially leading to biased interpretations. For instance, "climate change" in general language does not explicitly reflect the human-induced acceleration of climate change.

"Change" is a broader term than "upheaval" generally. Conversely, "upheaval" may be more accurate than "change" in reflecting the current climate, as discussed earlier. A simple, broad, and vague term may not effectively encourage public action, awareness, or support for climate policies if it leads to miscommunications or fails to adequately explain complex concepts (Nerlich et al., 2010). Such limitations can be addressed by a more accurate term, unless its accuracy is too technical for people without a background in climate science to understand (Harcourt et al., 2019; Bruine de Bruin et al., 2021). In short, the accuracy of terms affects the public comprehensibility of climate issues.

Language can also affect people's psychological and emotional responses to climate-related discussions. Words carry emotional weight and are associated with values, and certain words may evoke fear, urgency, hope, or apathy among individuals (Parker et al., 2003; Lakoff, 2010; Nickel et al., 2017), influencing their attitudes and behaviours towards the issues described. For example, compared to "climate change", Whitmarsh (2009) found that "global warming" implies more human causes and heat-related impacts (e.g., melting icebergs), evokes more public concerns, and suggests a stronger necessity for actions (e.g., planting trees). This is partly because "climate change" does not reflect a clear direction of change in temperatures.

Similarly, "climate upheaval", compared to "climate change", may also generate different psychological impacts and public perceptions of climate issues, affecting how people respond to climate issues. If the term "climate upheaval" frames a more precise comprehension of the global climate situation and raises more awareness of the urgency and significance of addressing climate issues, it could potentially mobilize social movements and increase public involvement in climate-related initiatives. This, in turn, could lead to a society better adapted to climate issues.

3.2. Role of terminology in policy making and governance

Climate terminology is integral to climate policies, regulations, laws, and agreements, including their titles, contents, and articles. Alterations in terminology extend beyond mere wording adjustments, potentially influencing how governments and organizations address climate-related issues. Specifically, the terminology employed can frame how policymakers and the public perceive climate concerns (Cox, 2015; Carvalho, 2022), thus influencing political will and the importance attached to climate issues in policy discussions. The precise language used in legislation and regulations not only enhances their scientific credibility but also boosts public awareness and facilitates effective law enforcement (Lazariev, 2021). Moreover, employing culturally sensitive and inclusive terminology can encourage wider participation in the policymaking process and integrate a broader array of perspectives (Cameron et al., 2018; Corner et al., 2018), leading to more equitable and considered climate policies.

Furthermore, diverse perceptions, benefits, and political objectives related to climate issues among both the public and policymakers can lead to preferences for distinct language used to frame climate-related discussions (Milfont et al., 2012; Carter, 2014; Whitmarsh and Corner, 2017). The choice of terms, such as "climate upheaval", may resonate differently or evoke varying reactions among different political groups. For example, Willis (2017) found that some UK politicians used to portray climate issues in a less alarming way. These politicians might prefer "climate change" (that implies less urgency) over "climate upheaval". Conversely, green parties in European Union countries (Hoffmann et al., 2022) and New Zealand (Båtstrand, 2015) prioritize environmental sustainability, express heightened concerns about the current climate, and actively advocate for comprehensive actions to address climate issues. Therefore, these green parties might favour "climate upheaval" over "climate change" for its urgency. However, this requires further investigation.

Media play a pivotal role in shaping public discourse and responses to climate issues (Boykoff and Yulsman, 2013; Hoffmann et al., 2022; United Nations 2022a). Similar to political parties, media outlets with varying perspectives, political inclinations, and interests may prefer alternative language to frame climate-related matters (O'Neill and Boykoff, 2012; O'Neill et al., 2015). For example, Whitmarsh (2009) found that media in England often viewed "climate change" as less effective in raising public awareness of climate issues due to its lack of emotive power. Consequently, altering a term may potentially reshape media narratives and coverage, thus influencing the communication of climate-related information. "Climate upheaval" might convey a higher sense of urgency for climate actions through media representation compared to the milder tone associated with "climate change".

3.3. Role of terminology in international negotiations and initiatives

In international climate negotiations, terminology can imply responsibilities, urgency, and the nature of required actions, and it also influences how commitments are interpreted and implemented by different participants (Vanhala and Hestbaek, 2016). For instance, the debates on the "phase out" or "phase down" of coal power in the UNFCCC Conferences of Parties reflect contested views and benefits of different countries. Such wording adjustments may influence global efforts—such as political support for specific industries, and allocation of funding to particular technologies, regions, and strategies—to reduce future carbon emissions (United Nations, 2021). While it remains uncertain whether altering "climate change" to "climate upheaval" might change responsibilities, mutual understandings, or conflicts, such a change could potentially align more closely with the goals of global climate initiatives. This is because "upheaval" emphasizes the rapid rate of change, a factor crucial to achieving these goals, as explained below.

Considering climate change as a problem regardless of the rate of change might imply the solution is to stop the climate from changing.

Yet, this perspective is inaccurate. Earth's climate has always been changing, independent of human existence, making it impossible for humans to completely stop such change. The concept of mitigating climate change has often been mistakenly interchanged with the unrealistic goal of "stopping climate change". A search for "stop climate change" (including the quotation marks, with the search term set to occur anywhere in the article) on Google Scholar on December 13, 2023, yielded 3240 publications since 2019.

Global climate initiatives, such as the Kyoto Protocol and Paris Agreement, aim to address the additional change caused by human activities beyond natural climate variations. The well-known international goal of "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels" (Paris Agreement, 2015) is meant to by the year 2100. This goal involves humans slowing down the change or controlling the rate of change, rather than keeping the temperature at a certain degree indefinitely or stopping the change. If people receive accurate information regarding the global climate goals, they may be more supportive of the necessary climate actions to achieve the goals (Hoffmann et al., 2022; United Nations 2022a).

4. Comparison between "climate upheaval" and other alternative terms

"Climate emergency" and "climate crisis", as used in McHugh et al. (2021), are also used to frame, communicate, and raise awareness of the global climate issues. However, the seriousness and dangers implied by both "emergency" and "crisis" are subject to peoples' perceptions and benefits. Individuals who are not negatively impacted by the changing climate and political parties who benefit from fossil fuel industries may not consider climate issues serious or dangerous. In comparison, the rapid rate of change highlighted by "climate upheaval" is supported by objective data and is scientifically evident. Therefore, "upheaval" is more scientifically objective and politically neutral than "emergency" and "crisis".

While "global warming" clearly highlights the direction of temperature change and is often more effective in capturing the public's imagination about the risks associated with the increasing global surface temperature than "climate change", "global warming" obscures the complex range of climate effects that are not merely about warming (Houghton, 2004). While temperature rise is a major climate issue (United Nations 2022b) and many climate mitigation actions focus on controlling temperature rise (UNEP, 2023), other climate variables, such as precipitation, wind, and humidity (NAOO, 2022), are not fully captured by "global warming". In comparison, "climate upheaval" is theoretically not restricted to temperature rise but may also encompass other climate variables.

5. Research limitations

A single climate term, including "climate upheaval," might not encompass all crucial aspects of climate issues like urgency, complexity, and their connections to various socioeconomic and cultural matters. Even if a term is scientifically sound, it may not always convey the intended message accurately. This is because people perceive and interpret terms from their own mental models and cognitive representations — a combination of knowledge, expectations, skills, values, beliefs, lifestyles, and thought processes, all of which are shaped by broader political, social, and economic influences (Rook, 2013; Bruine de Bruin et al., 2021; Moore et al., 2021). Consequently, understandings of a single climate term, such as "climate upheaval", may be diverse, fragmented, or contested. Meanwhile, the translation of the same terminology into different languages may alter the intended meaning, due to the absence of equivalent words across languages and the influence of diverse cultural backgrounds among language users (Robertson, 2011; Temmerman, 2011). Furthermore, altering "climate change" to "climate upheaval" could potentially cause confusion or misunderstanding if not communicated effectively.

However, these limitations do not diminish the significance of refining terminology to effectively communicate climate issues. Acknowledging that no single term is perfect, it is still essential to emphasize that some terms may offer greater utility and information compared to others. Climate researchers, decision-makers, and policymakers must trade off the advantages and disadvantages of various terms, including "climate change" and "climate upheaval". The previous sections have outlined multiple reasons why "climate upheaval" may be more informative than "climate change".

While this paper has discussed the implications of "climate upheaval" from various perspectives, it may still overlook other potential biophysical, socioeconomic, and cultural issues associated with climate terminology. The author also acknowledges that the main argument of this paper relies on theoretical reasoning and requires empirical evidence for further validation. Nevertheless, the author expects the argument to provoke further research on climate terminology and to serve as a hypothesis for future exploration. Further empirical surveys are needed to address whether "climate upheaval" inform different groups of people about the global climate status in a more accurate, comprehensive, and engaging manner. Table 2 below lists a subset of potential research questions. Additionally, the subsequent section will outline specific strategies to mitigate potential confusion and misunderstandings associated with "climate upheaval".

6. Conclusion and suggestions

The term "climate change" does not reflect its own definition clearly, nor does it distinguish itself from changes in the climate at any rate. However, the rate of change is crucial for understanding the status, impacts, and mitigation goals and strategies of the global climate. "Climate change" miscommunicates and obscures the reality of Earth's current climate situation, how the current temperature rise may impact humans and other species, and what goals climate measures should pursue. This lack of clarity contributes to some people denying the concerns about the global climate situation (e.g., since the climate is always changing, and a warmer Earth historically supported more species, today's temperature rise should not be a concern) whereas some activists propose unrealistic goals (e.g., stopping climate change).

The term "climate upheaval" aims to emphasize human-induced changes in addition to natural climate variations, occurring at a rapid and abrupt rate relative to the pre-industrial era. Like any term, "climate upheaval" is not perfect and may carry uncertainties in accurately conveying its intended message. However, employing "climate upheaval" might aid in rectifying miscommunications associated with "climate change", enhancing comprehension of the global climate situation, and bridging the knowledge gap between climate deniers and activists. To further validate whether "climate upheaval" is a more informative term than "climate change", further empirical research is needed, such as exploring the questions listed in Table 2.

To address potential confusion about and misunderstanding of "climate upheaval", several strategies can be employed: (1) providing clear and comprehensive scientific explanations of this term, including its definitions, significance, and potential flaws; (2) establishing forums, meetings, and platforms (e.g., a website) where people can express concerns, provide feedback, ask questions, and engage in conversations about the transition from "climate change" to "climate upheaval"; (3) issuing educational materials, such as academic articles, presentations, and media representation, to inform the audience about the reasons for and implications of shifting the term from "climate change" to "climate upheaval". These strategies require interaction and collaboration among various statehooders, including experts, politicians, public managers, media representatives, companies, educators, and the public.

Terminology extends beyond mere scientific labels. Changes in

Table 2
Questions for future exploration.

Main questions	Sub-questions of the main questions
(1) How do climate scientists, policy makers, journalists, and the public respond to and interpret "climate upheaval" and "climate change"?	(1.1) What message do they perceive from these two terms? (1.2) Do they think "climate upheaval" conveys a more comprehensive and accurate description of the current climate situation, and why? (1.3) Do these two terms imply different emotions (e.g., fear, urgency) and have varying psychological impacts?
(2) Which groups of people prefer employing "climate upheaval" over "climate change" and why?	(2.1) Do people with specific economic interests, cultural backgrounds, and political stances express different preferences for the two terms? (2.2) Do other demographic variables, including age, gender, education level, academic expertise, vocation, and geographic location, influence people's preferences? (2.3) Is the term "climate upheaval" preferred or more applicable in certain contexts, and what are these contexts?
(3) Is there any discrepancy between the intended message and people's actual perceptions of the term "climate upheaval"?	(3.1) If yes, what are the discrepancies, and how can they be addressed? (3.2) If not, are there additional considerations or concerns related to substituting "climate change" with "climate upheaval" when informing people about climate-related matters?

terminology may generate social and cultural impacts on various aspects, including public perceptions of climate issues, individual and collective responses, emotional and psychological states of the audience, policymaking, legislation, international negotiations, and media representation. It is crucial to consider these implications and explain any changes carefully and comprehensively to ensure a clear understanding of the inclusivity, accuracy, benefits, and limitations of using a certain term, like "climate upheaval", in communicating about climate issues.

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CRediT authorship contribution statement

Haojie Chen: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

The author declares that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

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