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# Climate Change Discourse.
# Remediation and Recontextualisation in News and Social Media

Edited by Katherine E. Russo and Cinzia Bevitori

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# Remediation and Recontextualization in News and Social Media

As public debate over climate change and environmental issues has greatly intensified over the years, a number of studies have pointed out that citizens' awareness, attitudes, and actions towards climate change are shaped by mediated information.[1] News media play a pivotal role in the popularization of climate science and scientific evaluations. Yet, bridging the gap between experts and laypeople may be extremely difficult in the case of 'contested science' such as climate change. Scientists adopt non-persuasive communication, trusting data to speak for itself, and describe findings in ways that respond to the complexity of the phenomena under observation. They are cautious and generally speak about probabilities, which do not translate well in the "unequivocal commentary that is valued in the press".[2]

As many scholars have demonstrated, the recontextualization of climate change science in news reports is largely influenced by news values and professional journalism.[3] In their groundbreaking study of U.S. quality newspapers, Boycoff and Boycoff argued that the distortion of scientific knowledge in quality newspapers was due to the journalistic norm of bias as balance.[4] They demonstrated that while the consensus on anthropogenic climate change science was very high among scientists already in the 1990s, the position and self-promotion of very few skeptical scientists had been overrepresented in newspaper discourse. Moreover, news discourse scholars concur that the coverage of climate change is cyclical and changes over time in order to avoid editorial fatigue.[5] For instance, in the 1991-1996 period, journalists started to resort to personalization and sensationalism. Climate change science was increasingly personalized by news professionals, who started to connect climate change science to weather-related events and extreme natural events, such as floods, heat waves, and cyclones, to provide sensational stories that were more significant for the general public and entertaining than climate science planning and statistics. This perhaps overworn pattern was picked up by Donald Trump who in a famous tweet noted: "In the East, it could be the COLDEST

[1] Cinzia Bevitori, "Values, Assumptions and Beliefs in British Newspaper Editorial Coverage of Climate Change", in Christopher Hart and Piotr Cap, eds*., Contemporary Critical Discourse Studies* (London: Bloomsbury Academic, 2014), 603-625; Maxwell T. Boykoff and Jules M. Boykoff, "Balance as Bias: Global Warming and the US Prestige Press", *Global Environmental Change*, 14.2 (2004), 125-136; Maxwell T. Boykoff and Jules M. Boykoff, "Climate Change and Journalistic Norms: A Case-study of US Mass-media Coverage", *Geoforum*, 38.6 (2007), 1190-1204; Anabela Carvalho and Jacquelin Burgess, "Cultural Circuits of Climate Change in U.K. Broadsheet Newspapers, 1985-2003", *Society for Risk Analysis*, 25.6 (2005), 1457-1469; Katherine E. Russo, *The Evaluation of Risk in Institutional and Newspaper Discourse: The Case of Climate Change and Migration,* (Naples: Editoriale Scientifica, 2018).

[2] Boycoff and Boycoff, "Climate Change and Journalistic Norms", 3.

[3] Anabela Carvalho, "Representing the Politics of the Greenhouse Effect: Discursive Strategies in the British Media," *Critical Discourse Studies*, 2.1 (2005), 1-29; Cinzia Bevitori, *Representations of Climate Change: News and Opinion Discourse in UK and US Quality Press: A Corpus-Assisted Discourse Study* (Bologna: Bononia U. P., 2010); Katherine E. Russo, "Speculations about the Future: Populism and Climate Change in News Discourse", in Encarnación Hidalgo-Tenorio et al., eds., *Populist Discourse: Critical Approaches to Contemporary Politics* (London and New York: Routledge, 2019), 190-206.

[4] Boykoff and Boykoff, "Balance".

[5] Boykoff and Boykoff, "Balance"; Carvahlo and Burgess, "Cultural Circuits"; Allan Bell, "Media (Mis)Communication on the Science of Climate Change," *Public Understanding of Science,* 3.3 (1994), 259-275.

New Year's Eve on record. Perhaps we could use a little bit of that good old Global Warming that our Country, but not other countries, was going to pay TRILLIONS OF DOLLARS to protect against. Bundle up!".

Subsequently, the 1997-2003 period was characterized by a preference for scandals and an increased tendency to speak about backstage issues like the interests and commitments of actors involved in science-making. Following this line of thought, it may be argued that the last fifteen years have been characterized by a preference for spectacularisation, the coverage of environmental disasters rather than chronic social problems or long-term consequences, and special events and announcements by prominent institutions and politicians. In order to maximize persuasion and reach the lay audience, news operators often background planning and privilege spectacular, unexpected events, which have a much higher chance of becoming news. Indeed, as van Dijk put it, ordinary events and people usually fall outside the press picture and "may only collectively be involved as the patients of political action or the victims of catastrophes, or individually, in negative terms, for instance in crime news".[6]

Nevertheless, citizens mostly seek information and form their opinions about climate change by reading online news, and increasingly share their opinions through social media platforms such as, for example, Instagram, Facebook and X (formerly Twitter). In this process, the networking of different social practices constrains and transforms language events as they transit across domains or fields of social life. Thus, the processes of remediation[7] as well as resemiotization[8] play an increasingly crucial role in changing the dynamics of interaction and public engagement, and as a consequence public opinion. In fact, remediating scientific social practices in new domains of reception, consumption, and production entails a critical (re)definition of meaning and values as an effect of new contextual factors.

Over the years, research on the public communication of science has largely emphasized that the process of popularization is not merely defined by a simplification or transformation of specialized discourse into a non-specialized one meant for a broad audience.[9] Indeed, specialized and popularized discourse interact in the process of knowledge construction.[10] As Calsamiglia and Van Dijk argue,[11] popularization is a "social process consisting of a large class of discursive-semiotic practices" involving a "recontextualization of scientific knowledge and discourse" into a different domain to make it more accessible to the lay audience. The concept of recontextualization thus entails a transformation "of meaning or meaning potentials" in many different and complex ways.[12] Most crucially, the recontextualization of information often involves re-evaluation practices; i.e., a change in

[6] Teun A. van Dijk, *News Analysis: Case studies of International and National News in the Press* (London and New York: Routledge, 1993), 140.
[7] David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, Mass: The MIT Press, 2002).
[8] Rick Iedema, "Multimodality, Resemiotization: Extending the Analysis of Discourse as Multi-semiotic Practice", *Visual Communication*, 2.1 (2003), 29-57.
[9] Massimiliano Bucchi, "When scientists turn to the public: Alternative routes in science communication", *Public Understanding of Science,* 5.4, (1996), 375-394; Brian Trench and Massimilano Bucchi, "Science communication, an emerging discipline", *JCOM* ,09:03, (2010), Brian Trench and Massimilano Bucchi, "Rethinking Science communication as the social conversation around science", *JCOM*, 20.03 (2021); Greg Myers, "Discourse Studies of Scientific Popularization: Questioning the Boundaries", *Discourse Studies*, 5.2, (2003), 265-279; Richard Whitley, "Knowledge producers and Knowledge Acquirers: Popularisation as a Relation Between Scientific Fields and Their Publics", in Terry Shinn and Richard Whitley, *Expository Science: Forms and Functions of Popularisation*, *Sociology of the Sciences Yearbook*, 9 (Dordrecht, Netherlands: Reidel, 1985), 3-28.
[10] Meyers, "Discourse Studies".
[11] Helena Calsamiglia and Teun A. Van Dijk, "Popularization Discourse and Knowledge About the Gnome", *Discourse and Society*, 15.4 (2004), 371.
[12] Per Linell, *Approaching Dialogue: Talk, Interaction and Contexts in Dialogical Perspectives* (Amsterdam/Philadelphia: John Benjamins, 1998), 155; Maria J. Luzón, "Public Communication of Science in Blogs: Recontextualizing Scientific Discourse for a Diversified Audience", *Written Communication*, 30.4 (2013), 428-457; Marina Bondi et al., eds., *Discourse In and Through the Media: Recontextualizing and Reconceptualizing Expert Discourse* (Cambridge: Cambridge Scholars Publishing, 2015).

standards, norms and values[13]. The process is, of course, not a neutral one as the media actively contribute to this process of transformation, also due to the influence of news values.[14]

Drawing on Berstein's seminal work on the sociology of educational knowledge,[15] in which the concept is discussed in terms of "[a] principle for appropriating other discourses and bringing them into a special relation with each other for the purposes of their selection, transmission and acquisition",[16] scholars from different theoretical perspectives have furthered the debate in more critical terms.[17] As Norman Fairclough[18] famously put it:

> Communicative events and social practices are recontextualised differently depending upon the goals, values and priorities of the communication in which they are recontextualised.

From this perspective, the process of recontextualization is thus seen as a dialectical-relational process in which certain categories of discourse and meanings are transmuted into new ones. Indeed, the resulting transformation of the relationship between different social fields and embodied meanings associated with "certain social practices, or network of practices"[19], is strongly associated with (macro) contexts of historical and social change, which is driven by power dynamics.[20] Indeed, according to Wodak,[21] recontextualization is one of the most prominent linguistic processes 'governing historical change':

> texts (and the discourses, genres and arguments which they deploy) move between … different contexts, and are subject to transformations whose nature depends upon the relationships and differences between such contexts.

Pushing the debate further, Chouliaraki and Fairclough[22] argue that at the very heart of recontextualization is a constant tension between 'colonization' and 'appropriation'; on the one hand, discourses or representations of events, actions, and identities, are transformed from one context to another, following particular 'recontextualizing principles' associated with the new context; on the other, discourses may strategically be incorporated into other discourses pursuing different goals.

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[13] Bevitori, *Values*, 603; Susan Hunston and Geoff Thompson, eds., *Evaluation in Text: Authorial Stance and the Construction of Discourses* (New York: Oxford University Press, 2001); Jim Martin and Peter R. White, *The Language of Evaluation: Appraisal in English* (London; Palgrave McMillan 2005).

[14] Monika Bednarek, *Evaluation in Media Discourse: Analysis of a Newspaper Corpus* (London/New York, Continuum 2006); Monika Bednarek and Helen Caple, *The Discourse of News Values: How News Organizations Create Newsworthiness* (New York: Oxford U. P., 2017).

[15] Basil Bernstein, *The Structuring of Pedagogic Discourse* (London: Routledge, 1990).

[16] Ibid., 183-184.

[17] Norman Fairclough, *Critical Discourse Analysis: The Critical Study of Language* (London: Longman 1995); Norman Fairclough, *Analyzing Discourse: Text Analysis for Social Research* (London: Routledge, 2003); Teo van Leeuwen and Ruth Wodak, "Legitimizing Immigration Control: A Discourse-historical Analysis", *Discourse Studies*, 1.1 (1999), 83-118; Ruth Wodak, "Recontextualization and the Transformation of Meanings: A Critical Discourse Analysis of Decision Making in EU Meetings about Employment Policies", in Srikant Sarangi and Michael Coulthard, eds., *Discourse and Social Life* (London: Pearson Education Limited, 2000), 185-206.

[18] Fairclough, *Critical Discourse*, 41.

[19] Franco Zapettini and Jeffrey Unerman, "'Mixing' and 'Bending': The Recontextualisation of Discourses of Sustainability in Integrated Reporting", *Discourse & Communication*, 10.5 (2016), 524.

[20] Norman Fairclough, *Discourse and Social Change* (Cambridge: Polity Press, 1992).

[21] Ruth Wodak, "Complex Texts: Analysing, Understanding, Explaining and Interpreting Meanings", *Discourse Studies*, 13.5 (2011), 629.

[22] Lilie Chouliaraki and Norman Fairclough, *Discourse in Late Modernity: Rethinking Critical Discourse Analysis* (Edinburgh: Edinburgh University Press, 1999).

Social media have become an indispensable tool in shaping public perception and galvanizing efforts to address or deny the pressing challenges of climate change. As mentioned, platforms like X, Facebook, and Instagram serve as dynamic arenas for the dissemination of information, fostering dialogue, and mobilizing action. Hashtags such as #ClimateAction, #ClimateChange, and #GlobalWarming have become virtual rallying points, allowing users to participate in a global conversation and share diverse perspectives on the climate change crisis. Influencers, environmental organizations, and scientists utilize these platforms to disseminate real-time updates, scientific findings, and calls to action, amplifying the reach of climate change awareness. Hence, social media platforms provide an ideal and immediate window into how people evaluate news-based climate science communication and how they grapple with uncertainty about facts, options, beliefs and common values. The remediation of climate change science discourse in distant and offline social media conversations may also nurture a negotiation of the meaning assigned to risks based on the user's own evaluation and opinion.[23] As Michele Zappavigna put it, social media users "rarely present bald facts or narrate activities and events without adopting some kind of evaluative stance […] sharing and contesting opinion and sentiment is central to social media discourse".[24]

Climate change activism has also found a powerful ally in web-based genres, leveraging the digital realm to mobilize global support and raise awareness. Although they have received scarce scholarly attention, E-petitions have emerged as a prominent tool, allowing individuals from diverse geographical locations to unite under a common cause. These online petitions not only facilitate the collection of signatures but also serve as a virtual platform for sharing information, fostering community engagement, and pressuring policymakers. Concurrently, web documentaries have become a compelling medium to communicate the urgency of climate action. Through gripping narratives and visually immersive storytelling, these documentaries leverage the global accessibility of the internet to convey the impacts of climate change, inspiring audiences to take action. Together, e-petitions and web documentaries exemplify the digital evolution of climate change activism, transcending physical borders and connecting a worldwide audience in the collective pursuit of a sustainable future.

Gaining a deeper knowledge and awareness of the mechanisms of remediation and its recontextualization in specific domains and contexts may thus prove crucial. This special issue engages with a broad range of case studies which, we hope, will foster dialogue and discussion that will enhance and enrich our understanding of this complex process. It opens with a timely article by Antonella Napolitano, who focuses on the recontextualization of climate change scientific knowledge in news discourse during the coronavirus pandemic. In addressing how climate change was connected to a greater emphasis or minimisation of the positive consequences of confinement on the planet, it concludes that during the lockdown information started to change. It shifted its focus towards personal and community stories related to the impact of climate change, such as the discussion of the effects of climate change on people's lives and futures. This shift denotes a move away from the previous emphasis on climate solutions and remedies to solutions for individuals and communities that are directly affected, as well as possible changes in daily habits that can positively affect climate change control. The recontextualization of climate change science in political discourse is addressed in the articles by Denise Milizia and Marisa Della Gatta. In comparing the rhetoric of U.S. presidents in debates, and interviews vis-à-vis what they have said/written in social media, Milizia found that 'global warming' was more commonly associated with tweets that used a hoax frame and was used more often by Republicans than Democrats. Moreover, her findings showed that Republican

[23] Michele Zappavigna, *Discourse of Twitter and Social Media: How We Use Language to Create Affiliation on the Web* (London: Continuum, 2012).
[24] Michele Zappavigna, "Evaluation", in Christian R. Hoffmann and Wolfram Bublitz, eds., *Pragmatics of Social Media* (Berlin/Boston: De Gruyter Mouton, 2017), 437.

presidents, i.e., Bush and Trump, have turned away from the climate emergency, while Democratic presidents, i.e., Obama and Biden, have taken the issue seriously. This polarization becomes more apparent in social media, where tweeters, lacking 'gatekeepers', largely dismiss climate change by denying its very existence. With a shift towards the often-overlooked Australian context, Marisa Della Gatta focuses on the use of metaphors to describe phenomena linked to climate change. More specifically, she focuses on the use of the "net zero" metaphor in both presidential speeches and tweets by the Australia Prime Ministers in the period of time between 2013 and 2022. She concludes that the net-zero metaphor may provide a useful reference for action only if translated into clear and concrete pathways for nation states, subnational entities, and other organisations both at a local and international level.

Moving on to a more direct analysis of recontextualization of specialized discourse in social media, Marina Niceforo investigates the linguistic remediation of specialised concepts from the sixth IPCC report on climate change (2022) in Twitter discourse by international environmental organisations and institutions. Her analysis shows that a large part of remediated texts are produced within a scientifically confident environment, combine informative and persuasive intent, and provide a connection between scientific literature and popular communication. Moreover, she argues that while ideology-driven communication in popularising discourses may positively influence people's understanding of climate change and pro-environment behaviour, polarised communication may hinder dissemination of objective, unbiased scientific information.

Articles by Marina Cristina Aiezza and Arianna Del Gaudio address climate change activism by taking into consideration two different genres, petitions and web documentaries. Maria Cristina Aiezza examines e-petitions calling for action against climate change, published on the popular site *Change.org* in the USA and UK. She considers the persuasive strategies employed in user-generated discourse, and compares the trends emerging in the two national contexts. The analysis centres on how petitioners engage with climate change science, re-mediating scientific concepts by explaining global phenomena in their own words and referring to authoritative sources. The study thus investigates the use of interactive metadiscourse devices typical of popular science writing. Findings indicate that climate change was perceived as a well-documented threat requiring urgent action, and typically addressed together with other topics such as wildlife and water conservation in the USA, and land protection in the UK. Arianna Del Gaudio provides an example of the recontextualization of climate change discourse in web documentaries delivered on online media platforms such as YouTube. More specifically, she focuses on discourses of action and transformation articulated by activists interviewed in the web documentary *Seat at the Table*. Her analysis shows that in the web documentary, climate change is reframed through a crucial reflection on present and future imaginaries. The latter are imagined through prevalently positive emotions. In fact, more emphasis was placed on hope and optimism in interviewees' future representation.

The issue concludes with an overview by Aureliana Natale on Climate Trauma and Activism. Her article aims to reflect on the multiple and often opposing effects of the climate crisis and trauma from a cultural point of view. In the first part, she considers climate change and its effects, such as anxiety, depression and pre- and post- traumatic stress disorder. Subsequently, she focuses on public reactions and the possibility of positive engagement fostered by social media platforms, in particular Instagram and TikTok. Natale argues that by informing the public about the physical and mental consequences of climate change, social media can raise awareness and shape public opinion, inspiring action. Hence, she concludes that anxiety and activism may emerge as contrasting outcomes of media coverage on climate change.

Antonella Napolitano

# The World Without Us. A CDA of News Media Discourse on the Impact of COVID-19 on the Environment in the UK

**Abstract**: Government policies during the COVID-19 pandemic have drastically altered patterns of energy demand around the world. Many international borders have been closed and populations have been confined to their homes, which has reduced transport and changed consumption patterns. A decrease in $CO_2$ emissions and pollution has thus been recorded during forced confinements. This has offered a glimpse of how the world might look like with a drastic reduction of human impact. The present paper explores how facts are framed in news discourse and investigates the recontextualization of the environmental issue in news media. The study analyses a collection of news articles about the consequences of coronavirus on the environment published on the websites of the major news channels in the UK, namely BBC News and Sky News. This CDA investigation studies how the UK news outlets re-mediated scientific knowledge about climate change to emphasise or minimise the positive consequences of confinement on the planet.

Keywords: *climate change*, *COVID-19*, *news discourse*, *critical discourse analysis*, *frame discourse*, *risk*

## 1. Introduction

The COVID-19 pandemic has completely overturned lives and habits worldwide particularly due to the national lockdowns imposed in response. We have experienced a meteoric rise in smart working, a collapse in car use, the mandate to wear masks, and the obligation to stay at home except for essential travel.

These changes had an interesting impact on the environment and the Planet, as they also challenged consumption and waste management patterns and caused a reduction in greenhouse gas emissions, traffic, and pollution[1]. As a result, concepts like circular economy[2], decarbonisation[3], and sustainable mobility[4] have all become topics of great interest to the populations affected by the pandemic. Everyone has been wondering whether there is a correlation between environmental pollution and the spread of the infamous COVID-19 and whether the restrictions put in place to curb contagion have significantly improved our environment. Looking towards the future, much has been debated and written about the possibility that the COVID-19 economic crisis may pave the way for policies to lower environmental constraints and return to the past.

[1] Anat Tchetchik et al., "Recycling and Consumption Reduction Following the COVID-19 Lockdown: The Effect of Threat and Coping Appraisal, Past Behavior and Information", *Resources, Conservation and Recycling* 167 (2021), article 105370.
[2] Rodrigo Bruno Santolin et al., "Exploiting Circular Economy Enablers for SMEs to Advance towards a More Sustainable Development: An Empirical Study in the Post COVID-19 Era", *Resources, Conservation & Recycling Advances* 19 (2023), article 200164.
[3] Ami Crowther et al., "The Crises of a Crisis: The Impact of Covid-19 on Localised Decarbonisation Ambitions in the United Kingdom", *Energy Research & Social Science* 93 (2022), article 102838.
[4] EIT Urban Mobility, "Full Report: Urban Mobility Strategies during COVID-19" (Barcelona: EIT Urban Mobility, 2021); Nicolás Valenzuela-Levi et al., "Housing and Accessibility after the COVID-19 Pandemic: Rebuilding for Resilience, Equity and Sustainable Mobility", *Transport Policy*, 109 (2021), 48-60.

Right from the beginning, with information and news overlapping rapidly, it became clear that citizens needed safe and reliable points of reference. The global community has been grappling with the question of how our behaviour and lifestyles should evolve/change in response to the current crisis.

This caused people to ask with concern what we must and can do to support these major green challenges during and after the pandemic. Specifically, we must consider how our homes, intermediate spaces, and cities can be transformed to effectively meet the green city challenges in the post-pandemic world.

It soon became evident that this tumultuous time could provide an occasion to reassess what is fundamental in our lives, make a concerted effort to comprehend the challenges of modernity and take away some valuable lessons.

Alongside the constant flow of official government communications, it was clear that there was an important opportunity for the press. Indeed, informed populations are the ones who can make healthier personal choices and can also demand health-promoting policies from their governments. The media can play a powerful role in shaping public opinion and setting agendas for clean air.

### 1.1 *Climate Change and COVID-19*

The environment is the connection between humans and society with natural systems or resources in our surroundings. Environmental discourse examines multiple aspects, such as air pollution, global warming, hazardous materials, and nature conservation initiatives. These ideologies provide diverse ways of discussing environmental hazards when making decisions on environmental protection matters.

Environmental issues take time to be noticeable, as they stem from complex and connected activities which may have been happening over long periods across broad geographic areas. Many studies[5] argue that the messages and meaning in coverage of climate change by widely circulated newspapers are socially constructed, implying they respond to scientific findings, changing agendas, political contexts, and communicative strategies of institutions such as the Intergovernmental Panel on Climate Change (IPCC).[6]

This response is usually tailored according to the newspaper's editorial stance. Furthermore, it has been suggested that media attention towards environmental issues like climate change closely follows government activity, focusing on policy decisions taken or presented by prime ministers or other critical governmental figures. Lastly, recent research implies that news outlets often emphasise specific scientific facts while suppressing others and select images that support their predetermined take on broader social policies ranging from state regulation and individual freedom to general economic performance.

Climate change, in particular, is an issue of global concern because of its potential impact on temperatures, ocean acidification and biodiversity. However, as pointed out earlier, it can be difficult for the public to correctly perceive and understand this complex phenomenon.[7] However, extraordinary events such as COVID have suddenly and massively increased the demand for detailed and reliable news.

[5] Anabela Carvalho and Jacquelin Burgess, "Cultural Circuits of Climate Change in UK Broadsheet Newspapers 1985–2003", *Risk Analysis*, 25 (2005), 1457-69.

[6] The Intergovernmental Panel on Climate Change, *IPCC* (2014), *www.ipcc.ch*.

[7] Susanne C. Moser, "Communicating Climate Change: History, Challenges, Process and Future Directions", *Wiley Interdisciplinary Reviews: Climate Change*, 1.1 (2010), 31-53.

Predominantly, individuals have encountered climate change via online and video media coverage,[8] with increased attention linked to greater public concern about the issue.[9]

To better illustrate how climate change affects human beings and societies at large, journalists have focused their reports on the social dimension of climate change[10] and how people are aware of or contribute to it. Furthermore, emphasising topics such as the implications for public health[11] and actions individuals can take[12] has increased engagement with the topic and the subsequent continuous search for news.

When the COVID-19 emergency revealed itself, society worldwide was confronted with pressing questions and the world of information was provided with new responsibilities and possibilities for expression. Amidst the COVID-19 pandemic there was a need for society to address critical questions and for the information world to assume new responsibilities and opportunities for expression. Along with updated bulletins on the transmission of the virus and methods of protection, the public also sought clarification on the potential influence of environmental pollution on the susceptibility of individuals to COVID-19. The press dealing with the environment and climate change, therefore, addressed three key questions. Firstly, if and to what extent the virus tends to spread more in areas with higher air pollution. Secondly, if the restrictions to limit contagion had led to a significant reduction in air pollution.[13] This is in light of data from satellite observations showing an evident reduction in pollution levels in all restricted countries. Finally, the degree to which the COVID-19 economic crisis would have paved the way for policies to lower environmental constraints and return to the past.

### 1.2 *Climate Change in the British News*

In recent years, the impact of climate change has become apparent to more and more people worldwide due to extreme weather events, rising temperatures, changes in sea levels and melting ice caps. This has sparked a new interest in climate and environmental news, leading many media outlets to introduce newly dedicated sections on the subject.

The space and importance given to climate change in UK newspapers and news media have changed significantly in the last 20 years. In the early 2000s, climate change was often treated as a niche issue and received relatively little coverage in mainstream media. As early as 2016, despite the signing of the Paris Agreement on climate change[14] on 22 April 2016 by over 190 countries, including the UK, many British newspaper editors continued to deny the scientific evidence of climate change.[15] The Guardian, Independent, and Mirror titles generally reflected the mainstream consensus. At the same time, the Mail,

[8] Sampei and Aoyagi-Usui, "Mass-Media Coverage"; Newman et al., *Reuters Institute Digital News Report 2020*.
[9] Yuki Sampei and Midori Aoyagi-Usui, "Mass-Media Coverage, Its Influence on Public Awareness of Climate-Change Issues, and Implications for Japan's National Campaign to Reduce Greenhouse Gas Emissions", *Global Environmental Change*, 19.2 (2009) (2), 203-212.
[10] James Painter and Mike Schäfer, "Global Similarities and Persistent Differences: A Survey of Comparative Studies on Climate Change Communication", in Benedetta Brevini and Justin Lewis, eds., *Climate Change and the Media* (Bern: Peter Lang, 2018), 39-58; Mike Schäfer, "Climate Change and the Media", in James D. Wright, ed., *International Encyclopedia of the Social & Behavioral Sciences* (Amsterdam: Elsevier, 2015), 853-859.
[11] Matthew C. Nisbet, "Communicating Climate Change: Why Frames Matter for Public Engagement", *Environment: Science and Policy for Sustainable Development*, 51.2 (2009), 12-23.
[12] P. Sol Hart and Lauren Feldman, "The Impact of Climate Change–Related Imagery and Text on Public Opinion and Behavior Change", *Science Communication*, 38.4 (2016), 415-441.
[13] Pratima Kumari and Durga Toshniwal, "Impact of Lockdown on Air Quality over Major Cities across the Globe during COVID-19 Pandemic", *Urban climate*, 34 (2020), 100719.
[14] United Nations / Framework Convention on Climate Change, Adoption of the Paris Agreement, 21st Conference of the Parties (Paris: United Nations, 2015).
[15] Bob Ward, "Why are Some British Newspapers Still Denying Climate Change", *The Guardian* (25 January 2016), *www.theguardian.com*.

Express, Times, Sun, and Telegraph continued to cast doubt on the risks through their opinion columns and leaders.

Some science and environment reporters courageously covered news regarding climate change with factual information. However, certain newspapers dismissed writers who refused to depict the unenlightened viewpoints of their editors and owners. Nevertheless, in recent years, due to the above-mentioned significant increase in the coverage given to climate change, many newspapers and news outlets started dedicating entire sections to the ecological situation and climate change, which thus became independent of weather news.

This shift in coverage can be attributed to several factors, including the growing scientific consensus on the urgency of the climate crisis, the increasing frequency and severity of extreme weather events, and the rise of social and political movements calling for action on climate change[16]. In addition, the UK government has also played a role in raising the profile of climate change in the media, with initiatives such as the Climate Change Act of 2008[17] and the recent commitment to achieving net-zero emissions by 2050.

Overall, the increased coverage of climate change in UK newspapers and news media reflects a growing recognition of the urgent need to address this global crisis and the media's role in raising awareness and driving action.

### 1.3 *Communicating Risk and Climate Change*

As discussed in previous sections, the topic of climate change has become increasingly polarizing and contentious in recent times. With various public, private, and government stakeholders advocating for different plans of action to combat the effects of global warming, the need for accurate and fair dissemination of information has become even more indispensable. News discourse has emerged as a crucial tool for communicating the risks of environmental and climate change, as it is one of the primary means of transmitting information to the masses.

As our reliance on news media has grown, so have the ethical responsibilities of news authorities to ensure that they accurately and fairly report on climate and environmental topics. News discourse has increasingly become a barometer for public opinion and engagement with climate and environmental issues.

The language used to address climate and environmental risks holds significant weight in shaping public perception of these issues.[18]

It is essential to consider how journalists interpret and discuss environmental risk.[19] Frequently, news reports on climate and environmental topics employ a language rooted in sensationalism to emphasise the severity of the situation and the risk associated with it.

Comparing environmental risk to other disasters, such as natural disasters, places environmental problems into a context that readers can understand and sympathise with. Story titles tend to utilise evocative language such as "Climate Meltdown" or "Global Disaster", which can lead readers to believe that the situation is direr than it is. This can lead to emotional reactions from readers and an oversimplification of complex topics, leading to an incomplete understanding of the actual risks.

[16] Claire Saunders et al., "Attention to Climate Change in British Newspapers in Three Attention Cycles (1997–2017)", *Geoforum*, 94 (2018), 94-102.

[17] *Climate Change Act 2008, Legislation.gov.uk* (2008), *www.legislation.gov.uk*.

[18] Antonella Napolitano and Maria Cristina Aiezza, "Trump is Erasing Climate Change... Language: A Corpus-Assisted Critical Discourse Analysis of the US Online Environmental Communications under Obama and Trump", *Lingue & Linguaggi*, 29 (2019), 147-177.

[19] Katherine E. Russo, *The Evaluation of Risk in Institutional and Newspaper Discourse: The Case of Climate Change and Migration* (Naples: Editoriale Scientifica, 2018); Cinzia Bevitori and Jane Helen Johnson, "Risk and Resilience in a Changing Climate: A Diachronic Analysis in the Press Across the Globe", *Text & Talk*, 42.4 (2022), 547-569.

One commonly employed discourse is that of "crisis," most often used to refer to the issue of global warming – for example, "a crisis of global warming", "Defusing the Global Warming TIME BOMB".[20] This choice implies a sense of urgency and hopelessness and is often accompanied by adjectives or nouns, such as "urgent*", "threat*", "catastrophe*", or "disaster*". As such, it is important to be mindful of the language used in news discourse to ensure that it accurately reflects the severity of the situation while avoiding sensationalism and emotional manipulation.

> Climate change is one of the *most urgent* and pressing challenges we face today, and the UK is a world leader in tackling this problem. (BBC News, 3 May 2019)

> And the worst was yet to come. Climate change posed a *threat* to global food stocks, and to human security (The Guardian, 31 March 2014)

> Climate change *threatens* the World's Food Supply (The New York Times Aug. 8, 2019)

> Beyond that threshold, scientists have found, climate disasters will become so extreme that people will not be able to adapt. (Washington Post, March 20, 2023)

> It is already deadly serious and without *urgent*, *dramatic* change, it will be *catastrophic*. (Sky news 24 November 2018)

Negative emotion-based language, such as "grim", "alarming", or "dire", is used to refer to either the state of the environment or a faltering of progress made in response to the given risk. Typically, these terms are utilized to highlight the severe and lasting consequences associated to the issue of climate change.

> "It is seriously alarming," Amjad Abdulla, a lead author on one of the chapters from the Maldives, told BBC News. (BBC News 8 October 2018)

> Climate talks: 4C rise will have dire effect on world hunger. (The Guardian Tue 1 Dec 2015)

### 1.4 *Climate Change in the News at the Time of COVID-19*

The news media discourse on the impact of COVID-19 on the environment in the UK has been primarily focused on how lockdowns have reduced air pollution and traffic congestion. Both traditional and online newspapers chose to characterise their discourse by using words that would evoke positive messages that would make citizens reflect on the validity of assuming new and more responsible behaviour in favour of the environment.

The discourse of the news media on the effects of COVID-19 on the environment in Britain has primarily centred on how restrictions have reduced air pollution levels and traffic congestion. Traditional newspapers, alongside those published online, deliberately chose language that would evoke positive messages encouraging citizens to embrace more considerate practices concerning their environmental footprint.

[20] Arran Stibbe, "Ecolinguistics as a Transdisciplinary Movement and a Way of Life", in *Crossing Borders, Making Connections: Interdisciplinarity in Linguistics* (Boston: De Gruyter Mouton, 2021), 71-88.

## 2. Aims and Purposes

The present paper explores how the impact of COVID-19 on the environment is framed and recontextualization of the environmental issue in British news media.

The aims of this study are threefold: examining framing techniques utilised by British news media related to climate change; analysing re-mediation strategies employed when communicating scientific knowledge concerning our planet's welfare; evaluating any emphasis or deemphasis placed upon positivity surrounding lockdown measures for attributable impact about preserving nature around us.

## 3. Methods and Data

### 3.1 *Corpus*

The study analyses a collection of news pertaining to the impact of the coronavirus on the environment published on the websites of the major news channels in the UK, namely BBC News and Sky News.

The choice of the BBC (online) and Sky News news items is based on an interest in how Western-orientated news media, aimed at a UK-based audience and a much broader international following, interprets information on the pandemics and its consequences.

To ensure a comprehensive analysis, articles containing the expressions "lockdown" and "climate change" were selected, with the timeframe for the collection of the corpus ranging from 19 March 2020 to 30 December 2021. The period chosen for the collection of the corpus corresponds to the days immediately after the declaration of a pandemic by the World Health Organisation on 11 March 2020 and the end of 2021,[21] more than a year after the first lockdown with a distinctly different world and readership.

The corpus consists of 54 news articles, with a total of 33218 tokens and 4060 types distributed, as the table below shows:

| | Tokens | Types |
|---|---|---|
| BBC | 17,694 | 2,884 |
| Sky News | 15,524 | 2,644 |

Table 1. Corpus data

Although the analysis was conducted on a relatively small corpus, it was able to provide valuable insights into the language strategies that online media outlets use to legitimize their messaging and encourage readers to adopt new behaviours. The reliability of this research is heavily dependent on various factors, including the corpus' appropriateness in a general context, its accuracy within topics considered, and relative size for projects carried out over specific periods; with respect to the latter criteria, it can be stated that the chosen corpus was adequately representative based on its duration and content examined.

Given this article's specified timeframe and topic, it is reasonable to conclude that the chosen corpus is an appropriate representation. It is essential to note that size is decisive in assessing whether the sample can be considered representative for research purposes.[22] In this regard, it is therefore worth considering Baker,[23] when he emphasises the importance of quality over quantity.

[21] World Health Organisation, "WHO Director-General's Opening Remarks at the Media Briefing on COVID-19", *World Health Organisation* (2020), *www.who.int*.
[22] Julia Lavid López, *Lenguaje y Nuevas Tecnologías: Nuevas Perspectivas, Métodos y Herramientas para el Lingüista del Siglo XXI* (Madrid: Cátedra, 2005).
[23] Paul Baker, *Using Corpora in Discourse Analysis* (London and New York: Continuum, 2006), 28-29.

> One consideration when building a specialised corpus in order to investigate the discursive construction of a particular subject is perhaps not so much the size of the corpus, but how often we would expect to find the subject mentioned within it […] Therefore, when building a specialised corpus for the purposes of investigating particular subject or set of subjects, we may want to be more selective in choosing our texts, meaning that the quality or content of the data takes equal or more precedence over issues of quantity.

The purpose of this study was to collect a corpus that fairly reflected the information readily accessible to citizens seeking news about COVID-19 and counteractive measures during times of unparalleled adversity.

### 3.2 *Methods*

The study integrates qualitative and quantitative methods by combining Critical Discourse Analysis with the support of corpus investigation tools.

Critical discourse analysis (CDA) is an interdisciplinary methodological framework that considers language as a form of social practice and seeks to uncover the power dynamics behind its use. Scholars such as Fairclough[24] and Wodak and Meyer[25] have pioneered this approach and focus on how journalistic texts portray individual speakers or writers and broader social processes that construct specific understandings of relevant issues at particular historical moments.

CDA uses techniques from sociology, linguistics, psychology, and anthropology – among other areas – to provide a more comprehensive context for the messages communicated by media outlets such as newspapers to uncover their potentially ideological content. Consequently, by aiding understanding not only what a speaker says but also why he or she may have chosen specific words over others, it provides valuable insight into his or her rhetorical choices when conveying information through the written word or prose.

The study also draws on the insights of Arran Stibbe,[26] a leading researcher in the field of Ecolinguistics.[27] Stibbe's work highlights the interconnectedness of language and the environment, situating Ecolinguistics within the broader discipline of linguistics. As such, Ecolinguistics employs similar methods of linguistic analysis as traditional critical discourse studies, but with a focus on the larger ecological systems that sustain all life.

Corpus analysis tools provide invaluable aid to this inquiry, as they enable the researcher to detect themes and arrangements which are not necessarily overly discernible. By examining frequencies, terms used in specific contexts, and commonly occurring words placed side-by-side, researchers can gain valuable insights.

Corpus Linguistics allows scholars to identify patterns of language use in large bodies of text known as corpora, enabling them to understand social contexts at both macro and micro levels.[28] This approach can also provide information on the topics regularly discussed in different fields and genres or sub-genres within those disciplines.

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[24] Norman Fairclough, *Media Discourse* (London: Edward Arnold, 1995).
[25] Ruth Wodak and Michael Meyer, eds., *Methods of Critical Discourse Studies,* Third Edition (London: SAGE, 2015).
[26] Arran Stibbe, "Ecolinguistics as a Transdisciplinary Movement and a Way of Life".
[27] The media's coverage of climate change has increased in recent decades, leading to news values that influence and are influenced by readers' understanding of environmental issues. In discourse studies, a new branch of discourse analysis emerged in the 1990s within the broad framework of ecological approaches to languages, namely ecolinguistics (EL). This subdiscipline has identified discourse, or "stories", as a crucial factor in shaping our perception of ecological issues, including those presented in news reports.
[28] Paul Baker et al., *Discourse Analysis and Media Attitudes: The Representation of Islam in the British Press* (Cambridge: Cambridge U.P., 2013).

CADS makes use of qualitative methods combined with linguistic analysis and quantitative corpus tools, such as keywords in context functions, to more easily identify these relationships. This data makes it possible to understand better how particular discourses evolve and how societal norms or conventions change. Corpus linguistics thus represents a powerful methodology that can provide valuable insight into various aspects associated with the complex linguistic behaviour of multiple communities worldwide.

As Goffman[29] suggested, frames can influence how readers understand and interpret reality; however, the framing of a particular phenomenon may vary significantly when exposed to widespread public discourse. According to Entman,[30] frames consist of a range of factual and non-factual elements, such as ideas, evaluations, or judgments associated with a specific issue. This can lead to conflicting interpretations of the same event or issue. According to George Lakoff in "Why It Matters How We Frame the Environment",[31] frames play a crucial role in analysing news discourse on climate change. Frames, as cognitive structures, shape the way information is perceived, interpreted, and communicated to the public. In the context of climate change news coverage, frames influence how the issue is portrayed, what aspects are highlighted or downplayed, and which actors are emphasized. Lakoff asserts that the selection and deployment of frames by media outlets significantly impact public understanding and engagement with climate change, as frames can evoke specific emotions, values, and pre-existing mental models. Consequently, comprehending and deconstructing the frames used in news discourse is essential for understanding the underlying narratives and ideological implications surrounding climate change and assessing how public opinion and policy responses are shaped.

Analysis of the relevant literature suggests that some frames and narratives provide more significant potential for mobilising diverse audiences. Despite being challenging to identify precise language devices, researchers typically ascertain such frames by evaluating components alongside established knowledge pertinent to the subject matter.[32] Reading texts containing frames related to Climate Change Discourse can induce non-expert readers to not only embrace an understanding and perception of science but encourages them to contemplate a desired answer (ranging from mitigation through adaptation).

## 4. Analysis

This study focused on a selection of discursive resources used to narrate and describe the situation and to encourage action. From an empirical analysis of the texts, three dominant frames emerged: a) exceptionality and magnitude of the event; b) urgency for environmentally conscious behaviour; c) risk for the future.

For the purpose of this research, only the analysis results for the second and third frames will be reported as they are considered relevant to the research at issue.

The linguistic devices used to construct these frames include the use of intensifiers, superlatives and adjectives, support of scientific resources and statistical data, and use of first-person pronouns.

### 4.1 *Emphatic language*

Intensifiers are emphatic tools that amplify the meaning and add an emotional component to the words they modify, increasing their appeal. An intensifier is thus seen as an aesthetic tool that enhances this attitude or opinion, effectively amplifying any evaluation offered by the communicator. This is

[29] Erving Goffman, *Frame Analysis: An Essay on the Organization of Experience* (Cambridge, Mass.: Harvard U.P., 1974).
[30] Robert M. Entman, "Framing: Toward Clarification of a Fractured Paradigm", *Journal of Communication*, 43.4 (1993), 51-58.
[31] George Lakoff, "Why It Matters How We Frame the Environment", *Environmental Communication*, 4.1 (2021), 70-81, 4.
[32] Andrew Rojecki, "Media Discourse on Globalization and Terror", *Political Communication*, 22.1 (2005), 63-81, 66.

supported by what Bowers[33] stated about linguistic intensity: "the quality of language that indicates the degree to which the speaker's attitude towards a concept departs from neutrality". Furthermore, several scholars have tried to determine potential moderating factors that could explain the influence of linguistic intensity. One such factor is the source's reliability; when a reliable source releases a highly intensive text, it is more likely to be seen as persuasive than one released by an unreliable source.[34] As can be seen from examples 1-10, the expressions accompanying the data on the fall in emissions are typical of discourse commonly encountered in negative or catastrophic communication. On the other hand, intensifiers such as "significant", "significantly" "steep", "biggest", "dramatic" "dramatically" "prominent" and "drastic" effectively convey positive data, predictably flanked by frequent use of "cleanest". In the following extracts, relevant expressions have been highlighted in italics.

(1) Lockdown policies and the resulting reductions in economic activity have seen emissions take a *steep* dive. (BBC)
(2) Science shows *marked* reductions in nitrogen dioxide (NO2) and in particulate matter (PM2.5). (BBC)
(3) Levels of air pollutants and warming gases over some cities and regions are showing *significant* drops as coronavirus impacts work and travel. (BBC)
(4) The global response to the Covid-19 pandemic has driven the *biggest* annual fall in CO2 emissions since World War Two. (BBC)
(5) One of the most *dramatic* changes can be seen in the city of Milan in the region of Lombardy which has been very badly hit by COVID-19. (Sky News)
(6) The analysis provides a vision of what a *drastic* reduction in the burning of fossil fuels can mean. (Sky News)
(7) "And this is the *cleanest* I have ever seen it. It's is [*sic*] less than half of what we normally see in March." (BBC)
(8) Emissions of the planet-heating gas CO2 have also fallen sharply. (BBC)
(9) Air pollution in London has fallen so dramatically since the capital's Covid-19 lockdown (BBC)
(10) Drops in pollution levels were particularly prominent in the city of Wuhan (BBC)
(11) The fall in air and road travel globally has meant pollution levels have *plummeted*, with photos revealing *cleaner* air in cities. (Sky News)

The renewed discourse on climate change is being reinforced by news reports emphasizing the unique nature of the event and the valuable opportunity offered to humanity by COVID-19. The use of intensifiers such as 'unseen in living memory' or 'unprecedented opportunity for us' contributes towards providing an engaging and persuasive, almost fictional message, as can be seen in examples 12-15:

(12) As air pollution *plummeted* to levels *unseen* in living memory, people shared pictures of spotless skies and even Himalayan peaks from cities where the view had been obscured by fog for decades. (BBC)
(13) "Coronavirus is not only having an *unprecedented* impact on how we live our lives, but also how pollution levels around the world are falling as a result of the global shutdown. (BBC)
(14) "We have been given a natural experiment that we *never* ever expected to have to *drastically* those levels of transport emissions. (BBC)
(15) "This was an *unprecedented* opportunity for us to take a close look at how air pollution levels have responded to an *extraordinary* development," (Sky News)

[33] John Waite Bowers, "Language Intensity, Social Introversion, and Attitude Change", *Communications Monographs*, 30.4 (1963), 345-352, 416.
[34] Mark A. Hamilton et al., "An Empirical Test of an Axiomatic Model of the Relationship between Language Intensity and Persuasion", *Journal of Language and Social Psychology*, 9.4 (1990), 235-255.

The most frequent intensifiers, equally distributed in both subcorpora, are “significant*”, “huge*”, “drastic*”, “unprecedented”, “exceptional*”, “dramatic*”, “most dramatic”, “most severe”, “like never before”, “largest ever”, “cleanest ever”.

The use of intensifiers and superlatives in the corpus is intended to convey the exceptional nature of all pandemic-related events with a specific focus on the positive environmental outcomes resulting from the global lockdowns.

It has often been observed how natural disasters are discursively represented through the use of intensifiers as well as superlatives, often comparing them to previous disasters known to readers. Here, in contrast to what we are used to observing, even with regard to the pandemic itself where victim narratives are involved, intensifiers and superlatives are used for the heightening and maximisation of the positive consequences of the lockdown in order to promote the true greening of habits globally.

What can be assumed is that intensifiers and superlatives are intended to provoke a direct and indirect effect whereby the characteristics of sensationalist messages influence the reception of news through the perception of sensationalism and exceptionalism. In this way, it is possible to avoid overly technical expressions in a work of 'remediation' that would not bring the lay reader closer to the message to be conveyed.

### 4.2 *The Number Game*

It must be said, however, that numbers are not absent in the corpora analysed. After all, given the scientific nature of the topic, it would be unlikely not to encounter the use of figures. On the other hand, the use of percentages can pose a problem, as not all recipients can interpret the meaning of such percentages. Percentages can potentially mislead the audience, who may not be able to understand the intended message.

These results seem contradictory in a 'remediation' scenario where the intention is to engage the reader. However, in this regard, it should be noted that the use of percentages is not introduced in the news articles published at an early stage of the pandemic but in those published at a later stage, i.e., when the public had already begun to get used to events and nomenclature, and contexts. Similarly, the use of percentages is found when the press begins to communicate the risk of a return to dangerous levels of pollution once the lockdowns would be over. Very little use is made of numbers and figures except to indicate predictable concepts within the readers’ knowledge.

As far as the BBC is concerned, these are only found in 12 articles out of 27 with 64 occurrences. Whereas we find them in 16 out of 27 Sky News articles with 94 occurrences.

(16) Emissions in China are expected to be 5.5% higher in 2021 than in 2019 and are also projected to rise in India, with a 4.4% increase in 2021 relative to the pre-pandemic level. (BBC)

(17) Since 1990 its greenhouse gas emissions have fallen by 48.8%, though there is likely to be a rebound in emissions in 2021 as transport and economic activity picks up. (Sky News)

Numbers, figures, percentages, and statistics play a crucial role in specific and scientific communication, guiding and orienting audiences. Journalists utilize these numerical representations to enhance credibility by providing factual, solid, and reliable information.[35]

The inclusion of quantitative data in popular science journals contributes to scientific credibility and reliability. However, it is important to note that hyperbolic language and exaggerated numerical figures are common persuasive strategies in news discourse. These strategies aim to increase the newsworthiness of information and captivate readers’ attention.

[35] Teun A. Van Dijk, “New(s) Racism: A Discourse Analytical Approach”, *Ethnic Minorities and the Media* (2000), 33-49, 46.

On the other hand, it must not be overlooked that the use of percentages can also be seen as manipulative, hence ideological. Percentages can be used to hide or exaggerate the real picture. In this case, it could be posited that as a "remediation", the use of percentages may not have the desired effect, i.e., to convince the lay public that scientific studies are pushing towards more environmentally responsible behaviour.

Concerning the intensification and superlativeness previously discussed, it should be noted that analysis of the articles revealed references to numbers and data which helped establish the superlative effects of lockdown measures concerning climate change.

The inclusion of quantitative data in popular science journals provides a greater degree of scientific credibility and, thus, reliability.[36] At the same time, hyperbolic language and exaggerated numerical figures are common persuasive strategies in news discourse[37] which are employed to increase newsworthiness and make the information more eye-catching for readers.

It should be noted that there is a tendency towards scholarly support for what is presented in both Sky News and BBC articles. The Keyword list shows the use of the word 'Professor' among the most significantly recurring ones within both corpora. Citing a reputable source, such as a scientist's unexceptionable credentials, reinforces the relevance of the message conveyed in the articles. The scientificity of the data is thus complimented and enhanced by a reliable source, increasing the persuasiveness of the discourse.

(18) "Although global emissions were not as high as last year, they still amounted to about 39 billion tonnes of CO2, and inevitably led to a further increase in CO2 in the atmosphere," said lead researcher *Prof* Pierre Friedlingstein from the University of Exeter, UK. (BBC)
(19) "The main reason is that these two countries had two waves of confinement that were really quite severe compared with other countries," said *Prof* Corinne Le Quéré, from the University of East Anglia, UK, who contributed to the study. (BBC)
(20) Professor Oliver Hauser, Associate *Professor* of Economics at the University of Exeter Business School, said ... (Sky News)

### 4.3 *The "New Behaviour" Frame*

The COVID-19 pandemic has undoubtedly been a catastrophe of global proportions, which has shattered entire countries. However, if we try to look at the positive side of this misfortune, the progress made on the issue of climate change immediately emerges.

The press plays a vital role in providing readers with accurate information, free of that may hinder their understanding of issues that directly affect them. In this regard, it is imperative for the media to provide regular updates on the policies in which the public sector and industries will engage to combat climate change, and the extent to which changes in consumption behaviour by individuals can contribute to strengthening climate action is also strongly emphasised.

Awareness can be translated into action by replacing short-haul domestic flights with train travel, promoting cycling and car-sharing, making homes more energy efficient and reducing food waste.

Within this frame, all examples found make extensive use of first-person personal and possessive pronouns.

Social actors are personalised when they are realised with personal or possessive pronouns, nouns whose meaning denotes human beings.[38] This linguistic construct fosters a sense of collective

[36] Van Dijk, *News as Discourse*, 87.
[37] Stuart Hall et al., *Policing the Crisis: Mugging, the State and Law and Order* (London: Bloomsbury Publishing, 2017), 9-10.
[38] Theo Van Leeuwen, "The Representation of Social Actors", in Carmen Rosa Caldas-Coulthard and Malcolm Coulthard, eds., *Texts and Practices: Readings in Critical Discourse Analysis* (London: Routledge, 1995), 32-70.

responsibility among groups. In expressions such as "We have to learn lessons", "(we need to) *re-evaluate how we do things*", "we have sampled an alternative urban ambience" or "We have had huge behavioural changes", pronouns are used to share similar attributes among a particular group as can be seen in examples 22 and 23.

(21) *What we're doing* is essentially looking into the future when *we don't have* diesel cars because *we plan to* take them off the roads. (BBC)
(22) "*We need to show the same determination and unity* against climate change as against COVID-19." (CNN)

It seems appropriate to suggest considering this discursive choice as one of the strategies to achieve 'remediation' through personalisation also in the light of the literature[39] pointing out that remediation leads to the subjectivation of discourse and a recipient-oriented discourse. Furthermore, the use of the determiner "our" serves to create a sense of community and shared experience. It acts as both an indication of a person – albeit a universal one – and the transfer of responsibility to the entire human community**.** In essence, not to someone individually, but everyone at once. This is accomplished by the use of expressions such as "our future", "our homes", "our planet", "our energy", "our jobs" as in examples 23-25:

(23) The important thing to recognise is that we've been given a massive opportunity to boost the economy by investing in green industries - and this can make a huge difference to *our future climate* (BBC)
(24) Humanity's future is inextricably bound to the health of *our planet*. (BBC)
(25) What this requires is systematic work to change how we use carbon to produce *our energy* and how we use energy to heat *our homes* and how we use energy in our transport systems." (Sky News)

The use of the personal pronoun "we", a common element of personalization, serves to portray both the addressors and addressees not just as individuals, but as a collective that has experienced the impact of lockdown measures and is committed to combating climate change. This is evidenced in the examples provided.

(26) *We* must avoid at all costs returning to "business as usual" in our COVID-19 recovery, *we* must oppose any attempts to lock in high-carbon and unsustainable development through recovery packages. (Sky News)
(27) Sky News correspondents as they investigate how global warming is changing our landscape and how *we* all live our lives (Sky News)
(28) "*We have to learn lessons* to deploy the economic recovery from the pandemic. We need growth, jobs and sustainable development," (BBC)

As for the pronouns "they"/"them" and "their"/"theirs", it is important to emphasise that their use is negligible in both corpora. Third-person plural pronouns are never used for disseminating scientific information and knowledge, but mainly to refer to animals or in sentences with reporting verbs. A crosscheck with AntConc[40] provides us with the data projected:

| | **Total tokens** | **you** | **your** | **they** | **their** | **we** | **our** |
|---|---|---|---|---|---|---|---|

[39] Helena Calsamiglia and Teun A. van Dijk, "Popularization Discourse and Knowledge about the Genome", *Discourse & Society*, 15.4 (2004), 369-389.
[40] Laurence Anthony, *AntConc* (Version 4.2.0) [Computer Software] (Tokyo: Waseda University, 2022), *https://www.laurenceanthony.net/software.*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BBC | 17,694 | 19 | 0 | 67 | 40 | 129 | 53 |
| Sky News | 15,534 | 21 | 1 | 28 | 35 | 108 | 33 |

Table 2. Personal references in the corpus

The absence of meaningful use of first-person personal pronouns with regard to the purpose of the items under analysis is an interesting finding in itself. First-person singular constructions typically convey the speaker's commitment, responsibility and perspective.[41] Conversely, the examined articles emphasize the scientific and authoritative nature of the sources. Notably, first-person singular pronouns are always exclusive, while first-person plural pronouns ("we", "us", "our", "ours") can be either exclusive or inclusive in terms of their semantic reference.[42]

Given the results of the use of personal pronouns, we can say that what is generally relevant for scientific discourse, as well as political discourse, about the role of personal pronouns in a we/self versus they/other (inclusion/exclusion) perspective is not directly relevant here. There is, in fact, no in-group versus out-group. The enemy threatening everyone's health and well-being is pollution and the resulting climate change. Furthermore, scientific and technical information is reformulated by presenting it to the reader in the context of collective personalisation.

## 5. Conclusions

The COVID-19 pandemic led to numerous changes globally, with governments instituting closures and restrictions in an attempt to slow the spread of the virus.

Prior to these measures, the media discourse on climate change was largely focused on discussing the causes and associated impacts, and potential solutions such as reducing emission rates or moving towards sustainable development strategies. However, during lockdown periods, both traditional and online news coverage on climate change increased. The angles of information started to change. Self-reflection on the role of the media in the climate change debate gained ground, as did a new discourse on the connection between climate change pandemics and lockdowns and the subsequent absence of human presence.

The media discourse pertaining to climate change has shifted its focus towards personal and community stories related to the impact of climate change, such as the discussion of the effects of climate change on people's lives and futures. This shift denotes a move away from the previous emphasis on climate solutions and remedies to solutions for individuals and communities that are directly affected, as well as possible changes in daily habits that can positively affect climate change control.[43]

The press has found a new way to convey persuasive messages, pointing out past mistakes and encouraging readers to re-evaluate the current scenario, ultimately inspiring them to change their future plans and resolutions.

The analysis has documented this noteworthy change in news discourse. Sensationalist language,[44] commonly used in crisis communication, has also been employed to emphasize the positive outcomes arising from the global changes that have occurred.

[41] Jacinta Ndambuki and Hilary Janks. "Political Discourses, Women's Voices: Mismatches in Representation", *Critical Approaches to Discourse Analysis across Disciplines*, 4.1 (2010), 73-92.
[42] Ning Zhao, "A corpus-based Comparison Study of First-person Pronoun we in English-language Abstracts", *Journal of English for Academic Purposes*, 63 (2023), article 101244.
[43] Cinzia Bevitori, "Values, Assumptions and Beliefs in British Newspaper Editorial Coverage of Climate Change", in Christopher Hart and Piotr Cap, eds., *Contemporary Critical Discourse Studies* (London and New York: Bloomsbury Academic, 2014), 603-625.
[44] Russo, *The Evaluation of Risk*.

The analysis revealed that the media strategically employs powerful discursive techniques. Notably, figures and percentages[45] are frequently utilized to highlight the scientific underpinnings of the data being presented. This serves as a means to convey the accuracy, veracity, and impartiality of the data, positioning these metrics as rhetorical tools that suggest credibility of the information being disseminated.

The use of intensifiers such as adjectives, adverbs, and superlatives is prevalent in the corpus. This is due to the persuasive nature of the genre,[46] which serves a dual purpose. Firstly, to intensify superlativeness and the tangibility of observed changes resulting from lockdowns. Secondly, it helps to intensify the emotional tone of words and expressions, which in turn leads to rational choices. This concept is supported by Lakoff's theory of the importance of frames.

The use of personal pronouns and adjectives is a persuasive technique that promotes a sense of collective responsibility among social groups.[47] This technique personalizes social actors through the use of personal or possessive pronouns, leading to a subject-oriented communication approach. The use of the determiner "our" creates a shared experience and community, addressing not just an individual but every reader and the whole community at the same time. Moreover, the personal pronoun "we" is a common element of personalization that portrays both the addressors and addressees as a collective committed to combating climate change. This commitment is reinforced by the shared experience of lockdown measures and the impact of climate change.

The significance of frames, precisely the 'urgency of environmentally conscious behaviour', is worth noting, which stands out as the most important in raising readers' awareness as they have "direct connection to the emotional regions of the brain", and emotions are indispensable to be rational.[48]

At some point, it seemed that 2020 could become, at least for the environment, the breakthrough year. During the first lockdown, there were widespread images in the press of nature reclaiming its space, including animals wandering into populated areas, views of smog-free cities, and clear streams. However, while cleaning up the air appreciably, lockdowns have not had a significant impact on the planet's temperature. Scientific research indicates that the reduction in pollution may have been overestimated.[49] Efforts to improve air quality in large cities require a more radical and reasoned approach than temporary lockdowns.[50] The promotion of "green lifestyles" has often been used to divert attention from the real polluters.[51] British Petroleum, BP, popularized the concept of a "carbon footprint",[52] but ultimately, behaviour change can only occur if the system changes.

Nevertheless, the narrative analysed in this article has been effective in promoting more conscious lifestyles. By appealing to emotions, citizens have been prompted to make rational decisions. "Emotions

[45]Van Dijk, *News as Discourse*.
[46] Russo, *The Evaluation of Risk*.
[47] Theo Van Leeuwen, "The Representation of Social Actors", in Carmen Rosa Caldas-Coulthard and Malcolm Coulthard, eds., *Texts and Practices: Readings in Critical Discourse Analysis* (London: Routledge, 1995), 32-70; Marriam Bashiret al., "Climate Change and Global Warming in the Speech of Dr Mahatir Mohamad Delivered at Unga 74th Session: A Political Discourse Analysis", *PalArch's Journal of Archaeology of Egypt/Egyptology*, 19.4 (2022), 1406-1418.
[48] Lakoff, "Why It Matters", 4.
[49] Guojun He et al., "The Short-term Impacts of COVID-19 Lockdown on Urban Air Pollution in China", *Nature Sustainability*, 3.12 (2020), 1005-1011.
[50] Billie Giles-Corti et al., "What Are the Lessons from COVID-19 for Creating Healthy, Sustainable, Resilient Future Cities?." *npj Urban Sustainability*, 3.1 (2023), 29; UNEP, "Inadequate Progress on Climate Action Makes Rapid Transformation of Societies Only Option - UNEP", 2022. *UNEP.org*. https://www.unep.org/news-and-stories/press-release/inadequate-progress-climate-action-makes-rapid-transformation.
[51] George Monbiot, "The Big Polluters' Masterstroke Was to Blame the Climate Crisis on You and Me", *The Guardian* (Wednesday 9 October 2019), *theguardian.com*.
[52] Mark Kaufman, "The Carbon Footprint Sham. A 'Successful, Deceptive' PR Campaign", *Mashable Social Good Series* (2020), https://mashable.com/feature/carbon-footprint-pr-campaign-sham (; Rebecca Solnit, "Big Oil Coined 'Carbon Footprints' to Blame Us for Their Greed. Keep Them on the Hook", *The Guardian* (Monday 23 August 2021), *theguardian.com*.

are an inescapable part of normal thought. Indeed, you cannot be rational without emotions. Without emotion, you would not know what to want, since like and not-like would be meaningless to you. When there is no like or not-like, nor any judgment of the emotional reactions of others, you cannot make rational decisions."[53]

Despite its still unresolved nature, the journalistic discourse has shown us how it is much better without human interferences: from now on, we should respect our planet.

[53] Lakoff, "Why It Matters", 4.

Denise Milizia

# Climate Change and Global Warming. An American Perspective through the Lenses of Old and New Modes of Communication

**Abstract**: Starting from the premise that climate change is a divisive issue in the United States, and that the phrases 'climate change' and 'global warming' have partisan significance, we compare the rhetoric U.S. presidents have used in their statements about the climate crisis in debates, interviews, and other contexts vis-à-vis what they have said/written in social media. We find more polarization in social media; 'global warming' seems to be more commonly associated with tweets that use a hoax frame, and is used more often by Republicans than Democrats. Thus, we find Donald Trump tweeting, "I don't think science knows. This climate crisis is not only fake news but also fake science, bullshit, and an expensive hoax", and Joe Biden arguing that "climate change is an existential threat, it's already here, and we have to hurry, we have to act before it's too late, because time is running out".

Keywords: *climate change*, *global warming*, *spoken corpus*, *social media*, *American presidents*

## 1. Introduction

The climate crisis has been a contentious and divisive issue in international scientific and political debates of the last thirty years. Rather than being a problem to be solved, for some people climate change is an ideology of sorts, revealing different individual and collective beliefs, values, and attitudes about ways of living in the world.[1] The ideological core of the climate crisis is evident in the fact that concern about climate change varies widely across countries. Europeans are more worried about its immediacy compared to Americans, and countries that are high emitters of carbon dioxide tend to exhibit less concern about its impact.[2] An especially stark political divide in climate change opinion is found in the U.S., where citizens are split between worry and skepticism.[3]

The existing literature about how climate change and global warming are framed and discussed in public discourse has been abundant over the last twenty years.[4] Some key studies consider the effectiveness of using human health as a substantive frame for discussion of the climate crisis.[5] Other works compare

[1] Mike Hulme, *Why We Disagree about Climate Change* (Cambridge, UK: Cambridge U.P., 2009); Raul P. Lejano and Jennifer Dodge, "The Narrative Properties of Ideology: The Adversarial Turn and Climate Skepticism in the USA", *Policy Sciences*, 50.2 (2017), 195-215.

[2] Richard Wike, "What the World Thinks about Climate Change in 7 Charts", Pew Research Center (April 18, 2016), available at https://www.pewresearch.org/short-reads/2016/04/18/what-the-world-thinks-about-climate-change-in-7-charts/, accessed May 8, 2023.

[3] Lorraine Whitmarsh, "Scepticism and Uncertainty about Climate Change: Dimensions, Determinants and Change over Time", *Global Environmental Change*, 21.2 (2011), 690-700.

[4] Micheal Boykoff, *Who Speaks for the Climate? Making Sense of Media Reporting on Climate Change* (Cambridge: Cambridge U.P., 2011); Barbara Dancygier et al.; "Multimodal Media: Framing Climate Change", *Frame Analysis: Special Issue Discourse Studies*, 25.2, (2023), doi/10.1177/14614456231154724.

[5] Verena Rossa-Roccor, "Framing Climate Change as a Human Health Issue: Enough to Tip the Scale in Climate Policy?", *Lancet Planet Health* 5, 553-559; Cinzia Bevitori and Katherine E. Russo, "Environment, Climate and Health at the Crossroads: A Critical Analysis of Public Policy and Political Communication Discourse in the EU", in *Handbook of Political Discourse*, ed. Piotr Cap (Cheltenham: Edward Elgar Publishing, 2023), 328-344.

the various venues in which elites present information and views about the climate.[6] Bevitori,[7] among many others, has taken a thorough diachronic look at how political elites talk about the environment and climate across venues both in the UK and in the US. In particular, in 2015, she focused on formal speeches delivered by ten presidents of the United States, from President Kennedy to President Obama, thus covering 50 years of presidential discourse with the purpose of seeing how the environment was construed in American presidential speech over more than half a century. There is also a developing literature on how climate change and global warming are represented in social media.[8]

The present paper investigates whether and how U.S. presidents from both of that country's two major political parties use divergent language when addressing the climate crisis (a) in traditional forms of communication and (b) on social media. We find extensive evidence of polarization, especially on social media, as exemplified by these divergent statements from the last two occupants of the White House. Donald Trump tweeted: "I don't think science knows. This climate crisis is not only fake news but also fake science, bullshit, and an expensive hoax", while Joe Biden argued that "climate change is an existential threat, it's already here, and we have to hurry, we have to act before it's too late, because time is running out".

We begin by describing the corpora used in the analysis and proceed to a historical overview of American presidents' approaches to climate change and global warming over the last twenty years (2001 to 2023), from George W. Bush to Joe Biden, to see how they have addressed the climate crisis in their speeches, remarks, interviews, and statements. In short, we document that Republican presidents have turned away from the climate crisis while Democratic presidents appear to take it to heart. We continue by exploring differences between key terms that have different origins and meanings yet are conflated in the discourse about the climate crisis: 'weather' versus 'climate' and 'climate change' versus 'global warming'. Next, we analyze the language these U.S. presidents use in discussing the climate crisis in traditional modes of communication and then we proceed to examine how they make use of social media platforms, in particular Facebook and Twitter, to articulate their climate change rhetoric. Doing so permits an assessment of whether and to what extent traditional media and social media have a degree of mutual influence.[9]

Our dataset is a diachronic corpus that comprises public statements and social media posts of the last four U.S. presidents. George W. Bush did not make any use of social media, as Facebook and Twitter were both created in 2006. Thus, his corpus relies only on his speeches and remarks delivered in his 8-year presidency, retrieved from the White House website,[10] and totals approximately nine million words. Barack Obama's 8-year corpus consists of almost ten million words. Donald Trump's 4-year corpus totals three million words, and the first two years of Joe Biden's presidency yields slightly more than two million words. Only speeches and remarks were included in the corpus, as the language in Press Releases, Presidential Actions, Statements and Releases can indeed be regarded as a different political communication genre.

[6] Katherine E. Russo, *The Evaluation of Risk in Institutional and Newspaper Discourse: The case of Climate Change and Migration* (Napoli: Editoriale Scientifica, 2018).

[7] Cinzia Bevitori, "Representations of Climate Change: News and Opinions in UK and US Quality Press: A Corpus-Assisted Discourse Study (Bologna: Bononia University Press, 2010); Cinzia Bevitori, "How Green is "Green"? A Corpus-assisted Analysis of Environmental Discourse across Forms of Journalism", in *Occasional Papers dei Quaderni del Centro Studi Linguistico-Culturali* (Bologna: CeSLiC e AlmaDL, 2012), 1-30; Cinzia Bevitori, "Values, Assumptions and Beliefs in British Newspaper Editorial Coverage of Climate Change", in *Contemporary Critical Discourse Studies*, ed. Christopher Hart and Piotr Cap (London: Bloomsbury, 2014), 603-625; Cinzia Bevitori, "Discursive Constructions of the Environment in American Presidential Speeches 1960–2013: A Diachronic Corpus-Assisted Study", *Corpora and Discourse Studies*. *Palgrave Advances in Language and Linguistics*, ed. Paul Baker and Tony McEnery, (London: Palgrave Macmillan, 2015), 110-133.

[8] See, for example, Jennifer R. Fownes et al., "Twitter and Climate Change", *Sociology Compass*, 12.6 (2018).

[9] Massimiliano Demata, "'I Think That Maybe I Wouldn't Be Here if It Wasn't for Twitter': Donald Trump's Populist Style on Twitter", *Textus* XXXI, 1.1 (2018), 67-90.

[10] www.whitehouse.gov.

Obama is regarded as the first social media President, due to his innovative use of online platforms, and his successors, especially Trump, have followed suit. Social media corpora for Obama, Trump and Biden are smaller in size and word counts. Respectively, they number 198,256, 102,450 and 263,431 running words. Social media data are derived from the University of California at Santa Barbara's American Presidency Project.[11]

| | speeches and remarks | social media | time span |
|---|---|---|---|
| George Bush | 9,039,144 words | 0 | 8 years |
| Barack Obama | 9,987,296 words | 198,256 words | 8 years |
| Donald Trump | 3,164,231 words | 102,450 words | 4 years |
| Joe Biden | 2,235,843 words | 263,431 words | 2 years |

Table 1. datasets of the four Presidents used in the analysis

The software we have relied on to access the data and interrogate our corpus is *WordSmith Tools* 7.0.[12] A corpus-assisted critical discourse analysis approach is adopted.

## 2. A Partisan Issue?

The four 21st-century presidents of the United States have taken divergent rhetorical and policy paths in their handling of the climate crisis. Shortly after George W. Bush was sworn in as the 43rd U.S. President in 2001, he announced that the United States would not implement the 1997 Kyoto Protocol on emissions, denouncing it as "an unfair and ineffective means of addressing global climate change". Bush perceived the Kyoto standards as a threat to U.S. economic interests, fearing "serious harm to the United States economy, including job loss, trade disadvantage, and increased energy and consumer costs".
This decision created a political stalemate, as it was seen by much of the international community as a major obstacle to confronting climate change.[13] The absence of the U.S. from the Kyoto Protocol became the Achille's heel of global climate negotiations, especially because the U.S. is the world's wealthiest nation and the second largest emitter of greenhouse gases. Sixteen years later, it was as if history was repeating: as soon as Donald Trump was sworn in as the 45th President in 2017, he declared his intention to remove the U.S. from the Paris Agreement on climate change, adopted in December 2015 by nearly 200 developed and developing countries. The aim of that landmark international accord was to keep climate change in check and limit future greenhouse emissions from human activities to the same levels that trees, soil, and oceans can absorb naturally (known as net zero), to arrive in 2050 at carbon neutrality and climate resilience. The target that the signatory members pledged to reach would ensure that greenhouse gas emissions and removals balanced each other out, so that the overall effect is zero.
In a speech delivered on June 2, 2017, Trump announced that the U.S. would in fact quit the Paris Climate Accord, as the deal "hamstrings the United States and puts us at a permanent disadvantage to the other countries of the world":

> Not only does this deal subject our citizens to harsh economic restrictions, it fails to live up to our environmental ideals. As someone who cares deeply about the environment, which I do, I cannot in good

[11] See www.presidency.ucsb.edu/ and www.kaggle.com/datasets/harshitagpt/us-presidents.
[12] Mike Scott, *WordSmith Tools* 7.0, Lexical Analysis Software Limited (2017).
[13] Peter H. Koehn, "Underneath Kyoto: Emerging Subnational Government Initiatives and Incipient Issue-bundling Opportunities in China and the United States", *Global Environmental Politics*, 8.1 (2008), 53-77.

> conscience support a deal that punishes the United States – which is what it does – the world's leader in environmental protection, while imposing no meaningful obligations on the world's leading polluters.
> Therefore, in order to fulfill my solemn duty to protect America and its citizens, the United States will withdraw from the Paris climate accord – ... So, we're getting out. But we will start to negotiate, and we will see if we can make a deal that's fair. And if we can, that's great. And if we can't, that's fine....
> As president, I can put no other consideration before the wellbeing of American citizens.

Yet, it took three years after Trump announced the U.S.'s withdrawal for the country to leave the Paris Agreement. Ironically, the green light to quit the international accord was given at a bitter moment: Election Day, November 4, 2020. The exit occurred regardless of the outcome of the vote, as in November Donald Trump was still President; the winner of the presidential election would decide whether to stay out or rejoin.

In leaving these international agreements, both George W. Bush and Donald Trump were adamant that developing countries take advantage of U.S. emission reductions by sitting on their hands while the costs of emission control make U.S. industry uncompetitive. These presidents' desire to avoid confronting climate change was thus tightly connected with their stated fear that any serious effort to reduce greenhouse gas emissions would undermine economic growth.

In the meantime, between these two Republican presidencies, the first Black President, Democrat Barack Obama, was elected in January 2009. In the same year, the Copenhagen Accord replaced the Kyoto Protocol, and President Obama attempted to bring a new face to U.S. climate diplomacy. Nevertheless, the COP15 summit in Denmark failed to result in the comprehensive treaty many had desired, even with a more cooperative U.S. and even though China and India had played active roles at the negotiating table. Many analysts contend that Obama played his cards well on climate change, both by finding common ground with China and by advocating for a system of reciprocal but non-binding national commitments.[14] Even critics would agree that Obama worked hard to nurture the U.S.'s position as a leader concerning the climate crisis rather than an obstacle to change. In his appearance at the COP26 summit in Glasgow, in November 2021, after criticising Donald Trump's "active hostility toward climate science", Obama called on young people to "stay angry" and to "stay frustrated" in the fight against climate change. Adamant that young people must be the voice to awaken the rest of the world, Obama delivered a rousing call to action for young generations, urging them to keep pushing forward and demanding more action on climate change.

After serving as Vice President in the Obama administration, Joe Biden became the 46th U.S. President in January 2021. Just hours after being sworn in as president, his administration announced that the country would re-enter the Paris Agreement and would redouble its efforts to tackle the climate crisis. At COP27 in Egypt, Biden apologized for the U.S. pulling out of the Paris Agreement and said that his administration was "putting our money where our mouth is".

The broad picture that emerges from these four presidents' approaches to the climate crisis is one of Republicans looking away and Democrats seeming to take the matter to heart, indicating that the climate crisis is a partisan issue. As Barack Obama acknowledged in 2009, the climate crisis became a partisan issue after decades of being noncontroversial. It was a Republican, President Richard Nixon, who opened the Environment Protection Agency (EPA) in 1970. Another Republican, George H.W. Bush, was the first American president to declare that human activities are changing the atmosphere in unexpected and unprecedented ways. And finally, a longtime U.S. Senator, John McCain (R-Arizona), introduced and fought hard for a bipartisan market-based cap-and-trade bill to slow carbon pollution.[15]

[14] Christopher J. Bailey, "Assessing President Obama's Climate Change Record", *Environmental Politics*, 28.5 (2019), 847-865.
[15] Marianne Lavelle, "John McCain's Climate Change Legacy", *Inside Climate News* (August 26, 2018), available at https://insideclimatenews.org/news/26082018/john-mccain-climate-change-leadership-senate-cap-trade-bipartisan-lieberman-republican-campaign/, accessed May 8, 2023.

### 2.1 *Words and phrases used interchangeably?*

Not only is the climate crisis a partisan issue in the United States, so too are the very phrases used to represent it: 'climate change' versus 'global warming'. Furthermore, Donald Trump was known for conflating the terms 'weather' and 'climate', especially on cold days or during winter storms. With his "where the hell is global warming?" tweets, he continually cast doubt on the consensus of every major scientific organization that studies our planet by denying climate change simply because of cold weather. The difference between weather and climate is a measure of time. According to NASA, weather is temporary; it is the state of the atmosphere at a particular place and at a particular time with regard to temperature, precipitation, humidity, wind, and cloud cover. It refers to short-term variations in meteorological conditions, measured from minutes to hours or days. Mark Twain's aphorism is apt: "If you don't like the weather in New England, just wait a few minutes". The climate, on the other hand, is how the atmosphere behaves over relatively long periods of time. It refers to the long-term (usually at least 30, or even 50 years) average regional and even global temperature, humidity, and precipitation patterns over seasons, years, and decades.[16]

Studies document confusion between 'climate change' and 'global warming' in the media.[17] The two phrases are often conflated[18] to describe the climatic phenomenon caused by changes in atmospheric concentrations of greenhouse gases.[19] Many scholars argue that it is necessary to distinguish between the two phrases.[20] 'Climate change', originally called 'climatic change', was first coined in 1956 by Gilbert Plass, who discovered the strong relationship between carbon dioxide emissions and the Earth's historical climate. The phrase 'global warming' came into use later, when in 1975 Wallace Broecker developed a model to predict rising temperatures as an effect of increases in carbon dioxide in the atmosphere.[21] Thus, the two terms have different origins and ought not to be used as synonyms. In scientific reports, like the Intergovernmental Panel on Climate Change (IPCC), and in some academic research, the phrases are distinguished from one another.

Hence, terminologically speaking, climate change was coined before global warming. This fact runs contrary to Donald Trump's assertions that climate change was deftly invented later by hoaxsters, because "global warming wasn't working anymore". Trump first used the two phrases interchangeably, in statements such as "climate change, aka global warming", or "climate change or global warming". He later declared that "global warming was formerly known as climate change", thus implying that the phrase 'climate change' was coined later as a cover when the weather is cold. Contrary to what Trump argues in reference to freezing weather, Schuldt et al.[22] argue that climate change is conceptualized as all forms of climatic and weather variability, involving hotter summers, but also colder winters, as well as more rainfall, increased drought, rising sea levels, shrinking glaciers, accelerating ice melt in

[16] Dimitrinka Atanasova, "How Constructive News Outlets Reported the Synergistic Effects of Climate Change and Covid-19 through Metaphors", *Journalism Practice*, 16.2-3 (2011), 384-403.
[17] Ming Liu and Jingyi Huang, "'Climate Change' vs. 'Global Warming': A Corpus-assisted Discourse Analysis of Two Popular Terms in the *New York Times*", *Journal of World Languages*, 8.1 (2022), 34-55.
[18] Maurice Lineman et al. "Talking about Climate Change and Global Warming", *PLoS ONE*, 10 (2015), article e0138996.
[19] Irene Lorenzoni and Nick F. Pidgeon, "Public Views on Climate Change: European and USA Perspectives", *Climatic Change*, 77.1 (2006), 73-95.
[20] Wen Shi et al., "#Climatechange vs. #Globalwarming: Characterizing Two Competing Climate Discourses on Twitter with Semantic Network and Temporal Analyses", *International Journal of Environmental Research and Public Health*, 17.3 (2020), 1-22.
[21] Liu and Huang, Climate change.
[22] Schuldt *et al.*, "'Global Warming' or 'Climate Change'? Whether the Planet is Warming Depends on Question Wording, *Public Opinion Quarterly*, 75.1 (2011), 115-124.

Greenland, Antarctica, and the Arctic, and shifts in flower/plant blooming times.[23] These phenomena are all consequences of global warming, which is caused primarily by humans burning fossil fuels which puts heat-trapping carbon dioxide, methane, and other gases into the air. Thus, climate change encompasses global warming,[24] or rather, global warming is a by-product of climate change.[25]
Previous studies have shown that Americans choose which of the two phrases to use based on political affiliations, gender identity, knowledge and experience, and beliefs. As Wodak and Reisigl[26] put it, 'climate change' typically means 'global warming' in ordinary language use. However, climate change can also denote global cooling towards a new ice age, sometimes relating to natural climatic variation which may lead not only to warming but also to cooling.[27] In scientific use, instead, climate change refers to alterations in median annual temperatures, but also to precipitation change, sea-level rise, ozone depletion, and extreme weather and related events such as tropical storms, hurricanes, tornadoes, droughts, floods, and wildfires.

### 2. 2 *Republicans vs. Democrats?*

Stark political divisions in climate change attitudes persist in the U.S. both among politicians and, consequently, at the mass level. Divisions separate climate deniers from climate believers to such a degree that people who believe in the seriousness and urgency of the climate crisis are unable to communicate with people who think that it is being exaggerated.
In their investigation of beliefs about the impact of the climate crisis on weather in the U.S., Leiserowitz et al.[28] find that Republicans and Independents are more likely to believe that 'global warming', compared to 'climate change' will impact weather in the United States "a lot"; among Democrats there is no similar effect of the different wording. Another study shows that the two phrases have different implications of timing and seriousness across party lines: Republicans rate climate change as more serious, while Democrats rank global warming as more serious.[29]
Those who deny the climate crisis prefer the term 'global warming', while those who believe it is real opt for 'climate change'. We find this polarized terminology to be most prevalent of all on Twitter, where global warming is commonly associated with tweets using a hoax frame, i.e., global warming is a hoax/fraud, and is used more often by Republicans than Democrats. This result is confirmed in the corpus under study here. Joe Biden never speaks of 'global warming', Donald Trump's preferred way of addressing the matter, as Figure 1 shows:

[23] Lorraine Whitmarsh, "Scepticism and Uncertainty about Climate Change: Dimensions, Determinants and Change over Time", *Global Environmental Change*, 21, (2011), 690-700.
[24] Lorenzoni and Pidgeon, "Public Views".
[25] Sara K. Yeo et al., "The Influence of Temperature on #ClimateChange and #Globalwarming Discourses on Twitter", *Journal of Science Communication*, 16.5, (2017).
[26] Ruth Wodak and Martin Reisigl, "The Discourse Historical Approach (DHA): Approaching the Analysis of 'Discourses about Climate Change'", *The Routledge Handbook of Critical Discourse Studies*, ed. John Flowerdew and John E. Richardson (2017), 87-121.
[27] Ibid., 97.
[28] Anthony Leiserowitz et al., "What's in a Name? Global Warming vs Climate Change", *Climate Change Communication* (2014).
[29] Villar and Krosnick, "Global Warming".

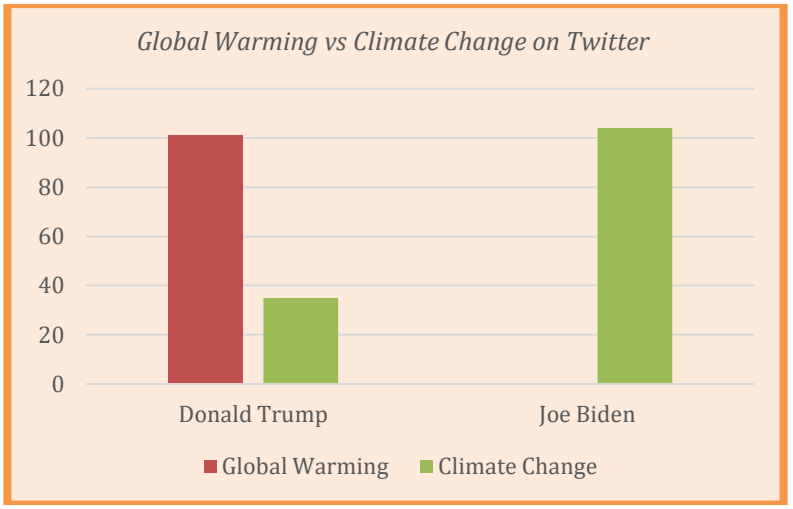


Figure 1: Global warming and climate change as used by Donald Trump and Joe Biden on Twitter

Whereas posts about global warming are correlated with anomalous temperature, in particular heat waves and weather extremes, tweets about climate change are linked with the political aspects of the issue.[30]

These are important hints for understanding how individuals use social media to form opinions about contentious matters,[31] especially considering that a large majority of U.S. adults who use Twitter do so to obtain news.[32] Indeed, social media are one of the primary means through which Americans say they obtain scientific information.

Historically, Americans have placed high levels of trust in science and scientists; in recent years, however, this trust has been in decline, especially among Republicans and highly religious people.[33] The relative lack of trust the conservative sector of the U.S. public appears to place in science and scientists is troubling evidence of the power the media have in shaping public opinion. For example, the media paid a disproportionate amount of attention to the 2009 'Climategate' scandal in the United Kingdom. Although the scientific community was quick to point out the irrefutable evidence of anthropogenic climate change in the wake of this controversy, coverage of it may have been responsible for a sharp spike in global warming skepticism the following year.[34]

Despite hard scientific evidence and broad acknowledgment by scientists of the reality of the climate crisis, Americans remain profoundly divided on the matter.[35] Despite overwhelming scientific

[30] Yeo et al., "The Influence".

[31] John H. Parmelee and Shannon L. Bichard, *Politics and the Twitter Revolution: How Tweets Influence the Relationship between Political Leaders and the Public* (Lanham, Maryland: Lexington Books, 2011); Jennifer Hoewe and Cynthia Peacock, "The Power of Media in Shaping Political Attitudes," *Current Opinion in Behavioral Sciences* 34.1 (2020), 19-24.

[32] Mason Walker and Katerina Eva Matsa, "News Consumption across Social Media in 2021", Pew Research Center, available at https://www.pewresearch.org/journalism/2021/09/20/news-consumption-across-social-media-in-2021/, accessed May 8, 2023.

[33] Nicole M. Krause, Dominique Brossard, Dietram A. Scheufele, Michael A. Xenos, and Keith Franke, "Trends: Americans' Trust in Science and Scientists", *Public Opinion Quarterly* 88.4 (2019): 817-836.

[34] William R. L. Anderegg and Gregory R. Goldsmith, "Public Interest in Climate Change over the Past Decade and the Effects of the 'Climategate' Media Event", *Environmental Research Letters* 9 (2014), article 054005.

[35] Riley E. Dunlap, Aaron M. McCright, and Jerrod H. Yarosh, "The Political Divide on Climate Change: Partisan Polarization Widens in the U.S.," *Environment: Science and Policy for Sustainable Development*, 58.5 (2016), 4-22; Alec Tyson, Cary Funk, and Brian Kennedy, "What the Data Says about American's Views of Climate Change,' Pew Research Center (April 18, 2023), available at https://www.pewresearch.org/short-reads/2023/04/18/for-earth-day-key-facts-about-americans-views-of-climate-change-and-renewable-energy/, accessed May 8, 2023.

consensus, millions of Americans fail to view climate change as a pressing threat,[36] and others remain indifferent, confused, or downright opposed to the idea of anthropogenic climate change. Yet, in December 2015, 195 countries[37] signed the Paris Agreement and, for the first time, nearly every nation on earth was pledging to address the undeniable fact that climate change is real, and is caused, in no small part, by human activity.

## 3. The Traditional Communication Context

### 3.1. *Climate change and global warming in the public statements of George W. Bush and Donald Trump*

We now turn to our analysis of the 20 years' worth of language used by U.S. presidents in their public communications about the climate crisis, beginning with the word 'climate' in isolation, and then we move on to 'climate' as embedded in various clusters.

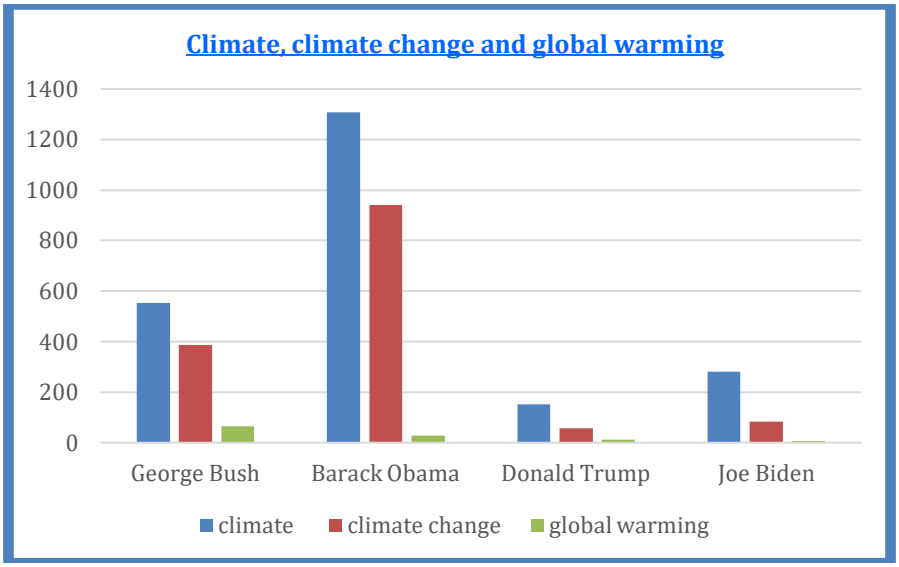


Figure 2: Climate, climate change and global warming in U.S. presidential speeches, 2001 to 2023

Starting from the assumption that frequency is a measure of importance, and bearing in mind that the graph in Figure 2 reports raw numbers of occurrences, not relative frequency (George Bush and Barack Obama's corpora include eight years' worth of speeches, Donald Trump's four years, and Joe Biden's two years), it appears that Barack Obama is the President who was most concerned about the climate crisis.

The term 'climate', even when it appears on its own, carries within itself the same connotation that it carries when embedded in clusters. If we look at Bush's mentions of 'climate', for example, we see that 'climate' is framed as a problem, an issue, and a huge international challenge. When the term 'climate' co-occurs with its 'best friend', i.e., 'change', 'climate change' shares exactly the same collocates: threat, specter, question, problem, issue, challenge, and disease, as shown in Figure 3a.

[36] Stephen Flusberg, "Metaphors for the War (or Race) against Climate Change", *Environmental Communication* (2017), 769-773.

[37] Iran, Libya, Yemen, and Eritrea have not ratified the agreement. The deal has been formally endorsed by 193 of 197 nations.

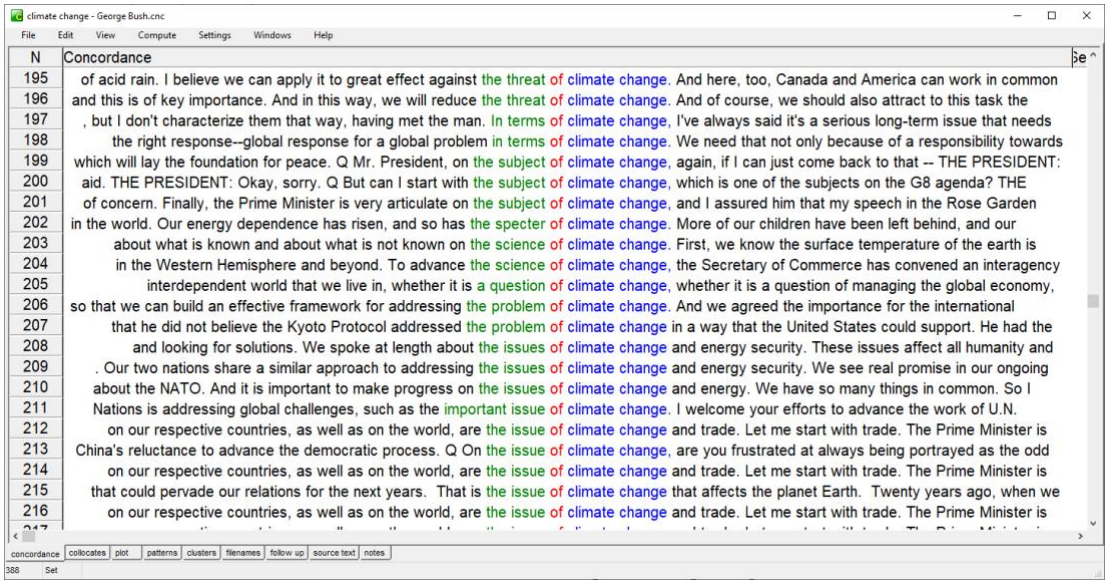


Figure 3a: Concordance lines of 'climate change' in George W. Bush's public statements

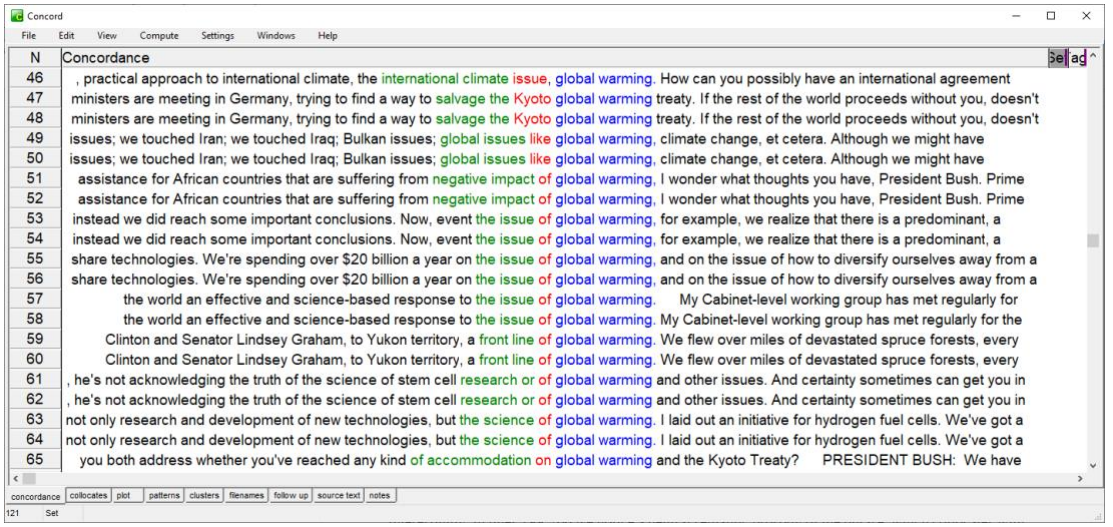


Figure 3b: Concordance lines of 'global warming' in George W. Bush's public statements

Interestingly, despite being both framed as contentious issues,[38] Bush seems to have constructed climate change as a more serious matter than global warming. Moreover, unlike climate change, which shows a strong collocation with many items, global warming seems to be attracted to 'issue' only.

In lines 199-200 (Figure 3a), we notice a neutral semantic prosody of the phrase, i.e., 'the subject of climate change', which was, by the way, uttered by the interviewer and not by the President. More surprisingly, as Figure 3 illustrates, we find 'the science of climate change' and 'the science of global

[38] Liu and Huang, "Climate", 44.

warming' respectively in lines 203-204 and lines 63-64; this collocation was somewhat unexpected in a climate-skeptical politician like George W. Bush.
The word 'science' never appears in the company of 'climate' in Donald Trump's corpus. He did use the word 'science' in the vicinity of 'climate' on a few occasions, but only to deride scientists and experts, claiming that scientists do not know what they are talking about. For example, during a roundtable meeting in McLellan Park, California, about wildfires that engulfed huge swaths of the state, Wade Crowfoot, California Secretary for Natural Resources, expressing his fears and concerns for the raging west coast wildfires, said:

> *Crowfoot*: We want to work with you to really recognize the change in climate and what it means for our forests. And actually, work together with that science. That science is going to be key because if we ignore that science and sort of put our head in the sand and think it's all about vegetation management, we're not going to succeed together protecting Californians.
> *Trump*: It'll get cooler. You just watch.
> *Crowfoot*: I wish science agreed with you.
> *Trump*: I don't think science knows, actually.

Trump's replies, "I don't think science knows, actually" and "It'll get cooler", went viral, as they clearly show his denialism and dismissal of the crisis. Right-wing populist parties, and Trump's administration in particular, tend to endorse the "arrogance of ignorance",[39] constructing themselves as Robin Hood, the savior of people, projecting hope, offering solutions, promising change, and claiming that we could do without experts and without knowledge. In the management of the Covid-19 pandemic, Donald Trump seemed to be quite proud not to need experts, knowledge, or science, appealing instead to common sense, simple solutions, intuition, and anti-intellectualism.[40] Indeed, on several occasions he had shown disdain for the scientific community, calling, for example, Dr. Anthony Fauci, the head of the National Institute of Allergy and Infectious Diseases, 'an idiot', 'a disaster', and other medical experts 'a bunch of thugs'. From the outset of Trump's term in office, expertise was given the back seat and the attack on environmental experts was blatant, thus explaining why Donald Trump took nineteen months to name a White House science advisor. His first EPA administrator, Scott Pruitt, was, unsurprisingly, a climate denier of the first order who made cutting environmental regulations for industry his top priority.[41] It is worth remembering, in this respect, that in March 2020 Donald Trump declared that the United States would be terminating its relationship with the World Health Organization; this decision was regarded by many around the world as highly immoral, encapsulating his utter contempt for science and experts.[42]
Analysis of Donald Trump's speeches (Figure 3c) reveals that the word 'climate' collocates mainly with 'Paris'. Sorting the node to the left, the results show that Trump described the Paris Agreement (which he termed 'the Paris Climate disaster') as one-sided, ridiculous, impossible, horrible, very expensive, disastrous, and energy-destroying. Sorting the node to the right, we find Trump saying the Paris Agreement 'is so unfair', 'was a total disaster for our country', 'will destroy us', 'was very bad, very expensive', 'killed American jobs and shielded foreign polluters', and resulted in having to 'pay billions and billions of dollars'.

[39] Ruth Wodak, *The Politics of Fear. The Shameless Normalization of Far-right Discourses*, 2nd edition (London: SAGE, 2021).
[40] Paul E. Rutledge, "Trump, COVID-19, and the War on Expertise," *American Review of Public Administration* 50.6-7 (2020), 505-511.
[41] Lindsey Dillon et al., "The Environmental Protection Agency in the Early Trump Administration: Prelude to Regulatory Capture", *American Journal of Public Health* 108.52 (2018), S89-S94.
[42] Denise Milizia, "Framing the Pandemic in the UK and in the US: The war, the Science and the Herd", *Textus*, 1 (2023); see also Jeff Tollefson, "How Trump Damaged Science – and Why It Could Take Decades to Recover", *Nature* (October 5, 2020), available at https://www.nature.com/articles/d41586-020-02800-9, accessed May 8, 2023.

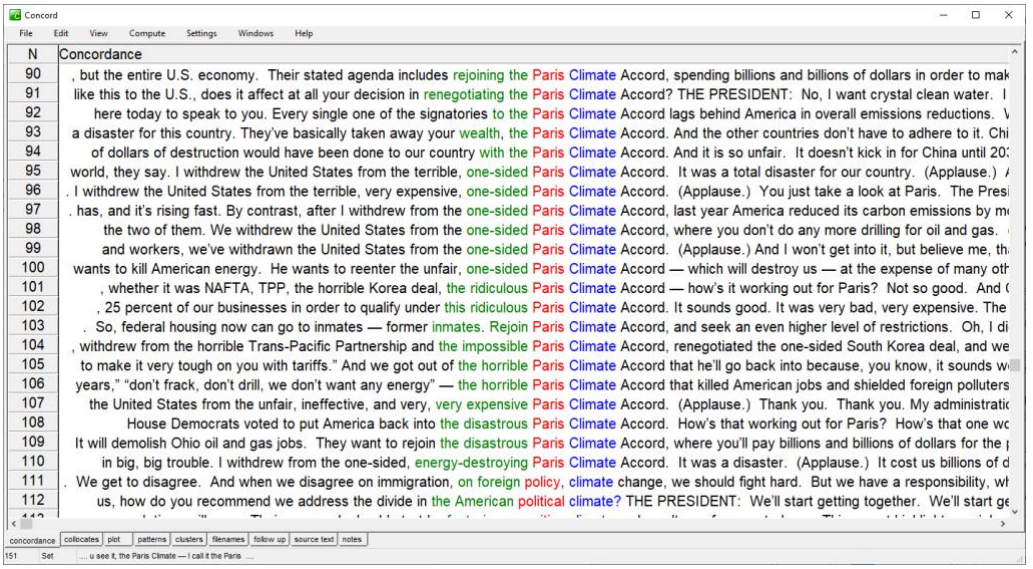

Figure 3c: Concordance lines of 'climate' in Donald Trump's public statements

Despite his dogged resolve in dropping out of the Paris Agreement, Trump has always defined himself an environmentalist, going as far as saying, "I know more on climate change than scientists do", denying altogether that he thinks global warming is a hoax, insisting on the refrain that he wants clean air and clear water, 'the cleanest ever':

> Q: Since the environment is something that is on the table here today, what is your position on global warming? Do you think it's a hoax? Do you think that something needs to be done?
> THE PRESIDENT: No, no, not at all. Nothing is a hoax. Nothing is a hoax about that. It's a very serious subject. I want clean air. I want clear water. I want the cleanest air with the cleanest water.
> The environment is very important to me. Somebody wrote a book that I'm an environmentalist — it is actually called "The Environmentalist" — actually, before I did this. But they wrote a book; I'd like to get it. I have it in the other office.

Here the word 'hoax' co-occurs with climate change. When the President is asked whether climate change is a hoax, despite his customary "No, not at all", he does not really answer the question, shying away from the climate change hoax issue, yet boasting about American air and water:

> Q: Do you still think climate change is hoax?
> THE PRESIDENT: No, not at all. I think what is – I think aspects of it are. I think that some people are – they put it at a level that is, you know, unrealistic, to a point you can't live your lives.
> We want to have the cleanest water on Earth. We want to have the cleanest air on Earth. Our numbers, as you saw – we had record numbers come out very recently. Our numbers are very, very good – our environmental numbers. Our water numbers, our – our numbers on air are tremendous.

It cannot be denied that his language is highly distinctive in its casual, conversational tone and reliance on non-standard but common informal usages and unguarded talk. While odd for a political leader, such language is familiar to his target audience. For example, when asked about the wildfires in California and whether the issue is a complex one, he replied, "You'll have to ask the governor that question; I

don't want to step on his toes". However, when Donald Trump decided to withdraw from the Paris Agreement, less than a third of Americans polled approved of the decision, with more than half opposing it. His decision to tear up the Paris Accord met with widespread derision, leading many observers to lament the U.S.'s failure to lead on climate as a moral catastrophe. Yet, Donald Trump kept repeating that the Paris Agreement was a constraint on the American people. In line with the populist binomial "us versus them" trope and his typical refusal to accept any blame, he continually reiterated that other countries should be blamed, not the U.S.:

> If you look at China, with all of the plants they have — you take — just take a look at China, and look at what's coming out of China. Take a look at our oceans and see who is dumping in our oceans. It's not us. It's not us. And I think that's something people should be addressing.

This mechanism of scapegoating[43] is a core feature of right-wing populist parties' strategic discourse. Far-right populist parties have, more recently, arrived in the mainstream, and their rhetoric is now regarded as 'normal', i.e. 'the new normal', rather than extreme or marginal.[44] Trump's penchant for blaming others, his refusal to share the global stage with other actors, his indulgence of blind self-interest, and his utter contempt of science will become even more apparent upon examination of his social media posts.

3.2. *Climate change and global warming in the public statements of Barack Obama and Joe Biden*

As illustrated in Figure 2 above, Barack Obama stands out for the frequency of his mentions of the climate crisis. Figure 4 illustrates his view that climate change is 'real,' 'no longer a distant threat', 'one of the most severe threats', 'no longer some far-off problem in the future', 'one of the central challenges of the 21st century' and, more than anything else, that 'climate change is not a hoax'.

[43] Ruth Wodak, "The "Establishment", the "Élite", and the "People". Who's Who?", *Journal of Language and Politics*, 16.4 (2017), 1-15; Ramona Kreis, "The "Tweet Politics" of President Trump. Right-Wing Populism in Europe & USA. Contesting Politics & Discourse beyond 'Orbanism' and 'Trumpism', *Journal of Language and Politics*, 16.4 (2017), 607-618.
[44] Wodak, *The Politics*.

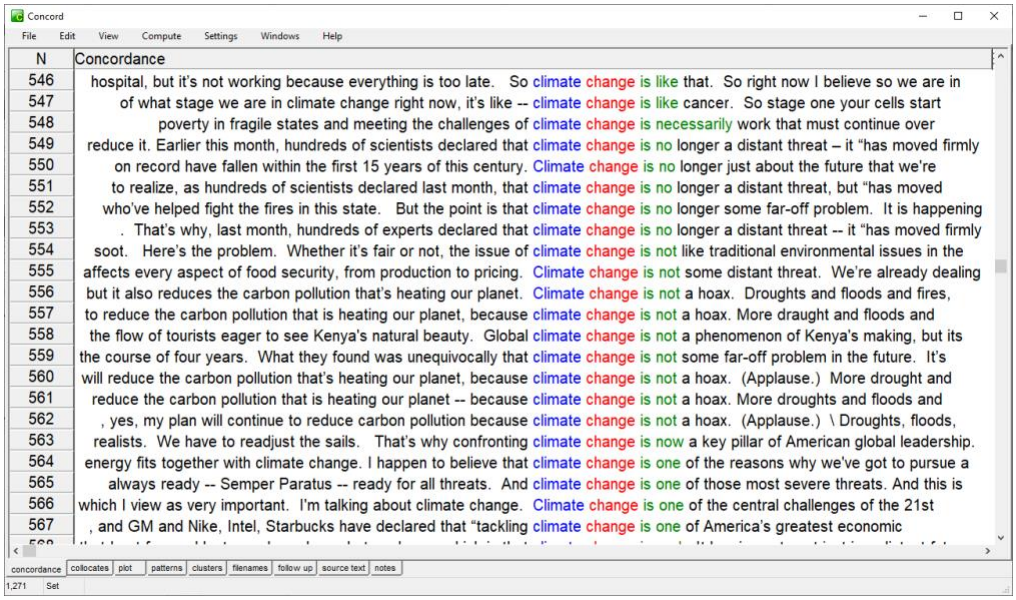


Figure 4: Concordance lines of 'climate change' in Barack Obama's public statements

As shown in the second line of Figure 4, Obama endorsed something Aisa Mijeno asserted at a business summit in the Philippines in November 2015: climate change is like cancer. The purpose of this framing is to catch people's attention to communicate a sense of urgency and emergency, heighten alarm, and build instant awareness.

> I just wanted to emphasize that climate change is real. It's a fact. It's not some myth that scientists created in order to get funding or grants. (Laughter.) It's real, and it's happening now. Just to give you like a simple analogy of what stage we are in climate change right now, it's like -- climate change is like cancer. Stage one your cells start mutating. And then at stage two you start feeling the symptoms. If you're self-aware, you go to the doctor and get treatment. If you're not aware, you go into stage three. You start feeling the severe effects of the symptoms, until finally stage four, you're noticing that your health starts declining. You get the best oncologists, pay the best hospital, but it's not working because everything is too late. So, climate change is like that. So right now, we are in stage two. You don't want to get to stage four. We don't want to get cancer.

Research shows that issue framing has a substantial effect on public opinion.[45] Attitudes can be changed via clever metaphor.[46] However, few studies have focused on the utility of metaphor in discourse about climate change, especially how it may help explain complex ideas to the general public.[47] The myth of the boiling frog is often relied on in the climate change narrative, to urge people to act, and act now (because, as we will see in Joe Biden's corpus, 'time is running out', and 'we are running out of time').

[45] Paul M. Sniderman and Sean M. Theriaut, "The Structure of Political Argument and the Logic of Issue Framing", *Studies in Public Opinion: Attitudes, Nonattitudes, Measurement Error, and Change*, ed. Willem E. Saris and Paul M. Sniderman (Princeton, New Jersey: Princeton U.P., 2004), 133-165.
[46] Jeffery Scott Mio, "Metaphor and Politics", *Metaphor and Symbol*, 12.2 (1997), 113-133.
[47] But see Stephen J. Flusberg et al., "Metaphors for the War (or Race) against Climate Change", *Environmental Communication* 11.6 (2017), 769-783; Sandra van der Hel et al., "Tipping Points and Climate Change: Metaphor between Science and the Media, *Environmental Communication* 12.5 (2018), 605-620.

As anticipated earlier, Barack Obama rarely used the phrase ‘global warming’, especially compared to the frequency with which he mentioned ‘climate change’ (1,271 occasions).

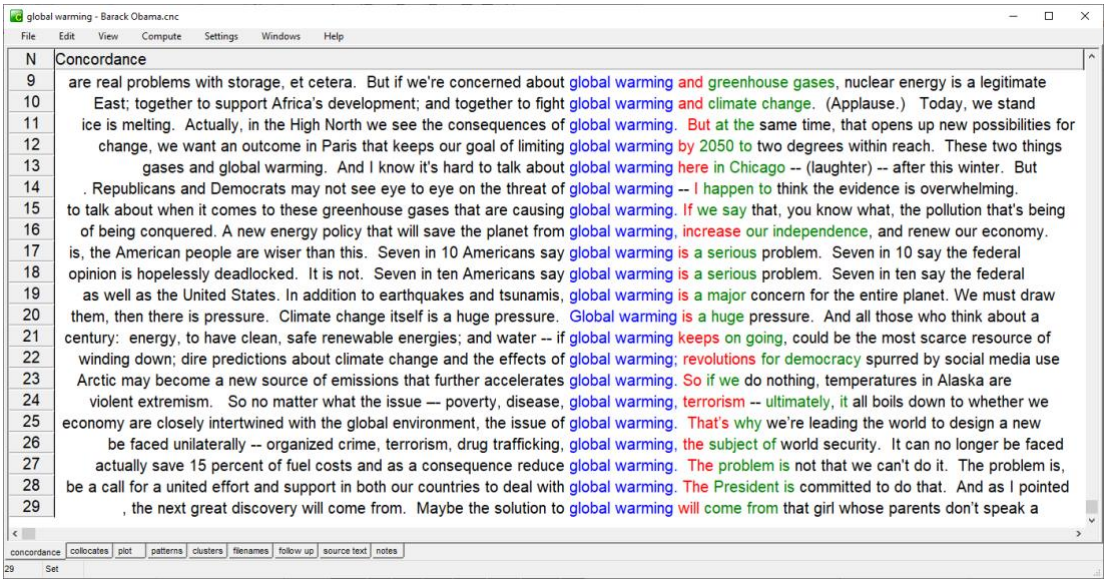

Figure 5: Concordance lines of ‘global warming’ in Barack Obama’s public statements

As we see in Figure 5, Obama openly acknowledges that the climate crisis is a partisan issue and that ‘Republicans and Democrats may not see eye to eye on the threat of global warming’. He emphasizes that ‘the evidence is overwhelming: global warming is a serious problem’, ‘a major concern for the entire planet’, and ‘a huge pressure’. He repeats the message that “even though seven in ten Americans say global warming is a serious problem, it is important that the effort is a whole-of-society effort, if we want to stem the potential catastrophe and avoid the dire predictions that could result if we continue to see global warming continuing unabated.”
Meanwhile, Figure 6 shows that a strong collocate of ‘climate’ is resilience/resilient, as well as science/scientists, as we will also see in Joe Biden’s corpus.


Figure 6: Concordance lines of 'climate resilience/resilient' and 'climate science/scientists' in Barack Obama's public statements

Under the Obama administration, both the President and Vice President were adamant that the U.S. must take moral, environmental, economic, and security responsibility to tackle climate change in a serious and sustainable manner. Unsurprisingly, the Biden administration has approached the climate crisis along similar lines. Just as Obama prioritized reversing the Bush administration's attempts to chip away at clean air and water standards, one of Biden's first priorities was to reverse the Trump administration's long record of climate and scientific denialism.

As was the case in Obama's statements, the term 'resilience/resilient' is a strong collocate of climate in Joe Biden, as well, who repeatedly argues that every government project should be climate resilient and developed through a climate lens:

> We commit to build resilient, low- and zero-carbon infrastructure systems that are aligned with the pathways towards net-zero emissions by 2050, which are needed to keep the goal of limiting global average temperature change to 1.5 degrees Celsius within reach. Further, we commit to viewing all projects carried out through infrastructure development partnership through the lens of climate change.

Two new collocates in Joe Biden's corpus that the three previous presidents did not use are 'smart' and 'advisor', e.g., climate-smart agriculture/climate-smart infrastructure, and climate advisor.

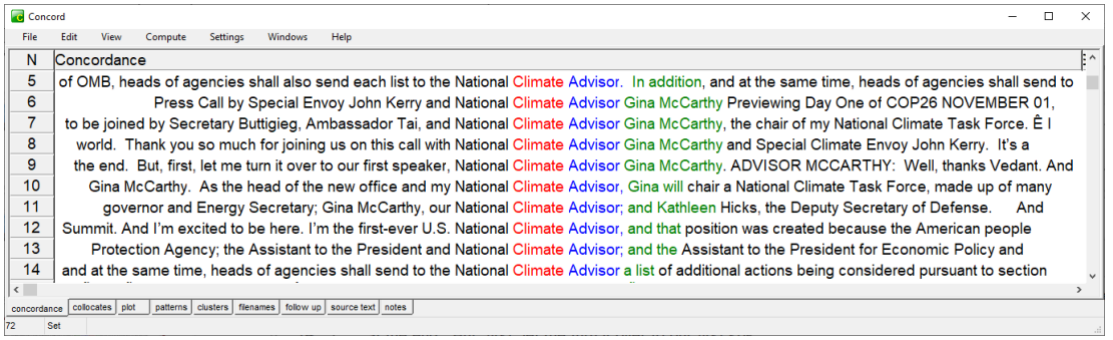

Figure 7: Concordance lines of 'climate advisor' in Joe Biden's public statements

Obama nominated Regina McCarthy to serve as EPA administrator, making her the face of his administration's global warming and climate change initiative. McCarthy was later appointed by Joe Biden to serve as the first-ever White House National Climate Advisor to counsel the new administration on domestic climate change policy. In November 2020, President-elect Biden also announced that former U.S. Secretary of State John Kerry would serve as his Special Presidential Envoy for Climate.
These appointments were a sea change from the Trump administration, during which neither science nor experts played prominent roles. Indeed, Trump continually endorsed the arrogance of ignorance, arguing that "we have had enough of experts". Under the Biden administration, instead, we have been wondering whether the climate crisis and the Covid-19 pandemic have killed U.S. populism and have brought experts back in fashion.

## 4. The Social Media Setting

### 4.1 *Climate change and global warming statements on social media*

All presidents but Trump vividly discuss the climate crisis on social media platforms, which is significant, given the fundamental role social media plays in shaping public opinion.[48] The findings of recent research show that everyday conversations about the climate crisis on social media are highly politicized, and that people use social media to frame political issues and collective action more than the traditional mainstream news outlets do.[49]
The use of social media platforms for political communication purposes can be traced to Barack Obama, the first U.S. presidential candidate to utilize Facebook, Twitter, Instagram, Snapchat, and other social media platforms to raise awareness and financial support of his campaigns. Obama managed to mobilize the public through social media, especially Facebook, generate consensus at the grassroots level, and create a sense of ethos and trust between the voters and his successful campaigns in 2008 and 2012. There is no doubt that technology shaped Obama's electoral victories, and for this reason he has been dubbed by some as "the first social media president". Yet, despite all the advantages and power of social media and technology, Obama has recently said that today social media are 'designed' to weaken democracy and, intentionally or not, social media have made democracies more vulnerable. Scholars agree that misinformation spread through social media is eroding the public's confidence in democracy.

[48] See, e.g., Nick Anstead and Ben O'Loughlin, "Social Media Analysis and Public Opinion: The 2010 UK General Election", *Journal of Computer-Mediated Communication*, 20.2 (2015), 204-220.
[49] Kaiping Chen et al. "How Climate Movement Actors and News Media Frame Climate Change and Strike: Evidence from Analyzing Twitter and News Media Discourse from 2018 to 2021", *The International Journal of Press/Politics*, 28.1 (2023), 384-413.

Wignell et al.[50] call Barack Obama and Donald Trump the "twittering presidents". Both administrations, just like Joe Biden's today, made use of Twitter. The presidents have all posted information using an official White House account, @WhiteHouse, with the President's official account, @POTUS$_{44}$, POTUS$_{45}$, and @POTUS$_{46}$ respectively, as well as through each president's private account: @BarackObama, @realDonaldTrump, @JoeBiden.[51]


Figure 8: A sampling of presidential tweets

It is noteworthy that Donald Trump's username co-occurs with the adjective 'real', which implies the authenticity of his messages, gives an impression of spontaneity and matter-of-factness that other politicians[52] might lack, and underlines that the information is reliable and trustworthy. One consistent motif in Trump's tweets has been a continuing battle with what he calls the 'fake' news media. Trump went so far as to say that "I wouldn't be here if it wasn't for Twitter"; "Twitter is my own form of media", and "if I didn't have social media, I'd have no way of getting out my voice". He consistently labels much of the mass media "dishonest, fake and despicable", as well as "corrupt, crooked, fraudulent, lame stream"[53]. For these reasons, while he was in office, Trump framed Twitter as the best way "to get your news directly from the president", and as "the only way to get the unvarnished truth".[54]

Like his two predecessors, the incumbent president of the United States, Joe Biden, is a frequent user of social media. He relies heavily on Twitter and Facebook to make his climate narrative heard, to the point that he has been referred to, together with Swedish activist Greta Thunberg, as the most mentioned and driving actor in the worldwide climate change discussion.[55]

[50] Peter Wignell, Sabine Tan, Kay L. O'Halloran, and Kevin Chai, "The Twittering Presidents. An Analysis of Tweets from @BarackObama and @realDonaldTrump", *Journal of Language and Politics*, 20.2 (2021), 197-225.

[51] Donald Trump was banned from Twitter in January 2021 after the attack on Capitol Hill. For this reason, Twitter made Joe Biden's @ POTUS$_{46}$ account start with zero followers rather than transferring them over from the previous administration. Two years later, in February 2023, Elon Musk lifted the ban, yet at the time of writing Donald Trump is still using TRUTH Social, a social media platform he himself founded in October 2021.

[52] Donald Trump repeated on several occasions that he was different from the other politicians because he is not a politician, and he is indeed the antithesis of the conventional politician, distancing himself even from his own political party, calling moderate Republicans RINOs, 'Republicans In Name Only', who "can be almost worse than our enemy".

[53] Milizia, "Framing".

[54] Demata, "I think that Maybe I Wouldn't Be Here", 73.

[55] Anil Can Kara et al., "Central Figures in the Climate Change Discussion on Twitter", *Information Integration and Web Intelligence*, *Lecture Notes in Computer Science*, 13635 (2022), 575-580.

4.2 *Barack Obama and Joe Biden's climate narratives on social media*

It is clear from Barack Obama's tweets that his social media posts and what he said in traditional contexts have a degree of mutual influence. As we see in Figure 9, the collocates are the same ones as in his speeches, i.e., 'issue', 'threat', and not too surprisingly, 'science' (lines 152-157): "the best scientists in the world know that climate change is happening" (line 13), and "scientists agree climate change is man-made and we can do something about it" (line 24).
Meanwhile, Obama affirms that climate change is man-made (lines 141-143), and that scientists agree climate change is caused by human activity. Figure 9b shows that Obama sees climate change as a global problem, an issue, dangerous, and happening now. It is real and a fact, just like gravity exists and the Earth is round (line 12).
In line 21 we read that "the science of climate change is leaping out at us like a scene from a 3D movie … it's compelling us to act", and act now, as we can't sit idly by (line 22), we must take bold steps now (line 5), because time is not on our side. These are themes that appear in Joe Biden's corpus, as well.

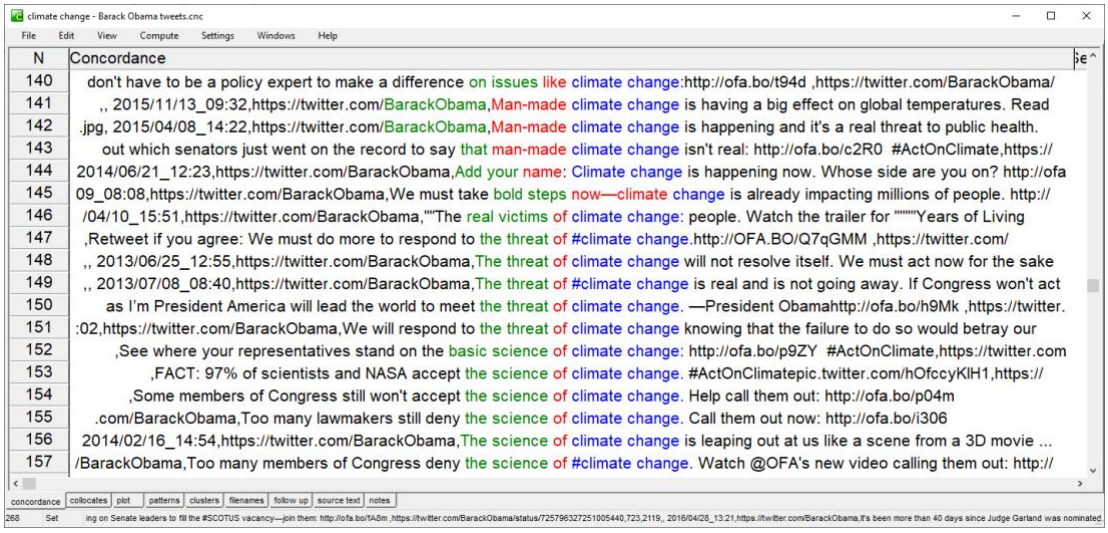

Figure 9a: Concordance lines of 'climate change' in Barack Obama's tweets

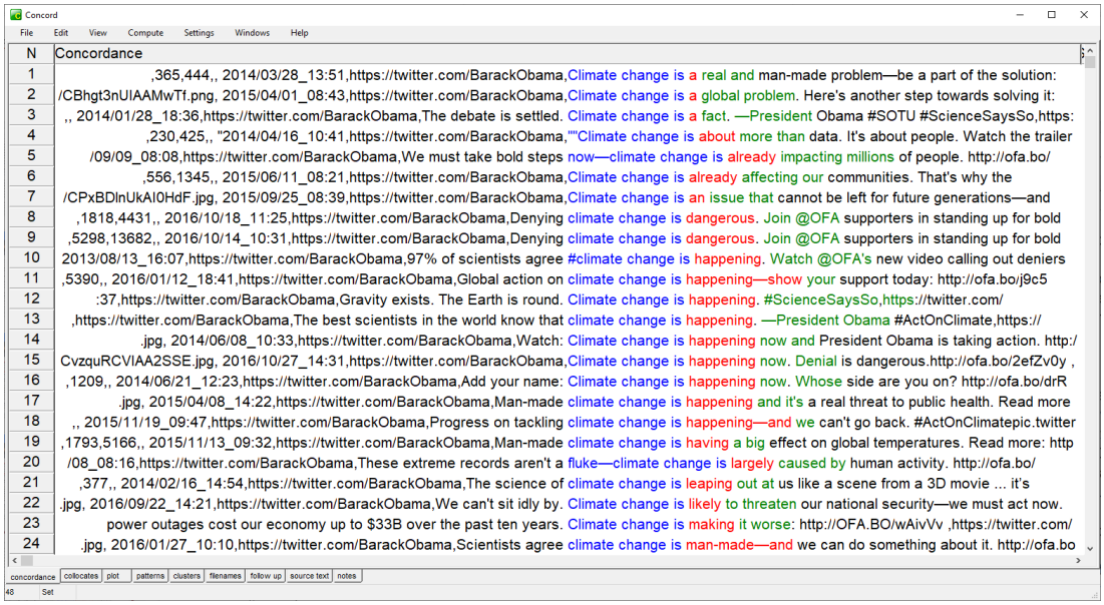


Figure 9b: Concordance lines of 'climate change' in Barack Obama's tweets

A frequent collocate of climate change is the word 'denier'; Barack Obama asserts that we shouldn't let climate change deniers prevent, derail or jeopardize progress, and that they shouldn't stand in the way nor have the final say. In a well-known tweet, Barack Obama wrote: "it is time climate deniers feel the heat!".

The word 'denier' is a strong collocate of climate in Joe Biden's corpus as well, and these references are mainly to Donald Trump, whom he calls 'the climate denier' par excellence:


Figure 10a: Concordance lines of 'climate change' in Joe Biden's tweets


Figure 10b: Concordance lines of 'climate change' in Joe Biden's tweets

As illustrated in lines 80-84, a country which votes for a climate denier, or a "climate arsonist", "isn't just troubled, it's morally bankrupt", and we cannot trust somebody who has called the scientific community "a bunch of thugs" (line 82). In contradicting Trump, Biden has gone so far as to say that "Listening to scientists is not a bad thing. I can't believe that has to be said".


Figure 11: Joe Biden's tweet on scientists

Unsurprisingly, Joe Biden's argumentative strategies resemble Barack Obama's in many respects. Just as he frequently asserts concerning the management of the coronavirus pandemic, Biden reiterates that his administration will always "follow the science" and "listen to the science". It seems clear that for Biden, 'science' or, indeed, 'the science', is really a metonym for "what scientists believe", indicating that the government is heeding the advice of scientists.[56]

[56] Jonathan Charteris-Black, *Metaphors of Coronavirus* (Cham: Palgrave Macmillan, 2021).

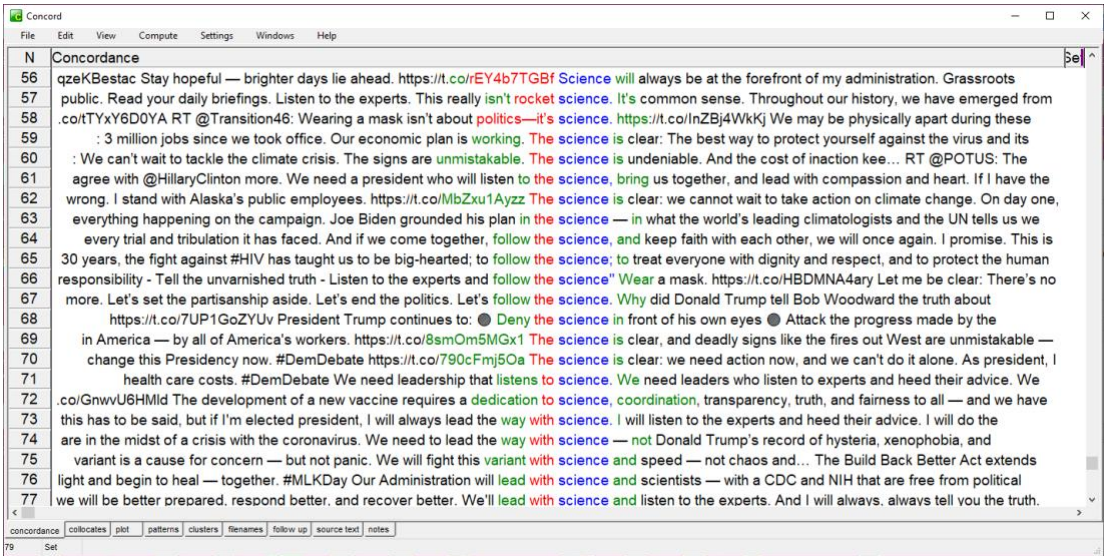


Figure 12: Concordance lines of 'science' in Joe Biden's tweets

Biden goes on claiming that we cannot wait to tackle the climate crisis, the signs are unmistakable, the science is undeniable. He makes it clear that his administration has grounded its plan in 'the science', and in what the world's leading climatologists and the UN tell us we need to achieve, providing a comprehensive path forward on how to address what he calls "the most pressing issue of our time". Ignoring 'the science' "won't make the threat go away": the climate crisis is "an existential threat", as we read in Figure 9b, an existential threat to our communities, to our economy, to our health, and to our future. Biden insists that the climate threat is already here, there is no time to waste, that time is running out, and that we are running out of time.

To reach the Paris Agreement's goal, i.e., get to net-zero emissions by 2050, Biden has pledged, with his PREPARE[57] plan, to support climate adaptation efforts affecting more than a half a billion people worldwide.

In short, "Listen to the science" and "be guided by the best scientists" is official White House policy under the current administration. As Biden wrote in one executive order: "It is, therefore, the policy of my Administration to listen to the science", which was very likely a way to contrast himself with Donald Trump, who continually denied the threats posed by both climate change and the coronavirus pandemic, readily embracing conspiracy theories instead.

As anticipated earlier, not one occurrence of 'global warming' appears in either Barack Obama or Joe Biden's tweets and social media posts, even though Obama speaks of a warming planet, our warming world, and the warming of the planet.

[57] PREPARE stands for President's Emergency Plan for Adaption and Resilience.

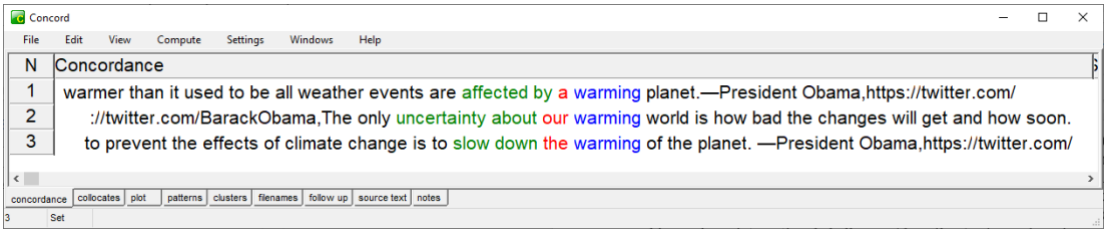


Figure 13: Concordance lines of 'warming' in Barack Obama's tweets

4.3 *Donald Trump's climate narrative on social media*

Donald Trump made extensive – arguably addictive – use of social media, especially Twitter, to disseminate his climate rhetoric. It is essential to bear in mind that social media largely lack 'gatekeepers' to manage the flux and content of posts. As Figure 14 shows, along the same line as his interviews and statements, Trump asserts that "The badly flawed Paris Climate Agreement protects the polluters, hurts Americans, and costs a fortune" (lines 2-3). Meanwhile, he argues with impunity that "Whether climate change or global warming, the fact is we didn't cause it" (lines 21-22).

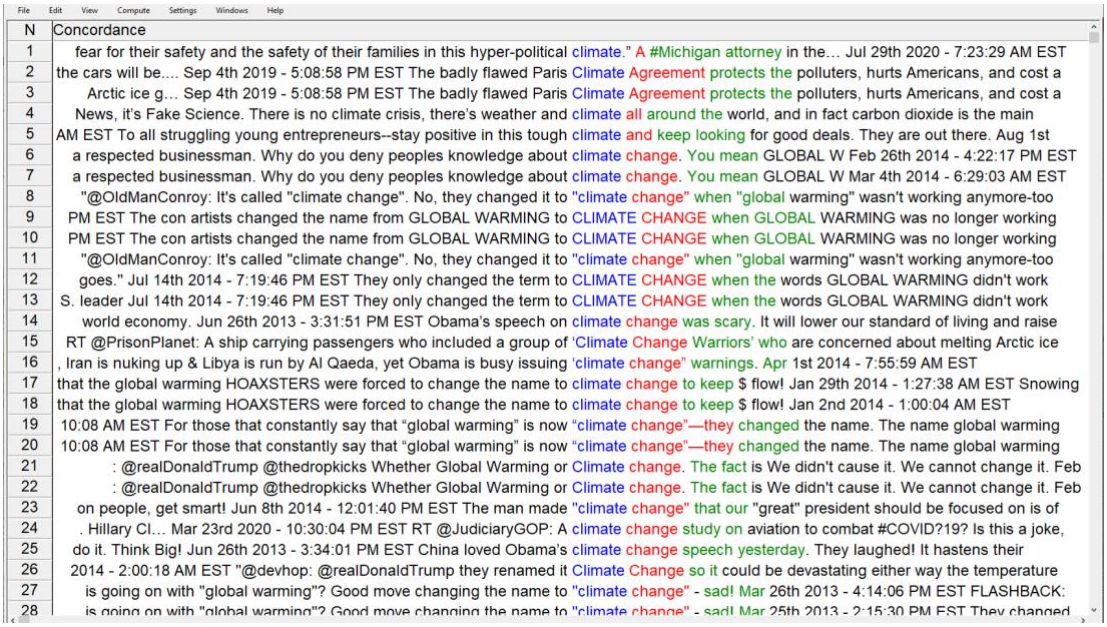


Figure 14: Concordance lines of 'climate change in Donald Trump's tweets

As we saw also earlier, this mechanism of avoiding responsibility and 'passing the buck', as it were, to other countries, is a key feature of right-wing populist politicians. As Kreis[58] aptly observes, Donald Trump has employed Twitter as a strategic instrument of power politics to disseminate a right-wing populist agenda. The findings in Figure 14 illustrate how he uses a provocative communication style to construct and reinforce a narrative of 'us' versus 'them', insisting that "*They* changed the terminology to climate change when global warming wasn't working anymore". In reiterating the fact that "climate

[58] Ramona Kreis, "The 'Tweet Politics' of President Trump", *Journal of Language and Politics*, 16.4 (2017), 607-618.

change was formerly called global warming" and contending that 'they' have renamed it because there is, from Trump's standpoint, no global warming whatsoever, he is implying that a trick or secret conspiracy has been engineered in order to "keep $ flow" (lines 17-18). In reality, Donald Trump is ignoring the fact that the phrase 'climate change', as we saw in section 2.1, was coined twenty years before 'global warming' was. Irony is certainly one of the more prevalent features of Trump's colorful rhetorical style.[59] His phrasal repetition seems to serve the dual purposes of reinforcement and establishing an important form of cohesion.[60] For example, we read, "*Good* move changing the name to climate change", or "*Lucky* they changed the name from global warming to climate change. G.W. just doesn't work", or "They *deftly* changed it to climate change because it's freezing", or "*Smart* that global warming hoaxsters changed name to climate change $$$". Irony and hyperbole are among Trump's most prominent affiliation strategies, used to garner attention and generate (virtual) community. He uses these strategies to build alignment with his audience, but without necessarily engaging with them; in fact, he tends to ignore replies to his tweets.[61]

Trump's unconventional, aggressive, and often offensive language is clearly more apparent on social media. 'They', i.e., the people who changed the name from global warming to climate change, are referred to as 'con artists' (lines 9-10) or 'hoaxsters', i.e., the people who have spread the 'hoax' of climate change.

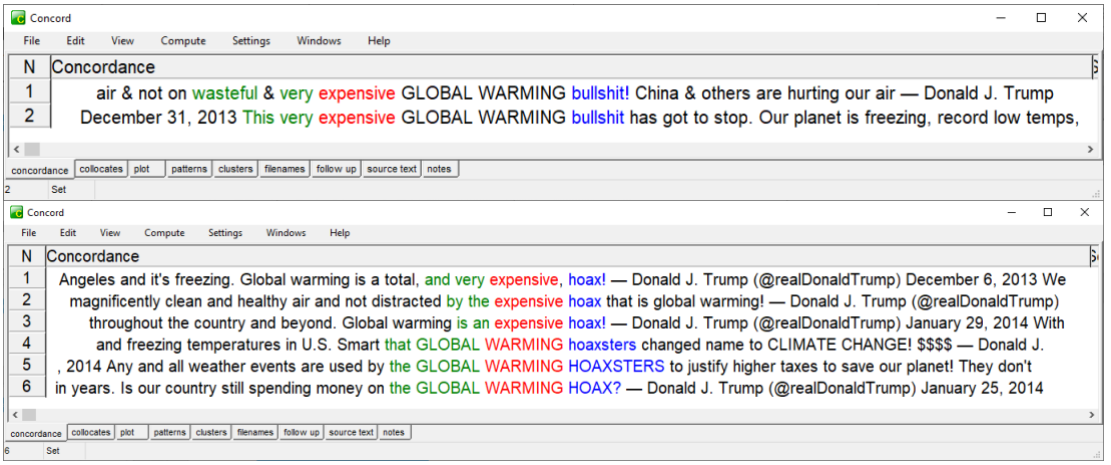

Figure 15: Concordance lines of 'global warming' in Donald Trump's tweets

It is worth remembering that when Trump was asked in interviews "Do you think global warming is a hoax?" and "Do you think climate change is a hoax?", his abrupt answer was "No, not at all", whereas on social media we read "Global warming is a total, and very expensive hoax", besides being a "wasteful and very expensive bullshit", and "a nonsense". His frequent refrain is that China and other countries besides the U.S. are polluting the air, while our planet is freezing at record low temperatures. It seems clear that Donald Trump is, once again, confusing the weather with the climate, forgetting that the effects

[59] Another high-profile right-wing leader, India's Narendra Modi, also makes ample use of irony in his tweets: Joyojeet Pal et al., "Innuendo as Outreach: @narendramodi and the Use of Political Irony on Twitter," *International Journal of Communication* 11 (2017), 4197-4218.
[60] Martin Montgomery, "Post-truth Politics? Authenticity, Populism and the Electoral Discourses of Donald Trump", *Journal of Language and Politics*, 16.4 (2017), 619-639.
[61] Michele Zappavigna, *Discourse of Twitter and Social Media: How We Use Language to Create Affiliation on the Web* (London: Continuum, 2011).

of climate change include not only hotter summers but also colder winters, as well as other weather extremes.


Figure 16: Donald Trump's ironic tweet on global warming

To be sure, hyperbole and irony are important in constructing public discourse. In line with Trump's populist idea, which needs to necessarily identify an antagonist in a politics of resentment,[62] his use of irony is obviously addressed to his opponents. This is how Trump has always gained consensus: he did not need to be loved to win, he needed only to make his opponent more hated. He used this ploy to further his political agenda in 2016 and in 2020 by discrediting Hillary Clinton and Joe Biden, respectively, i.e., employing a negative other-presentation and a positive self-representation. Previous studies[63] have shown that one in every ten of Trump's tweets contained uncivil wording or attacks on other candidates. For example, Figure 14 (lines 14, 16 and 25), illustrates his attacks on Barack Obama: "Obama's speech on climate change was scary. It will lower our standard of living", "Iran is nuking up & Libya is run by Al Qaeda, yet Obama is busy issuing climate change warnings", and "China loved Obama's climate change speech yesterday. They laughed!". Via such language, Trump ridiculed Obama's conduct on climate change, adamant as he was to establish that global warming is a canard, and that the left needs a dose of reality.

## 5. Conclusion

Despite overwhelming scientific consensus and broad international acknowledgment that climate change is real, "just like gravity exists and the Earth is round" (as Barack Obama said), among Americans a stark political divide in climate change sentiment persists, varying from belief to disbelief, and swaying from support to skepticism. Millions of Americans see the issue as a far-off problem, while others remain indifferent or even downright opposed to the idea that climate change is caused, in no small part, by human activity. Indeed, since the Paris Agreement, emissions have increased annually, with a temporary drop in 2020 due to the COVID-19 pandemic, the largest annual reduction ever observed.[64]

In this paper we have analyzed the ways American presidents from George W. Bush to Joe Biden have communicated about the climate crisis over the last twenty years. We have looked at both their public statements and their social media posts, particularly their tweets. The findings of our corpora show that

[62] Hans-George Betz, "The New Politics of Resentment: Radical Right-wing Populist Parties in Western Europe," *Comparative Politics* 25.4 (1993), 413-427.
[63] Jayeon Lee and Weiai Xu, "The More Attacks, the More Retweets: Trump's and Clinton's Agenda Setting on Twitter", *Public Relations Review*, 44 (2018), 201-213.
[64] Filipe Duarte Santos et al., "The Climate Change Challenge: A Review of the Barriers and Solutions to Deliver a Paris Solution", *Climate* 10.5, 75.

Republican presidents, i.e., Bush and Trump, have turned away from the climate emergency, while Democratic presidents, i.e., Obama and Biden, have taken the issue seriously. This polarization has been more apparent in social media, where tweeters, lacking 'gatekeepers', can go as far as to say that "climate change does not exist", and "There is no climate change". After acknowledging the existence of the climate crisis in interviews and press releases, President Trump used Twitter instead to assert that climate change and global warming (using the two phrases interchangeably) are a total fraud, a canard, wasteful and very expensive bullshit. Furthermore, Trump stands out for his confusion of the weather with the climate. Relying on his ironic and sarcastic style typical of a populist leader, he has tweeted during cold weather, "Where the hell is global warming? Please come back fast, global warming, we need you", thus denying its existence altogether. Elsewhere, he implies that a conspiracy has been engineered by China or unnamed 'Others' for financial reasons. Barack Obama harshly criticized Trump's blatant hostility toward climate science at the COP26 summit in Glasgow, and Joe Biden did the same at the COP27 summit in Sharm El Sheikh, calling Trump's climate denialism and his disdain for scientific facts "unconscionable".

Social media have transformed public conversations of a variety of topics, and climate change is no exception.[65] In an age dominated by the so-called "TL; DR" (Too Long; Didn't Read) phenomenon,[66] Trump in particular found in Twitter the ideal environment to disseminate his rhetoric despite, or rather thanks to, its character limit.

The climate crisis is a wicked problem, and few political leaders have taken the drastic and swift action necessary to mitigate its effects, much less to reverse it.[67] Meanwhile, social media have transformed political participation. The emergence of social media is, of course, not a physical cause of the worsening climate crisis, but it would be a mistake to assume that the two phenomena are unrelated. Social media have given a voice to otherwise marginalized groups and actors, allowing mobilization by youth-led organizations such as Fridays for Future. Social media platforms have also given politicians the opportunity to share bite-sized comments calling for action – or denying reality. Despite the positive action social media can facilitate, it also enables lies to spread at lightning speed.[68] The reality is that social media permit the shameless normalization of right-wing discourse,[69] allowing the limits of the sayable to shift, which is a major challenge for political actors who wish to confront the climate crisis directly.

[65] Jennifer R. Fownes et al. "Twitter and Climate Change", *Sociology Compass*, 12.6 (2018).
[66] Demata, "I think that Maybe I Wouldn't Be Here", 85.
[67] Frank Incropera, *Climate Change: A Wicked Problem: Complexity and Uncertainty at the Intersection of Science, Economics, Politics, and Human Behavior* (Cambridge, MA: Cambridge U.P., 2016).
[68] Fake news spreads six times faster than real news: Soroush Vosoughi et al., "The Spread of True and False News Online," *Science* 359.6380 (2018), 1146-1151.
[69] Wodak, *The Shameless*.

Maria Cristina Aiezza

# "Make a Change for Climate Change". A Comparative Discourse Analysis of Online Environmental Petitions in the USA and UK

**Abstract**: This study examines a corpus of e-petitions calling for action against climate change, published on *Change.org* in the USA and UK. The investigation focuses on the persuasive strategies employed in user-generated discourse, and compares the trends emerging in the two national contexts. The analysis centres on how petitioners engage with climate science, re-mediating scientific concepts by explaining global phenomena in their own words and referring to authoritative sources. The study thus explores the use of interactive metadiscourse devices typical of popular science writing. The approach is based on corpus-assisted discourse analysis. Findings indicate that climate change was perceived as a well-documented threat requiring urgent action. It was frequently addressed in conjunction with other topics, particularly, wildlife and water conservation in the USA, and land protection in the UK. All petitions contained a mediation of specialised information, encompassing general references to environmental issues and specific evidence quoted from scientific research.

Keywords: *online petitions*, *environmental discourse*, *climate change*, *popularisation*, *metadiscourse*, *corpus-assisted discourse studies*

## 1. Introduction

### 1.1 *Online Petitions*

Popular petitions have long been a traditional form of direct political participation. By gathering a significant number of signatures, advocates can express collective needs to higher authorities, such as government agencies and businesses, and request policy changes.[1] Petitions represent a valuable democratic tool that can raise public awareness on social issues, initiate new debates, and set agendas. With the advent of e-petition websites, the traditional right to petition rulers has been brought into the contemporary era.[2]

The modern age has seen a crisis of representative democracy, with a declining voting turnout, party membership, and trust in politicians.[3] In this context, populist movements have gained momentum, and digital models of political participation have emerged, harnessing the growing availability and interactivity of the Internet. By leveraging tools for digital activism, cyberspace can now be used to sensitise and mobilise online communities.[4] Petitions provide a straightforward means to bring issues to social, media, and political attention, without requiring the involvement of pollsters,

[1] Ann Macintosh, "Using Information and Communication Technologies to Enhance Citizen Engagement in the Policy Process", in Joanne Caddy and Christian Vergez, eds., *Promise and Problems of eDemocracy: Challenges of Online Citizen Engagement* (Paris: OECD, Organisation for Economic Co-Operation and Development, 2003), 19-142, 56.
[2] Georg Aichholzer and Stefan Strauß, "Electronic Participation in Europe", in Ralf Lindner et al., eds., *Electronic Democracy in Europe* (Cham, Switz.: Springer, 2016), 55-132, 61.
[3] Simon Tormey, "The Contemporary Crisis of Representative Democracy", *Democratic Theory*, 1.2 (2014), 104-112.
[4] Steffen Albrecht, "E-Consultations: A Review of Current Practice and a Proposal for Opening Up the Process", in Efthimios Tambouris et al., eds., *Electronic Participation: Proceedings of 4th IFIP WG 8.5 International Conference*, ePart 2012, Kristiansand, Norway, September 3-5, 2012 (Heidelberg, Germ.: Springer, 2012), 13-24, 13.

political parties, news media, or researchers. Petitions can be launched, promoted, and signed entirely online, and citizens can use their own words to make requests about topics that matter to them.[5]

Nevertheless, the role of e-petitioning as a form of digital democracy remains controversial. Petitions are often criticised as 'slacktivism' or 'clicktivism', an activism devoid of real effort and participation that has a minimal, if any, impact on politics. The legitimacy of online petitions may also be compromised, as petitioners may use false names or launch frivolous causes.[6] Additionally, e-petitions can turn into echo chambers, especially through the comment section, where politically and ideologically like-minded people interact, and opposing opinions are rare.[7]

Numerous national and international e-petitioning platforms, both official and informal, are available online and controlled or sponsored by different entities. For instance, during the Obama Administration, the online petition website *We the People* (now inactive) was launched in the USA, allowing citizens to submit their stances to policy experts. The UK, on its side, has an online system that enables people to petition the Parliament and the Government, seeking changes in laws or government policies.[8] Among these platforms, *Change.org* stands out as one of the most popular petition sites worldwide, and it serves as the focus of this study. It is a Public Benefit Corporation owned by an American non-profit organisation. The platform generates revenue through donations and paid advertising to promote campaign visibility. The website allows anyone to launch online petitions that call on decision-makers to address issues at the local, national, or global level. Campaigners can garner support through media coverage and online sharing.[9] Considering these factors, *Change.org* has been selected as the ideal choice for this study due to its extensive user base, widespread popularity, accessibility, and notable effectiveness in influencing change. It serves therefore as a significant case study for exploring the discourse of e-petitions across different countries.

### 1.2 *Climate Change in the USA and UK*

Climate change is one of the most pressing challenges humanity faces in this century. International scientists have affirmed with increasing certainty that the warming of the atmosphere, ocean, and land is unequivocal and influenced by human activity.[10] Although comprehensive plans for adaptation and mitigation have been formulated, a substantial amount of work remains outstanding, and the allocation of resources continues to be constrained.[11] The 2023 United Nations Intergovernmental Panel on Climate Change (IPCC) report delivered a 'final warning' on the climate crisis.[12] It stated that rising greenhouse gas emissions are driving the world dangerously close to the point of no return, where

[5] Loni Hagen et al., "Understanding Citizens' Direct Policy Suggestions to the Federal Government: A Natural Language Processing and Topic Modeling Approach", *48th Hawaii International Conference on System Sciences* (2015), 2134-2143, 2135.
[6] Ibid..
[7] Ana-Maria Cozma and Lotta Lehti, "Online Petition as an Echo Chamber", in Marjut Johansson et al., eds., *Analyzing Digital Discourses: Between Convergence and Controversy* (Cham, Switz.: Palgrave Macmillan, 2021), 333-364.
[8] Scott Wright, "E-petitions", in Stephen Coleman and Deen Freelon, eds., *Handbook of Digital Politics* (Cheltenham, UK, and Northampton, Mass.: Edward Elgan Publishing, 2015), 136-150.
[9] Change.org, "Business Model", *Change.org United States* (2023), *www.change.org/en-US*.
[10] IPCC (United Nations Intergovernmental Panel on Climate Change), *Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge and New York: Cambridge U.P., 2021), 4, 8; IPCC (United Nations Intergovernmental Panel on Climate Change), "Synthesis Report of the IPCC Sixth Assessment Report (AR6): Summary for Policymakers", *IPCC* (2023), *www.ipcc.ch*, 4-5.
[11] Ibid., 8-10.
[12] Fiona Harvey, "Scientists Deliver 'Final Warning' on Climate Crisis: Act Now or It's Too Late", *The Guardian* (20 March 2023), *www.theguardian.com*.

changes and damage to the planet may become "unavoidable and/or irreversible".[13] However, swift and drastic action may still help contain the consequences.

Given the significance of this problem, a large number of petitions on the *Change.org* platform is focused on the environmental issue of climate change. Movements like *#AllinforClimateAction* and *Climate Emergency UK!* have also been launched to address this overarching matter, broken down into a series of petitions that focus on targeted and more achievable goals.[14]

The present study examines online petitions requesting action against climate change in the different national contexts of the United States and the United Kingdom. These countries were selected as they hold significant roles in global climate change discussions, both due to their greenhouse gas (GHG) emissions[15] and their involvement in international talks concerning mitigation. Additionally, their climate discourses have been extensively studied.[16] The US and UK share comparable policy approaches concerning climate change. They have exhibited long-standing dedication to capitalist-neoliberal development, utilitarian perspectives of nature, entrenched technological optimism, and a reluctance to take precautionary actions in the absence of definitive scientific evidence. Yet, the variations in these socio-economic and national settings can be ascribed in part to the differences in their respective domestic political landscapes.[17] The UK, previously associated with the European Union, is widely recognised as a leading international actor, actively engaging in and supporting global initiatives aimed at reducing GHG emissions. Notably, the UK has successfully reduced its emissions over the past few decades. In contrast, the USA has faced criticism for its hesitance in contributing to robust measures addressing climate change and its resistance to implementing domestic policies that would penalise American businesses. In the USA, climate sceptics have gained more prominence, both due to their affiliation with US universities and think-tanks and to their association with influential US policy-makers, potentially stemming from a convergence of interests and goals.[18] The USA has also had a complex relationship with the primary international treaties aimed at imposing binding limits on greenhouse gases, as promoted by the UN Framework Convention on Climate Change (UNFCCC). The country has never ratified the Kyoto Protocol and withdrew from the Paris Agreement during the tenure of climate denier Donald Trump,[19] only to rejoin it when President Biden assumed office.[20] Consequently, emission reduction efforts in the USA experienced significant setbacks during Trump's presidency,[21] resulting in the country currently retaining its position as the world's second-largest emitter of $CO_2$.[22]

[13] IPCC, "Synthesis Report", 19.
[14] Change.org, "Movements", *Change.org United States* (2023), *www.change.org/en-US*.
[15] OECD (Organisation for Economic Co-operation and Development), "Greenhouse Gas Emissions", *OECD.Stat* (2023), https://stats.oecd.org/Index.aspx?DataSetCode=air_ghg.
[16] See Maxwell T. Boykoff, *Who Speaks for the Climate? Making Sense of Media Reporting of Climate Change* (Cambridge: Cambridge U.P., 2011).
[17] Ibid., 137-138.
[18] Maxwell T. Boykoff, "Flogging a Dead Norm? Newspaper Coverage of Anthropogenic Climate Change in the United States and United Kingdom from 2003 to 2006", *Area*, 39.4 (2007), 470-481, 478; Maxwell T. Boykoff and S. Ravi Rajan, "Signals and Noise: Mass-Media Coverage of Climate Change in the USA and the UK", *EMBO Reports*, 8.3 (2007), 207-211, 209.
[19] Donald J. Trump, "Statement by President Trump on the Paris Climate Accord", *Trump White House* (1 June 2017), *https://trumpwhitehouse.archives.gov/briefings-statements/statement-president-trump-paris-climate-accord/*.
[20] Joseph R. Biden Jr., "Paris Climate Agreement", *The White House* (20 January 2021), *https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/*.
[21] Antonella Napolitano and Maria Cristina Aiezza, "Trump is Erasing Climate Change... Language: A Corpus-Assisted Critical Discourse Analysis of the US Online Environmental Communications under Obama and Trump", *Lingue & Linguaggi*, 29 (2019), 147-177.
[22] UNEP (United Nations Environment Programme), "State of the Climate: Climate Action Note – Data you Need to Know", *UNEP* (2021), *www.unep.org*.

## 2. Aims and Purposes

The present paper aims at exploring the discourse of e-petitions calling for climate change reduction in the USA and UK. The study examines the persuasive strategies exploited in the user-generated discourse to gain support for environmental causes. In particular, the analysis focuses on how e-petitioners engage in popularisation of climate science. The investigation also compares the discursive trends that emerge in the two distinct national and regulatory contexts.

## 3. Methods and Data

The study examines a selection of petitions published on the USA and UK versions of *Change.org*.[23] The texts were retrieved using the search function of the websites, with the words "climate change", "global warming", and, respectively, "USA", "US", "United States", and "UK", "United Kingdom".

In the final corpus, a total of 116 petitions (58 per country) were included, selected based on the number of signatures. The minimum signature threshold for the USA was set at 9,000, while for the UK at 4,000. The selected petitions have a wide range of signatories, ranging from 1,442,107 to 9,394 for the USA and from 918,205 to 4,126 for the UK, as of July 10th, 2022. The popularity level of individual petitions was not considered. The petitions were published between 2011 and 2022. While the study acknowledges the temporal changes within this timeframe, the primary focus of this research was not on conducting a diachronic analysis. *Change.org* provides an option for petitioners to declare "victory" when they believe that tangible change has been achieved. Celebrating these successes serves as a reward to those involved and reinforces the voices advocating for positive change, thereby maintaining motivation to persist in ongoing efforts. The company's approach prioritises therefore petitions that showcase personal stories and offer the potential for small victories.[24] In the corpus under study, in the USA component, 12 petitions culminated in victories, whereas the UK section includes only 2 such cases. Since victory declarations are infrequent and subjective, this study did not focus on individual outcomes and did not distinguish between successful and unsuccessful petitions. The collected texts include: the name(s) of addressee(s); the creator's name/nickname and location; the number of supporters; the creation date; the titles of embedded videos and captions in the pictures; the petition text; any statement of petition victory. The final corpus contains a total of 50,102 tokens and 7,054 types: 24,858 tokens and 4,718 types for the USA; 25,244 tokens and 4,514 types for the UK. Text length varies from 160 to 904 words for the USA and 95 to 1,603 for the UK. The comment sections were excluded from the study to ensure uniformity across the corpus, since not all of the petitions in the dataset included responses, and to maintain a consistent focus on the main petition texts.

Previous studies have analysed e-petitions as instances of persuasive writing aimed at enhancing endorsement by other citizens through a series of rhetorical strategies. Petitions commonly use traditional persuasive appeals, including: ethos appeals, which emphasise the author's credibility; pathos appeals, which suggest the need for urgent action and exploit compassion and sensationalism; logos appeals, which provide specific supporting data.[25] This paper focuses on some of the recurring discursive strategies used by petitioners to gain support for their environmental causes.

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[23] Change.org, *Change.org United Kingdom* (2022), *www.change.org/?lang=en-GB*; Change.org, *Change.org United States* (2022), *www.change.org/?lang=en-US*.

[24] David Karpf, *Analytic Activism: Digital Listening and the New Political Strategy* (Oxford: Oxford U.P., 2016); Change.org, "Declaring Petition Victory", *Change.org* (2023), *https://guide.change.org/declare-petition-victory*.

[25] Helen Briassoulis, "Online Petitions: New Tools of Secondary Analysis?", *Qualitative Research*, 10.6 (2010), 715-727, 716; Hagen et al., "Understanding Citizens' Direct Policy Suggestions"; Loni Hagen et al., "Introducing Textual Analysis Tools for Policy Informatics: A Case Study of E-Petitions", *Proceedings of the 16th Annual International Conference on Digital*

The study also adopts a genre perspective. Many studies have investigated historical petitionary discourse, revealing that two moves are central to petitions: the statement of grievance or difficulty, also known as *narratio* and the request for redress, the *petitio*.[26] Online petitions can be analysed by combining the rhetorical structures of their traditional form with the related genre of fundraising letters. The latter have the similar purpose of informing readers about a problematic issue and persuading them to support a good cause through financial contributions.[27] Petitions also incorporate the interactive and multimodal elements of online communication and advertising, identified, for instance, in online coupons.[28] A rhetorical scheme for the genre of online petitions was suggested in a previous study, which identified the following moves: Attracting attention, Establishing a discourse community, Using pressure tactics, Identifying the petitioner, Addressing decision-makers, Establishing credentials, Indicating a problem, Requesting redress, Offering incentives, Referencing other materials, Inviting to support the cause, Expressing gratitude, and Concluding with pleasantries.[29] This paper concentrates on three significant actions employed by petitioners: Attracting attention, by using eye-catching titles and representative visuals; Indicating a problem, by describing the general or specific problem that the advocate seeks to address; Referencing other materials, by citing or alluding to external sources to provide readers with additional information about the presented issue.

The ongoing discussion surrounding climate change is polyphonic, encompassing various forms of discourse, from the original scientific discourse to its popularised versions.[30] Previous research has focused on the representation of climate change in different contexts. The issue was initially discussed within scientific disciplines and represented using technical language. As climate science spread through environmental organisations and the media, also governments and intergovernmental bodies started to establish specific frames to interpret and represent it. As discussions of climate change transitioned from scientific circles to government entities, the discourse shifted therefore from a more technical to a more technocratic tone. Climate change has thus been viewed from different perspectives, as statistical evidence, as a risk to the planet, but also as a threat to development and a social problem to be addressed in the context of sustainable development.[31] Media representations have played a significant role in influencing perceptions of climate science, governance, and the

*Government Research* (2015), 10-19; Ahmed El Noshokaty et al., "Success Factors of Online Petitions: Evidence from Change.org", in Tung X. Bui and Ralph H. Sprague, eds., *2016 49th Hawaii International Conference on System Sciences* (Koloa, Hawaii: IEEE, Institute of Electrical and Electronics Engineers, 2016), 1979-1985; Loni Hagen et al., "E-Petition Popularity: Do Linguistic and Semantic Factors Matter?", *Government Information Quarterly* (2016), 1-13; Nurrahma Restia Fatkhiyati, "Rhetorical Strategy and Linguistics Features in E-Petition Through Change.org", *Lingua Cultura*, 13.4 (2019), 239-245.

[26] John H. Fisher et al., *An Anthology of Chancery English* (Knoxville, Tenn.: U. of Tennessee P., 1984); Gwilym Dodd, *Justice and Grace: Private Petitioning and the English Parliament in the Late Middle Ages* (Oxford: Oxford U.P., 2007); Matti Peikola, "Supplicatory Voices: Genre Properties of the 1692 Petitions in the Salem Witch-Trials", *Studia Neophilologica*, 84.1 (2012), 106-118.

[27] Vijay K. Bhatia, "Generic Patterns in Fundraising Discourse", *New Directions for Philanthropic Fundraising*, 22 (1998), 95-110; Douglas Biber et al., *Discourse on the Move: Using Corpus Analysis to Describe Discourse Structure* (Amsterdam: John Benjamins, 2007), 43-73.

[28] Maria Cristina Aiezza, "Go Before They're Gone: A Comparative Analysis of Online Travel Coupons Advertising", in Maurizio Gotti et al., eds., *Ways of Seeing, Ways of Being: Representing the Voices of Tourism* (Bern: Peter Lang, 2017), 102-129.

[29] Maria Cristina Aiezza, "Sign and Make Your Mark on the World a Positive One": A Discourse and Genre Analysis of UK Online Petitions to Reduce Single-Use Plastics, *Anglistica AION*, 22.1 (2018), 109-130.

[30] Anna Franca Plastina, *Social-Ecological Resilience to Climate Change: Discourses, Frames and Ideologies* (Newcastle upon Tyne: Cambridge Scholars Publishing, 2020).

[31] Chris Taylor, "The Discourses of Climate Change", in Timothy Cadman, ed., *Climate Change and Global Policy Regimes: Towards Institutional Legitimacy* (London: Palgrave Macmillan, 2013), 17-31; Katherine E. Russo, *The Evaluation of Risk in Institutional and Newspaper Discourse: The Case of Climate Change and Migration* (Naples: Editoriale Scientifica, 2018).

urgency for climate mitigation or adaptation measures. The consensus on anthropogenic climate change presented by the IPCC has become a contentious issue, influenced by climate 'sceptics' or 'contrarians'[32]. In this politically-charged context, conflicting interpretations are crafted, negotiated, and contested among differing perspectives[33] Mass-media norms, especially the emphasis on balanced reporting, have contributed to presenting global warming as a subject surrounded by uncertainty.[34]

It has been argued that a primary function of environmental discourse "is not to be informative but persuasive".[35] Persuasion in climate discourse has indeed been the subject of multiple studies, as it plays a critical role in shaping public opinion, influencing policy decisions, and driving collective action. Researchers have explored the strategies employed in climate-related communication to effectively convey the urgency and importance of addressing climate change. This includes investigating the role of emotions, such as fear and anxiety, in motivating individuals to take action[36]. The use of metaphors,[37] narratives,[38] and visual imagery[39] to frame reality, attract attention, and foster empathy have also been analysed. In particular, various studies examining users' responses to climate-related icons and messages have demonstrated that, while exploiting fearful depictions of climate change can successfully capture people's interest and emphasise the importance of the issue, it may also yield counterproductive effects. Fear often fails to genuinely inspire personal involvement, giving rise to various barriers that hinder engagement. These obstacles may include uncertainty and scepticism, blaming others or external factors, prioritising other more immediate concerns, experiencing fatalism or helplessness.[40] Employing non-threatening imagery and icons that resonate with individuals' everyday emotions and concerns within the broader environmental context tends instead to be the most effective way to engage people.[41] Additionally, non-expert icons are found to be more appealing and relevant to local communities compared to technical representations of climate change-related phenomena.[42] These findings underscore the importance of integrating dramatic representations with elements that enable individuals to establish a meaningful connection with the causes and consequences of climate change in a positive manner. This approach helps them recognise the relevance of climate change to their local community and personal life, understanding that they can take positive actions in response.[43] Other studies have examined the influence of different messengers, such as scientists, activists, and public figures, in shaping public perceptions and promoting action to

[32] Boykoff, *Who Speaks for the Climate?*
[33] Maxwell T. Boykoff and Jules M. Boykoff, "Balance as Bias: Global Warming and the US Prestige Press", *Global Environmental Change*, 14 (2004), 125-136; Anabela Carvalho, "Representing the Politics of the Greenhouse Effect: Discursive Strategies in the British Media", *Critical Discourse Studies*, 2. 1 (2005), 1-29; Cinzia Bevitori, "Values, Assumptions and Beliefs in British Newspaper Editorial Coverage of Climate Change", in Christopher Hart and Piotr Cap, eds., *Contemporary Critical Discourse Studies* (London and New York: Bloomsbury Academic, 2014), 603-625.
[34] Maxwell T. Boykoff, "The Cultural Politics of Climate Change Discourse in UK Tabloids", *Political Geography*, 27 (2008), 549-569; Boykoff, *Who Speaks for the Climate?*; Maxwell T. Boykoff and Jules M. Boykoff, "Climate Change and Journalistic Norms: A Case-Study of US Mass-Media Coverage", *Geoforum*, 38 (2007), 1190-1204.
[35] Richard J. Alexander, *Framing Discourse on the Environment: A Critical Discourse Approach* (New York and Oxon, UK: Routledge, 2009), 42.
[36] Russo, *The Evaluation of Risk*.
[37] Othman Khalid Al-Shboul, *The Politics of Climate Change Metaphors in the U.S. Discourse: Conceptual Metaphor Theory and Analysis from an Ecolinguistics and Critical Discourse Analysis Perspective* (Cham, Switz.: Palgrave Macmillan, 2023).
[38] Kjersti Fløttum and Øyvind Gjerstad, "Narratives in Climate Change Discourse", *WIREs Climate Change*, 8.1 (2016), e429.
[39] Saffron O'Neill and Mike Hulme, "An Iconic Approach for Representing Climate Change", *Global Environmental Change*, 19.4 (2009), 402-410; Saffron O'Neill and Sophie Nicholson-Cole, "'Fear Won't Do It': Promoting Positive Engagement with Climate Change Through Visual and Iconic Representations", *Science Communication*, 30 (2009), 355-379.
[40] Irene Lorenzoni et al., "Barriers Perceived to Engaging with Climate Change Among the UK Public and Their Policy Implications", *Global Environmental Change*, 17 (2007), 445-459; O'Neill and Nicholson-Cole, "'Fear Won't Do It'".
[41] O'Neill and Nicholson-Cole, "'Fear Won't Do It'".
[42] O'Neill and Hulme, "An Iconic Approach".
[43] O'Neill and Nicholson-Cole, "'Fear Won't Do It'", 376.

address climate change.[44] The circulation climate change denialism has also been explored both in traditional news outlets[45] and on social media[46]. In the context of climate change involvement, new media entities play indeed relevant roles, including providing information, encouraging interaction, widening participation.[47]

This analysis explores the user-generated popularisation of climate change knowledge from its original scientific discourse to its dissemination among the general public.[48] Based on a previous study of petitions against single-use plastics,[49] it appeared evident that petitioners became aware of the problem after exposure to news, especially if particularly shocking. In their petitions, advocates attempted to persuade readers of the negative impacts of plastic on marine life by citing scientific facts from multiple sources, such as online articles, websites, Wikipedia entries, and official regulations. Relevant data were copied and pasted or, more commonly, re-narrated even without proper references. Users tended to include information from various media, also referencing distressing images shown in viral videos and documentaries. In particular, the scholar used the expression "Blue Planet effect"[50] to describe the impact of natural historian David Attenborough's programme on building British environmental conservationism. Especially after viewing the man-made devastation depicted in *Blue Planet II*, a documentary series aired on the BBC, many citizens decided to use the power of the Internet to encourage others to take action.

It appears therefore that the process employed by petitioners is similar to that used by popular science writers, who exploit various strategies to explain natural phenomena to audiences who may lack domain-specific knowledge.[51] In this context, metadiscourse plays a crucial role in framing scientific work for non-science audiences, using interactive and interactional linguistic resources.[52] In particular, evidentials indicate the external origin of material in the current text and lend credibility to it by drawing attention to the reliability of its source. Code glosses provide additional information by rephrasing and clarifying potentially unfamiliar terms or usages, while also linking issues in the specialist domain to everyday contexts.[53] Popular science texts also employ sentence definitions and extended definitions to describe technical terms and concepts.[54]

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[44] Graham Huggan, *Nature's Saviours: Celebrity Conservationists in the Television Age* (London: Routledge, 2013); Maxwell T. Boykoff and Michael K. Goodman, "Conspicuous Redemption? Reflections on the Promises and Perils of the "Celebritization" of Climate Change", *Geoforum*, 40 (2009), 395-406.

[45] Katherine E. Russo, "Speculations About the Future: Populism and Climate Change in News Discourse", in Encarnación Hidalgo-Tenorio et al., eds., *Populist Discourse: Critical Approaches to Contemporary Politics* (London and New York: Routledge, 2019), 190-206.

[46] Emma Frances Bloomfield and Denise Tillery, "The Circulation of Climate Change Denial Online: Rhetorical and Networking Strategies on Facebook", *Environmental Communication*, 13.1 (2019), 23-34.

[47] Saffron J. O'Neill and Maxwell T. Boykoff, "The Role of New Media in Engaging the Public with Climate Change", in Lorraine Whitmarsh et al., eds., *Engaging the Public with Climate Change: Communication and Behaviour Change* (London: Earthscan, 2010), 233-251.

[48] Maurizio Gotti, "Reformulation and Recontextualization in Popularization Discourse", *Ibérica*, 27 (January-June 2014), 15-34.

[49] Aiezza, "Sign and Make Your Mark on the World a Positive One".

[50] Ibid..

[51] Helena Calsamiglia and Teun Van Dijk, "Popularization Discourse and Knowledge about the Genome", *Discourse & Society* 15.4 (2004), 369-389; Maurizio Gotti, "Reformulation and Recontextualization in Popularization Discourse", *Ibérica*, 27 (2014), 15-34.

[52] Silvia Masi, "Metadiscourse in English and Italian: An Analysis of Popular Scientific Discourse Online", in Susan Kermas and Thomas Christiansen, eds., *The Popularization of Specialized Discourse and Knowledge across Communities and Cultures* (Bari: EdiPuglia, 2013), 315-329.

[53] Ken Hyland, *Metadiscourse: Exploring Interaction in Writing* (London and New York: Continuum, 2005), 51-52, 95-98.

[54] John M. Swales and Christine B. Feak, *Academic Writing for Graduate Students: Essential Skills and Tasks,* Third Edition (Ann Arbor, Mich.: U. of Michigan P., 2012).

The present study integrates quantitative and qualitative analytical perspectives. To compare environmentalist discourses in the USA and UK, petitions were categorised based on the main topic, author, and addressee. Attention-grabbing elements such as titles and images were considered, and instances of popularisation were manually identified in the texts. The investigation combined Discourse Analysis with Corpus Linguistics,[55] employing corpus analysis tools to identify and compare themes and patterns through frequencies, keywords, and collocations. These observations allowed the researcher to pinpoint areas for subsequent close analysis. The corpus was investigated through the software *WordSmith Tools*[56] and POS-tagged and explored through the online corpus query system *Sketch Engine*.[57] The analysis focused on the discursive trends evidenced in the two contexts and on the forms of re-mediation of scientific climate language, especially through the use of evidentials, definitions, and external references.

## 4. Analysis

### 4.1 *Attracting Attention*

The petitions on *Change.org* follow a structured format while allowing for considerable freedom in the textual contents, as long as they comply with the Community Guidelines.[58] In this study, petitions were categorised based on their primary topic. Climate change was the main theme for 8 petitions both in the USA and the UK subcorpora. The remaining texts connected instead the issue of climate change to a range of related interests, including: protecting land and water, conserving wildlife, reducing fossil fuels, contrasting plastic waste, avoiding palm oil, spreading climate knowledge in education and media, improving farming practices, and using cleaner transportation. Notably, the USA citizens tended to devote more petitions to wildlife (14, including 4 on hunting, versus 7 in the UK, with 1 related to hunting) and water conservation (7, compared to 4 in the UK). The topic of land and nature protection was instead more prominent in the UK (8 petitions, compared to 3 in the USA).

The corpus collected petitions solely based on search words, origin, and popularity, without regard to the authors. In the USA, nearly half of the petitioners (26 out of 58) were represented by single-/multi-issue organisations or formal/informal advocacy groups, compared to only 13 in the UK petitions. This may create an appearance of imbalance of the corpus, as the authors' expertise and knowledge of the topics varied, ranging from ordinary people, to enthusiasts, to experts. Nevertheless, popularisation features were present throughout the corpus, not just in the petitions submitted by organisations, and scientific precision was found to be equally variable (see Paragraph 4.4).

The petitions were directed mainly towards national (such as Congress, President, and representatives in the USA, and Parliament, Prime Minister, and ministers in the UK) and local government bodies (e.g., governors and mayors in the USA, city councils in the UK). In addition to this, some petitions also addressed organisations, such as companies and retailers, educational entities, and international or foreign authorities.

Given the abundance of petitions available on the website and the tendency to read only headlines in online texts, petitioners need to persuade web users to read their texts in full and share their cause. This function is primarily enacted through an incisive title and representative visuals. The titles in the corpus effectively conveyed the petitioners' demands. As *Change.org* guidelines suggest, titles should

[55] Paul Baker et al., *Discourse Analysis and Media Attitudes: The Representation of Islam in the British Press* (Cambridge: Cambridge U.P., 2013); Alan Partington et al., *Patterns and Meanings in Discourse: Theory and Practice in Corpus-Assisted Discourse Studies (CADS)* (Amsterdam and Philadelphia: John Benjamins Publishing Company, 2013).
[56] Mike Scott, *WordSmith Tools 7.0* (Oxford: Lexical Analysis Software and Oxford U.P., 2014).
[57] Lexical Computing CZ s.r.o., *Sketch Engine* (2023), *www.sketchengine.eu*.
[58] Change.org, "Community Guidelines", *Change.org United Sates* (2020), *www.change.org*.

communicate a sense of urgency, frequently achieved through the use of the imperative mood. Imperatives often used in the titles included, in the USA: "stop" (11), "tell" (9), "protect" (6), "save" (6), "ban" (4), "help" (4), "end" (3), "let" (3). Similarly, in the UK, imperative verbs comprised: "stop" (9), "ban" (7), "save" (5), "make" (4), "get" (3), "support" (3). The exhortations were, therefore, focused on halting environmental degradation and protecting the natural world. The use of verbs such as "tell" and "get" also emphasised the role of petitions in collecting support and appealing to authorities:

> Tell Congress: Climate Change is an Emergency and needs more awareness[59]
>
> Get BBC to show Cowspiracy and Earthlings[60]

Other attention-grabbing techniques employed included capitalisation, exclamation marks, expressions of urgency such as "*EMERGENCY*", "this winter" (in the USA subcorpus), "now", "take urgent action", and "before it's too late" (in the UK component).

All petitions used visual media to capture the attention of readers. In the United States, 8 petitions and 2 in the UK started with a video, while pictures were the primary tool for the rest. Images mostly included representations of animals (28 in the USA and 23 in the UK), such as polar bears, orangutans, cows, birds, whales, and of natural landscapes (29 in the USA and 19 in the UK), such as forest, countryside, sea shores, glaciers. Some pictures (17 USA and 15 UK) also showed human presence, including campaigners, petitioners, and popular figures, such as politicians or environmentalists. In both subcorpora, nearly half of the images aimed to shock and move viewers by revealing the devastating events of climate change, deforestation, and pollution on animals, land, and sea. Other pictures depicted instead peaceful images of the animals or nature that the petitioner wished to safeguard, unspoilt by human action. Another section of the images utilised posters or slogans to provide information and reinforce the exhortation presented in the title.

### 4.2 *Keyword Analysis*

The software *WordSmith Tools* was used to obtain keywords and compare petitions initiated in the USA and UK. Only words present in at least 5 petitions were considered, with the p value set at 0.001. The resulting *Keyword List* (see Table 1) signalled the relevance of words referring to government authorities and environmental issues. Significant terms were concordanced and further analysed in their context of occurrence.

| USA | | | UK | | |
|---|---|---|---|---|---|
| **Key word** | **Freq.** | **%** | **Key word** | **Freq.** | **%** |
| U | 50 | 0.20 | UK | 154 | 0.61 |
| SENATOR | 36 | 0.14 | GOVERNMENT | 82 | 0.32 |
| REPRESENTATIVE | 36 | 0.14 | PLANNING | 35 | 0.14 |
| YORK | 33 | 0.13 | PLASTIC | 49 | 0.19 |
| EPA | 27 | 0.11 | MP | 20 | 0.08 |
| SENATE | 25 | 0.10 | MINISTER | 26 | 0.10 |
| GOVERNOR | 21 | 0.08 | PARLIAMENT | 15 | 0.06 |
| PARK | 29 | 0.12 | BORIS | 15 | 0.06 |
| CONGRESS | 24 | 0.10 | HOUSING | 15 | 0.06 |

[59] Trent Miles, "Tell Congress: Climate Change is an Emergency and Needs More Awareness", *Change.org United States* (24 January 2020), *www.change.org*.
[60] Sarah Gate, "Get BBC to show Cowspiracy and Earthlings", *Change.org United Kingdom* (25 July 2019), *www.change.org*.

| | | | | | |
|---|---|---|---|---|---|
| STATES | 26 | 0.10 | COP26 | 14 | 0.06 |
| AMERICAN | 17 | 0.07 | M | 29 | 0.11 |
| SCOTT | 21 | 0.08 | GOVE | 13 | 0.05 |
| TRUMP | 21 | 0.08 | JOHNSON | 16 | 0.06 |
| TROPHY | 16 | 0.06 | PRIME | 19 | 0.08 |
| NATIONAL | 57 | 0.23 | MICHAEL | 15 | 0.06 |
| OCEAN | 35 | 0.14 | COUNCIL | 44 | 0.17 |
| GENERAL | 27 | 0.11 | NATURE | 31 | 0.12 |
| FIGHT | 29 | 0.12 | WHERE | 27 | 0.11 |
| PROGRAMS | 18 | 0.07 | LAW | 20 | 0.08 |
| LANDFILLS | 12 | 0.05 | TESCO | 10 | 0.04 |
| UNITED | 35 | 0.14 | WHILST | 10 | 0.04 |
| NON | 24 | 0.10 | NOVEMBER | 10 | 0.04 |
| ENDANGERED | 30 | 0.12 | | | |
| POINT | 27 | 0.11 | | | |
| ADMINISTRATIO N | 10 | 0.04 | | | |

Table 1. Keywords of the USA vs the UK subcorpora

Both lists included references to the institutions addressed, such as "Senator", "Representative", "EPA", "Senate", "Governor", "Congress" for the USA, and "Government", "MP", "Minister", "Parliament", "Boris" "Johnson", "Michael" "Gove", "council" for the UK.

Several USA keywords referred to animal protection, through the designation of an area as a "park" to preserve flora and fauna, the contrast to "trophy" hunting, the safeguard of "endangered" species and the "ocean" ecosystem and wildlife. The war metaphor "fight" also appeared among the USA keywords, primarily used as a verb, to indicate opposition to climate change and support for the environment. Petitioners went as far as to use the form "fight back" to suggest that their protest was a response to an earlier attack:

> We are witnessing the collapse of our entire ecosystem and we will not sit idly by and do nothing, so today we stand together and fight back to #SaveFL![61]

Furthermore, the acronym "EPA" was particularly relevant during the previous administration, as the Environmental Protection Agency was under the control of climate deniers Trump and Pruitt, who downplayed the importance of ecological concerns and underestimated climate issues.[62]

In the UK keywords related to environmental issues, the problem of "plastic" pollution was particularly relevant, especially in relation to single-use items and food packaging. The lack of "nature" protection, especially the consideration of woodland in "planning" for "housing" stood out:

> The current planning laws are ensuring we speed faster into the Climate-Nature crises – by building on our carbon sinks – creating more extreme weather, floods, droughts and rising sea levels. [UK][63]

"COP26" also appeared in the UK keywords, referring to the 2021 conference held in Glasgow. Petitioners had initially hoped this would bring change for the climate, but later expressed disappointment and scepticism towards its actual achievements.

[61] Florida Naturekeepers Inc., "Florida's Gulf Coast is Dying! Millions of Dead Fish, Sea Turtles, Manatees and Dolphins!", *Change.org United States* (1 August 2018), *www.change.org*.
[62] Napolitano and Aiezza, "Trump is Erasing Climate Change".
[63] Lucy Philip, "Halt Harmful Housing with New Environmental Planning Law", *Change.org United Kingdom* (6 October 2021), *www.change.org*.

### 4.3 *Climate-Related Language*

Given the high relevance of the issue of climate change in the petitions under study, it appeared interesting to compare the usage of the term "climate" in the USA and UK subcorpora. *SketchEngine* was utilised to obtain a *Word Sketch Difference*, a corpus-derived summary of the grammatical and collocational behaviour of the word. Figure 1 shows the right-hand nominal collocates of "climate" in the two subcorpora. The collocates highlighted in green represent those more peculiar to the USA subcorpus, while those in red are more typical of the UK texts. The second column from the left presents the frequency of the lemma in the USA petitions, the third column indicates its occurrences in the UK petitions, and the fourth and fifth columns display their respective typicality scores (logDice). The logDice statistical measure quantifies the strength of the collocation, with higher scores indicating stronger collocations.[64]

Among the terms modified by "climate", the expected "change" had similar relevance in both subcorpora. It is necessary to note that, since the tool *Word Sketch Difference* produces case sensitive collocates, different (and not combined) collocations were retrieved for "Change" and "change".[65]

Figure 1 reveals that, in the USA component, the contrast to climate change denial was present, as indicated by the phrases "climate denial" and "skeptic". Although these instances were limited, it is intriguing to note that such climate disbelief tended to contradict the prevailing scientific consensus represented by "climate scientist" and science". UK petitioners used more overtly negative terminology, associating climate with terms such as "emergency", "crisis", "disaster", "breakdown", and "catastrophe". The frequent occurrence of the phrase "climate emergency" in the UK corpus referred to the declaration of a state of environment and climate emergency adopted by the British parliament in 2019[66] and gradually followed by local jurisdictions throughout the country.

[64] Pavel Rychlý, "A Lexicographer-Friendly Association Score", in Petr Sojka and Aleš Horák, eds., *Proceedings of Recent Advances in Slavonic Natural Language Processing (RASLAN) 2008* (Brno: Masaryk University, 2008), 6-9.
[65] Lexical Computing CZ s.r.o., "Using Case Sensitive and Case Insensitive Searches with Corpora", *Sketch Engine* (2023), *www.sketchengine.eu*.
[66] BBC News, "UK Parliament Declares Climate Change Emergency", *BBC News* (1 May 2019), *www.bbc.co.uk*.


Figure 1. Word Sketch Difference: right-hand nominal collocates of "climate" in the USA (green) and UK (red) subcorpora

To gain further insight into the use of the phrase "climate change" in the petitions, a concordance search of "climate change is" was conducted in each subcorpus using *WordSmith Tools*. The search aimed to identify definitions, explanations, and opinions related to the concept.[67] As seen in the concordances in Figures 2 and 3, the number of results was limited (9 in the USA subcorpus and 10 in the UK). The concordances showed that, in both subcorpora, petitioners described climate change as a major "issue", a "threat", and a "crisis". Furthermore, in the USA, it was depicted as "real", "irrefutable", in order to counteract climate scepticism. The UK collocations also featured continuous forms such as "climate change is happening", "bringing" disasters and "accelerating", used to emphasise the urgent nature of the situation.

[67] Lynne Bowker and Jennifer Pearson, *Working with Specialized Language: A Practical Guide to Using Corpora* (London and New York: Routledge, 2002), 206-209.

, and we're running out of time! ADD YOUR NAME: I believe that **climate change** is **a planetary crisis** and that Congress must do more to
, environmentalists and scientists say climate change will spike more as **climate change** is **already a major** issue! Climate change has rapidly been
Tell Congress: **Climate Change** is **an Emergency and** needs more awareness Trent Miles
, it is a death sentence for at-risk individuals. While science tells us that **climate change** is **irrefutable, science also** tells us that it is not too late to
happen. If you believe that understanding and mitigating the effects of **climate change** is **key to our** future, please sign and share this petition. Let's
energy sources; such as coal. Mr. Trump is also a firm believer that **climate change** is **not an issue** to our nation. Both of these individuals hold
gases, we would be turning our backs on ourselves and the environment. **Climate change** is **real, and we** need to move forward and understand its
Starbucks Cups and paper cups in general. One of the major drivers of **climate change** is **the greenhouse gas** emissions emitted by landfills, which
of these people are the ones who produce the world's food – farmers. **Climate change** is **the single biggest** threat to winning the fight against

Figure 2. Concordances of "climate change is" in the USA subcorpus

FOR SURREY HEATH. THE RT. HON MICHAEL GOVE MP **Climate change** is **accelerating. We are** witnessing the increasing impacts
of State for Business, Energy and Industrial Strategy Andrea Leadsom **Climate change** is **bringing drought, floods,** extreme heat and poverty to
acidity caused by climate change, and protects our coasts from erosion. **Climate change** is **happening! Seas are** getting rougher and more acidic;
and our wellbeing. The nature crisis and climate emergency are intertwined: **climate change** is **one of the** biggest causes of the loss of wildlife;
show them that the demand is there and that in the 21st century when the **climate change** is **such a big** issue, we should have the option to travel by
the damage we're doing to our planet and how it will affect our futures. **Climate change** is **the biggest issue** of our time, and it must be a part of
Conference ProVeg UK started this petition to German government **Climate change** is **the greatest challenge** facing humanity and the planet.
importantly, it inspired me to get out there and do as much as I could. **Climate change** is **the most pressing** and threatening issue to modern day
on our planet. The biggest single act a person can take to limit the impact of **climate change** is **to reduce or** eliminate from their diet the consumption of
are getting rougher and more acidic; to remove anything that can ameliorate **climate change** is **utterly bonkers. Many** of our Scottish Islands are

Figure 3. Concordances of "climate change is" in the UK subcorpus

Another critical concept in climate science is the process of "global warming". Concordances of the phrase "global warming" were obtained for both subcorpora, resulting in 19 occurrences in the USA and 19 in the UK subcorpus. In both components, petitioners described global warming as a consequence of human activities that release $CO_2$ into the atmosphere, such as the use of fossil fuels, incineration, fires, animal farming, deforestation, and plastic production. With their causes, petitioners sought to limit such practices. Notably, in the UK, global warming was portrayed in darker tones, as a "slaughter", "disaster", and a "threat". Several UK petitions emphasised the need to reduce or prevent the emission of greenhouse gases to limit global temperature rise to 1.5 °C above pre-industrial levels, also explicitly referring to the target posed by the IPCC in its special report of 2018.[68]

[68] IPCC (United Nations Intergovernmental Panel on Climate Change), "Global Warming of 1.5 °C: Summary for Policymakers", *IPCC* (2018), *www.ipcc.ch*.

Figure 4. Concordances of "global warming" in the USA subcorpus

Figure 5. Concordances of "global warming" in the UK subcorpus

### 4.4 *Popularisation of Climate Science*

The current study also delved into the instances of popularisation found in the corpus. Some form of mediation of specialised information was retrieved in all of the petitions under investigation. Instances of popularisation ranged from very general and vague reference to environmental issues to the inclusion of specific results from scientific research. In both sections, quotes were included through direct, indirect, or partial quotes, as well as references to sources. The study also identified various forms of reports and definitions. Sources could remain unattributed or be attributed to generalised

entities or specific sources, which could be people, institutions, rules, or texts.[69] In the following examples, bold and underlined writing indicate clickable hyperlinks included in the petition text.

Quotes could be used to effectively summarise or illustrate a point, while also allowing for the inclusion of strong evaluations, without appearing overtly partial.[70] Petitions sometimes incorporated direct quotes, by reusing language from news interviews and employing reporting verbs such as "say":

> the conservancy of our most precious ancient woodland at Havant Thicket and throughout the UK is also an intrinsic part of the fight against the climate emergency.
> "Havant Thicket is this special place that forms part of the historic Forest of Bere which dates back almost a thousand years to 1086," the Woodland Trust said.
> It is one of our rarest habitats. It has lain undisturbed for centuries, evolving into a delicate eco-system.... [UK][71]

Indirect reporting structures, which usually consist of a reporting verb followed by a *that*-clause, were also present in both subcorpora. Generic references to "studies", "scientists", "research" were used to convey knowledge and emphasise the documented seriousness of the situation:

> Alaska is one of few natural states left in our country, this is why we need to preserve it. With oil drilling there, environmentalists and scientists say climate change will spike more as climate change is already a major issue! [USA][72]

> We are facing a climate catastrophe. Leading scientists have warned that **we have 12 years to take emergency action on climate change**, or we face the gravest threats to our local and global environment [emphasis in the original]. [UK][73]

Other forms of reported speech include the use of reporting adjuncts, such as "according to", for both direct and indirect reports:

> According to Jay Michaelson, a writer for Blood and Palm oil, "each day in Indonesia, forest fires release as much carbon dioxide as the entire United States...". [USA][74]

> According to research commissioned by the Catholic aid agency Cafod, the UK has spent more than twice as much overseas support on fossil fuels projects as on renewable ones. [UK][75]

Partial quotes, which report only some relevant words from the source in quotation marks, were also present. These were used as scare quotes to convey an authorial attitude of distancing from the enclosed words or the reported speaker, as in the examples:[76]

[69] Monika Bednarek and Helen Caple, *News Discourse* (London and New York: Continuum, 2012), 90-93.
[70] Ibid..
[71] Stop the Chop, "Prevent the Destruction of Ancient Woodland at Havant Thicket and Surrounding Areas*", Change.org United Kingdom* (28 April 2021), *www.change.org*.
[72] The Resource Renewal Institute, "Protect and Restore Wildlife at Point Reyes National Seashore", *Change.org United States* (16 September 2020), *www.change.org*.
[73] Ariana Jordão, "Declare a National Climate Emergency Now!", *Change.org United Kingdom* (1 February 2019), *www.change.org*.
[74] Emily Shirvanian, "Remove Palm Oil from Products", *Change.org United States* (3 December 2018), *www.change.org*.
[75] SAVE THE EARTH CAMPAIGN, "GLOBAL WARMING: 'STOP THE SLAUGHTER OF THE ENVIRONMENT'", *Change.org United Kingdom* (7 March 2019), *www.change.org*.
[76] Zuzana Nádraská, "The Function of Scare Quotes in Hard News: Metadiscoursal and Generic Perspectives", *Discourse and Interaction* (2022), 101-127.

> So far, TCEQ [Texas Commission on Environmental Quality] is **unapologetic** about removing sea level rise information from the draft report, saying it is "unsettled science" that is beyond the scope of the report. [emphasis in the original]. [USA][77]

> A massive tract of wildlife rich countryside next to Danes Moss SSSI nature reserve near Macclesfield in Cheshire is under threat from a massive housing and retail development and its stinks.
> The "development" is on peatland, and it will completely contradict Government's policy to protect peat to tackle climate change – promoted by Michael Gove when he was environment minister. [UK][78]

In some cases, the title of the publication was mentioned, especially by naming specific scientific documents like the reports by the UN IPCC and the UK Climate Change Committee:

> IPCC's 2018 report emphasizes that we need major transformation, especially since we are now off track in limiting climate change to 1.5 degrees celsius. [USA][79]

> Climate Change Committee
> The report published by the Climate Change Committee report 16 June 2021 "Independent Assessment of UK Climate Risk" Advice to Government" that highlights the urgent risks and potentially catastrophic damages to our environment, biodiversity and of flooding due to failures in National planning and building policies. [UK][80]

The sources could also be listed in endnotes and, in some cases, even collected in a final "References" section, which echoes academic style. This is further enhanced by the availability of the medium, since petitioners could insert the direct links to the original texts, which might be accessed online:

> **References:**
> 1. Fossil CO2 & GHG emissions of all world countries, 2017: **http://edgar.jrc.ec.europa.eu/overview.php?v=CO2andGHG1970-2016&dst=GHGpc**
> 2. World Resources Institute: **https://www.wri.org/blog/2018/10/8-things-you-need-know-about-ipcc-15-c-report**
> 3. The IPCC's Special Report on Global Warming of 1.5ºC: **https://www.ipcc.ch/report/sr15/** [emphasis in the original] [UK][81]

The problematic issue addressed could also be presented by summarising information without explicitly quoting the referred words. External sources might be embedded in the main text through clickable hyperlinks, allowing the reader to access further insights and validate the petitioners' claims.

> **Pruitt has sued the EPA on behalf of regulated industries more than a dozen times** in an attempt to weaken regulations such as the federal Clean Water Act [emphasis in the original]. [USA][82]

[77] Mobi Warren, "Tell Texas: Respect Scientists, Publish Uncensored Environmental Report", *Change.org United States* (31 October 2011), *www.change.org*.
[78] Jeremy Herbert, "Save Danes Moss Peatland from Housing and Retail Development", *Change.org United Kingdom* (26 January 2022), *www.change.org*.
[79] Cynthia Leung, "Go #AllinforClimateAction NOW - #Climate Emergency", *Change.org United States* (23 August 2019), *www.change.org*.
[80] Lucy Philip, "Halt Harmful Housing with new Environmental Planning Law", *Change.org United Kingdom* (6 October 2021), *www.change.org*.
[81] Cllr Shane Collins, "Mendip District Council to 'Declare a Climate & Ecological Emergency'", *Change.org United Kingdom* (28 January 2019), *www.change.org*.
[82] Heal the Bay, "Demand A Strong EPA For Our Bays", *Change.org United States* (31 January 2017), *www.change.org*.

To provide clarification, short definitions in the form of code glosses were used, taking various forms. They were signalled by dashes (or hyphens), commas, parentheses, or a colon, and sometimes introduced by formulaic expressions like "such as".

> All local authorities are legally obliged to conserve biodiversity – the number and variety of plants and animals in a particular area. [UK][83]

Numerous petitions in both subcorpora provided readers with an overview of environmental information, also including quantitative data, yet they failed to mention sources. Furthermore, these contents were sometimes presented in general and even banal terms:

> Additionally, all of this wastage of food dumped into landfills contributes to global warming. In the bigger picture, supermarkets have hundreds of locations which mean thousands of pizzas and other meals being thrown out every single day when it could go to someone in need. [USA][84]

The texts also contained sentence and extended definitions, which included more detailed information through longer paragraphs, as in the example:

> A popular compound found in sunscreen, oxybenzone, is highly damaging to the reef.
> "Recent studies have shown that oxybenzone (and octinoxate & homosalate) causes deformities in coral larvae (planulae), making them unable to swim, settle out, and form new coral colonies. It also increases the rate at which coral bleaching occurs. This puts coral reef health at risk, and reduces resiliency to climate change... Researchers have found oxybenzone concentrations in some Hawaiian waters at more than 30 times the level considered safe for corals." – **http://dlnr.hawaii.gov/blog/2016/09/03/nr16-182/**
> Coral reefs are an important part of the ecosystem. Healthy coral reefs can support more fish life as well as protect the shoreline. Many species are supported in Hawaiian reefs that are not found anywhere else. The effects of coral bleaching are already widespread and can be seen in all the Hawaiian islands. ...
> Oxybenzone has also been linked to negative impacts on human health, including both hormonal and skin related effects. [emphasis in the original] [USA][85]

The topics covered in definitions comprise relevant processes, such as climate change, extinction, coral bleaching, as well as products such as Styrofoam, plastic, palm oil, and glyphosate. In addition to scientific information, some petitioners also aimed to popularise legal knowledge regarding norms that regulate, for instance, animal conservation or fossil fuel extraction. It is worth noting that texts typically presented metadiscursive resources in combination rather than in isolation.

Additionally, it is also noteworthy that, at certain times, petitions in both countries addressed the same issues and even used similar language. For instance, petitions against unsustainable palm oil production emerged during the same time frame (2018). These texts included the same information about deforestation rates, albeit not quoted, and possibly sourced from WWF news appeared on TV or on the web:

> Every hour, 300 football-field-sized swaths of rich forestland are cleared to make way for palm oil plantations. These plantations are putting at least 200 species at risk for extinction, like the orangutan, the Sumatran tiger, and the Borneo elephant. In fact, 3,000 orangutans are killed every year. [USA][86]

[83] Save Newcastle Wildlife, "Put Nature on the Map in Newcastle", *Change.org United Kingdom* (20 June 2017), *www.change.org*.
[84] Satya Shanmugaselvam, The Humanitarian Project, "Stop Big Supermarket Chains from Throwing Out Food", *Change.org United States* (2 February 2021), *www.change.org*.
[85] Kimberly Jeffries, "Ban the Sale of Coral Damaging Sunscreen in Hawaii", *Change.org United States* (5 September 2016), *www.change.org*.

> Every hour 300 football fields of precious forest in South East Asia is being ploughed to the ground to make way for palm oil plantations. Palm oil is the leading cause of orang-utan extinction. It is used in 50% of all household and food products sold in the West. [UK][87]

> With 5 football fields of rainforest being cut down EVERY second, we simply cannot continue in this reckless and egocentric fashion. [UK][88]

This suggests that news, television programmes, and social media posts may influence the initiation of petitions. Numbers and figures play a crucial role since they provide factual information, making the reports appear objective and newsworthy.[89] As evident, petitions featured several statistical data, but commonly inserted without even citing the sources accessed by the petitioner.

## 5. Conclusions

The evolution of the Internet has led to the emergence of new forms of digital activism, including online petitioning platforms. These allow users, even those with limited digital skills, to express their views on various issues, including environmental problems. The authors of petitions present their opinions as collective stances that might be shared and supported by like-minded citizens.

This paper investigated the prioritisation of climate issues and popularisation of scientific knowledge related to climate change in e-petitions by users in the USA and UK. The study findings indicated that climate change was addressed not only in petitions explicitly calling for action on the issue, but also in those focusing on other main topics. Different trends in the problems addressed in the petitions were identified in the two subcorpora, with the USA showing a greater focus on wildlife and water conservation and the UK on land protection. Iconic representations were also skilfully employed in both components, featuring dramatic depictions of climate-related events, but also positive portrayals of flora and fauna, as well as people (especially activists and policy-makers), along with slogans that bolstered the exhortations presented in the petition titles.

The advocates of these petitions aimed to persuade readers about the harmful impact of human activity on the environment and to encourage action against climate change, thereby countering underestimation, misinformation, and denialism. To achieve these goals, petitioners from both countries relied on arguments and motifs originating in scientific discourse, which had been first mediated, for instance, by climate change activists, news outlets, and government bodies. Examples of such issues include the presentation of the damaging effects of fossil fuels, plastic, and palm oil production. The thematisation of petitions around certain issues related to specific events and news items appears to indicate the impact of the media on shaping public opinion. In both the USA and UK, public sentiment seemed to be deeply affected by startling news stories, leading to a heightened sense of uncertainty about the future. As a result, users were motivated to share knowledge and demand swift solutions to these pressing issues.

All of the petitions included some form of mediation of specialised information, ranging from general and vague references to environmental issues to specific evidence quoted from scientific research. Petitioners thus engaged in the re-mediation of climate science, by explaining global phenomena in their own words and referring to authoritative sources. They used a variety of

[86] Cindy Dang, "ShopRite: Cut Conflict Palm Oil", *Change.org United States* (29 May 2018), *www.change.org*.
[87] Freya Seex, "Say no to Palm Oil", *Change.org United Kingdom* (21 March 2018), *www.change.org*.
[88] Bella Lack, "Supermarkets: BAN All Palm Oil from Own Brand Products", *Change.org United Kingdom* (19 May 2018), *www.change.org*.
[89] Bednarek and Caple, *News Discourse*, 90.

evidentials, including direct, indirect, and partial quotes, reporting adjuncts, reference to sources, and various forms of reports and definitions. Petitioners therefore often adopted a reporting style which mimicked that of popular journalism. Especially in the background section of the petitions, input material was transformed through processes of selection, reproduction, and summarisation.[90] The definition of news discourse as "embedded talk"[91] may therefore be applicable to petitions as well. Like journalists, petitioners use evidence, facts, information, and rely on newsworthy quotes and acknowledged sources to increase relevance and credibility.[92] Clearly, as petitions are intended to be persuasive texts, quotes are chosen to express viewpoints that align with the petitioners' stance. Numerous petitioners cited scientific data retrieved from various sources, summarising or paraphrasing their findings and/or referencing the original research. The input materials could thus be either attributed or remain unattributed. The author's trustworthiness in mediating such news might be projected as verified by the credentials established elsewhere in the text or by the demonstrated diligence in gathering information on critical topics. The issue of the construction and perception of credibility online has indeed become increasingly relevant,[93] particularly during the rise of populist movements, COVID-19 infodemic, and conspiracy theories. Therefore, investigating credibility cues in petitions would be an interesting object of further research.

The current study did not delve into the potential connection between the use of specific persuasive strategies (e.g., iconic representations) and the inherent popularity of petitions. Nevertheless, considering this relationship to investigate user engagement would present an intriguing avenue for future research.

The present paper also revealed that a platform like *Change.org* might be viewed as a wiki of social issues, a hypertext publication collaboratively edited and managed by its online audience. Petitions collect useful pieces of summarised and simplified information, which may provide lay users with basic knowledge of common or specific problems. However, it is important to note that petitions are persuasive texts and, as such, biased. Furthermore, the accuracy of the information presented in them cannot be guaranteed, necessitating constant fact-checking.

Petitioners in both countries asked politicians to prioritise the fight against climate change in national and global agendas. Nevertheless, the study also showed that citizens do not perceive climate change as a far-off evil that looms in the distant future, but rather as a concrete an imminent danger that is already impacting on our natural world as well as human and animal lives. Aligned with previous research on citizen engagement with climate change,[94] and consistent with *Change.org*'s business model,[95] petitions employed a combination of messages and icons that rendered climate change personally relevant for individuals, empowering them to take action. Based on the analysis of user-generated discourse, it appears that limiting climate change necessitates therefore collective efforts enacted through localised, small-scale initiatives.

[90] Ibid..
[91] Graham Bell, *The Language of News Media* (Oxford: Blackwell, 1991), 52.
[92] Bednarek and Caple, *News Discourse*, 91-93.
[93] Camilla Vásquez, *The Discourse of Online Consumer Reviews* (New York: Bloomsbury, 2014); Antonella Napolitano and Maria Cristina Aiezza, "The Power of Feedback: A Comparative Discourse Analysis of TripAdvisor Reviews by Expert and Novice Users in the UK and Italy", in Elena Di Giovanni and Francesca Raffi, eds., *Languaging Diversity Volume 3: Language(s) and Power* (Newcastle upon Tyne: Cambridge Scholars Publishing, 2017).
[94] See O'Neill and Hulme, "An Iconic Approach for Representing Climate Change"; O'Neill and Nicholson-Cole, "'Fear Won't Do It'".
[95] Karpf, *Analytic Activism*.

Marina Niceforo

# Linguistic Remediation of the IPCC's Sixth Assessment Report in Twitter Discourse on Climate Change

**Abstract**: In the age of global environmental crisis, information about climate change is disseminated through a wide range of channels in a variety of textual genres, from scientific publications and normative texts to news, or blogs. Climate-related discourses available on social media offer valuable examples of remediation of technical-scientific information addressed to large groups of non-experts.
In line with the popularisation of scientific knowledge (Gotti 2014), the present study investigates the linguistic remediation of specialised concepts from the sixth IPCC report on climate change (released by the UN last February 28th, 2022) in a corpus of about 4200 tweets by international environmental organisations, institutions, and other public figures. The dataset, retrieved via web scraping tools, is analysed using qualitative analysis software (NVivo) to observe thematic and linguistic features of remediated discourse – in particular, about the four key terms and notions risk, vulnerability, adaptation, and resilience.
While computer-mediated discourse analysis (Herring 2004) and ecolinguistics (Stibbe 2015) provide the theoretical framework for this study, risk communication (Russo 2018, Bevitori and Johnson 2022) and appraisal theory (Martin and White 2005) enable considerations of expressive language and effective communication, authors' critical positioning, circulation of scientific information, and possible positive impact of remediated discourses on people's environmental attitudes and behaviours.

Keywords: *remediation, climate change discourse, social media discourse analysis, computer-mediated discourse analysis, ecolinguistics, popularisation*

## 1. Introduction

In recent years, the global climate crisis has started to show its more visible and violent impacts on the planet's ecosystems and on the life of people, especially those living in vulnerable areas. Rising temperatures and heatwaves, prolonged droughts, wildfires, floods, and resource scarcity, among other phenomena, have become more frequent and more intense in many parts of the world, affecting, and in some cases, heavily disrupting several human activities. The nefarious consequences of climate change have long been predicted by scientists and researchers worldwide, and scientific information on this subject, supported by largely shared evidence, is constantly produced by and within international institutions, bodies, and organisations. Among these, the United Nation's Intergovernmental Panel on Climate Change (IPCC) contributes specifically to the assessment of knowledge and science related to climate change.

Established in 1988, the IPCC provides "a framework for governments, scientists and IPCC staff to work together to deliver the world's most authoritative scientific assessments on climate change".[1] The Panel, which includes representatives of member governments and groups of scientists (Working Groups) elected periodically, has so far issued six assessment reports addressed to governments, which are generally intended as a reference framework for developing climate-related policies. The reports

[1] IPCC, "Summary for Policymakers", in Hans Otto Pörtner et al., eds., *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge U.P., 2022).

are drafted upon extensive review of relevant scientific publications in the field, and deal with aspects such as the physical science basis of climate change (Working Group I), climate change impacts, adaptation and vulnerability (Working Group II), and mitigation of climate change (Working Group III). The Sixth Assessment Report was approved and released on February 28th, 2022, with two main contributions by Working Groups II and III, respectively: *Climate Change 2022: Impacts Adaptation and Vulnerability*, and *Climate Change 2022: Mitigation of Climate Change*. With updated or new definitions since previous reports, it focuses specifically on the impacts of climate change, looking at ecosystems, biodiversity, and human communities at the global and regional level; moreover, it reviews vulnerabilities and the capacities and limits of the natural world and human societies to adapt to climate change.

Over the years, the attention of media and laypeople to the IPCC's reports has increased due to a wider coverage of climate change in news and popular discourse, as well as more frequent political discussion on the issue – although it could be argued that public interest in the subject has been growing *thanks to* data presented in the reports. The impact of old and new media in the circulation of climate-related information is obviously a determining factor; on the one hand, traditional media such as television, radio, and newspapers

> have … been important meditators of the climate change discourse … determining whether the potential connections between climate change and the events will be discussed, and how. This has historically made the so-called legacy media hugely influential when it comes to shaping public understanding of climate change and the new era of extreme weather that it may be ushering in.[2]

On the other hand, social media (also SM henceforth), and in particular social networking sites allowing interaction between participants[3] have opened to new practices of communication, knowledge distribution, and remediation, the latter referring to the "recontextualisation … reconceptualisation, and intralinguistic translation of exclusive expertise in knowledge that is suitable to the background of the addressee".[4] In response to the urgency of climate change events, the communicative affordances of social media offer a very interesting point of departure to analyse popularisation and remediation practices, particularly in user-generated discourse. In line with traditional distinctions between experts, initiates, and non-experts in specialised communication,[5] social media authors (whether writing on behalf of institutions or as individuals) configure as experts or initiates addressing other initiates or non-experts in a given field or topic. In online remediation, a "shift from subject-orientation to addressee-/audience-orientation … and from objectivation to subjectivation"[6] is observed. Moreover, it is also suggested that recontextualisation[7] of scientific knowledge is a form of adaptation to the appropriateness of the new communicative event and its usually informative purpose –[8] hence placing the focus on content rather than form, messages rather than concepts, and actors rather than objects. At a linguistic and communicative level, remediation processes of this kind require departing from the

[2] Nicholas Roxburgh et al., "Characterising Climate Change Discourse on Social Media During Extreme Weather Events", *Global Environmental Change*, 54 (2019), 51.
[3] Ruth Page et al., *Researching Language and Social Media: A Student Guide* (London: Routledge, 2022), 7.
[4] Michela Canepari et al., eds., *The Many Facets of Remediation in Language Studies* (Beau Bassin: LAP LAMBERT Academic Publishing, 2017), 9.
[5] Maurizio Gotti, "Reformulation and Recontextualization in Popularization Discourse", *Ibérica*, 27 (Jan-Jun 2014), 24.
[6] Canepari et al., *The Many Facets of Remediation in Language Studies*, 9.
[7] Helena Casalmiglia, and Teun A. Van Dijk, "Popularization Discourse and Knowledge About The Genome", *Discourse & Society*, 15.4 (2004), 370.
[8] Gotti, "Reformulation and Recontextualization in Popularization Discourse", 22.

typical features of intra- and inter-specialist communication (all widely covered in literature),[9] of which more will be said in the following sections. Considerations of stance and evaluation[10] can also be central in discussions about remediation (especially when communications are reformulated by non-neutral addressers), as well as aspects linked to risk communication – which also "faces the challenge of conveying specialized information to lay people, [since] bridging the gap between experts and lay decision-makers may be extremely difficult".[11] With reference to risk communication, climate change is frequently "depicted in apocalyptic tones", either for journalists or as instrumentalisations of the subject.[12] However, it is important to underline that "what defines risk in opposition to uncertainty and apocalypses, is the possibility of assessing event probabilities",[13] as all IPCC's reports prove.

The present paper aims to observe how core concepts from the 6th IPCC assessment report (AR6 from now on) are remediated and communicated in social media user-generated discourse. The study moves from the definitions of *risk*, *vulnerability*, *adaptation*, and *resilience* introduced in the report to investigate the discursive construction of these concepts in online popularising discourse. The analysis considers a corpus of about 4200 tweets published between February 28th, 2022 (release date of AR6) and March 27th, 2022; it starts from a thematic assessment of remediated discourse on Twitter, and subsequently focuses on remediation at a lexical, syntactic, and textual level – assuming the IPCC report as the source specialised text. Furthermore, the paper offers a critical reflection on how strong ideological positioning affects remediation processes and people's perception of climate change issues. More specifically, social media communication is hereby investigated as a driver of societal change, opening to a reflection on the impact of digital discourses on people's values, attitudes, behaviours, and lives in general. While the qualitative nature of this study and the mixed nature of the dataset do not allow us to make assumptions on effective climate change and risk communication, it is suggested that linguistic remediation can be more appealing to laypeople and inspire positive change because of certain discursive features.

## 2. Theoretical framework and literature review

When investigating (digitally-mediated) discourses about climate change, it could be useful to implement narration-oriented frameworks – since remediation is strictly connected to the ways in which stories are constructed through language and discourse. It must be noted that this subject is naturally interdisciplinary since it embraces multiple conceptual dimensions (economic, social, environmental, etc.) and thematic layers; for this reason, climate-related discourses are typically intertextual and tend to break genre distinctions.[14] Given their multi-thematic nature, discourses that originate within particular social fields or institutions may be recontextualized in others "as 'colonization' of one field or institution by another, but also as 'appropriation' of 'external' discourses,

[9] Among others, see John M. Swales, "Discourse Analysis in Professional Contexts", *Annual Review of Applied Linguistics* 11 (1990): 103-114; Maurizio Gotti, *Investigating Specialized Discourse* (Bern: Peter Lang, 2008).
[10] James R. Martin, and Peter R. White, *The Language of Evaluation*, Vol. 2 (Basingstoke: Palgrave Macmillan, 2003).
[11] Katherine E. Russo, *The Evaluation of Risk in Institutional and Newspaper Discourse: The Case of Climate Change and Migration* (Napoli: Editoriale scientifica, 2018), 20.
[12] Mike Hulme, "Mediated Messages about Climate Change: Reporting the IPCC Fourth Assessment in the UK Print Media", *Climate Change and the Media* (2009), 117-128.
[13] Russo, *The Evaluation of Risk in Institutional and Newspaper Discourse*, 21.
[14] For an overview of climate-related discourses, see for example: Richard Alexander, *Framing Discourse On The Environment: A Critical Discourse Approach*. (London: Routledge 2010); Reiner Grundmann, and Ramesh Krishnamurthy, "The Discourse of Climate Change: A Corpus-based Approach", *CADAAD Journal* 4.2, 2010, 125-146; Kjersti Fløttum, and Øyvind Gjerstad, "Narratives in Climate Change Discourse", *Wiley Interdisciplinary Reviews: Climate Change*, 8.1, 2017, e429.

often incorporation of discourses".[15] As a consequence, information remediated in diversified climate narrations can be ideologically divisive and highly polarised – with obvious impacts in terms of linguistic choices, discursive construction, and understanding of these issues –, especially when produced in mixed, non-specialised contexts such as social networking sites. To give an example, a large number of remediated climate change stories produced by climate-savvy people, including activists, often spark heated debate because of their marked ideological positioning.

Looking at climate-related discourses as inscribed in given social and communicative contexts, it is possible to interpret linguistic elements by focussing on ideological motivations and beliefs, as well as stance, framing, and communicative purposes. Appraisal or ecolinguistic frameworks can be very insightful in this sense, yielding information about different aspects of climate change discourses, such as actors, objects, and events. In the first case, all three systems of appraisal (attitude, graduation, and engagement) and their sub-categories[16] can help to (a) analyse critical positioning of speakers/writers on a given topic, (b) identify whether discursive foci fall on natural objects and events (e.g. impacts will be devastating), or on people (e.g. governments' inaction will lead to devastating impacts), and (c) observe the intensity of claims and propositions (e.g. impacts will be absolutely devastating). Moreover, the appraisal principles of minimality ("the item to be annotated … should be as short as possible, while at the same time including all the words that convey Attitude"),[17] and contextuality ("using any information available to understand the meaning of the evaluative expression under consideration")[18] can be particularly helpful. In the case of ecolinguistics, the parameters of salience and intrinsic value[19] can be used to measure the relevance of nature in environmental discourses based on the value attached to nature *in itself*, and not as an object for human convenience.

### 2.1 *CDS and Computer-mediated Discourse Analysis*

When it comes to popularising discourses on climate change, other inputs may come from Critical Discourse Studies (CDS). The CDS understanding of discourse as a social practice or "language in use"[20], as well as its problem-oriented approach to the analysis of language, fits well with research on climate change – undoubtedly a socially-complex problem. On the one hand, in the dynamic, participatory space provided by social media, the production and circulation of information and knowledge has become even more fragmented, multiplied, intensified, and accelerated at the same time – giving this channel unrivalled reach and impact. On the other, the communicative affordances of social media are but one aspect of digitally-mediated communication, as all kinds of media influence "knowledge, beliefs, values, social relations [and] social identities".[21] While Social Media Critical Discourse Studies (SM-CDS) focus especially on democratisation processes between producers and receivers of information, as well as power relations and dynamics in different

[15] Norman Fairclough, "A Dialectical-relational Approach to Critical Discourse Analysis in Social Research", in Ruth Wodak and Michael Meyer, eds., *Methods of Critical Discourse Analysis Vol. 3* (London: Sage 2016), 86-108.
[16] Martin and White, *The Language of Evaluation*; Matteo Fuoli, "A Stepwise Method for Annotating APPRAISAL", *Functions of Language*, 25.2 (2018), 229-258; Luca Cavasso, and Maite Taboada, "A Corpus Analysis of Online News Comments Using the Appraisal Framework", *Journal of Corpora and Discourse Studies*, 4 (2021), 1-38.
[17] Luca Cavasso and Maite Taboada, "A Corpus Analysis of Online News Comments Using the Appraisal Framework", *Journal of Corpora and Discourse Studies*, 4 (2021), 12.
[18] Ibid., 13.
[19] Arran Stibbe, "Positive Discourse Analysis: Rethinking Human Ecological Relationships", in Alwin F. Fill, and Hermine Penz (eds.) *The Routledge Handbook of Ecolinguistics* (London: Routledge, 2017), 165-178.
[20] Ruth Wodak, and Michael Meyer, eds., *Methods of Critical Discourse Studies* (London: Sage, 2016), 140.
[21] Norman Fairclough, *Media Discourse* (New York: Edward Arnold, 1995), 2.

communicative contexts,[22] the present study is rather concerned with the democratising and popularising power of SM discourses on climate change, intended as a central theme in social and political discussion, also in terms of dominant discourses and views.[23] The critical interpretation of power roles (the IPCC vs other users) in climate discourses is another possible application, for example to describe stance and dissatisfaction with the Panel's work – whether for political reasons, or for topics, issues, and aspects neglected or underrepresented in the report.

More in general, the present paper draws on computer-mediated discourse analysis (also CMDA),[24] digital ethnography or discourse-centred online ethnography,[25] *netnography*,[26] and similar frameworks in applied linguistics – all maintaining that the focus should be on users above other aspects.[27] Indeed, while the medium specificities affect certain textual features (consider, for example, the use of emojis, or space limitations on certain platforms) and the ways in which online discourses are carried out, it is generally agreed that discourse analyses should take into account other elements, such as participants' social context[28] and sharing behaviour.[29] In this sense, Herring clarifies that the labels *familiar*, *reconfigured*, and *emergent* for computer-mediated communication should be used to describe the characteristics of discourse phenomena on digital channels, rather than old and new genres.[30] The early idea that online and offline communications are basically different in nature has been overcome in contemporary studies: today, it is more and more difficult to trace the boundaries between not only individual personalities and identities on-and-off technological devices, but also communicative styles of physical and behind-the-screen persons. This resonates well with the abovementioned remediation and recontextualisation practices, given that both function "via language, that is, the system through which we interpret and construct our understanding of reality",[31] and in light of the fact that "discourses are part of the socio-cultural repertoire … that shapes what can be thought of and how".[32]

Another central point in CMDA has to do with text collection from social media platforms. Of course, it is part of the researcher's duties to establish methodologically valid selection criteria to collect linguistic material for analysis. Among them, hashtag-based search[33] is a very popular method

[22] Majid KhosraviNik, "Critical Discourse Analysis, Power, and New Media (Digital) Discourse", in Yusuf Kalyango, and Monika Weronika Kopytowska, eds., *Why Discourse Matters: Negotiating Identity in the Mediatized World* (Bern: Peter Lang, 2014), 283-301; Majid KhosraviNik, and Johann W. Unger, "Critical Discourse Studies and Social Media: Power, Resistance and Critique in Changing Media Ecologies" in Ruth Wodak and Michael Meyer, eds., *Methods of Critical Discourse Studies* (London: Sage, 2016), 205-233; Page et al., *Researching Language and Social Media.*

[23] Monika Bednarek et al. "Winning the Discursive Struggle? The Impact of a Significant Environmental Crisis Event on Dominant Climate Discourses on Twitter", *Discourse, Context & Media*, 45 (2022), 100564.

[24] See Susan C. Herring, "Computer-mediated Discourse Analysis: An Approach to Researching Online Behavior" in Sasha Barab et al., eds., *Designing for Virtual Communities in The Service of Learning* (Cambridge: Cambridge U.P., 2004), 338-376; Jannis Androutsopoulos and Michael Beißwenger, "Introduction: Data and Methods in Computer-mediated Discourse Analysis", *Language@internet*, 5.2 (2008), 9; Susan C. Herring and Jannis Androutsopoulos, "Computer-mediated Discourse 2.0" in Deborah Tannen et al., *The Handbook of Discourse Analysis*, 2 (2015), 127-151.

[25] Jannis Androutsopoulos, "Potentials and Limitations of Discourse-centred Online Ethnography", *Language@ Internet*, 5.8 (2008); Sarah Pink et al., *Digital Ethnography: Principles and Practice* (London: Sage, 2015).

[26] Robert Kozinets, *Netnography: The Essential Guide to Qualitative Social Media Research* (London: Sage 2019).

[27] Suzie Wong Scollon, *Nexus Analysis: Discourse and the Emerging Internet* (London: Routledge, 2004); Rodney H. Jones and Sigrid Norris, *Discourse in Action: Introducing Mediated Discourse Analysis* (London: Routledge, 2005); David Barton and Carmen Lee, *Language Online: Investigating Digital Texts and Practices* (London: Routledge, 2013).

[28] Herring, "Computer-mediated Discourse Analysis"; KhosraviNik and Unger, "Critical Discourse Studies and Social Media".

[29] Giuseppe A. Veltri, and Dimitrinka Atanasova, "Climate Change on Twitter: Content, Media Ecology and Information Sharing Behaviour", *Public Understanding of Science*, 26.6 (2017), 721-737.

[30] Susan Herring, "Discourse in Web 2.0: Familiar, Reconfigured, and Emergent", *Discourse*, 2.0 (2013), 1.

[31] Canepari et al., *The Many Facets of Remediation in Language Studies*, 9.

[32] Jens O. Zinn, and Marcus Müller, "Understanding Discourse and Language of Risk", *Journal of Risk Research*, 25.3 (2022), 272.

[33] See Evandro Cunha et al., "Analyzing the Dynamic Evolution of Hashtags on Twitter: A Language-based Approach", *Proceedings of the Workshop on Language in Social Media* (2011), 58-65 for an overview of relevant studies.

that can yield results quickly and effectively, and work as a keyword-dependent tool for data scraping. A vast part of the literature has dealt with hashtags as proper discursive features[34] and as a form of 'conversational tagging';[35] the communicative and functional aspects of hashtags have been at the centre of critical studies, for instance on 'hashtag activism' in different contexts.[36] Interestingly, when used for ideological, social, or political purposes, hashtags become "a resource for making a range of meanings [and] render social media communication more open to processes of 'ambient affiliation' whereby users share and contest social bonds".[37] When dealing with broader textual aspects, however, this sampling method may be limited, as it "may not provide a corpus representative of broader public discourse on a particular issue due to the self-selecting nature of hashtag use";[38] McGlashan notes that

> the pre-selection of a specific hashtag or hashtags may limit the researcher's access to the potentially heterogeneous discourse participants and practices that constitute a community, and by extension, it may limit researchers' access to a potential variety of topics, sentiments and discourses within a community.[39]

Building on affiliation and group identity, he suggests that *following* criteria, rather than hashtags, could be a valid method for looking at ideal communities of practice on social media. In general, the use of hashtags as a sign of community affiliation should not be taken for granted, not only because the very concept of 'community' remains ambiguous,[40] but also because there is no evidence of in-group/out-group construction patterns in hashtag usage in this sense.[41]

All the above fits perfectly with climate change narrations produced within social media contexts. As previously anticipated, such discourses are examples of linguistic remediation based on precise ideological grounds, mostly rooted in scientific evidence and strong environmental belief, and clear communicative purposes, namely informing and spreading climate change knowledge. The present study highlights that, through remediation, user-generated discourses perform an important social function: by raising awareness, they promote popular engagement, with possible positive impact on pro-environment actions and behaviours. From a critical standpoint, stronger ideological positioning of users is reflected into more evident remediation and reformulation of topics and messages – for instance through clearer and more expressive language.

## 3. Data Collection and Methodology

The following analysis observes linguistic remediation of four concepts and definitions in AR6 (*risk*, *vulnerability*, *adaptation*, and *resilience*) in a dataset made up of tweets published between February

[34] Michele Zappavigna, *Searchable Talk: Hashtags and Social Media Metadiscourse* (London: Bloomsbury Publishing, 2018); Korina Giaxoglou, "#JeSuisCharlie? Hashtags as Narrative Resources in Contexts of Ecstatic Sharing", *Discourse, Context & Media*, 22 (2018), 13-20.
[35] Jeff Huang, Katherine M. Thornton, and Efthimis N. Efthimiadis, "Conversational Tagging in Twitter", *Proceedings of the 21st ACM Conference on Hypertext and Hypermedia* (2010).
[36] Alexah Konnelly, "# Activism: Identity, Affiliation, and Political Discourse-making on Twitter", *The Arbutus Review*, 6.1 (2015), 1-16; Sherri Williams, "Digital Defense: Black Feminists Resist Violence with Hashtag Activism", *Feminist Media Studies*, 15.2 (2015): 341-344; Guobin Yang, "Narrative Agency in Hashtag Activism: The Case of# BlackLivesMatter", *Media and Communication*, 4.4 (2016), 13; Caroline Dadas, "Hashtag Activism: The Promise and Risk of "Attention", *Social Writing/Social Media: Publics, Presentations, Pedagogies* (2017), 17-36; Ying Xiong et al., "Hashtag Activism and Message Frames Among Social Movement Organizations: Semantic Network Analysis and Thematic Analysis of Twitter During the# MeToo Movement", *Public Relations Review*, 45.1 (2019), 10-23.
[37] Michele Zappavigna, *Searchable Talk*, 11.
[38] Ibid., 7.
[39] Mark McGlashan, "Collective Identity and Discourse Practice in the Followership of the Football Lads Alliance on Twitter", *Discourse & Society*, 31.3 (2020), 313-314.
[40] Herring, "Computer-mediated Discourse Analysis", 338.
[41] Zappavigna, *Searchable Talk*.

28th, 2022, and March 27th, 2022. The timespan considered for tweet retrieval corresponds to the first peak in global Google searches for "sixth assessment report ipcc";[42] indeed, although statistics about Twitter trending hashtags and topics may vary slightly, it is safe to assume that social media discussion on AR6 took place around this period, that is shortly after the report release. At the beginning of data collection, tweets were collected via *SNScrape*, a web scraper for social networking services operated through *Python*, by looking at the specific search query "IPCC OR AR6 (risk OR resilience OR vulnerability OR adaptation) lang:en until:2022-03-27 since:2022-02-28". This query limited search to tweets published in English in the chosen period, containing at least one of the reference words 'IPCC' or 'AR6', and including one or more of the key terms 'risk', 'resilience', 'vulnerability', and 'adaptation'. The operation yielded a total of 4238 tweets (about 153.700 tokens) where the four keywords appear in the form of lexical words and/or hashtags. The corpus was then processed via qualitative analysis software *NVivo* to look for thematic distribution across tweets; given the number of tweets, coding was done automatically, as will be further explained in Section 4. However, consistent with qualitative methodologies, a manual reading of data was also performed in order to expand *NVivo*'s results and gather further insight on user-generated discourse. This was especially needed for observation at a textual level, implying a cross-check of selected samples on Twitter to verify whether critical positioning and stance were attributable to individual sources, rather than institution representatives. Given the mixed nature of the dataset – which accounts for user-generated discourse and institutional communication –, manual reading was also recommended to ensure the overall quality and representativeness of the sample.

The first aspect under investigation was thematic distribution (textual level) of the four main topics in the corpus: assigned codes ('nodes' in *NVivo*), listed by frequency, enabled to assess which issue(s) received more attention and extensive coverage on Twitter, thus giving one first hint as to the most popular remediated topics. Secondly, the analysis considered specific parts of speech, namely verbs, adverbs, and adjectives (lexical and syntactic levels), for a functional analysis of discourse aiming to describe the linguistic changes taking place in the remediation process. For this research objective, data was analysed against the background of two reference sources within AR6, both presented in detail in the next section for reasons of expository clarity: on the one hand, the definitions and descriptions of *risk*, *resilience*, *adapatation*, and *vulnerability*; on the other, the report's "calibrated language" classification[43] used to measure likelihood of climatic events and shared level of confidence among authors. While the first part of the analysis refers to textual aspects, points of contact with analytic categories of functional discourse analysis (transitivity, mood, and modality) and appraisal (attitude, graduation, and engagement) emerge in this latter part. In particular, the reference methodological framework of the study draws from Grego's contrastive classification of specialised vs. non-specialised discourse,[44] with observable features at the lexical, syntactic, and textual levels, summarised in Table 1.

| | **Specialised discourse** | **Non-specialised discourse** |
|---|---|---|
| **Lexical level** | High word formation, borrowings, noun strings, abbreviations, Latinization. | Few or no abbreviations, few or no noun strings, (over)Anglicization. |
| **Syntactic level** | Nominalization, high modality, passive voice, depersonalization. | Little use of nominalization, little use of modality, personalization wherever possible. |
| **Textual** | Thematization, schematization, | Schematization, exemplification, oversimplification, |

[42] Google Trends, www.trends.google.it.
[43] IPCC, "Summary for Policymakers", 7.
[44] Kim Grego, "'The Physics You Buy in Supermarkets': Writing Science For the General Public: The Case of Stephen Hawkings", in Susan Kermas, and Thomas Christiansen, eds., *The Popularization of Specialized Discourse and Knowledge Across Communities and Cultures* (Bari: Edipuglia, 2013), 152.

| | | |
|---|---|---|
| **level** | cohesive conjunctions, hedging, omissions, crypticity (exclusiveness). | definitions, reformulation, explanations, multi-media elements (from visuals to interactive elements). |

Table 1. Features of specialised vs. non-specialised discourse (adapted from Grego 2013: 152)

In the last part of the analysis, further observations on expressive language, effective risk communication, authors' critical positioning towards climate change topics, and impact on laypeople are in line with Grego's discursive strategies in non-specialised communication,[45] namely:

(a) (over)explanation / (over)exemplification / (over)simplification;
(b) irony;
(c) argumentation;
(d) personal references;
(e) (critical) social references.

### 3.1 *Ethical Considerations*

All tweets presented in the following analysis were retrieved from Twitter accounts of public environmental groups or associations, or individual profiles of public figures, including journalists, institutions' representatives, researchers, and other activists. To comply with data protection regulations, all tweets are cited in anonymous form; in particular, whole tweets are cited only when the source is a public group or organization, while only parts of tweets are cited in all other instances to prevent backtracking.

## 4. Results and Discussion

### 4.1 *Thematic Distribution*

For what concerns distribution of climate change topics in the corpus, preliminary coding was done via *NVivo*'s automatic coding function. This function groups textual data based on patterns and ideas that do not necessarily emerge from quantitative observation; within the dataset, *NVivo* identified 6 main thematic nodes (and a total of 63 codes) applying to all 4238 tweets. In particular, assigned nodes were:

- climate change
- adaptation
- risk
- impacts
- action
- cost

At a first glance, themes such as 'adaptation', 'risk', and 'climate change' could be easily expected, as well as the emerging 'action' and 'impacts'. However, one may notice the absence of patterns pertaining to 'vulnerability' and 'resilience', or the presence of the apparently less relevant node 'cost'; this is easily explained if looking at the overall frequency of these terms in AR6. Indeed, explicit reference to both 'vulnerability' and 'resilience' across the report is more scattered and quantitatively

[45] Ibid., 154.

limited, compared to other key terms; this naturally affects themes in the resulting remediated discourse, where the focus tends to be more on the more urgent and impactful consequences of inaction – as the nodes 'risks', 'impacts', 'action', and 'cost' show – rather than actual resilience strategies for coping with vulnerability.

A closer look at sub-nodes adds further details as far as thematic distribution is concerned, as these contain cross-references to one or more of the main nodes – as in 'climate action', 'climate adaptation', 'climate change impacts', or 'adaptation action' to mention but a few. Some sub-nodes express action or active processes, for instance those within 'action' ('action phase', 'collaborative action', 'global action', 'taking action'), or 'adaptation' ('adaptation efforts', 'adaptation planning', 'adaptation progress', 'adaptation solutions', 'adaptation strategies', 'available adaptation options'). Another group of sub-nodes focuses, mainly via attributes, on how and where identified actions should take place ('cultural heritage adaptation', 'ecosystem-based adaptation'). Finally, the sub-nodes of 'cost' ('decommission cost', 'future cost', 'total process cost', 'vertical cost') and 'risk' ('describing risk', 'existential risk', 'future risks', 'greater-than-normal risk', 'real risk', 'reducing flood risk', 'risk calculus') are even more closely related to theoretical and practical aspects of climate-related action. Some clusters of 'cost' (*NVivo* creates tree maps for each node) are particularly meaningful from a thematic point of view: in the clusters "adaptation cannot be at the cost", "and we cannot afford the cost", "can no longer risk the cost", the modal 'can' and the first person plural 'we' add to the explicit communication of risk. Indeed, Russo[46] notes that epistemic modality is "realized by a range of explicit and linguistic forms: modal auxiliary verbs; sentence adverbs; adjectives (Fowler, 1985: 73) and … classified on the basis of the degree of certainty". Similarly, the expressions "cost-effective", "cost of climate change", "cost of Loss and Damage", "cost of adaptation", "cost of inaction", "cost of losses and adaptation", and "cost of mitigation" refer to risks possibly arising from climate inaction, and are generally in line with personalisation, simplification, and more expressive risk communication observed in non-specialised discourse.

To further observe themes in collected tweets, a word frequency query was run, following Bernard and Ryan's methods for qualitative analysis,[47] where frequency is considered as a parameter for themes identification. Looking at the four key terms, 'adaptation' appeared as the 2nd most frequent word in the whole corpus, followed by 'vulnerability' (#12), 'risk' (#13), and 'resilience' (#32). Interestingly, while 'vulnerability' and 'resilience' appear less frequently in AR6, both terms seem to be more relevant in Twitter's remediated discourse: this might be due to a practical need to schematise and summarise the report's contents and key thematic points for non-expert audience on SM. In addition, the climate-relevant 'impacts' and 'mitigation' appeared at #7 and #30 respectively. Overall, the lists of nodes, sub-nodes, and frequent words indicate that greater focus is placed on adaptation as the most pressing issue remediated from AR6; close reading of tweets confirmed that most discussion about the report revolved around issues of adaptation planning, risk management, and impacts of climate change – perhaps because these aspects are more easily measurable, especially when talking about effective transnational policymaking. In the case of vulnerable countries, for instance, the proper names 'africa', 'australia', and 'india' appear quite early in the frequency wordlist, but more generic reference to 'regions', 'local' and 'global' 'ecosystems', 'groups', 'communities', and 'countries' and 'governments' can also be found.

Finally, it is worth commenting on the first most frequent word in the dataset, 'https'. At the beginning, this item could seem an unpleasant intruder in a list of otherwise relevant content words; although raw data from software analysis is often imperfect, this element can expand the general discourse on remediation. As a matter of fact, a large majority of the tweets included external links not

[46] Russo, *The Evaluation of Risk in Institutional and Newspaper Discourse*, 94.
[47] Gery W. Ryan, and H. Russell Bernard, "Techniques to Identify Themes", *Field Methods*, 15.1 (2003), 85-109.

only to the IPCC's report, but also to newspaper articles, blogs, websites, images, and other types of sources referring to contents and aspects of AR6. This peculiar formal aspect of computer-mediated communication (largely explored in literature starting from Herring 2004) can be a rightful part of recontextualisation- and remediation-centred investigations, considering the intertextual nature of digital written texts, with hyperlinks serving to expand, clarify, or explain possibly less clear/less relevant concepts and notions. Such intertextuality opens to further considerations of information and scientific knowledge dissemination, with possible communication risks and biases arising from the typically unregulated manipulation of discourse on SM. While there is unfortunately no space to delve into these considerations, future critical investigations may focus specifically on the ideological implications of the above aspects.

### 4.2 *Linguistic remediation by parts of speech*

The second part of the analysis focussed on individual parts of speech in the corpus. As regards remediated concepts, the following definitions from AR6[48] introduce the four key terms and notions under consideration:

- *Risk*: "the potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems".
- *Vulnerability*: "the propensity or predisposition to be adversely affected and encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt".
- *Adaptation*: "in human systems, … the process of adjustment to actual or expected climate and its effects in order to moderate harm or exploit beneficial opportunities. In natural systems, adaptation is the process of adjustment to actual climate and its effects; human intervention may facilitate this".
- *Resilience*: "the capacity of social, economic and ecosystems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure as well as biodiversity in case of ecosystems while also maintaining such a capacity for adaptation, learning and/or transformation".

It must be specified that, albeit updated in AR6, all the above are definitions of well-known technical terms already introduced in previous IPCC reports. Together with these, extended descriptions of the same concepts from other parts of the report were also taken into account.

For what concerns the level of shared confidence and assessed likelihood of climate-related outcomes, including anthropogenic actions and natural events, the report adopts the already mentioned calibrated language, where the following terms and expressions are used:[49]

LEVEL OF CONFIDENCE
- *very low,*
- *low,*
- *medium,*
- *high,*
- *very high.*

ASSESSED LIKELIHOOD OF AN OUTCOME OR A RESULT

[48] IPCC, "Summary for Policymakers", 7-9.
[49] Ibid., 7.

- *virtually certain (99–100%),*
- *very likely (90–100%),*
- *likely (66–100%),*
- *as likely as not (33–66%),*
- *unlikely (0–33%),*
- *very unlikely (0–10%),*
- *exceptionally unlikely (0–1%).*

Also in this case, the IPCC's calibrated language is a functional convention already established in previous reports which vouches for the overall conceptual and linguistic accuracy of the report. As anticipated, the analysis crossed these classifications with traditional analytical categories of transitivity, mood, modality, and attribution, as well as attitude, graduation, and engagement from appraisal frameworks, to investigate remediation of related concepts.

At the lexical level, compounding – "human-induced climate change",[50] "near-term climate risk reduction"[51] – and noun strings – "evidence of observed impacts, projected risks, levels and trends in vulnerability, and adaptation limits demonstrate that",[52] "current unsustainable development patterns"[53] – are largely used in AR6. In general, there is a lower tendency to compounding and forming long noun strings in the dataset ("risks from climate change", "there are limits to adaptation"), in line with oversimplification and explanation needs. The report's range of adjectives expressing the level of confidence is scarcely observable after remediation, with only 235 references overall; the same can be observed for adverbs and adverb phrases used for assessed likelihood: only 'likely' appears more times in the dataset, whereas 'virtually certain' and 'extremely unlikely' are each found in one instance. Several other adjectives and adverbs in various degrees of expressiveness are used instead, namely: 'potential'/'potentially', 'probable'/'probably', and the polarising 'impossible' ("warming could make survival impossible", "impossible to refute"). Other attributes include 'critical', 'crucial'/'crucially', 'vital', 'decisive', 'severe', and 'serious', to 'bad', 'hard', 'grim', 'grave', 'stark', 'overwhelming', 'terrible'/'terribly', 'devastating', 'destructive'/'destructively', or 'ravaging'.

The widespread presence of key circumstance adverbs 'now' and 'immediately' (804 references in total, including stemmed words and synonyms) is registered, for example in the expressions "we need to act now", "immediately scale up", and "we are quickly running out of", typically used to signal imperative mood and material processes. In line with minimality and contextuality,[54] the single words or strings making up the dataset, considered in their context, tend towards graduation through the use of intensifiers ('absolutely', 'extremely', 'real'), negative expression of affect ('grim predictions', 'truly eye-opening', 'horrifying impacts') and negative judgement ('adaptation efforts are falling behind'), while less frequent expression of attitude is observed.

Looking at syntax, nominalization and modality – "multiple climate hazards will occur simultaneously, and multiple climatic and non-climatic risks will interact",[55] "comprehensive, effective, and innovative responses can harness synergies"[56] – as well as passive voice – "adaptation planning and implementation has been observed",[57] "future vulnerability of ecosystems to climate

[50] Ibid., 9.
[51] Ibid., 22.
[52] Ibid., 31.
[53] Ibid., 14.
[54] Cavasso and Taboada, "A Corpus Analysis of Online News Comments Using the Appraisal Framework", 12-13.
[55] IPCC, "Summary for Policymakers", 20.
[56] Ibid., 31.
[57] Ibid., 22.

change will be strongly influenced"[58] – are frequently found in the report. As regards modals, the widespread use of 'must', completely absent in the report, is perhaps the most striking remediation feature in the corpus; other modal verbs expressing obligation and necessity, namely 'need to' and 'have/has to' are more frequent in the tweets. Similarly, 'going to' appears in at least 73 instances in the corpus, while it is missing in AR6; conversely, the modal 'will' – here used for future possibilities – has similar frequency of use in both texts. In general, modals of uncertainty are infrequent in the report and across tweets, with only few instances of 'might', 'may', and 'should'. Remediation is evidenced not only through dissimilar use of modals, but also through a stronger tendency towards polarisation (imperative and declarative mood). For the same reason, personalisation, especially through the first person pronoun for plural 'we' can be detected, while passive voice is signaled by the large presence of 'will be' + verb adjective structures (e.g. 'Risks will be magnified', 'communities will be impacted'). All of this reflects into clear, linear syntax characterised by coordination and explicit clause relations ('The IPCC report warns that we cannot adapt our way out of the climate crisis'), and frequent expression of negative judgement attached to the agents involved in or determining climate-related consequences, for example through activity and communication verbs (e.g. the report shows/ says/ demonstrates), and existential verbs (e.g. the report is clear) introducing that- and if- clauses (declarative mood) – all adding to readers' engagement.

At a textual level, thematisation – "Integrated, multi-sectoral solutions that address social inequities, differentiate responses based on climate risk and cut across systems, increase the feasibility and effectiveness of adaptation"[59] –, cohesive conjunctions – "exacerbate vulnerability and social and economic inequities and consequently increase"[60] –, hedging – "the feasibility of implementing adaptation options in the near-term"[61] –, and crypticity – "the effectiveness of adaptation to reduce climate risk … will decrease with increasing warming"[62], "climate resilient development action"[63] – appear in AR6. Conversely, a more evident reliance on reformulation, explanation, and simplification is typical in remediated discourse. Going back to discursive strategies in non-specialised communication,[64] (over)explanation and (over)simplification work through explicit cause-effect relations ("the report makes it clear that"), existential 'there is'/'there are' ("There are limits to adaptation"), if- clauses, and/or bullet lists ("If 1.5° target is met: 1 billion people in coastal regions are at risk. If temperatures rise between 1.7 to 1.8° half of the world's population are at risk of heat based life threatening climate conditions").

Overall, all the above linguistic elements and parts of speech in the dataset make for broad critical positioning of Twitter's users. Assuming that observed remediated discourse is informed by pro-environment ideology, these and other discursive strategies are used to construct effective communication of scientific information from AR6. Among them, irony ("Think climate change doesn't directly affect you yet? Think again", "Having stated the obvious", "I'm not sure we fully realise"), argumentation ("Many people underestimate the risks", "scientists have raised the alarm, yet we're not even approaching emergency footing", "adaptation and mitigation cannot be neglected"), personal references ("Our scientists", "we're running out of time", "our efforts to adapt", "I can only think of"), and (critical) social references appear. In this sense, some emblematic tweets ("WE HAVE NO IDEA JUST HOW BAD THINGS ARE GOING TO GET! … A world of 2C of warming is a world of terrifying unknowns" (capitalisation in the original), "the IPCC report is a code red for

[58] Ibid., 14.
[59] Ibid., 23.
[60] Ibid., 31.
[61] Ibid., 23.
[62] Ibid.
[63] Ibid., 31.
[64] Grego, "'The Physics You Buy in Supermarkets'", 154.

humanity") enabled a cross-check of the sources, confirming that larger use of remediation strategies at the textual level is made by individuals and environmental organisations, rather than public figures and institutions. This latter part of the investigation could be further developed in dedicated studies looking at ideological positioning and stance in different genres or discourse types, and user-generated discourse in particular.

## 5. Conclusive remarks

The present paper has dealt with the remediation and communication of core concepts from the 6th IPCC assessment report in SM discourse. As it was expected, the discursive construction of *risk*, *vulnerability*, *adaptation*, and *resilience* at the thematic, lexical, syntactic, and textual levels follows typical patterns of popularisation. However, given the practicalities of computer-mediated communication, resulting remediation on SM has specific characteristics not observable in other media, such as the pervasive use of hyperlinks, or the possibility to include images and emojis, among other things. Future research may deal with such characteristics in more detail to further validate and replicate what suggested in this study. In general, observed remediated discourses on SM play the important function of making knowledge accessible to laypeople by breaking down specialised or technical terms and concepts. In the analysed dataset, the majority of remediated texts are produced within a scientifically confident environment, have a marked informative (or persuasive) purpose, and act as a link between scientific literature and popular communication.

Without claiming to be representative, results suggest that linguistic remediation is heavier and more evident in the presence of stronger ideological positioning by SM users, with both positive and negative consequences on risk communication. On the one hand, ideology-driven communication in popularising discourses may positively influence people's understanding of climate change and pro-environment behaviour; from an ecocritical standpoint, more evident remediation can be associated to well-planned narrations of climate change facts and stories, making for excellent case studies of emotional, value-driven storytelling. On the other hand, polarised communication may hinder dissemination of objective, unbiased scientific information: as much as scientific evidence may be alarming, extreme views and messages, even when justified by positive persuasive purposes, can have negative impacts on people, for example engendering feelings of failure, anxiety, or doom. Moreover, irresponsible communication may lead to misinformation and knowledge impoverishment. All this holds not only for climate change topics, but also for public discussions about similar, critical topics of popular interest.

In light of what observed so far, some critical remarks can be made. The qualitative nature of the study, the size of the sample, and the presence of mixed sources do not allow to make generalisations about remediated climate change discourses on Twitter. Further applications of the present paper may better confirm research hypotheses about the features of remediation and popularisation on SM, for example through mixed methods and software-assisted analyses. While limitations of this kind are acknowledged in this sense, all sampling decisions and practical methodologies were coherent with the initial research questions. In future, it could be interesting to look at source-specific differences, to further compare features of popularising discourses in institutional vs. user-generated content, also to assess which type of discourse is more practically effective for laypeople. Assuming that different sources account for different textual genres, the present paper has, at this stage, privileged general aspects of linguistic remediation, regardless of genre distinctions.

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Arianna Del Gaudio

# The Re-contextualisation of Climate Change in Activist Discourse. Counter-narratives and Temporalities in the Web-Documentary *Seat at the Table*

**Abstract**: Activists and NGOs have increasingly used digital platforms to communicate alternative views of climate change science, while concurrently adopting discursive and rhetorical strategies to increase support and promote action. Based on such premises, the web documentary *Seat at the Table* (2021) recontextualises climate science to inform and persuade laypeople. Yet, it presents an alternative genre for the popularisation of climate-change scientific knowledge. Drawing on Corpus-assisted Critical Discourse Analysis and the Appraisal Framework, the study investigates the re-contextualisation of activists' social practices in web documentaries to provide a space for the analysis of dominant and non-dominant discourses of climate change. Hence, it investigates how climate change is discursively represented and appraised by activists and the so-called "unheard voices" of climate change.

Keywords: *climate change*, *activist discourse*, *counter-narratives*, *new media*, *web-documentary*

## 1. Introduction

Over the last decades, scientists provided scientific evidence of the anthropogenic causes of climate change, which is often described and perceived differently by laypeople who consider it an abstract issue and future-oriented risk.[1] Yet, the advent of the Internet has provided several opportunities for the popularisation of climate science.[2] The latter is characterised by recontextualization and involves a wider "range of actors and voices, which cause multiple communication challenges due to the high number of stakeholders, interests, opinions, and attitudes represented".[3]

The investigation of climate change discourse in news media, broadcasting, microblogging and social media has found that the debate over climate change has been largely characterised by negative projections about the future such as catastrophic and apocalyptic scenarios.[4]

The present article investigates how NGOs and activists have used digital platforms to communicate their views of climate change while adopting discursive and rhetorical strategies to increase support and promote action. More specifically, it takes into consideration the response of NGPS and activists to policies and international negotiations to achieve climate change targets about the reduction of $CO_2$ emissions.[5] It will focus on the response of NGOS and activists to the 26th UN Climate Change Conference of Parties (hereafter COP26) held in Glasgow in 2021 as it represented a pivotal opportunity

[1] Andrea Sabine Sedlaczek, "The Field-Specific Representation of Climate Change in Factual Television: A Multimodal Critical Discourse Analysis" *Critical Discourse Studies*, 14.5 (2017), 480-496.

[2] Neyla Koteyko et al., "Climate Change Communication and the Internet: Challenges and Opportunities for Research" *Environmental Communication*, 9.2 (2015), 149-152.

[3] Kjersti Fløttum, ed., *The Role of Language in the Climate Change Debate* (Taylor & Francis, 2017); Katherine E. Russo, "Speculations about the Future", in Encarnación Hidalgo-Tenorio, Miguel-Ángel Benítez-Castro and Francesca De Cesare, eds., *Populist Discourse: Critical Approaches to Contemporary Politics* (New York: Routledge, 2019), 190-206.

[4] Cinzia Bevitori, "Values, Assumptions and Beliefs in British Newspaper Editorial Coverage of Climate Change" in Christopher Hart and Piotr Cap, eds., *Contemporary Critical Discourse Studies* (Bloomsbury Publishing, 2014), 603-626; Kjersti Fløttum et al., "Representations of the Future in English Language Blogs on Climate Change", *Global Environmental Change*, 29 (2014); Katherine E. Russo, "Speculations about the Future".

[5] Peter Weingart et al., "Risks of Communication: Discourses on Climate Change in Science, Politics, and the Mass Media", *Public Understanding of Science*, 9.3 (2000), 261-283.

for the implementation of the Paris Agreement (2015) and the commitment to supporting developing countries and vulnerable communities in adapting to climate change. It will do so by analysing the web documentary *Seat at the Table* by the climate activist and filmmaker Jack Harries (Studio Silverback, 2021). The latter was presented at COP26 in order to give a voice to under-represented subjects in the international climate debate, to inform and persuade governments and civil society.[6] It argues that while documentaries do not represent an unfiltered record of 'reality', they may play an important role and may be considered a powerful genre for the popularisation of unconventional climate change science, due to the creation of images that offer a counter-narrative to widespread popularisations of scientific evidence in order to respond to the expectations of a different audience.[7]

The article is organised as follows: Section 2 provides the research background on climate activism and its role in the 26th Conference of Parties. In Section 3, the literature review on the recontextualisation of climate change in activist discourse in new media is outlined. Section 4 describes the materials and the methodology applied to this study, while section 5 discusses the major findings, focusing on the activist counter-narratives regarding climate change in the web documentary *Seat at the Table*. Finally, Section 6 lays out concluding remarks.

## 2. Research Background: COP26 and Climate Change Activism

Since the mid-1990s, climate change issues have gained a growing consensus among governments and institutions, resulting in the setting up of a decision-making body to monitor the implementation of the United Nations Framework Convention on Climate Change (UNFCCC). Moreover, since 1995, the debate over climate change has been addressed annually during the United Nations Climate Change Conferences to track the progress towards net-zero carbon targets. Accordingly, as a result of the endorsement of the Kyoto Protocol during COP3 in 1997, the ultimate task of Conferences of Parties resulted in the assessment of the measures implemented to reach the objectives of the Convention.

In 2021, COP26 aimed at bringing Parties together "to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change".[8] Over 190 Parties negotiated the completion of the Paris Agreement rulebook and jointly set the target to limit the average global temperature warming to 1.5 degrees. Further, the UK Presidency established four goals to be accomplished by the end of the Summit:

- Secure global net-zero by mid-century;
- Adapt to protect communities and natural habits;
- Mobilise finance to support developing countries in climate adaptation;
- Enhance cooperation between governments and civil society.

In order to reach the aforementioned goals, actions to tackle the climate crisis include the switch to electric vehicles and the use of renewables, the protection of ecosystems and the curtailing of deforestation through cooperation among institutions and civil society.[9]

Climate public campaigns have always significantly impacted policymaking and the legislation process. Since the 1980s, NGOs have started campaigning on environmental issues, gaining earnest exposure in the 2000s. In recent years, climate activism has seen the development of local and global

[6] Maurizio Gotti, "Reformulation and Recontextualization in Popularization Discourse", *Iberica*, 27 (2014).
[7] Alexander Pollak, "Analyzing TV Documentaries", in Ruth Wodak and Michal Krzyżanowski, eds., *Qualitative Discourse Analysis in the Social Sciences* (Basingstoke/New York: Palgrave Macmillan, 2008), 77-95.
[8] UK Government and United Nations 2020, www.gov.uk/government/topical-events/cop26.
[9] UK Government and United Nations 2020, COP26 Goals, www.ukcop26.org/cop26-goals/.

movements attracting different social actors who mobilised to manifest the inadequacy of policy actions and international negotiations on carbon emissions. It might be argued that the most effective practice of climate activism is to be found in the collective efforts of communities that hold "those with the power to make big differences to account – be it government or business".[10]

In 2018, climate change activist movements acquired greater exposure, catching the attention of media and politicians. Namely, the young activist Greta Thunberg, named Time Magazine's Person of the Year for 2019, started her solo school strikes to require climate action in Sweden. This represented a starting point for adults of Gen Z and Millennials to engage in climate change activism, as the most active generations addressing environmental issues online and offline. The reason for such a generational conceptualisation of climate change activism is based on the assumption that "environmental problems were widely thematized in terms of intergenerational consequences".[11]

In October 2021, the International Energy Agency released the World Energy Outlook, a complex document that provided guidance on climate negotiations during COP26, mainly regarding future energy use and greenhouse gas emissions scenarios. The annual publication illustrated three different future forecasts, encompassing several hypotheses and the possible evolutions:

1. The *Stated Policies Scenario* considers the decline of emissions in the electricity generation sector by 2050 and its increase in other sectors. In this scenario, energy and climate policies are close to being implemented. The result is a temperature increase of more than 2 degrees above pre-industrial levels by 2100;
2. The *Announced Pledges Scenario*, based on commitments announced ahead of COP26. This scenario is based on the hypothesis that if all the commitments turn into implemented policies, $CO_2$ emissions will decrease by 40% by 2050;
3. The *Net-Zero Emission Scenario*, which aims at reaching carbon neutrality by 2050 and limiting the global temperature increase to 1.5 degrees.[12]

COP26 represented a change of course in climate policy. Yet, notwithstanding the significant commitments delivered by world leaders, Greta Thunberg defined the Conference "The Festival of Greenwash" as none of the climate-established goals was fulfilled, and underrepresented groups had no relevant access to negotiations. COP26 did not provide a space to discuss climate injustice. Groups of activists, indigenous peoples and organisations mainly from the Global South participated in the Conference as observers and declared that it did not represent climate change reality. They were excluded from the decision-making process concerning the environmental crisis, whose aim was to outline the urgency of taking action to secure the protection of natural habitats and communities worst affected by climate change and how specific actions can ensure climate justice.

In this context, the web documentary *Seat at the Table* tried to represent the voices of marginalised social actors in COP26. The filmmaker Jack Harries interviewed laypeople on the frontline of the climate emergency (also referred to as *unheard voices*) to share the environmental stories behind the climate crisis and shed light on impacts and innovative solutions to climate change that could ensure survival for future generations. The work was released on YouTube ahead of COP26 and then shown during the Conference. By telling the stories of those who do not have a seat at the world leaders' table, it asked them to consider vulnerable communities in the decision-making process as they are fundamental in the outcome of global climate negotiations.

[10] Simon Goldhill and Georgie Fitzgibbon, "Climate Activism: Introduction", *Journal of the British Academy*, 9.5 (2021), 1-5.
[11] Jonathan White, "Climate Change and the Generational Timescape", *The Sociological Review*, 3 (2016).
[12] "COP26: Three Scenarios for the Future", Italian Institute for International Political Studies (2021), www.ispionline.it.

## 3. The Representation of Climate Change and Activism in New Media

Nowadays, laypeople generally tend to seek information on the Internet and for this reason, user-generated contents on climate change have been disseminated through online media as they reach a broader audience through interactive tools. In recent decades, new media have played an increasingly prominent role in communicating climate change, representing laypeople's main source of information. Therefore, they are fertile grounds for scholarly research.

While previous studies have mainly focused on the role of 'traditional' means of communication[13], there is a growing interest in new media due to their diversified practices of information disclosure regarding climate science, such as user-generated and interactive contents. Online platforms such as YouTube belong to the social media category of "content communities ... in which users can share audio and/or visual contents".[14] They are a distribution channel with potential a viral impact worldwide. While mainstream television broadcasters are still major producers of audiovisual content, according to Statista, in 2016, more than 25% of lay users consumed videos on online platforms.

Even though they have a potential in communicating climate change and engaging audiences, documentary films and series have been scarcely investigated.[15] Although it is often ignored, climate change activism has greatly increased in recent years in new media spheres. The latter provide a space for debate of scientific findings and bottom-up solutions denied by intergovernmental institutions. Yet, people's awareness and attitudes concerning environmental disputes are often shaped by mediated information, therefore they are extremely powerful.[16] Yet, despite YouTube's popularity and the possibility of establishing online communities, climate change in online media is generally less considered compared to the attention it receives in mass media, including broadcast television and the news.[17]

The communication of climate change through the genre of online web documentary series represents a valid instance of recontextualisation as it provides laypeople accessibility to scientific knowledge originated in highly specialised contexts. The recontextualization of activist discourse in new media "implies a process of adaptation of popularization discourse to the appropriateness conditions of the new communicative events and to the constraints of the media employed, which have become quite varied in their nature and are often used in an integrated way".[18] Indeed, through online web documentaries NGOs and activists may reach broader audiences more effectively, provide information and mobilise actions to tackle the climate crisis.[19] Furthermore, the communication of climate change issues through online documentaries offers an opportunity to:

- Address scientific findings: NGOs and 'lay' social actors may access science in a form that is more accessible;

[13] See for example Cinzia Bevitori, "Values, Assumptions and Beliefs in British Newspaper Editorial Coverage of Climate Change", *Contemporary Critical Discourse Studies* (2014), 603-625; Brigitte Nerlich, Richard Forsyth, and David Clarke, "Climate in the News: How Differences in Media Discourse between the US and UK Reflect National Priorities", *Environmental Communication: A Journal of Nature and Culture*, 6.1 (2012), 44-63; Katherine E. Russo, *The Evaluation of Risk in Institutional and Newspaper Discourse: The Case of Climate Change and Migration* (Napoli: Editoriale scientifica, 2018); Peter Weingart, Anita Engels, and Petra Pansegrau, "Risks of Communication: Discourses on Climate Change in Science, Politics, and the Mass Media", *Public Understanding of Science*, 9.3 (2000), 261-283.
[14] Ibid.
[15] Ashley Bieniek-Tobasco et al., "Communicating Climate Change through Documentary Film: Imagery, Emotion, and Efficacy", *Climatic Change*, 154.1 (2019), 1-18.
[16] Katherine E. Russo, "Speculations about the Future".
[17] Alicia De Lara et al., "Online Video on Climate Change: A Comparison between Television and Web Formats", *JCOM: Journal of Science Communication*, 16.1 (2017), A04-32.
[18] Gotti, *Reformulation and Recontextualization in Popularization Discourse*.
[19] Bieniek-Tobasco et al., *Communicating Climate Change through Documentary Film*.

- Increase support to get funds and strengthen the sense of belonging among individuals in order to create a collective identity[20]

Furthermore, while mainstream media systems are often claimed to oppress the voice of non-governmental institutions and individuals, the so-called 'blogosphere' and online media platforms, including YouTube, guarantee popular inclusion to marginalised social actors and provide climate activists access to mainstream media spheres. The downside may be that in the attempt to provide an unfiltered version of climate change reality user-generated contents also include extreme viewpoints that may alter scientific knowledge.[21] Nevertheless, the widespread use of such popular online platforms contributes to articulating narratives promoting counter-hegemonic climate change discourses. In this light, Askanius and Uldam, in their study on mobilisation videos of protest events during COP15 released on YouTube, argued that online discourse on climate activism and interviews represent "a possibility to bypass mass media filters", providing a space for the proliferation of activists and marginalised social actors' practices of self-representation.[22] The latter facilitates the construction of community-based communication and sense of belonging.

In the representation of climate change and activism in web documentaries on YouTube, social actors are considered "creators, communicators, and audiences of one another"[23] and greatly influence the online public sphere with regard to the communication of dominant and non-dominant notions of climate change. YouTube videos are intended to be remarkably dynamic products generating mediated social interactions.[24] Since they are released on online video platforms, they are characterised by two key themes: customisable information and inclusivity as a vehicle of activism (adapted from O'Neill and Boykoff, 2011).[25] In addition, in order to capture the extremely fleeting attention of online audiences, web documentaries often include strategies for engagement and emotionally involvement.[26] As Brosh argues, "[a]ffect and emotions are strongly intertwined with cognitive and motivational processes, they provide important evaluative information and reorient information processing and behaviour towards events that are relevant to overarching goals and concerns".[27] Hence, the presence of emotions in narratives further increases their efficacy by inspiring action and providing a space for the spread of activism and counter-narratives. Consequently, the re-contextualisation of climate change in web documentaries often imposes new reflections and interpretations upon scientific information that may be narrativized and result in the construction of stories and imaginaries. For instance, they have led to the widespread discursive construction of often apocalyptic future scenarios and spectacularisation, often characterised by negative values and negative affects, such as fear and anxiety. Thus, user-generated narratives conveyed in online media platforms open scientific findings to re-interpretations

[20] Mike S. Schäfer, "Online Communication on Climate Change and Climate Politics: A Literature Review", *WIREs Climate Change* (2012).
[21] Samantha Hautea et al., "Showing They Care (Or Don't): Affective Publics and Ambivalent Climate Activism on TikTok", *Social Media+Society* (2021), 1-14.
[22] Tina Askanius and Julie Uldam, "Online Social Media for Radical Politics: Climate Change Activism on YouTube", *International Journal of Electronic Governance*, 4.1-2 (2011), 69-84.
[23] Bhatia, *Analyzing Online Videos*.
[24] Aditi Bhatia, "Analyzing Online Videos", in Camila Vásquez, ed., *Research Methods for Digital Discourse Analysis* (London: Bloomsbury, 2022), 177-196.
[25] Saffron O'Neill and Maxwell Boykoff, "The Role of New Media in Engaging the Public with Climate Change", in Lorraine Whitmarsh, Irene Lorenzoni and Saffron O'Neill, eds., *Engaging the Public with Climate Change* (London: Routledge, 2011), 233-251.
[26] Ashley Bieniek-Tobasco et al., *Communicating Climate Change through Documentary Film*.
[27] Tobias Brosch, "Affect and Emotions as Drivers of Climate Change Perception and Action: A Review", *Current Opinion on Behavioral Sciences*, 42 (2021), 15-21.

and multidirectional connections that enhance the transmission of affective public messages and interactions.

## 4. Methods and Materials

The web documentary *Seat at the Table* highlights the devastating impacts of climate change and sheds light on innovative solutions to mitigate the environmental crisis through interviews to climate activists and underrepresented social actors on the frontline of the climate emergency. Narratives articulated in the web documentary outline how the interviewees experience climate change. Each episode shares environmental stories concerning a specific climate change issue, such as air pollution, extreme weather events and forest wildfires.

Web documentaries are naturally considered a multi-semiotic genre as they are characterised by an interplay of dynamic verbal and non-verbal components: sounds, images, and written and spoken language.[28] They are defined as "interactive applications, on or off-line, made with the intention of representing reality with its own mechanisms that we can call modes of browsing or interactivity, relative to the level of participation allowed".[29] Notwithstanding the relevance of multimodal aspects, in the case of *Seat at the Table,* verbal aspects contribute to the construction of climate change dominant and non-dominant narratives. Therefore, the present article considers web documentaries as a hybrid genre in which spoken language plays a prominent part in the construction of meanings, and in this regard, it deserves an in-depth analysis.

The present study analyses the transcripts of the episodes (four hours of audio/video recording released on YouTube) of the web documentary series, amounting approximately 31,000 tokens (3702 types). Episodes (N = 12) were collected and automatically transcribed with Avrio Transcription Software; then followed by a close-reading review. Albeit limited in size, the corpus represents a highly specialised sample for investigating specific instances of climate change representations and discourses articulated by activists and under-represented subjects in the international debate on the environmental crisis. Interviewees in the corpus constitute a heterogenous sample of participants with an intersectional framework conveyed by work, age, gender, class and ethnicity, but united in being climate activists. Based on Flowerdew's parameters of specialised corpora,[30] the *Seat at the Table* corpus (hereafter, SatT corpus) can be defined as a small, specialised corpus according to the following criteria:

- Specific purpose for compilation: e.g., to investigate particular lexical items;
- Contextualisation: particular setting (climate change frontlines), participants (underrepresented social actors and activists) and communicative purpose (inform and mobilise individual/political action);
- Genre: informative and persuasive;
- Type of text/discourse: web documentary, activist discourse, spoken language;
- Subject matter/topic: climate change crisis.

The study focuses on the discursive construction and the appraisal of climate change to understand how voices silenced by institutions and mainstream media take and mobilise action against climate change. In this regard, the present article addresses the following research questions:

[28] Andrea Sabine Sedlaczek, "Representations of Climate Change in Documentary Television. Integrating an Ecolinguistic and Ecosemiotic Perspective into a Multimodal Critical Discourse Analysis", *Language and Ecology* (2016), 1-19.
[29] Arnau Gifreu, "The Interactive Multimedia Documentary as a Discourse on Interactive Non-Fiction: For a Proposal of the Definition and Categorisation of the Emerging Genre", *Hipertext.net*, 9 (2011).
[30] Lynne Flowerdew, "The Argument for Using English Specialized Corpora to Understand Academic and Professional Settings", in Thomas A. Upton and Ulla Connor, eds., *Discourse in the Professions* (Amsterdam: John Benjamins, 2004), 11-33.

(RQ1): How do interviewees represent and appraise climate change?
(RQ2): What kind of AFFECT subcategories emerge in the representation of imaginaries related to climate change?

The article draws upon a methodology that combines Corpus-assisted Critical Discourse Analysis with the Appraisal Framework, to elicit quantitative and qualitative data from the analysis of selected terms in the SatT corpus. The analysis was carried out with the #LancsBox 6.0 concordance tool and investigated concordances and collocations of selected terms to obtain quantitative results that support the qualitative data analysis in the identification, critical analysis and appraisal of climate change in the corpus.

The basic premise in the choice of the suitable approach is the notion of discourse as a form of social practice is particularly suited for activist discourse on climate change. Moreover, self-representations and "narratives told in interviews have become a central tool of data collection … in a variety of disciplines within social sciences research"[31] in terms of qualitative analysis. Critical Discourse Analysis focuses on human relations, the representation of social actors and on how ideologies, ideas, and discourses are constructed through language in different texts and domains.[32] Concurrently, Appraisal theory delves into the evaluative and attitudinal discursive dimensions.[33] The present combined analysis of interviews in the corpus enables the possibility of understanding the nature of the interviewees self- and other- representations, unveiling the constitution and functioning of particular social groups[34], and the study of how language is used to manage "individuals' social personae whilst social relationships" to promote social change.[35]

## 5. Findings and Discussion

The present study aims to analyse the discursive representation and appraisal of climate change in the web documentary in order to shed light on the positive and negative emotions explicitly and implicitly expressed by under-represented subjects in the climate debate. The study also considered how social actors in *Seat at the Table* represent themselves as social communities.

The investigation started with the analysis of the term 'climate*'. The examination identified 99 collocates, many of which are specifically related to climate change impacts and the relationship between social actors and the environment in terms of action to mitigate the climate crisis. Table 1 shows some of the collocates of the search term 'climate':

| Collocate | Freq coll | Freq corpus | Collocate | Freq coll | Freq corpus |
|---|---|---|---|---|---|
| change | 86 | 119 | fight | 8 | 13 |

[31] Anna De Fina, "Narratives in Interview—The Case of Accounts: For an Interactional Approach to Narrative Genre", *Narrative Inquiry*, 19.2 (2009), 233-258.
[32] Norman Fairclough, *Discourse and Social Change* (Cambridge: Polity, 1992).
[33] James R. Martin and Peter R.R. White, *The Language of Evaluation: Appraisal in English* (London: Palgrave Macmillan, 2005).
[34] Anna De Fina, "Group Identity, Narrative and Self-representations", in Anna De Fina, Deborah Schiffrin and Michael Bamberg, eds., *Discourse and Identity* (Cambridge: Cambridge U.P., 2006), 351-375.
[35] Bevitori, *Values, Assumptions and Beliefs in British Newspaper Editorial Coverage of Climate Change*, 607; Encarnación Hidalgo-Tenorio and Miguel-Ángel Benítez-Castro, "The Language of Evaluation in the Narratives by the Magdalene Laundries Survivors: The Discourse of Female Victimhood", *Applied Linguistics*, 42.2 (2021), 317.

| | | | | | |
|---|---|---|---|---|---|
| about | 29 | 157 | your | 7 | 59 |
| our | 19 | 134 | front | 7 | 25 |
| you | 18 | 366 | fighting | 6 | 15 |
| have | 18 | 196 | impacts | 6 | 14 |
| crisis | 18 | 26 | against | 6 | 10 |
| people | 16 | 172 | becoming | 6 | 13 |
| do | 16 | 127 | talk | 6 | 19 |
| my | 16 | 165 | last | 6 | 25 |
| world | 15 | 129 | important | 6 | 25 |
| what | 14 | 186 | nature | 6 | 39 |
| put | 13 | 27 | work | 5 | 43 |
| think | 11 | 104 | answer | 5 | 8 |
| they | 10 | 92 | thing | 5 | 51 |
| future | 9 | 35 | hope | 6 | 41 |
| first | 10 | 36 | through | 5 | 36 |
| make | 9 | 65 | feel | 5 | 49 |
| them | 8 | 67 | us | 5 | 75 |
| leaders | 8 | 43 | away | 5 | 22 |
| me | 8 | 120 | now | 5 | 76 |

Table 1. *climate** Collocates in the SatT Corpus (01 - Freq (5.0), L10-R10, C: 5.0-NC: 5.0)

The analysis of the pronouns ‘we’ and ‘our’ points to how interviewees represented themselves in *Seat at the Table*. At closer inspection, social actors in the web documentary employ self-representation strategies in different ways according to the kind of narratives they articulate (for instance, the relationship with world leaders or the Global North and their role in the battle against climate change). Moreover, they express a strong sense of community that results in the frequent use of the pronoun ‘we’.

The analysis of self-representations in the context of interaction with other social groups and the articulation of the narrative ‘climate change as a threat’ suggests that the interviewees position themselves as collective social actors in order to enhance the negative other representation:

1. Our survival is at stake. We are forgotten people.
2. As a community, we have so many challenges. Poverty, drug and alcohol abuse,

gangsterism and now climate change. That's one of the main influences on kids today. I feel like we are a forgotten community.

Instead, the reference to their contribution in the creation of an environmentally friendly society may be regarded as a process of activation of social actors as they represent themselves "as the active, dynamic forces in an activity".[36] Therefore, they have agency and employ positive attitudes and empowering terms in order to persuade people to join the activist movement and encourage action:

3. The people who are worst affected by air pollution tend to be poor, people of colour, and working-class, because they tend to live by the busiest roads in the poorest areas. We are also planning to use $CO_2$ and then store it in the tile, which essentially means this carbon, which is present in the solid form and in the gaseous form, would be stored in this tile for decades. As architects, we are all dreamers, right? We dream about a certain kind of a city that we live in.
4. If the community here in the Isles of Scilly has taught me one thing, it's that we're stronger when we work together.
5. The tools that I have is landscape architecture, so I should use my tools to make some changes. I think the only way that we can be is positive, and we can't stop because we need the energy to move forward.

The analysis of self- and group representation highlighted a great sense of belonging to local and social categories, for instance, membership categories such as 'working class' and 'forgotten people' (see examples 1 and 3), and the definition of proactive attitudes to take part in the activist movement (see examples 3, 4 and 5). Social belonging particularly relates to interpersonal attitude and affection which represent key motivations to "affiliate with other people and entities, and to maintain such bonds".[37] Thus, expressions regarding group representations are also intertwined with the use of the inclusive 'we' as an instance of cohesive community in search of solutions to climate change:

6. When we are faced with challenges as humans, we're incredibly good at being creative and finding ways to take on those challenges. And it's a reminder of that incredible human spirit that we're gonna need going forward into the future.

Thus, it may be assumed that the relationship between social groups in the context of climate justice results in positive self-representation versus negative other representation (boasting vs. derogation).

Activist discourse regarding climate change involves the demand for climate action by activist communities, which is often articulated in simple narratives. Their use results in civic mobilisation functioning "as an important factor in political decision-making and could influence national and international policies on climate change".[38] In the SatT corpus, call for action is designed through the use of apparently neutral lexemes such as 'now' and 'time' that invoke the need for immediacy (examples 7, 8 and 9). The latter emphasise the importance of temporality and timescape in climate

[36] Van Leeuwen, Theo, "The Representation of Social Actors", in Carmen R. Caldas-Coulthard and Malcolm Coulthard, eds., *Texts and Practices* (London: Routledge, 2013), 43.
[37] Miguel-Ángel Benítez Castro and Encarnación Hidalgo Tenorio, "Rethinking Martin & White's affect taxonomy", in J. Lachlan *Mackenzie* and Laura Alba-Juez, eds., *Emotion in Discourse* (Amsterdam/Philadelphia: John Benjamins, 2019), 318.
[38] Anabela Carvalho, "Media (ted) Discourses and Climate Change: A Focus on Political Subjectivity and (Dis)engagement", *Wiley Interdisciplinary Reviews: Climate Change*, 1.2 (2010), 172-179.

change discourse also evoking the generational scheme to describe time contours and analyse real and present scenarios.[39]

7. There's never been a more important time to take action. Our futures are literally being decided behind those walls.
8. We've heard one thing over and over, which is now is time to take action. It's time for world leaders to step up more than anything else.
9. The time to take action is now the eyes of the world are on this conference. Over the last two years, it's been unbelievable to witness the increase in activism, whether it's young people, whether it's groups like Extinction, rebellion, putting public pressure on, and that's what we need. The decisions that they're gonna make here are challenging and they will convene people's lives, but they have to be made. We don't have a choice. We can't skirt around it any longer and I hope that that's the role people play to put on that pressure. Everyday citizen are coming here and saying, and we want you to make these decisions. And the time is now.

The demand for action is foregrounded in the entire web documentary and is boosted in the representation of climate change as a pervasive social phenomenon rather than a mere set of detrimental events (examples 10 and 11), where the use of the word 'crisis' emphasises that climate change is a present-centric issue:

10. I do believe that we are in an existential crisis, and if we don't act now, we will reach irreversible consequences of ecological tipping points.
11. Maldives is one of the flattest countries on the earth, where over 80% of the islands are less than a metre above the main sea level. And we don't have mountains, we don't have hills. Our islands are really, really tiny. So to me, the climate crisis is a humanitarian crisis.

Moreover, the documentary attempts to deconstruct sceptical and denialist discourses regarding environmental issues. It counteracts such imaginaries of climate change and their conceptualisation of climate change future scenarios that "relocate climate change risks in a distant future by presenting them as a non-immediate threat, as not part of our present and not part of our foreseeable future, thus instilling continuity with a human-friendly climate".[40] Conversely, findings from the SatT corpus shed light on the activists' conceptualisation of climate change as a real, global and present issue (see examples 12, 13, and 14):

12. I didn't really think that the impacts of climate change would happen in my lifetime.
13. I mean, when you look around, if we look at a window ledge there, and you see how dark that is, you don't even need a metre to see that this is an issue. […] With air pollution, we are the ones who are suffering on the front line. When you think about climate change, people are thinking about polar bears, or they're thinking about sea level rises hitting Bangladesh. And you're looking over there because we've been made to look over there. Whereas if it's, like: "No, no, where do you live? Okay, you're living here, in the borough of Lewisham; this is where you're living, so they're used to introduce… this is our world and here's the South Circular, which was built through our

[39] White, *Climate Change and the Generational Timescape*.

[40] Simona-Nicoleta Vulpe, "Cooling down the Future: A Discourse Analysis of Climate Change Skepticism", *The Social Science Journal* (2020), 9.

area, to kind of, like, personalise the South Circular not as just a destination, but a place where people live.

14. We've looked at people on the continent, in South Africa, in Australia, in America. They were suffering from these wildfires, uh, and yet, I see it now. Like I said, in my career, I've seen it grow and grow. And in this very wet county of Cumbria, we're experiencing wildfires, so that means anywhere is possible.

The demand for climate actions and immediacy by activists is also characterised by the use of lexemes that invoke anger or indignation.[41] The use of strong collocates such as 'fight*' and 'frontline*' implies the metaphor of 'war' (example 15) which is associated with a notably negative evaluation of climate change. Hence, the use of metaphors is another crucial example of the re-contextualisation of climate science, as they are often used in the interaction between scientific knowledge and non-expert knowledge. In particular, war metaphors have been used in the corpus to communicate the seriousness of climate change issues and mobilising action:[42]

15. This is a fight for climate justice. A fight to make sure that the people who have always been left out or they've not been represented as they're supposed to be, are actually on the frontlines to demand for climate justice.

In this context, the examination of concordance lines regarding climate change imaginaries in regard to the present unveils that climate is largely perceived as a 'threat'. Moreover, along with AFFECT subcategories of dissatisfaction, data show that narratives are pervaded by unhappiness (sadness and frustration) and insecurity (fear and anxiety) occur:

16. Our lives depend on the ocean, the tides, the sea state, the weather. Everything. Everything depends on the ocean**.** Sea-level rise is a big threat to the Isles of Scilly, and it's showing people that and saying "That's because of climate change".
17. It's dramatic. That's everything from the flora and the animals that go with it. This is the biggest threat that we've got. And... and forget all the other stuff.
18. There's always this fear that we've crossed this chance of reversing it [climate change]. And it is irreversible. And if we've crossed that point, what do we do? What are we going to do as humanity? I think this is something that scares me.

Given the importance of temporality in activist discourse, climate change is also represented as a future-oriented risk. The appraisal of the future-based discursive representation of negative imaginaries is mainly characterised by values of uncertainty and dramatisation. In this context, data show an inclination for the dissatisfaction and unhappiness subcategory of AFFECT:

19. My greatest fear for the future is… there is more flood, that there is heat, that there is starving. Becoming forced to migrate. And becoming climate refugees. We're gonna be fighting for some resources; that's what my mom tells me every time. In the next few years, there are gonna be wars about like, who should get the water, and fighting about land and like resources, basically.

[41] Askanius and Uldam, *Online Social Media for Radical Politics: Climate Change Activism on YouTube*.
[42] Neyla Koteyko and Dimitrinka Atanasova, "Metaphor and the Representation of Scientific Issues: Climate Change in Print and Online Media", in Elena Semino and Zsófia Demjén, eds., *The Routledge Handbook of Metaphor and Language* (Abingdon: Routledge, 2017), 296-308.

20. I've had the best home growing up here. I love the childhood that I've had, and I really want my kids to have the same. If we don't do something to stop climate change, at the rate it's going now, then they won't be able to enjoy it the way I have done. Feels unfair, doesn't it? That future generations won't be able to enjoy the same privileges we had growing up.
21. I got scared or worried about how the future of my children would be. Um, and the nature was... kind of in a way that I didn't recognise. Uh, and I didn't know all the connections: Why is the weather like this? What's happening to the ice? I needed to put everything together to get the whole understanding.
22. There's always this fear we've crossed this chance of reversing it. And it is irreversible. And if we've crossed that point, what do we do? What are we going to do as humanity? I think that is something that scares me. - It breaks my heart to think my kids are not gonna experience the same as what I've experienced. It's changing. It is that dramatic.
23. I'm afraid there will be a time when we won't be able to fight by ourselves, and we won't be able to contain it.

In the representation of future gloomy imaginaries, the fear AFFECT is particularly salient and the metaphor of war is employed (examples 19 and 23) through the frequent use of terms such as 'war' and 'fight'.

Notably, interviewees were asked to describe how their innovative and sustainable projects would affect the environment to secure survival for future generations. Hence, despite the representation of gloom imaginaries concerning climate change future characterised by the use of negative emotions, findings reveal that the construction of optimistic future imaginaries is to a greater extent salient in the corpus. Discourses of actions and transformation are pervaded by the emotion of hope and are mainly characterised by satisfaction AFFECT types such as trust and confidence:

24. Every time you plant a seed, you're planting a bit of hope. But even if we're not involved with growing food, as individuals, we all have a choice about what we eat.
25. It's a scary thing to think about, but I'm getting more hope as I'm becoming older and seeing that more young people are stepping in, more young people are trying to do something. Can we fix the climate problems in one generation? My answer would be yes, we have to. We have breath, we have life, and we have the opportunity to create in the present. We shouldn't think about if this thing will be possible in the future. It's actually possible now.

In mobilising action, *Seat at the Table* reflects upon the concept of intergenerational cooperation as a focal point in the path toward environmental sustainability and the care for future generations (see examples 24 and 25). As previous studies in the field of philosophy and economics have suggested, the notion of *generation* with regard to Anthropocentrism and climate change future shed light on "intergenerational obligations to preserve a stable environment for the young and unborn. [Thus,] international agreements have enshrined 'future generations' as stakeholders in the decision-making of the present".[43] Moreover, the use of hope in the construction of positive future imaginaries also results in the use of aspirational adjectives. In this case, the following examples show that the keyword 'future' mainly collocates with terms such as 'green', 'bright', and 'better':

[43] White, *Climate Change and the Generational Timescape*.

26. I believe that football is a universal game and the climate crisis and deforestation is a universal problem. And I believe that sports and football specifically have the power to change, connect and inspire my generation to create a greener future.
27. If we could actually do something now, maybe the future will look much brighter. There will be hope.
28. Climate change is the last thing that would be on the kids' minds. Not just the kids but everyone's minds. I made it my responsibility to teach others and to show them that climate change is affecting us so that we can have a better future.

The emphasis on positive affect in the discursive representation of climate change future may therefore point to the "intention to perform a subsequent pro-environmental behavior".[44] In this context, hope is used as a rhetorical construct to facilitate the engagement of the public in climate activism and social change.[45]

## 6. Conclusion

The present article highlighted how climate activists recontextualise climate change in web documentaries delivered on online media platforms such as YouTube. It focused on discourses of action and transformation articulated by activists interviewed in the web documentary *Seat at the Table*. The analysis of the SatT corpus uncovered the existence of counter-narratives concerning the representation of climate change and its imaginaries. Moreover, it revealed that self-representation, community-building and emotions are pivotal in activist discourse. Yet, they also imply "a conscious reorientation from a dominant emotional regime through a collective emotion management process that fosters alternative feeling rules".[46] In the web-documentary *Seat at the Table*, activists and underrepresented laypeople in the international debate over climate change represent themselves as part of a community that plays a fundamental role in finding solutions to the climate crisis.

The analysis shows that in the web documentary, climate change is aptly reframed with a crucial reflection on present and future imaginaries. The study identified explicit and implicit references to the construction of climate change as present and future scenarios. While the first are rarely found in scientific discourse, the latter are imagined through prevalently positive emotions. In fact, more emphasis was placed on hope and optimism – expressed through *satisfaction subcategories* of the AFFECT subsystem – than on negative emotions in interviewees' future representation. They were arguably employed in order to propel wider participation in climate actions. Moreover, as the GraphColl tool revealed, the use of positive AFFECT patterns such as 'hope' (frequency in the SatT corpus: 41) appears among the shared collocates of both queries 'climate' and future'.

Hence, the appraisal of time in activist discourses articulated in *Seat at the Table* sheds light on the shared attitudes of activists in deconstructing apocalyptic and dramatic scenarios about the future by leveraging on positive affect resources such as hope and optimism to promote action and social change in the present. In this light, new media and online platforms such as YouTube are not to be considered mere entertainment platforms but public spheres where the science of climate change is recontextualised to raise awareness and create communities with shared values and attitudes toward environmental issues. As Fløttum et al. argue, proactive attitudes of civil society and the use of positive epithets with regard to the discursive representation of climate change futures "may contribute to an improved basis for

[44] Brosch, *Affect and Emotions as Drivers of Climate Change Perception and Action*.
[45] Bieniek-Tobasco et al., *Communicating Climate Change through Documentary Film*.
[46] Jochen Kleres and Åsa Wettergren, "Fear, Hope, Anger, and Guilt in Climate Activism", *Social Movement Studies*, 16.5 (2017), 508.

political decision-making on the measures to undertake in order to avoid dangerous consequences as well as to encourage engagement in the shift toward a low-carbon future".[47]

[47] Kjersti Fløttum et al., "Representations of the Future in English Language Blogs on Climate Change", *Global Environmental Change*, 29 (2014), 220.

Marisa Della Gatta

# Towards "Net Zero". Climate Change Discourse and Australia's Green Policy in Election Campaigns

**Abstract**: Climate change discourse is increasingly gaining ground in the political arena, both as a possible explanation and/or outcome of different crises and as "a climate crisis" on its own. With an increasing number of metaphors used to describe the phenomena linked to climate change, "net zero" is one the fastest emerging frames, yet it is understudied. This paper draws on climate security research and looks at the climate change discourse in Australia with a focus on the "net zero" target. Is climate change an explanatory instrument in Australian election campaigns that can be ascribed as a political concern?
Climate change has been an appealing but undeveloped topic in Australian political discourse. In Australia environmental concerns have taken ground after the bushfires in 2019 and the climate discourse had an impact on the 2019 and 2022's electoral campaigns. Climate change is arguably the fastest growing concern in Australian politics; it is fair to say that the 2022 election was "the climate election". This research adopts a corpus-based Critical Discourse Analysis approach for a systematic analysis of the "net zero" target in Australian political discourse, its political significance, and its resonance both in electoral speeches and social media in the last ten years. The corpus consists of presidential speeches during the elections and tweets by the Australia Prime Ministers in the timeframe from 2013 to 2022, also taking into consideration comments by users in Australia and worldwide. The analysis of the "net zero" target can contribute to a better understanding of how climate change is politically construed and communicated.

Keywords: *climate change, elections, Net Zero, Australia, discourse*

## 1. Introduction

Climate change has become a reality that is strongly connected to energy, health, and security crises. With an increasing number of metaphors[1] used to describe the phenomena linked to climate change, "net zero" is the fastest emerging one, yet it is understudied. The use of "zero" in climate change campaigning is consistent with global marketing strategies. Since the launch of sugar-free famous drinks, the use of "zero" has been on the rise in the food and beverage industry and many sectors, where it is used alone or associated with other words like sugar, calories, alcohol, gluten, cost, plastic, footprint and so forth. As consumers, we are often exposed to the number zero in the choice of the product that we think is right for us. Given the widespread use of this number, the primary scope of this study is to shed light on the conceptualization of climate change discourses in connection to the increasingly critical use of the "net zero" target.

The article focuses on the use of "zero" and "net zero" metaphors in climate change discourse in the context of recent election campaigns in Australia. It argues that "net zero" sets a far-reaching goal within mitigation policy frames which is open to different understandings and interpretations, which affects the

[1] Elena Semino, "Corpus Linguistics and Metaphor", in Barbara Dancygier, ed., *The Cambridge Handbook of Cognitive Linguistics* (Cambridge: Cambridge U.P., 2017), 463-76; Elena Semino, "'Not Soldiers but Fire-fighters': Metaphors and Covid-19", *Health Communication*, 36.1 (2021), 50-58; George Lakoff, "The Contemporary Theory of Metaphor", in A. Ortony, ed., *Metaphor and Thought* (Cambridge: Cambridge U.P, 1993), 205-251; Denise Milizia, "Climate Change and Global Warming: An American Perspective through the Lenses of Old and New Modes of Communication", *this issue*.

usage and meaning of the word zero itself. It aims to investigate whether the "net zero" metaphor is effective in getting people's attention and in changing people's attitudes about climate change.
Australia presents a valuable case study, as it has a long tradition of using "zero" as the ultimate policy aim in a variety of safety-related contexts including climate change. Moreover, climate change is arguably the fastest growing concern in Australian politics; it is fair to say that the 2022 election was "the climate election".[2] The use of the term zero in Australian political campaigns is quite extensive and goes from zero alcohol when driving to zero cases during the COVID-19 crisis to net zero carbon emissions. "Net zero" is a metaphor, but also a specific policy goal. In the case of climate change, zero is associated with the limits set by the Paris Agreement for 2050.

This study undertakes a corpus-based discourse analysis[3][4] of mentions of the zero target during the four most recent electoral campaigns in Australia (2013, 2016, 2019 and particularly 2022), taking into account their resonance by examining comments and replies in a social media platform, namely Twitter or "X", the new denomination.[5]

This article unfolds as follows: first, it introduces the zero-target metaphor with the aim of evaluating its underlying meaning in online reports, speeches, and social media posts. It analyses a self-compiled collection of texts which were collected through the query terms 'climate change' and 'global warming' with a special focus on the 2022 Australian electoral campaigns. Finally, the study pursues a critical understanding of the "net zero" target in light of the new awareness of the urgency of the climate crisis.

## 2. Introducing the Net Zero Target in Climate Change Discourse

In climate change discourse, the term "net zero" may be regarded as the defining metaphor of the current era.[6] Its policy-related effects are heatedly discussed on traditional and social media, giving rise to s heated debates over different interpretations of the zero target. As Fankhauser et al. notice, "Now climate ambition is increasingly expressed as a specific target date for reaching net zero emissions, typically linked to the peak temperature goals of the Paris Agreement".[7]
Zero is a neat number, and as a mathematical concept, it metaphorically works exceptionally well when discussing science. Metaphor theory typically focuses on the effects of linguistic metaphors, defined as cross-domain mappings in the meaning of words, on individuals' attitudes in the form of metaphorical frames.[8] Metaphorical framing constitutes the idea that metaphors fulfil one or more functions of framing as defined by Entman to emphasize specific problems, causal relationships, moral evaluations, and/or solutions.[9] It will be shown that even an absolute number like zero has been given different connotations, including that of a journey or pathway towards a target. While the case for decarbonization and "net zero" is clear, there is no standardized path to reach this destination. Fankhauser et al. claim that: "Long-term ambition is often not backed up by sufficient near-term action. Many entities have not yet set out detailed plans to achieve them and are opaque about the role of carbon offsets in place of cutting their own emissions".[10]

[2]Peter Christoff, "Election 2022: Climate and Energy. Policy Performance and Promises", www.unimelb.edu.au/climate/archived/climate-research/research-papers-and-reports/election-2022-climate-and-energy
[3] Paul Baker, *Using Corpora in Discourse Analysis* (London: Continuum, 2006).
[4] James Paul Gee, *An Introduction to Discourse Analysis: Theory and Method*, Third Edition (New York: Routledge, 2011).
[5] Michele Zappavigna, *Discourse of Twitter and Social Media: How We Use Language to Create Affiliation on the Web* (London: Bloomsbury, 2012).
[6] Sam Fankhauser et al. "The Meaning of Net Zero and How to Get It Right", online www.ora.ox.ac.uk/objects/uuid:945700f9-ef6c-410f-be46-5af74d886459/files/r1g05fc12c, 2021.
[7] Ibid., 5.
[8] Andreas Musolff, *Political Metaphor Analysis: Discourse and Scenarios* (London/New York: Bloomsbury, 2016).
[9] Robert Entman, "Framing: Toward Clarification of a Fractured Paradigm", *Journal of Communication*, 43.1 (1993), 56.
[10] Fankhauser et al., *The Meaning*, 12.

The Intergovernmental Panel on Climate Change (IPCC) has identified over 200 scenarios that are consistent with either 1.5°C or 2°C rising temperature limits.[11] Some scenarios see zero as the result of a subtraction, still admitting emissions to be compensated for and/or absorbed by additional factors; others are more rigid and include action to avoid emissions in the first place. The "net zero" target is included in the Paris Agreement and explicitly scheduled to be achieved by 2050. UN Secretary-General António Guterres in March 2022 established a High-Level Expert Group on the Net-Zero Emissions Commitments of Non-State Entities. The Expert Group presented its recommendations at COP27 on 8 November 2022. According to the United Nations, "getting to net zero requires all governments – first and foremost the biggest emitters – to significantly strengthen their Nationally Determined Contributions (NDCs) and take bold, immediate steps towards reducing emissions now".[12]

The media are the main source of people's understanding of climate change. Broadcast media, social media, and political campaigns have long been used to amplify realistic and unrealistic goals concerning the climate crisis.[13] Climate change has often been framed as a predominantly ethical issue in which real solutions are rarely available to the public.[14] Information about the crisis tends to include suspicion, stereotypes, misinformation, and discrimination. As a result, there is substantial public skepticism and wariness towards climate change.[15]

One consistent finding has been that strategic language is effective at getting people's attention and promoting new conceptualizations by making the message "feel psychologically close".[16] Frames and metaphors have increasingly gained salience to the extent that some use the phrase "climate change" as a metaphor to describe more extreme weather. [17] While there is scholarly agreement about the value of conceptual metaphors in fostering understanding of complex scientific arguments, scholars have also warned about negative implications of their use[18] in discussing science. According to Semino, "the most frequent metaphors tend to draw from basic, embodied, sensorimotor experiences".[19] The "war" metaphor increases concerns about a particular issue, making citizens feel like they have an obligation to fight; at the same time, military frames might lead to panic.[20] Discussions of climate are no exception in this regard, with several conceptual and discourse metaphors used with different meaning implications.

The greenhouse gases effect is one of the most common metaphors to explain an otherwise complex scientific phenomenon. This case involves using the colour green to refer to a problem. In most cases, however, the colour green is associated with environmentalism and it is a widely used metaphor for promoting the adoption of climate-friendly political positions, participation in climate-friendly practices, and advocacy for the adoption of such practices.[21] The terms "Green New Deal" and "Green Recovery"

[11] IPCC. Global Warming of 1.5C. An IPCC Special Report, online, www.ipcc.ch/sr15, 2018.
[12] Paris Agreement, 2015, www.unfccc.int/process-and-meetings/the-paris-agreement.
[13] *Ibid*.
[14] Janet Yang et. al., "Fearful Conservatives, Angry Liberals: Information Processing Related to the 2016 Presidential Election and Climate Change", *Journalism & Mass Communication Quarterly*, 96.3 (2017), 742-766.
[15] Paris Agreement.
[16] Anne K. Armstrong et al., *Communicating Climate Change: A Guide for Educators* (New York: Cornell U.P., 2018), 64.
[17] An extensive framework for the emergence of metaphors in the climate change discourse has been provided by Atanasova and Koteyko. Dimitrinka Atanasova and Nelya Koteyko, "Metaphors in Guardian Online and Mail Online Opinion-page Content on Climate Change: War, Religion, and Politics", *Environmental Communication*, 11.4 (2017), 452-469
[18] George Lakoff, "The Contemporary Theory of Metaphor.
[19] Elena Semino, "'Not Soldiers", 54.
[20] Denise Milizia, "Framing the Pandemic in the UK and in the US: The War, the Science and the Herd", *Textus: English Studies in Italy*, 1 (2023); Dimitrinka Atanasova. "How Constructive News Outlets Reported the Synergistic Effects of Climate Change and COVID-19 through Metaphors", *Journalism Practice*, 16.2-3 (2022), 384-403.
[21] Cinzia Bevitori. "The Meanings of Responsibility in the British and American Press on Climate Change: A Corpus-Assisted Discourse Analysis Perspective", in Barbara Lewandowska-Tomaszczyk, ed., *Explorations across Languages and Corpora* (Frankfurt: Peter Lang, 2011), 243-259.

that emerged in the aftermath of the 2008 global financial crisis were employed to argue for climate-friendly stimulus packages and recovery policies.[22] Aside from the case of greenhouse gases, green metaphors tend to imply the positive impacts of a certain initiative on the environment.[23]

Addressing climate change involves "mitigation", principally by reducing emissions into the atmosphere, and adaptation, or "adjusting" to the changes brought about by climate change. Metaphors connected to movement work well here, such as "drop", "fall", and variants thereof. War-related metaphors can be included in the latter.[24] Within these two framings of mitigation and adjusting, "net zero" is an extreme one. "Net zero" stands as a metaphor that highlights both the negative effects of climate change and the positive effects of green policies. The target zero requires a neat cut of emissions, implying that emissions must be perceived as dangerous, and urgent alternative solutions to increasing $CO_2$ levels must be sought.

Concerns about the effects of climate change and global warming depend on the perceptions of the related risks. As Bevitori and Johnson argue, climate change is conceived as a risk and a threat to world/global security.[25] To quote directly: "It is worth noting that the near-synonym threat collocates much more frequently than risk (60 times) with security (mainly in The Guardian), and 5 times with conflict. In security discourses, security threats are defined as more concrete and probable than security risks".[26]

Australia, in this regard, has experienced some of the most severe consequences of extreme climate change and, as a resource-based economy, has long relied on the export of coal and gas. Australia has a warm climate, high annual rainfall, and a population concentrated on the coastline, making it particularly vulnerable to the impacts of climate change.

As Tana (2022) points out,

> While Covid-19 brought the attention of the globe to the devastating impacts of global warming, the last few years have seen Australia come face to face with its own unique signs of impending climate disaster. From the "Black Summer" bushfires of 2019–2020, which saw over 18 million hectares (ha) burned and millions of animals perish, to unprecedented floods happening across the eastern part of the country, as well as the sixth major bleaching of the Great Barrier Reef and the koala listed as endangered – Australia's climate vulnerability has become glaringly obvious and yet the country has remained slow to act.[27]

Disastrous events and their consequences are so "liquid"[28] that neither risk perception nor reaction to risk is as straightforward or as rational as one might hope. The "net zero" metaphor is used, both metaphorically and practically, to mitigate the risks of climate change. Being a neat target, "net zero" could become a metaphor that might effectively change behaviours. Among ethical issues related to climate change, the integrity of "net zero" stands as a sort of corollary according to which the urgency of climate change is a prerequisite for committing to the target. As the following section will show, a combination of qualitative and quantitative analysis is useful for analysing how language both influences the perception of "net zero" as a target and can be a vehicle for undermining its effectiveness. The use of the "net zero" target acts as a mediator between the message and the audience, as it will emerge from analysis of Twitter commentaries.

[22] Atanasova, *How Constructive*, 394.
[23] Bevitori, *The Meanings.*
[24] Atanasova and Koteyko, *Metaphors in Guardian.*
[25] Cinzia Bevitori and Jane Johnson, "Risk and Resilience in a Changing Climate: A Diachronic Analysis in the Press Across the Globe", *Text & Talk*, 42.2 (2022), 1-23.
[26] Ibid., 557.
[27] Jessica Tana, "Exploring Australia's "Climate Election'", 2022, www.sei.org/perspectives/exploring-australias-climate-election/.
[28] Zygmunt Bauman, *Liquid Modernity* (EPUB: Oxford Polity Press, 2000).

## 3. Methodology

### 3.1 *Approach*

This study is corpus-based in the sense that the analysis is meant to test the hypothesis that the "net zero" target is reiterated across different uses. Critical Discourse Analysis (CDA) is the approach for qualitative analysis of commentaries, in particular the Discourse Historical Approach developed by Ruth Wodak, who looks at discourse as both socially constituted and as a constitutive semiotic practice embedded in history.[29] Corpus Linguistics (CL) is adopted for quantitative analysis of the corpora for a deeper understanding of "net zero", looking at language and green polities as mutually instrumental.
Corpus-assisted discourse analysis is aimed at identifying linguistic strategies using CL items tools and techniques including frequency lists, keywords, clusters, collocates, and concordances.[30] The benefit of using CL in discourse analysis is twofold.[31] First, it allows the use of computer-assisted corpus-analytic tools in the processing of large samples of texts and identifying salient linguistic patterns. Second, "it highlights the incorporation of discourse analytic methods and theories in the descriptions and interpretations of the findings generated by corpus-analytic tools"[32], allowing the efficient analysis of a large sample of texts and providing empirical evidence for testing research assumptions. CL analysis generates findings that cannot be acquired through mere manual analysis of a small sample of texts, reduces the researcher bias in data selection and interpretation, and makes the analytic procedure replicable.[33] Thus, the combination of CDA[34] and CL as in Baker suits the scope of this study of the "net zero" frame.[35]

By means of this case study on "net zero", a number of ways in which "added value"[36] can be brought to discourse analysis by the integration of corpus techniques will be demonstrated. In fact, a large number of texts can build a detailed picture of how "net zero" is performed in the discourse type; moreover, the insights on discourse functions developed by CL can be integrated with the textual structures and non-obvious meanings that emerge from CDA. As Baker points out, such an integrated approach allows to uncover linguistic patterns as aimed in CDA using statistical overviews of corpora.[37] The use of corpora for CDA also reduces researcher's bias, considering changes within the discourse (also through diachronic analysis), and is productive of means of triangulation beyond binary logics and dichotomies.[38] Given that no corpus can interpret itself and any discourse analysis requires a form of interpretation, CDA can suitably fill the gap between CL analysis and discourse interpretation. CL and CDA are mutually beneficial tools to discover and explain language patterns producing mainstream ways of thinking.[39] Even the absence of a lexical item can emerge as a significant aspect, since it might suggest lack of engagement, unawareness, or hidden intentions. As Partington and Marchi put it, corpus

[29] Michael Meyer and Ruth Wodak, ed., *Methods of Critical Discourse Analysis* (London: Sage), 2001.
[30] Baker, *Using Corpora.*
[31] Lihua Liu, "Discourse Construction of Social Power: Interpersonal Rhetoric in Editorials of the China Daily", *Discourse Studies* 11.1 (2009), 59-78.
[32] Ibid., 56.
[33] Paul Baker at al., "A Useful Methodological Synergy? Combining Critical Discourse Analysis and Corpus Linguistics to Examine Discourses of Refugees and Asylum Seekers in the UK Press", *Discourse & Society*, 19.3 (2008), 273-306. Erik Friginal E. and Jack Hardy, *The Routledge Handbook of Corpus Approaches to Discourse Analysis* (London: Routledge, 2020).
[34] Elena Tognini-Bonelli, *Corpus Linguistics at Work* (Amsterdam: John Benjamins Publishing Company), 2001.
[35] Ruth Wodak, "What CDA Is About: A Summary of Its History, Important Concepts and Its Developments", in Michael Meyer and Ruth Wodak, ed., *Methods of Critical Discourse Analysis* (London: Sage), 2001.
[36] Alan Scott Partington and Anna Marchi, "Using Corpora in Discourse Analysis", in Douglas Biber and Randi Reppen, eds., *The Cambridge Handbook of English Corpus Linguistics* (Cambridge: Cambridge U.P., 2015).
[37] Baker, *Using Corpora.*
[38] *Ibid*., 18.
[39] *Ibid*.

linguistics techniques allow us "to identify absences, to quantify the relative absence or presence of certain messages, and to track over time how certain messages can move into or out of the ongoing discourse".[40]

### 3.2 *Data collection*

The corpora comprise a collection of speeches and tweets from 2013 to 2022 by the Australian Prime Ministers Tony Abbott (who served as the 28th prime minister of Australia from 2013 to 2015 for the Liberal Party), Malcolm Turnbull (who served as the 29th prime minister of Australia from 2015 to 2018 for the Liberal Party), Scott Morrison (who served as the 30th prime minister of Australia from 2018 to 2022 for the Liberal Party), and Anthony Albanese (for the Labor Party, who was elected in May 2022). The main corpus was divided into three sub-corpora: one for Prime Ministers' speeches, one for Prime Ministers' tweets and a corpus including comments by users worldwide. The speeches were collected from the official platforms of the Australian Government.[41] Presidential speeches and tweets are two very different genres of institutional talk in which it is possible to combine features of informal talk and confrontational or strategic talk.[42]
Each corpus was given a name composed of the acronym with the first letter of the single words:

1. APES: Australian Politicians' Election Speeches (tokens: 819,423 types: 544,660; timespan: 12 months);
2. APT: Australian Politicians' Tweets[43] (tokens: 777,163; types: 489,785; timespan: 9 years);
3. APTUC: Australian Politicians Tweets Users Comments (tokens: 987,362; types: 615,432; timespan: 9 years).

The sample design started with the identification of the topics and themes associated with coverage of climate change and global warming. The software Sketch Engine[44] and its corpus-analytic tool Wordsketch[45] was used to identify keywords and an examination of the texts led to the analysis of the most prominent topics/themes.[46] The frequency lists combined with keyness analysis can rank these significant words. Subsequently, for keyness, frequency lists, collocations, co-occurrences, boundaries were set. The research focused on the top 20 keywords on each list to identify the shared topics/themes of the three corpora. The limit for co-occurrences was up to four words in the left and right content. After that, the corpora were compared. Comparative analysis of lexical patterns is a powerful tool to investigate how social, cultural, and political representations are constructed and reinforced by the accumulation of linguistic patterns.

It was followed by a close examination of the particular ways of framing "net zero" and variants in the corpora. According to Entman, to frame is to "select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described".[47] The

[40] Partington and Marchi, "Using Corpora".
[41] www.moadoph.gov.au.
[42] Partington and Marchi, "Using Corpora".
[43] www.twitter.com.
[44] www.sketchengine.eu.
[45] Adam Kilgarriff, Vít Baisa, Jan Bušta, Miloš Jakubíček, Vojtěch Kovář, Jan Michelfeit, Pavel Rychlý, Vít Suchomel, "The Sketch Engine: Ten Years On", *Lexicography* 1.7 (2014).
[46] Liu, *Discourse Construction*, 62.
[47] Entman, *Framing*, 56.

particular ways of framing "net zero" were examined through their strong collocates[48] with the corpus-analytic tool Sketch Engine, focusing on the top collocates of "net zero" in their respective corpora. Nevertheless, the analysis of framing in terms of collocates may not present an accurate picture of the exact stance.[49] To examine to what extent the selected text aligns with the scientific consensus on "net zero", this study uses perspectivization strategy adopted towards "net zero" as a tool. The concordance lines of some collocates of "net zero" were further examined to reveal the specific perspectivization strategies taken towards these statements.

## 4. Election campaigns and green policy in Australia

Ahead of the 2021 UN Climate Change Conference in Glasgow, Australia committed to net zero emissions by 2050 but made no change to the 2030 target of 50% carbon emissions' reduction set as part of the Paris Agreement. "Net zero" is a highly polarizing and divisive issue in Australia. Opposition to green policies remains strong in Australia even though climate action momentum continues to grow.[50] Since 2021, there has been ignorance, conflict, and demonization of and about both carbon-related business and carbon-free or zero-carbon measures.[51]

While policy analysts expected the 2022 campaign to result in the "climate election"[52], Australia performed badly in the Climate Change Performance Index (CCPI) 2022 report. Australia ranked 55th and was deemed a very low-performing country to reach the zero target.[53] Australia's climate policies and performance have fluctuated in the wake of its federal election in May 2022. While climate protection was not a key theme in the political manifestos and discourses of the campaign, momentum in favour of climate-aware policies was evident before and after the elections.[54] The Australian Labor Party took over the majority and its government promised more ambitious climate action. The Australian Greens, a confederation of political parties committed to sustainability, won seats in the Parliament for the first time.[55] Furthermore, the Australian Parliament recently passed the country's Climate Change Bill 2022, pledging to reduce carbon emissions by 43% compared to 2005 levels (up from the previous 26–28%) and to reach net zero by 2050.

As stated in the Climate Change Performance Index (CCPI) 2022 report:

> The Coalition has a net zero by 2050 target as well as a more immediate target of 26-28% by 2030 (based on 2005 emission levels). However, the Coalition expects to reach up to 35% by 2030. Labor has also adopted a net zero by 2050 target, as well as a 2030 target of 43%. The Greens, as environmental-issue owners, have a much earlier target of net zero by 2035 or sooner, while Centre Alliance supports the Coalition's 2030 target and Katter's Australian Party is strongly opposed to net zero by 2050. 2022 AUSTRALIAN FEDERAL ELECTION | 18 As for the independents seeking re-election in the House of Representatives, Andrew Wilkie supports reaching net zero as soon as 2030, and Zali Steggall and Helen Haines support 60% by 2030 and net zero by 2050.[56]

[48] Liu, *Discourse Construction.*
[49] Ryan Cunningham, "Strategic Communication in the New Media Sphere", *JFQ*, 59.4 (2010), 110-114.
[50] Matteo Bonotti and Narelle Miragliotta, eds., "The 2022 Australian Federal Election: Themes, Challenges and Issues", 2022, available at: www.apo.org.au/node/317811.
[51] Ibid.
[52] Christopher Rootes. "The First Climate Change Election? The Australian General Election of 24 November 2007", *Environmental Politics*, 17.3 (2008), 473-480.
[53] CCPI, 2022, www.ccpi.org
[54] Bonotti and Miragliotta, *The 2022 Australian.*
[55] Ibid.
[56] CCPI, 2022

Grassroots climate change campaigns have been exceptionally popular, and despite its slow policy change, Australia has been one of the world's leading countries in this regard. The bushfire crisis during the summer 2018-2019 affected millions all around the country, and green policies in Australia received largely sympathetic media reporting and commentary.[57]

Before 2013 there was bipartisan support for action for climate change in both Labor and Liberal Parties. As Tranter notices, "While Malcom Turnbull, a supporter of action climate change and former environment minister in the Howard government, was opposition leader, partisan differences were muted, with the two major party leaders in agreement over the need to act, if not on the precise means of action".[58] "Net zero" frame became dominant in the representation of goals of Australia's green policies after 2013 and following the emergence of the Greens Party, which gained electoral seats in the last elections. From 2013 onwards, climate change campaigners have been oriented towards the left-wing Labor Party following the approach set by Kevin Rudd, who joined the Kyoto Protocol. On the other hand, right-wing Liberal Party leaders are more prone to scepticism following John Howard.[59] Traditionally, Liberals hold economic growth as their highest priority, even if it means compromising on the climate.

## 5. "Towards Net Zero" Discourse

Zero target campaigns are common in Australia, especially when it comes to safety. Zero is the target used in regard to road safety to avoid and reduce deaths and injuries on Australia's roads. The "towards zero" website reinforces the message that "any death or serious injury on our roads is one too many. We all need to work together towards achieving a zero road toll".[60] The underlying assumption of this campaign is "shared responsibility" and the fact that statistics represent real people. The same concept underlies the "net zero" carbon emission campaign. The analysis focuses on this twofold use of the zero target. Collocates of zero and "net zero" referred to climate change and global warming have been selected in the corpora.

### 5.1 *Findings*

The section that follows presents the findings regarding the most frequently used words, collocations of zero and its variants, its interpretative role (that is, whether they promote green attitudes), and trends over time.

In APTUC the top 10 key words are mainly abbreviations, names of Australian places and politicians as shown in the table below.

| | |
|---|---|
| 1. | govt |
| 2. | aust |
| 3. | bondi |
| 4. | pollie |
| 5. | cronulla |
| 6. | congratulations |

[57] Bruce Tranter, "Political Divisions Over Climate Change and Environmental Issues in Australia", *Environmental Politics*, 20.1 (2011), 78-96.
[58] Ibid., 79.
[59] Katherine Russo, "Speculation About the Future: Populism and Climate Change in the News' Discourse", in Encarnacion Hidalgo-Tenorio et al., eds., *Populist Discourse: Critical Approaches to Contemporary Politics*, 1st edition (London: Routledge, 2019).
[60] www.towardszero.nsw.gov.au

| | |
|---|---|
| 7. | doorstop |
| 8. | malcolm |
| 9. | aus |
| 10. | rudd |

Fig 1: Keywords (single-word) in APTUC

The trend is replicated in APES with few significant differences: while in the tweets one of the keywords is "congratulations", in the speeches "condolence" appears ranked 8; the word "bushfire" is ranked 7, as the table (fig.2) shows. This is justified by the difference between the two genres of the corpora.

| | |
|---|---|
| 1. | Australian |
| 2. | Nauru |
| 3. | Shire |
| 4. | Mateship |
| 5. | Doorstop |
| 6. | Hadley |
| 7. | Bushfire |
| 8. | Condolence |
| 9. | Rudd |
| 10. | Indo-pacific |

Fig. 2: Keywords (single-word) in APES

In APES, the word "climate" occupies the position 246 in the keywords list. Words related to climate do not appear in the top 50 keywords, while economy and its variant (business) occupy five places in this list (fig.3). The presence of the names of the Prime Ministers suggest that they normally refer to one another in election speeches.

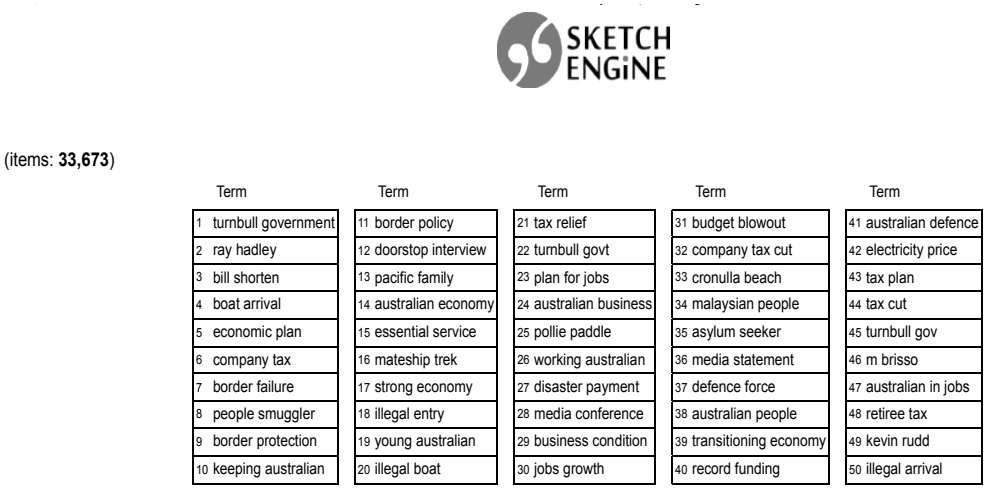


Fig. 3: Keywords (multi-word) in APES

In the APES corpus the noun “zero” appears only once with the adjective “net” and has “towards” as left content and “economic growth” as right content. In APT, similarly to APES, there prevalence of economy and equivalents as shown in fig. 4. Remarkably, “net zero” appears in the top 100 keywords as fig. 5 suggests.

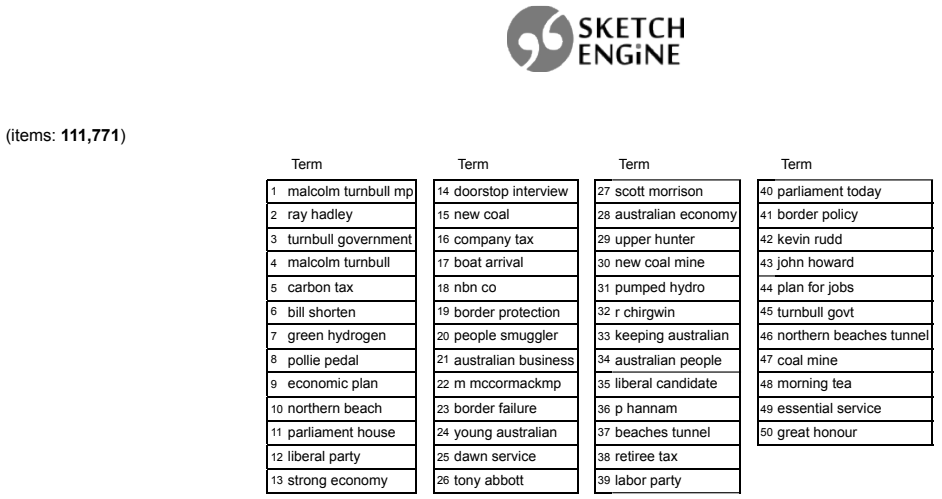


Fig. 4: Keywords (multi-word) in APT

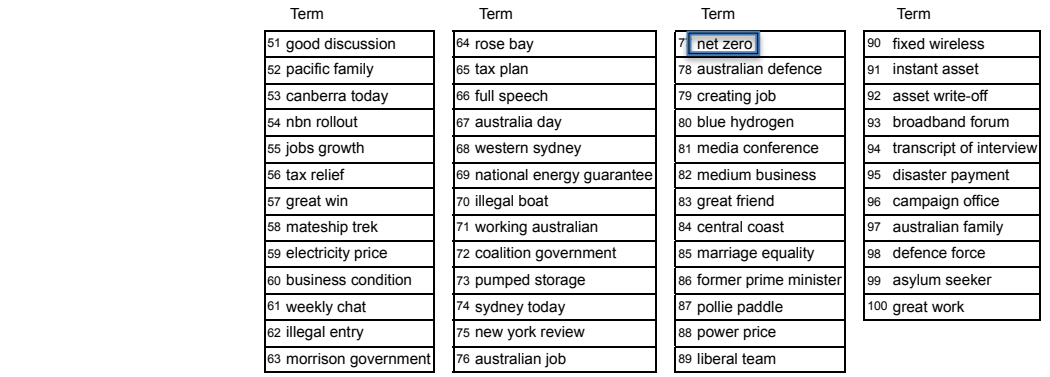


Fig. 5: Keywords (multi-word) in APT (rankings 51-100)

As fig. 6 shows, in APT the phrase “net zero” has a frequency of 27.02 per million tokens. It collocates mostly with the preposition “by” followed by 2050, but also “in 2049” appears once.

CQL zero + net • 21
27.02 per million tokens • 0.0027%

| | Details | Left context | KWIC | Right context |
|---|---|---|---|---|
| 1 | doc#1 /03/2022 11:27:13 1,51E+18 +00:00 RT @eddierich1: Energy security?</s><s>Net | | zero | ? #withHydropower we can. 21/03/2022 10:45: |
| 2 | doc#1 v 16/10/2021 03:31:21 1,45E+18 +00:00 Kevin makes a powerful point.</s><s>Net | | zero | by 2050 is good.</s><s>But it's the bare minin |
| 3 | doc#1 1 05:02:42 1,45E+18 +00:00 Andrew Forrest urges Scott Morrison to commit to net | | zero | even if it means splitting Coalition http 14/10/2 |
| 4 | doc#1 4:51 1,45E+18 +00:00 RT @SmartEnergyCncl: Renewable #hydrogen is key to net | | zero | , creating new jobs & export o 13/10/2021 21:2 |
| 5 | doc#1 )0:28 1,39E+18 +00:00 No new oil, gas or coal development if world is to reach net | | zero | by 2050, says world energy body h 18/05/2021 |
| 6 | doc#1 3/05/2021 09:22:38 1,39E+18 +00:00 RT @JamieSmythF: "We will not achieve net | | zero | in the cafés, dinner parties and wine bars of ou |
| 7 | doc#1 19:28 1,39E+18 +00:00 ...in fact we have now the technology we need to get to net | | zero | ; solar & wind plus storage wi 22/04/2021 22:1 |
| 8 | doc#1 12:26:53 1,38E+18 +00:00 RT @mcannonbrookes: "We're not going to achieve net | | zero | in the cafes, dinner parties & win 20/04/2021 0 |
| 9 | doc#1 3 +00:00 RT @zalisteggall: Trudeau tables Canadian climate change bill, with a net | | zero | by 2050 target, 5 yea 19/11/2020 03:04:50 1,3 |
| 10 | doc#1 2020 11:30:31 1,32E+18 +00:00 Japan to reduce greenhouse-gas emissions to net | | zero | by 2050 - Nikkei Asia. https://t.co/quOoZ2Yv 2 |
| 11 | doc#1 )20 22:43:54 1,23E+18 +00:00 Last tweet this morning: a policy which opposes net | | zero | by 2050 is a policy of 3 degrees plus globa 22/ |
| 12 | doc#1 +18 +00:00 Watching @InsidersABC - hands wringing about "how do we get to net | | zero | by 2050?"</s><s>Bottom line 22/02/2020 05:2 |
| 13 | doc#1 solar power into the grid poss... at climate change, accelerate progress towards net | | zero | and strengthen energ... eady one of the cleans |
| 14 | doc#1 )uld be devastating" Anna Borg describing why business must move urgently to net | | zero | . @wef @FortescueF onia to power a ships en |
| 15 | doc#1 The critical issue is to increase the 2030 cut.</s><s>You cannot start getting to net | | zero | in 2049.</s><s>We need substantial near term |
| 16 | doc#1 alia.</s><s>Our nation-leading El... one @Matt_KeanMP - EVs vital to reaching net | | zero | but also enhance Australia's fuel security.</s>< |
| 17 | doc#1 /s><s>As @RepTedLieu explains, racism is t... crease it and properly embrace net | | zero | by 2050 is cutting us off from... ghtwing politics |

Fig. 6: Net zero concordance in APT.

Lists of relatively long clusters of 4, 5, 6, and 7 items in length were prepared, and individual items which reoccurred could be isolated. In all corpora, left collocates have to do with a form of approximation; "near", "nearly", "closer", "close" along with "towards" are among the strongest collocates. In the left content, verbs like "achieve" and reach", "get" and its derivates are common. Interestingly, the phrase "net zero" does not appear in Anthony Albanese's speeches during the election campaign of 2022, while Scott Morrison used it just four times. Noun modifiers of zero in APT, from the most to the least frequent, are: emissions, goal, board, commitment, cost. Neither Morrison nor Albanese used "coal" and "climate change" together in their speeches in 2022. Morrison mentioned coal once in his speech during the 2019 election campaign. Albanese started using the phrase "net zero" after the elections, in some cases with the traditional deadline of 2050. Reference to climate is two times more frequent during the 2019 and 2022 campaigns compared to 2013 and 2016. Overall, while it is not perfectly accurate to state that 2022 was a "climate election", given the absence of relevant keywords in the corpus, the changes in its use mark an increasing awareness towards the issue.

### 5.2 *Analysis of "Net Zero" in the Public Remarks of Prime Ministers*

"Net zero" used in reference to climate change emerged after 2013. Interestingly, in APT tweets corpus, the phrase "net zero" appears mostly in Malcom Turnbull's tweets (27.02 per million tokens) and only once in the election speeches delivered by the former Prime Minister Scott Morrison. It is not mentioned by Albanese in APES. It is worth noting that both belong to the same party, the Liberal Party of Australia. This difference in the frequency of "net zero" could mark different approaches towards the target within the same political party.

*5.2.1 "Net zero" and climate change in Malcom Turnbull's addresses*

In the corpus APT, examples from the tweets by Malcom Turnbull include:

a. Last tweet this morning: a policy which opposes net zero by 2050 is a policy of 3 degrees plus global[ly] The consequences of this transition: a habitable planet, cheaper energy, more economic growth @RyanWil62993886 Wrong on both counts.
b. Reverse deforestation, reforest wherever possible. A decade ago the "how" was hard to see. Engineering and economics NOT ideology and idiocy. Watching @InsidersABC - hands wringing about "how do we get to net zero by 2050?".[61]

This was a general tweet by Turnbull on "net zero" showing that the target is not only related to the Australian farming sector but, more broadly, to economic growth on a global scale. "Net zero" collocates with both negative, affirmative sentences and questions in one single thread. This seems to depict "net zero" as an "ideology and idiocy", plating with the assonance between the two words which are unequivocally rejected by the capitalized "NOT". Turnbull's stance towards "net zero" is kept ambiguous. In another tweet, we read: "I followed Australian activist Chanel Contos Kevin makes a powerful point. Net zero by 2050 is good. But it's the bare minimum". *But* here is italicized and, thus, stressed.

The use of "net zero" combined with a form of negation is recurrent in the APES speeches by Turnbull. In one speech, he stated: "It is often said that justice delayed is justice denied. Well climate action delayed is equally climate change denied. If we keep pushing back larger cuts to emissions into the future, we will never reach net zero emissions".[62] The repetition of "delayed" and "denied" in association with the adverb "never" emphasizes the urgency of the matter and the difficulty of reaching the target. The word "lower" and its variants is frequently used in APES by Malcom Turnbull. In the same speech, he said: "Climate change affects all of us - it is a global problem. And it is one where all nations must play their part and recognise the importance of their contribution to lowering emissions globally".[63] The use of an inclusive "us" meaning all the nations plays a role for extending the effects of climate change and the responsibilities for lower emissions. The co-existence of "net zero" and "low emissions" contribute to increase ambiguity around CO2 emissions, given that a neat number and a low number are two extremely different concepts that work together to call for action.

*5.2.2 Scott Morrison's addresses*

Scott Morrison wrote only one tweet containing the phrase "net zero": "wing on from our time in the G20, when the now PM [Mario Draghi] was running the European Central Bank AUIT master of statecraft, and a true friend of Australia, in reducing emissions towards net zero and driving economic growth, and keen to meet at an early opportunity".[64] This was the first phase of health crisis management, in which the relationship with Italy was crucial; Australia aligned with Italy on both COVID-19 and "net zero". The latter is far from a unifying target, though. In another post, Scott Morrison retweets: "Andrew Forrest urges Scott Morrison to commit to net zero even if it means splitting Coalition".[65]

[61] Malcom Turnbull, APT February 22, 2020.
[62] Malcom Turnbull, APES, October 20, 2021
[63] Ibid.
[64] Scott Morrison, APT May 12, 2021.
[65] Scott Morrison, APT October 14, 2021.

The language of the comments in the tweet thread was different than what the quotes suggest. The analysis that follows will show that despite the existence of a neat target like "zero", there is no neutral acceptance of "net zero" measures in Australian politics or among its public. "Net zero" even recalls apocalyptic scenarios for 2050. In one of the documents, the future is described as having citizens without enough electricity, harsh winters with thousands of people freezing to death, planes that won't be running anymore, and engineers who will be working 24/7 to make infrastructure function.[66]
Conversely, in APES positive reinforcement is expressed by the Australian Prime Minister Scott Morrison at the COP26 conference:

> 18 months ago we were staring into the abyss of a one in hundred year pandemic. The vaccines we would need had not only not been invented, but there had never been a vaccine for a Coronavirus.
> But here we are. Billions vaccinated and the world is reclaiming what COVID has taken from us.
> The challenge of combating climate change will be met the same way.
> And it will be met by those who are frankly largely not in this room. It will be our scientists, our technologists, our engineers, our entrepreneurs, our industrialists and our financiers that will actually chart the path to net zero. And it is up to us as Leaders of governments to back them in.[67]

The permutation of the passive syntagm "will be met" in reference to two different challenges (COVID-19 and climate change) within the same sentence significantly stresses a transfer of responsibilities from the people that are in "that room" (COP26) and those who are not, namely a range of relevant professional figures. A general "technology will be the answer" conclusion embraces the groups of different experts alluded to in the very last sentence of the speech: "Our researchers, scientists, entrepreneurs, investors and most importantly our people are ready. The Australian way is to bet on them — and we think that's a good bet". The list of heterogenous actors is a form of overlexicalization strategy that emphasizes the material action better than the actors themselves, the betting action that in this case is investment in decarbonizing technologies.

The phrase "net zero" occurs twice in the first part of the speech but is not used later. Different targets appear in another passage of the same speech by Prime Minister Morrison, when he said:

> We have already reduced emissions by more than 20 per cent since 2005 and 54 per cent as an emissions intensity measure. We're ahead of the pack. Over the same time, our economy has grown by 45 per cent, proving that economic growth is not at odds with emissions reduction. And by 2030 our nationally determined contribution here at COP26 notes that our emissions in Australia will fall by 35 per cent by 2030, far exceeding our Paris commitment. Australia meets and beats on its commitments.[68]

The term "emissions" is repeated twice within the same sentence, once in terms of reduction and the other time in terms of intensity. The use of the two idiomatic expressions "to be ahead of the pack" and "to meet and beat" within a short passage is noteworthy as it suggests a strategy of reputation building. Australia does not have a good reputation in the field of environmentalism due to its heavy reliance on coal. Australia's role is semioticized to construe leadership that would not exist otherwise. In line with neoliberal policies, the insistence on economic growth offers a vision of a reduction of emissions that does not compromise the Australian economy.

[66] User, APTUC, October 14, 2021.
[67] Scott Morrison, APES November 1, 2021.
[68] Ibid. Author's emphasis.

*5.2.3 Anthony Albanese's addresses*

Even though newly elected Prime Minister Anthony Albanese only used "net zero" in his tweets and not in speeches, climate change is a recurrent theme in his election campaign. The term appeared twelve times in total during the election campaign. One illustrative passage explicitly compares the COVID-19 pandemic to other challenges, including the climate crisis. To quote directly:

> My fellow Australians,
> Through the pandemic, our country enjoyed an extraordinary advantage- we could close our borders and seal ourselves off from the world. There's no doubt that was the right call, which is why I supported it. But let's be clear – this is not an option for the challenges ahead. Economic competition doesn't stop at national borders. Climate change doesn't respect lines on a map. Strategic threats in our region cannot be quarantined.[69]


Fig. 7: Anthony Albanese in APES, February 20, 2020.

The italicization of "but" creates a clear distinction between the pandemic and the related possibility of closing borders – as in the phrase "seal ourselves off from the world" – and other challenges including the economy, climate change, and foreign affairs. The personification "climate change does not respect lines on a map" is used to emphasize the urgency and the far-reaching nature of the issue. This theme is reinforced later in the speech with the use of the war metaphor: "We will end the climate wars, and our plan will help us protect our environment – our coasts, our farmland, our reef, our rivers, our forests".[70] The permutation of "our" associated with natural elements after the personification conveys anxiety.

A form of self-praise emerges from one of tweets in the collection: "Australia is already at Net Zero", or "in a net zero world Australia is an energy superpower", or "Australia already exceeds net zero by 500%".[71] Those tweets are connected to the hashtag #AusPol. Interestingly, the hashtag "#climate change" on Twitter collects different views and contains both posts that genuinely accept the "net zero" target and posts that criticize and/or mock it using language such as "we can't have net zero" or "net zero scam". Other tweets have more neutral connotations, such as: "Australia is well on the way to net

[69] Anthony Albanese, APES, May 1, 2022.
[70] Ibid. Author's emphasis.
[71] APT, March 28, 2023.

zero", "Australia is on the right path to net zero emissions", and "Australia is on the path to net zero energy security".[72]


Fig. 8: Reply to Anthony Albanese in APES, February 20, 2020.

From the comments on the tweets, what emerges is that "net zero" is mostly conceived of as a distant goal linked either to worries about the climate when the target is accepted, or to preoccupations with economic stability when the target is despised. This polarization is likely to take the shape of "climate wars" between "net zero" supporters and antagonists. In fact, a spokesperson for the Greens Party of Australia invented a new term – 'ecocidal' – to describe opponents of net zero.[73]

## 6. Conclusion

Achieving "net zero" requires a level of global responsibility and consensus that cannot be reached by the net zero target alone. Polarization divides users that are genuinely committed to the target and those who are not convinced but rather alarmed by a net zero future. The focus of the present article has been on written verbal communication through both traditional and social media outlets concerning the "net zero" target in the years following its emergence in 2013.

The "net zero" target, which is both concrete and absolute, has permeated public discourse in Australia and elsewhere. The use of "net zero" in the analyzed texts has aimed at convincing people, mostly businesses, to take care of the environment and transition to a carbon-free future. In this sense, the "net zero" phrase is not different from the other zero campaigns that Australia first launched with the intention of "making people do the right thing for them".[74] What has profoundly changed is the way the net zero target is being conceptualized, from something linear to something more divisive.

Through a combination of quantitative and qualitative content analysis, the tendency that emerged is that "net zero" frames the discourse of climate change as a race with a finishing line with an undefined starting point. The metaphor source domain is an abstract concept like green policies, which is outweighed by a concrete target domain concept, namely zero carbon emissions. The interpretation of the latter is far from linear, as emerged from the analysis. This shows that the "net zero" target implies a level of approximation expressed by the language that has been left to individual interpretations.

[72] Ibid.
[73] Ibid.
[74] Vanessa Allom et al., "Comparing the Cost-effectiveness of Campaigns Delivered Via Various Combinations of Television and Online Media", *Frontiers in Public Health*, 6.83 (2018).

Moreover, there are divergences in the language used to express this target. A form of controversy emerged. Words trigger different associations and different meanings that vary according to the political alliance of the speakers.[75] In the case of the "net zero" target, each signatory country of the Paris Agreement has implemented different policies to achieve the goal, with a similar trend: while, for the left-wing parties like the Labor Party and the Greens of Australia, the term "net zero" is associated with progress towards sustainability, for conservatives, the term is associated with a threat to the neoliberal world and lifestyle. As things stand, it is difficult to assess the efficacy of "net zero" metaphor properly because of the lack of an agreed-upon interpretation.

It is clear, given the extensive use of zero in product advertisements, that the number has great potential for getting people's attention and getting them engaged in their choices. Further studies including social campaigns and social movements should be undertaken to test whether "net zero" is emotionally appealing to citizens. To turn net zero into a useful frame of reference for leaders and decision makers, the metaphor and the actions linked to it need to be translated into clear, fair, and concrete pathways for nation states, subnational entities, companies and other organisations both locally and internationally.

[75] Roger Fowler, *Language in the News: Discourse and Ideology in the Press* (London: Routledge), 1991.

Aureliana Natale

# Climate Trauma and Activism. The Social Media Coverage of Climate Crisis and Its Effects. An Overview

**Abstract**: The aim of the article is to provide a reflection on the multiple and often opposing effects of climate crisis and trauma from a cultural point of view. In the first part, it will consider climate change and its effects, such as anxiety, depression and pre- and post-traumatic stress disorder. It will then focus on public reactions and the possibility of positive engagement fostered by social media platforms like Instagram and TikTok. It argues that by informing the public about the physical and mental consequences, social media can raise awareness and shape public opinion, inspiring action. Thus, anxiety and activism may emerge as contrasting outcomes of media coverage on climate change. The article provides a reflection on this coexistence and its causes, and speculates on future developments.

Keywords: *climate crisis*, *climate trauma*, *social media*, *psychoterratic states, climate activism*

## 1. Introduction

The concern for the well-being of our planet and its correlation with human activity has a lengthy history. As early as the end of the 19th Century, following the advent of the industrial revolution, environmentalist movements such as the *Conservation Movement* in India and the *Coal Smoke Abatement Society* in England began to take shape. However, it was during the latter half of the 20th Century that the topic gradually entered the public domain. In 1962, American biologist Rachel Louise Carson authored the renowned essay *Silent Spring*, which unveiled the destructive effects of human intervention on the natural environment and became a key manifesto of the international ecological movement. Few years later, in 1970, the United Nations established the *Earth Day* to commemorate the planet and stress the significance of environmental protection. At the end of the seventies, as is well known, William Rueckert coined the term 'ecocriticism' in his essay *Literature and Ecology: An Experiment in Ecocriticism* (1978), marking a field of study that examines the relationships between culture, knowledge, narrative, and the environment through humanistic and scientific sources.

Nonetheless, for a long time, this extensive history was largely relegated to the background. Despite the availability of studies, analyses, predictions, and warnings on the well-being of the Earth's ecosystem, the subject rarely took center stage in public discourse and interest, whether from informative, political, economic, or artistic, literary, and narrative perspectives.

However, in recent years, the situation has undergone a significant transformation. Many environmental issues that were previously on separate paths have been subsumed under the overarching concept of climate change. Climate change has arguably become the primary topic of our time, so much so that references to it are ubiquitous in contemporary discourse.[1] Bibliometric analysis shows that research on the subject has grown exponentially in the current decade.[2] Furthermore, the existence and

[1] Peter Smith, *Climate Change and Cultural Heritage: A Race against Time* (New York: Routledge, 2015).
[2] Najibah Suhaimi et al., "A Bibliometric Analysis of Climate Change Literacy between 2001 and 2021", *Sustainability*, 14.19 (2022).

findings of such studies have transcended the boundaries of scientific specializations to become a topic of public discussion. Climate change has become pervasive across various sectors, from traditional and new media to politics, economics, cinema, and literature, appearing as news, topics, images, or plots. While Amitav Ghosh's essay *The Great Derangement: Climate Change and the Unthinkable* (2016) criticized the scarcity of climate change in contemporary fiction only seven years ago, as of today the trend has significantly reversed.

This shift can be classified as an epistemological passage: from analysing and discussing causes, we have moved towards analysing and comparing effects. The occurrence of wildfires in California, floods in Australia, and droughts in northern Italy, among other climate-related events, are no longer viewed as hypothetical phenomena that may arise *due to* certain factors. Rather, they are now recognized as concrete and tangible effects *resulting from* identifiable factors. This transformation is evident in the language used to describe the subject, where the term 'Climate Crisis' is increasingly favoured over 'Climate Change'. The choice to use the former term is in fact strategic. It signals the impossibility of avoiding the issue: if a danger can be ignored, a crisis must be addressed. Moreover, this choice also entails a shift in the modes of action and communication: during a crisis, the ways we act and communicate differ from the norm because they have to respond to the exceptional nature of the situation. At the same time, the ways in which actions and information are received and processed also take on distinct characteristics because people have to cope with such an abnormal and frightful state of things. Furthermore, unlike other crises, the climate crisis operates on a longer time scale and demands a level of tolerance towards this so to speak 'emergency vocabulary' that is markedly different from usual. All this makes it an issue that is extremely difficult to address, especially from the perspective of those who will be most impacted by the crisis. It is therefore not coincidental that discussing the climate crisis increasingly involves grappling with something akin to a trauma.

The aim of the article is therefore to provide a reflection on the multiple and often opposing effects of climate crisis and trauma from a cultural point of view. In the first part, it will consider climate change and its effects, such as anxiety, depression and pre- and post- traumatic stress disorder. It will then focus on public reactions and the possibility of positive engagement fostered by social media platforms like Instagram and TikTok. It argues that by informing the public about the physical and mental consequences, social media can raise awareness and shape public opinion, inspiring action. Thus, anxiety and activism may emerge as contrasting outcomes of media coverage on climate change. The article provides a reflection on this coexistence and its causes, and speculates on future developments.

## 2. The Loss of Mother Earth

Throughout the narratives of Indo-European communities and beyond, the Earth has consistently been endowed with the symbolic role of a maternal figure. Various cultures have defined the Earth as a maternal identity, such as the *Tellus Mater* or *Terra Mater* of the Romans, the *Gaia* of the Greeks, the *Ki* or *Ninḫursaĝ* of the Sumerians, and the *Bhumi* and *Prithvi Mata* of Hindus and Buddhists.[3] Thus, tasked with nurturing and supporting her children, the Earth has often been portrayed as a figure of strength. Even when Western poetic aesthetics recast her as a wicked stepmother or, more recently, as a vengeful force in the so-called disaster movies punishing humanity for failing to respect her delicate balance, the Earth has maintained her symbolic role of a strong maternal figure. Perhaps it is no accident. Psychoanalytic studies following the Lacanian framework suggest that cruelty is more readily accepted in a maternal figure than fragility. The notion of maternal fragility challenges the fundamental

[3] See Gordon Campbell, *Strange Creatures: Anthropology in Antiquity* (New York: Bloomsbury, 2006), 3-14.

ontological assumptions of the child, necessitating a role reversal that is not always manageable for the latter. [4]

The current climate crisis and its narrative seem to point towards this complex and paradoxical reversal of roles: it is now evident that Mother Earth is unwell, and that the behaviour of humanity, representative of the child, is responsible for this state of health. Furthermore, the fragility of the Earth goes hand in hand with her progressively unrecognizable state. Environmental transformations, whether local or distant, appear to be increasingly apparent, narrated, and thus experienced. As a consequence, there is a resulting sense of uprooting, a strangeness akin to the experience of exile discussed in Freudian studies. The overall result is the transformation of our planet from a familiar and domesticable element to an unpredictable and disturbing one.

These psychoanalytic readings are not entirely new. In the 19th century, the Romantic aesthetic already considered Nature as an element capable of surprising and frightening human beings. However, the current situation has decidedly specific characteristics that extend beyond theoretical and cultural interpretations. In recent years, a considerable number of new pathologies related to the climate crisis have been observed and recorded demonstrating dynamics comparable to one of the most studied experiences in psychology: trauma. The word trauma is etymologically rooted in the medical field, specifically in the concept of injury and wound. It is therefore not surprising that Michael Richardson characterizes the climate crisis precisely in terms of a distinctive type of wounding, one that is experienced in the present but whose most concerning causes and effects are linked to the future dimension:

> Already arriving from the future yet only just beginning to unfold, climate catastrophe bears down on and shapes the present. It cannot but be felt in the now: in its micro and macro manifestations, in the threat it poses to existing ways of life, in its upending of entrenched understandings of the workings of the world, and in the injury it does to particular lives and wider ecologies. Climate catastrophe works on ecologies and bodies alike as a kind of wounding, one not simply or solely to the everyday stuff of biological life but to the very constitution of experience and expression. This wounding is not so much traumatic as it is traumatically affecting. It is a wounding that manifests in jarring, rupturing, disjunctive encounters with future crisis in the contemporary moment. While this traumatic affectivity manifests in multiple forms, it has particular consequences for aesthetic expression and its relation to experience itself.[5]

The phenomenon of psychoterratic states, defined as states characterized by psychological discomfort and stress stemming from environmental changes and disturbances, has been the subject of increasing attention from the scientific community. Psychoterratic states pertain to the affective experiences individuals undergo concerning the earth. Coined by Glenn Albrecht, this terminology arose from a discerned necessity for a novel lexicon to articulate the emotional responses evoked by the worldwide deterioration of the planet throughout history.[6] In particular, recent studies have highlighted the potential for such states to manifest as pathological conditions related to post-traumatic stress disorder (PTSD).[7] This growing concern is driven in part by the fear of apocalyptic global scenarios that could render the planet uninhabitable, leading to the emergence of a set of "environmental emotions" that have been formally recognized in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5).[8] To this end, Glenn A. Albrecht's *Earth Emotions: New Words for a New World* (2019) provides a rich lexicon

[4] Wendy Wren, *Mother is Dying*: *A Societal and Trauma Analysis into Climate Change and What You Can Do About It* (Austin: Macauley Publishers, 2022).
[5] Michael Richardson, "Climate Trauma, or the Affects of the Catastrophe to Come", *Environmental Humanities*, 10 (2018), 1.
[6] Glenn Albrecht, "Exiting the Anthropocene and Entering the Symbiocene", *Minding Nature* 9.2 (2016), 12-16.
[7] Annika Walinski et al., "The Effects of Climate Change on Mental Health", *Dtsch Arztebl Int*., 120.8 (2023), and Tara Crandon et al., "The Clinical Implications of Climate Change for Mental Health", *Nature Human Behaviour*, 6 (2022).
[8] https://www.appi.org/Products/DSM-Library/Diagnostic-and-Statistical-Manual-of-Mental-Di-(1)?sku=2576

of what he terms Negative psychoterratic statuses, including ecocide, ecoanxiety, biophobia, ecophobia, environmental generational amnesia, solastalgia, global dread, nature deficit disorder, ecoparalysis, tierratrauma, topoaversion, toponesia, meteoranxiety, tierracide, and terrafurie. This terminology is so broad, varied, and interrelated that it is often complex to navigate and clearly distinguish the specific emotional state at hand. With this in mind, Csilla Ágoston provides an exhaustive overview of the field:

> Albrecht suggested that chronic stress on ecosystems is likely to produce chronic stress in humans, which results in certain 'psychoterratic' or earth-related mental health syndromes, such as eco-anxiety, eco-paralysis, solastalgia, and eco-nostalgia. Eco-anxiety is a special type of stress and worry, which is related to the ecological crisis, and can be interpreted in the framework of existential and psychodynamic psychology as well as social sciences. Worry about climate change is very common among children and young people (84% of them expressed at least moderate worry in a large-scale study) Eco-paralysis is characterized by the inability to meaningfully respond to the climatic and ecological challenges , and it can stem from either the sudden emotional shock caused by the threat or cognitive dilemma of having too many and sometimes conflicting options for action. Another important phenomena is eco-guilt that occurs when people realize they have violated personal or social standards of behaviour and eco-grief, which is a response to ecological loss that can be related to the loss of physical environment, anticipated future losses and the disruptions to environmental knowledge systems, which leads to the feeling of loss of identity. Solastalgia is a concept akin to eco-grief; it describes the anguish or despair we feel when we realize that the place we live in and love is chronically deteriorating, and the comfort—or solace—we derive from the current state of our home environment is gradually disappearing. Compared to solastalgia, where people have a "lived experience" of the change process, eco-nostalgia is experienced when people return to a location that has been entirely transformed in their absence due to development or climate change.[9]

As seen above, these emotional states of stress and discomfort can arise from a variety of situations related to the climate crisis. Recent studies have shown that extreme weather events, while undoubtedly important, are not the only factors affecting human mental health in relation to climate.[10] The mere warning of the gradual increase in temperatures or the deterioration of air quality are capable of transforming the personal perception of the problem into an increasingly distressing experience.
Each of these syndromes is clearly experienced at an individual level, but it can also be shared among many individuals. In fact, if the experience of the climate crisis can be framed through the category of trauma, it must be a collective trauma. This is not only because it is an event that concerns everyone, but also because it is now well known that a collective trauma is not only the consequence of a personal experience, but can also be generated by the introjection of anxieties and worries that, in their symbolic reification in the unconscious, end up besieging the ego in a phantasmatic form.

The framing of the climate crisis in terms of collective trauma is certainly useful from a medical perspective for diagnosis and treatment: only by naming and knowing a specific pathology is it possible to defuse its most negative effects. At the same time, approaching the climate crisis in terms of collective trauma can also be useful in a broader perspective of intervention towards the climate crisis itself. Zimmerman in *Trauma and the Discourse of Climate Change: Literature, Psychoanalysis, and Denial* (2020) argues that our great and long-standing blindness towards the danger of an environmental crisis is due precisely to the failure to recognize the traumatic dynamic. According to this reading, the refusal to accept the fact that "our home was on fire" and the indulging in the mere memory of a Mother Earth would have been the products of a typical traumatic repression. Instead, Zimmerman argues that only by recognizing the climate crisis as a kind of collective trauma can we find the tools to fight it. He is not alone. More and more experts and scholars insist on referring to the category of collective trauma

[9] Ágoston Csilla, "Identifying Types of Eco-Anxiety, Eco-Guilt, Eco-Grief, and Eco-Coping in a Climate-Sensitive Population: A Qualitative Study", *Int J Environ Res Public Health*, 19.4 (2022), 2.
[10] See Matteo Innocenti, *Ecoansia* (Erickson: Trento, 2022).

as a way of explanation and intervention: "I can no longer, in good conscience, refer to this accelerating threat as 'global warming' or 'climate change.' Climate Trauma is emphatically a more descriptive, and notably more useful, term for what we are now experiencing".[11]

What the traumatic interpretation would allow is a radical rethinking of the way we tell and narrate ourselves in relation to the planet, and parallelly, the way we act and react. Not only because, as Zimmerman would say, it allows us to remove the repression, but also because, at a deeper and perhaps more productive level, it allows us to overturn the perspective that puts us as the only victims of a changing world and to frame ourselves instead as a factor that can contribute to worsen or improve the situation. [12] The elaboration of the loss of mother earth leaves room for the recognition that we are not her only children. The climate crisis, as is well known, does not coincide with the total end of the habitability of the planet, but with a narrower hostility towards human life on the planet. Becoming aware of this means abandoning a totally anthropocentric approach that, applied to the climate crisis, can only produce feelings of victimization, paralysis, and inaction.

> Trauma is both a personal and cultural experience linked to place (Michelle, 2008). In fact, Caruth has advanced a contagion theory of traumatic experience, according to which we become implicated in each other's traumas. In the newly christened anthropocentric age out of which the climate crisis has emerged, the Anthropocene (see, e.g., Waters et al., 2016)—an age marked by the advent of instant global information and rampant social media communication—one can now readily observe a kind of social contagion effect. Against a backdrop of culturally reinforced psychosocial defense mechanisms, what we see is that the more chaotic our climate system becomes, the more these elevated levels of chaos are reflected in the cultural and political expressions of group pathology.[13]

The increasing discomfort associated with concerns over the balance of the planet stems from the anxiety of not being able to fully control the equilibria of a planet that has been regarded for centuries as a conquered land and not as a hosting ecosystem, as an object acted upon and not an acting subject. This places emphasis on how humans must learn to live on the planet as its inhabitant, but not as its owner, and to do so, they must begin to speak about it differently.

To enhance awareness, it is crucial to consider eco-anxiety not only as an individual ailment but as a community symptomatology that can transform dialogue into action through confrontation. Thus, it is necessary to fully comprehend this type of symptomatology, looking at the new lexicon coined to understand it, and then to devise winning strategies that start from self-care and lead to care for the entire community and planet, avoiding eco-paralysis that arises from what may be defined as eco-aphasia. The loss of motivation and hope generated by the anxiety of questions such as *what good will it do to talk about it?* might degenerate into depressive states where one is convinced that any word, and consequent action, is now futile. It is therefore evident that effective communication plays a pivotal role in building an adequate awareness of the planetary crisis and devising an appropriate response. Merely discussing the issue is insufficient, as the quality of the discourse is of paramount importance. The initial risk that must be averted is the replication of what occurred during other major collective traumatic events, like terrorism or pandemics, in which the initial indescribability of trauma led to a widespread dissemination of images and stories that served to reopen wounds without leading to constructive reflection or action. In the specific case of the climate crisis, there is a risk of perpetuating a vicious cycle, where heightened attention to the present and future consequences of the crisis may contribute to the emergence of the aforementioned pathologies. The mass media bears the greatest responsibility in this regard due to its

[11] Woodbury Zhiwa, "Climate Trauma: Toward a New Taxonomy of Trauma", *Ecopsychology*,11.1 (2017), 3.
[12] Edward Blaine, "Fostering Student Activism About the Climate Crisis Through Digital Multimodal Narratives", *Journal of Sustainability Education*, 25 (2021).
[13] Ibid., 5.

inherently pervasive yet elusive nature. In fact, despite having become a ubiquitous term in contemporary discourse, it is not straightforward to define what is meant by mass media. Potter, among other scholars, articulates a sophisticated definition based upon specific conditions inherent in both poles of communication: the sender and the receiver.

> The sender of messages must be (1) a complex organization (2) that uses standardized practices to disseminate content (3) while actively promote itself in order to attract as many audience members as possible and (4) condition those audience members for habitual repeated exposures … Also, the audience is important because it must be composed of people who are (1) are widely dispersed geographically, that is not all in one place, (2) are aware of the public character of what they are seeing or hearing, and (3) encounter messages in a variety of exposure states but most often in a state of automaticity.[14]

This definition subsumes both traditional media outlets such as radio, TV, newspapers, and contemporary social platforms such as Facebook, Instagram, Twitter, and TikTok. As of today, this composite mass media galaxy is responsible for conveying the majority of verbal and visual information related to the climate crisis. This coverage has now become nearly ubiquitous but it does not always employ effective communication strategies that are appropriate for the issue or the traumatic aftermath that may ensue. As a matter of fact the media's perspective often fails to account for the global context as it focuses on the national and regional one. This contributes to a lack of information that could lead to the belief that the climate crisis is less severe than it is. Furthermore, sensationalistic alarmism tends to characterize media coverage of the climate crisis, which may attract attention but could also arouse reactions of disbelief, denial or desperation.

All these communicative deficiencies contribute to generating confusion among listeners, as alarming information (such as *nothing can be done*, *the catastrophe is inevitable*) is provided in parallel with vague and poorly contextualized information. Due to this communicative approach, listeners may perceive climate change as an abstract entity that has a specific temporal and spatial location and does not manifest itself in any concrete event. This confusion can lead older age groups to lose interest (*I don't understand, so I'm not interested*), but younger age groups, who are more vulnerable to the effects of climate change, are well aware that environmental degradation is compromising a not-so-distant future. They are acutely aware that their generation will be the first to experience the drastic effects of climate change. This awareness reduces the psychological distance between them and the climate phenomenon, exposing them to the potential consequences that can impact their way of living and thinking.

However, as is widely known, while the media continue to hold a central role and wield significant power in shaping public opinion, they are no longer the sole purveyors of information. The focus, understandably, is on the World Wide Web and, more specifically, the most prevalent iteration of the internet in recent times, namely, social networks. Indeed, over the past decade, social networks have received both acclaim and criticism for their role as creators and propagators of information and opinions, thereby signifying their current status as an indispensable node in the domain of communication. Accordingly, it is hardly surprising that the discourse surrounding the climate crisis is widespread, examined, and expounded upon, primarily, if not exclusively, on social media platforms.

## 3. Climate Trauma and Social Media

Social media today possess a reputation that is, at minimum, contradictory as means of information and communication. In a relatively brief period of time, social media have transformed from tools that appear to support freedom of expression and the advancement of democratic-progressive movements (e.g.,

[14] William Potter, "Synthesizing a Working Definition of Mass Media", *Review of Communication Research*, 1 (2013), 17.

during the Arab Spring) to instruments that seem to promote the dissemination of falsehoods and the success of autocratic-conservative movements (e.g., during the 2016 U.S. elections or the 2021 attack on the Capitol Building). Indeed, the terms 'fake news' and 'post-truth' owe their current popularity to the role of social media, and numerous academic studies have demonstrated the existence of such phenomena, though consensus has yet to be reached on the underlying motivations.

> Fake news and its viral circulation have become a grave concern in the era of social media, where anonymity, user-generated content and geographical distance may encourage fake-news sharing behaviour. While academic research on the dark aspects of social media use, which includes information overload, social media fatigue, fear of missing out and coping strategies, has intensified, the perceptions and behaviours underlying the sharing of fake news are not clear. In fact, little is known about the motives for sharing disinformation on social media platforms.[15]

Therefore it is not unexpected that the portrayal of the climate crisis on social media should manifest itself in a similarly contradictory and problematic manner. On various social media platforms such as Facebook, Twitter, Instagram, and TikTok, opposing tendencies coexist whereby the climate crisis may be construed as either an overestimated or even fictitious phenomenon, or conversely, as the gravest and most pressing problem that humanity has ever confronted. As such, social media can engender a wide and heterogeneous range of responses and effects among their users, simultaneously serving as both an obstacle and an opportunity with regard to communicating about the climate crisis and addressing its trauma.

### 3.1 *Social Media and Top-Down Anxiety*

The majority of studies conducted to date concerning the interplay between social media and misinformation have predominantly focused on the realm of political communication.[16] Within this specific domain, social media platforms have been shown to possess a notable - and at times calculated - capacity to disseminate unsubstantiated or deliberately falsified news in order to safeguard their respective party interests or undermine their adversaries. Nonetheless, this ability to propagate misinformation is extensible to other areas as well, particularly in contexts where issues, like politics, are susceptible to divergent perspectives and interpretations. Indeed, the salience of social media's structure in fostering polarization has become increasingly incontrovertible. "While some concerns have been exaggerated, social media do contribute to increase polarization either by amplifying and escalating social processes that also occur offline or in specific ways enabled by their design affordances, which also make these platforms prone to manipulation".[17]

The scientific community largely agrees on the responsibility for and necessary interventions to address the climate crisis. However, online discourse and other forms of communication often portray the issue as controversial, leading to polarized opinions. As a result, debates centered around the climate crisis often involve the production and dissemination of news and images, serving as a means to establish the validity of one's standpoint. The issue of polarization is further compounded by the close association between the climate crisis and politics, the sector most susceptible to position polarization and the spread of false information. A 2020 study by Thea Gregersen et al. found that one's personal political

[15] Talwar Shalini et al., "Sharing of Fake News on Social Media: Application of the Honeycomb Framework and the Third-Person Effect Hypothesis", *Journal of Retailing and Consumer Services*, 57 (November 2020), 5.
[16] Sadiq Muhammed et al., "The Disaster of Misinformation: A Review of Research in Social Media", *International Journal of Data Science and Analytics*, 13 (2022).
[17] Luca Iandoli et al., "The Impact of Group Polarization on the Quality of Online Debate in Social Media: A Systematic Literature Review", *Technological Forecasting and Social Change*, 170 (2021), 7.

positioning on the left-right or conservative-liberal axis often corresponds to a different approach towards the climate crisis:

> Another factor known to be associated with climate change perceptions is political orientation, which, according to McCright et al. (2016), constitutes one of the most important and consistent predictors of climate change perceptions such as worry and concern. A common approach to measuring political orientation is to ask people to position themselves on a liberal versus conservative (in the United States; e.g., American National Election Studies) or a (political) left versus right (in Europe; e.g., European Social Survey) dimension. Research has found that left-leaning or liberal individuals are more likely to believe in the reality and anthropogenic nature of climate change, and to be worried about it, than those who identify themselves as right-leaning or conservative.[18]

The frequent presence of online content aimed at reducing or denying the climate crisis is thus easily explained. Such content may take various forms but often consists of more or less faithful reproductions and interpolations of news from traditional media outlets. It should not be overlooked that current social media platforms embody the convergence culture theorized and analyzed by Henry Jenkins since the 2000s[19], in which bottom-up and top-down content coexist and hybridize. In the context of the climate crisis, this means that the same dynamics and shortcomings of so-called traditional media often re-emerge on social media precisely because the content is often identical or nearly so: reposts of newspaper and magazine articles, images and videos from television, or more banally, posts, tweets, stories, and reels by journalists. The fundamental difference lies in the mode of consumption, which is much faster, shallower, and more abundant than traditional media consumption. As may be easily surmised, this can lead to a further predilection for particularly alarmist and sensationalistic content capable of attracting the ever-decreasing attention of users. However, as previously mentioned, the continuous and rapid exposure to particularly alarming and sensationalistic content is not healthy. Experiencing news, images, and videos of catastrophic events related to the climate crisis does not promote awareness or action but instead generates feelings of anxiety and paralysis, even on a physical level. Trauma processing and subsequent action strategies do not arise from the continuous and fragmented re-emergence of traumatic events. If the Self is passively bombarded with images depicting disasters without these being understood as processes with causes and solutions, the way in which that content is stored in memory will be similar to the way in which memory stores trauma: it is not processed and the Self becomes blocked. As a matter of fact, individuals who have undergone traumatic experiences frequently grapple with intrusive thoughts that manifest as intensely negative core beliefs about their own identity. These beliefs may encompass convictions such as "I will never regain the ability to experience normal emotions again", "I no longer recognize my own identity," or "I have undergone irreversible negative changes". Somatic repercussions of trauma have garnered increasing attention in recent research, indicating that it can lead to enduring physical manifestations as somatic disturbances significantly affecting the individual's sense of self. Moreover, individuals with PTSD reported somatically-based alterations concerning self-experience, exemplified by expressions such as "I feel emotionally numb," "I sense detachment from my body," "I feel a lack of ownership over my own body," or "I perceive a loss of boundaries around my body." These accounts underscore the vulnerability of the sense of self in the aftermath of trauma, where both cognitive and somatic disturbances are believed to stem from remnants of the traumatic past experienced by individuals with PTSD. [20]

[18] Thea Gregersen et al., "Political Orientation Moderates the Relationship between Climate Change Beliefs and Worry about Climate Change", *Frontiers in Psychology*, 20 (2020), 2.
[19] Henry Jenkis, *Convergence Culture: Where Old and New Media Collide* (New York: New York U. P., 2006)
[20] Ruth Lanius et al., "The Sense of Self in the Aftermath of Trauma: Lessons From the Default Mode Network in Posttraumatic Stress Disorder", *European Journal of Psychotraumatology*, 11 (2020), www.ncbi.nlm.nih.gov/pmc/articles/PMC7594748/#cit0054

Drawing upon recent scholarship that delves into climate change as a manifestation of *slow violence* perpetrated by humanity upon the environment, the theory posited by the esteemed media scholar E. Ann Kaplan in her essay *Climate Trauma* (2015) explores the escalating prevalence of dystopian future-themed news and images.[21] Kaplan investigates how these contents may present an opportunity for constructive engagement with our anxieties, by offering a seemingly prophetic glimpse of the alarming future selves we must strive to avoid becoming. Flooding, hurricanes, earthquakes, heat waves, etc., if not thought of as various sad pieces of a much more complex mosaic, only become shocking events that leave us space for eco-mourning. To process trauma and plan action, different modes of communication are needed, which social media fortunately allows for.

### 3.2 *Social Media and Bottom-up Activism*

The climate crisis, as has been repeatedly emphasized, constitutes a collective trauma. Nevertheless, whether through newspapers or screens of televisions or smartphones, it is often experienced at an individual level, which amounts to passive exposure. From this perspective, social networks present communicative potentialities that can involve and make groups of people feel involved. Social media has fundamentally disrupted established communication hierarchies by diminishing the influence of traditional gatekeepers like large media corporations, political parties, and scientific institutions. Simultaneously, it has empowered individuals to reach unprecedentedly large audiences and the rapid rise of social networking sites and platforms has captured the public's imagination, generating significant interest and motivation for research in this domain. This has been witnessed in another collective crisis, that of the COVID-19 pandemic, where social communication has enabled the creation of communities for discussion and mutual support, offering solace from isolation and sensitizing individuals to common good practices in a moment of fear. This effect has been extensively discussed in the early days of online communication, as exemplified by Lévy's concept of collective intelligence[22] or Rheingold's virtual communities[23], and it has persisted even in the era of social media. In their study on the formation of collective identities on Instagram, Brünker, Deitelhoff, and Mirbabaie investigate the potential interactions and effects between groups and individuals in the current digital landscape.

> Collective identity combines the bases group cohesion, emotional attachment, and solidarity (Polletta and Jasper 2001). These three bases might show up on social media in several ways. However, even in heterogeneous networks which are loosely connected are these three bases important for identity formation and maintenance during a social movement (Melucci 1988; Miller et al. 2016). In the context of social movements, social media provides individuals self-verifying capabilities by various participation patterns such as liking, commenting or connecting with others (Miller et al. 2016). Subsequently, evolving personal networks could drive individuals to support the collective. This can be motivated by emotional attachments on social media (Melucci 1988; White 2010). However, several influencing factors might form collective action and drive participation in social movements as the social identity model of collective action (SIMCA) suggests.[24]

The bottom-up aspect of social media is characterized by the production and dissemination of content created by users, as well as interaction among them. When applied to the climate crisis, these two elements challenge the risks outlined in the analysis of collective trauma. A collective effort to narrate the trauma can mitigate the danger of individual melancholic stagnation and instead open up the

[21] Ann Kaplan, *Climate Trauma: Foreseeing the Future in Dystopian Film and Fiction* (New York: Rutgers, 2015).
[22] Pierre Lévy, *L'intelligence collective: Pour une anthropologie du cyberspace* (Paris: Editions La Découverte, 1994).
[23] Howard Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier* (Boston: MIT Press, 2000).
[24] Felix Brünker et al., *Collective Identity Formation on Instagram – Investigating the Social Movement Fridays for Future*, Australasian Conference on Information Systems (2019), 305.

possibility of a joint process of elaboration. This approach can defuse the syndromes of eco-paralysis and eco-aphasia, and enable individuals to reclaim time impacted by the shocking experience of ecological disaster. The next step is to seek solutions together, namely by engaging in participatory actions aimed at slowing down and stopping the crisis. It is therefore necessary to establish communities of activists and activist communication, which are frequently present on social media, especially on Instagram and TikTok, the platforms most widely used by young people. After all, activism, social media, and the climate crisis are topics that primarily concern younger generations. This is supported by the research undertaken by Basch, Yalamanchili and Fera, who conducted an in-depth analysis of climate crisis-related video content on TikTok. Their findings revealed the significant informational and discursive value inherent in these videos, particularly as they resonate strongly with the younger cohorts:

> Current day youth have an important role in climate activism, as the decisions and policies made now will have long lasting impacts on the climate and sustainability. Having constructive outlets for expression of dissent may reduce the risk of youth moving toward withdrawal, inaction, or anger directed toward other marginalized people such as economic migrants. Increased activism and change in the future may be possible by having accessible climate change education available to youth through various sources including social media. Social media platforms also have unlimited reach for obtaining knowledge, spreading awareness, as well as rallying support for movements, which has been seen through various other successful movements such as "March For Our Lives," which was youth-led . Due to the widespread reach of the audience, social media platforms have been popular for discussing various health topics. A platform emerging in popularity is TikTok, which, as of August 2020, had over 2 billion app downloads globally. The value of emerging social media platforms such as TikTok in disseminating public health information is beginning to be studied. Public health officials and organizations have sought to use social media platforms and/or influencers from these platforms to spread awareness regarding important health topics, yet this is not the norm.[25]

## 4. Conclusion

The importance of social media communication in relation to the climate crisis has been underscored by the world's most renowned young activist. In her work, *The Climate Book* (2022), Greta Thunberg exposes how traditional media, in their narrative of the climate crisis, have privileged a synchronous perspective over a diachronic one. Rather than being presented as a complex and interconnected phenomenon, the climate crisis becomes a singular event, be it a flood or a tornado, that recurs differently over time. As seen, social media often take up the synchronous account of the climate crisis, fragmenting and accelerating it to extremes, with corresponding consequences. Nonetheless, social media can also communicate differently. On the pages and profiles of environmentalist movements and the most prominent activists, one can indeed find an organic distribution of news, articles, images, discussions that restore to the climate crisis its real, long, and intricate nature. In this way, specialized communicative poles are formed, to which one can refer in order to remain up-to-date and deepen the situation. Thunberg adds that, in this manner, discussing the climate crisis may also imply discussing climate justice, given that the crisis, observed for what it truly is, cannot be thought of as originating by chance: "Justice means morality – and morality includes guilt and shame. But guilt and shame have been officially banished from the western climate discourse by the media, by the communication experts and by the entire greenwashing community- conveniently closing the door on our historic responsibilities and the losses and damages caused".[26] It is evident that Thunberg is not oblivious to the emotional consequences of communication, but rather focuses on different emotions, such as guilt and shame, which she deems

[25] Corey Basch et al., "#Climate Change on TikTok: A Content Analysis of Videos", *J Community Health,* 47 (2022), 164.
[26] Greta Thunberg, "We Now Have to Do Seemingly Impossible" in *The Climate Book* (London: Penguin Book, 2022), 357.

more effective in fostering collective action. Such emotions, when collectively experienced, can lead to a collective effort to repair the damage caused.

Another, and arguably more effective, means that social media platforms employ to counter the synchronicity of communication while simultaneously promoting participation is the hashtag. Through the use of hashtags, it becomes possible to link various events that may have occurred at different times and places, thereby attributing them to the same cause. By searching for the hashtag #climatecrisis on platforms such as Instagram or TikTok, one can obtain millions of results, providing a diverse and comprehensive overview of the content encompassed by the climate crisis. For instance, a photograph depicting the melting of ice in Antarctica may be juxtaposed with news coverage of a demonstration in California, which in turn is accompanied by a video emphasizing the need to reduce global intensive farming practices. By employing hashtags, users are directly involved, feeling as though they are part of a community. In this way, environmental activism is capable of creating numerous virtual platforms from which to invite people who frequent their pages and follow their updates to take action. Numerous studies have demonstrated the efficacy of Instagram and TikTok based on these elements:

- Our findings show to what extent the three bases of collective social/group identity arise on Instagram within an opinion-based community (*Friday for Futures*). In order to conceptualise the concept of collective identity and collective action, we derived the proposed model of collective group/social identity of collective action. We plan to test this model in a succeeding study to examine the impact of each dimension on the collective group/social identity as well as the indirect effect on collective action. To this end, we aim to conduct a laboratory study based on the preliminary findings of this research in progress. The findings of this study provide first insights to how each base (Solidarity, Emotional Attachment, and Group Cohesion) occur on Instagram within an opinion-based group.[27]

- This study examined the role of using social media for news and political ideology in shaping public beliefs about global climate change in 20 countries. Results indicate that social media news use is a positive predictor of pro-social beliefs about global climate change, even after accounting for county differences, as well as a range of demographic and socio-cultural predictors.[28]

There is a significative body of research that highlights the potential dangers that social media use may have on the cognitive and emotional development of young people. Among the most frequently cited negative effects are compromised attentional abilities, the emergence of addictive behaviours, and the experience of frequent states of stress and anxiety. However, particularly when focused on a shared concern such as the climate crisis, social media use can also help to reverse such effects. By following hashtags dedicated to the climate crisis, one can find images and messages that move beyond the depiction of the Earth as a suffering, diseased planet inhabited solely by humans, and instead showcase the planet's remaining vast splendor and its even vaster variety of life. In this way, the social narrative of the climate crisis can promote a perception of humans as a component within a more complex system that must correct its own function in order to restore the proper functioning of the larger machinery of which it is a part. This would be a shift from the Anthropocene to the Symbiocene, as defined by Glenn Albrecht, the "period in the earth's history where humans symbiotically reintegrate themselves, psychologically and technologically, into nature and natural systems".[29]

[27] Felix Brünker et al., "Collective Identity Formation on Instagram – Investigating the Social Movement Fridays for Future", 308.
[28] Diehl Trevor et al., "Social Media and Beliefs about Climate Change: A Cross-National Analysis of News Use, Political Ideology, and Trust in Science", *Digital Geography and Society*, 2 (2021), 3.
[29] Albrecht Glenn, *Earth Emotions: New Words for a New World* (New York: Cornell U. P., 2019), 102.

# Notes on Contributors

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