

Forum

Varieties of Crises: Comparing the Politics of COVID-19 and Climate Change

Hamish van der Ven and Yixian Sun*

Abstract

The COVID-19 pandemic is the largest public health crisis in recent history. Many states have taken unprecedented action in responding to the pandemic by restricting international and domestic travel, limiting economic activity, and passing massive social welfare bills. This begs the question, why have states taken extreme measures for COVID-19 but not the climate crisis? By comparing state responses to COVID-19 with those to the climate crisis, we identify the crisis characteristics that drive quick and far-reaching reactions to some global crises but not others. We inductively develop a conceptual framework that identifies eight crisis characteristics with observable variation between COVID-19 and climate change. This framework draws attention to under-considered areas of variance, such as the perceived differences in the universality of impacts, the legibility of policy responses, and the different sites of expertise for both crises. We use this structured comparison to identify areas of leverage for obtaining quicker and broader climate action.

At the outset of the COVID-19 pandemic, a number of scholars and activists expressed confusion at the speed and scale of responses to COVID-19 in comparison to the global climate crisis (Bordoff 2020; Dolsak and Prakash 2020; Galbraith and Otto 2020).¹ Granted, there was, and remains, significant variation in the nature of COVID-19 responses by governments (Hale et al. 2020). However, taken as a whole, the disparity between the two crises is enormous. COVID-19 resulted in national governments closing borders, shutting down workplaces, cancelling sports seasons, and confining citizens to their domiciles. Such actions are unthinkable for most governments as responses to the climate crisis. The question, then, is why have there been immediate and far-reaching state responses to COVID-19 but not similar responses to the climate crisis? After all, the climate crisis has been called a “direct

* We are grateful to Maddy Evans for research assistance. Hamish van der Ven acknowledges the financial support of the Fonds de Recherche Société et Culture de Quebec (grant 2019-NP-253410).

1. We use the term *climate crisis* here to encompass the increasingly urgent threat to human life posed by climate-related phenomena, including natural disasters, extreme weather, sea-level rise, and ocean acidification.

existential threat” by the UN Secretary-General, whereas COVID-19 has an average global case fatality rate of just over 5 percent (Guterres 2018).² Why the willingness to move mountains for one crisis but not the other?

We argue that COVID-19 and the climate crisis are different varieties of crisis and that the different characteristics of each crisis lead to different types of governance responses. This may initially appear to be an obvious argument. After all, the timescales of these crises differ dramatically and may auger toward different responses. However, we contend that there are other under-considered differences between these crises that account for their different responses. Enumerating these differences is useful for predicting governance responses to future crises and envisioning how perceptions of the climate crisis might be shifted to engender a faster and farther-reaching response. Our central contribution is a conceptual framework that outlines eight inductively derived crisis characteristics and explains how variation in the value of these characteristics may affect the scope and immediacy of state responses to crises. We argue that the higher the value of these eight characteristics, the more likely it is that a crisis will be met with swift and far-reaching responses. We begin by comparing COVID-19 and the climate crisis across these eight categories. We then describe the relationship between crisis characteristics and political responses. We end by discussing implications for the climate crisis.

The Characteristics of Crises

A crisis—be it a pandemic, war, famine, or natural disaster—adversely affects humans in a variety of ways.³ However, crises tend to vary along a number of consistent dimensions, which we term *crisis characteristics*. The value of each crisis characteristic varies in accordance with an individual’s spatial and temporal context. For example, an impending cyclone has different crisis characteristics for a poor farmer in Bangladesh (i.e., immediate and proximate threat to life) than does its aftermath for an affluent investor in Canada (i.e., long-term and distant threat to investments). Below, we consider the values of eight different crisis characteristics for both COVID-19 and the climate crisis from the perspective of policy makers working for a national government in the industrialized world.⁴ We adopt this positional vantage since rich countries have historically been important for leading responses to crises generally and the climate crisis specifically (Karlsson et al. 2011).

The crisis characteristics considered here are novel insofar as they mark a first attempt to consider which factors influence political responses specifically, as opposed to business or societal responses more generally (Bjorck 2016). They also

2. As of June 23, 2020, the global case fatality rate was 5.2% according to the World Health Organization; data accessible at https://covid19.who.int/?gclid=EAIaIQobChMlzpmlL5fuZ6gIVV0vtCh1fXwThEAAAYASAAEgIkSvD_BwE, last accessed November 22, 2020.
3. We use the term *crisis* here to refer to a narrower series of phenomena than captured by terms like *focusing events*. We conceptualize crises as unplanned and harmful to human life, whereas focusing events can be planned (i.e., elections) and non-life threatening (Walker and Waterman 2008).
4. While we focus on industrialized countries, our argument can also apply to some emerging economies and developing countries.

include dimensions not considered in other work on political responses to crises, such as the nature of epistemic authority for a given crisis (Adger et al. 2017). While this may not be an exhaustive list of crisis characteristics, we believe they are among the most important ones for understanding political responses.

Immediacy

Immediacy is the perceived speed with which a crisis emerges and expands. COVID-19 initially emerged in late 2019 in China, but in a matter of months it was transmitted across the globe and put millions of lives at risk. The outbreak of the pandemic prompted immediate, unprecedented responses from multiple states (Cheng et al. 2020; Hale et al. 2020). In comparison, policy makers have known about the risks posed by climate change for decades but have thus far mustered only incremental efforts to reduce greenhouse gas emissions (Rosenbloom and Markard 2020). The perceived immediacy of a crisis is important because it raises the salience of a response for individuals and may allow policy makers to take action before dissent mobilizes. In an immediate crisis like COVID-19, anti-social isolation protests emerged only after mobility restrictions were already in place. High immediacy kept the crisis in the public mind and reduced opposition to drastic responses like shelter-in-place orders. In a slower-moving crisis like climate change, entrenched opponents to climate action have had decades to marshal resources and hone a dissenting message (Brulle 2014; Colgan et al., forthcoming).

Transience

Transience describes the perceived duration of a crisis and its accordant responses. It is an important quality because it affects public support for government policies and therefore the willingness of policy makers to disrupt the lives of citizens or impose new costs on them. Most people will accept significant disruptions to their lives only if they are convinced that things will soon return to normal; long-term disruptions are much less appealing (Oppenheimer 2015). In the case of COVID-19, governments may have reacted quickly and decisively with the hope that measures would only be in place for as long as it took to “flatten the curve,” thereby limiting political repercussions. There was a (perhaps false) sense that everything would soon return to normal. By contrast, the climate crisis will extend well beyond the lifetimes of most living humans and will necessitate permanent changes to extant social, political, and economic institutions. There is a broad perception of a transition to an unknown new normal. This makes taking rapid and far-reaching action less palatable, out of concern for garnering the antipathy of voters who may fear the unknown and not see an immediate payback on their investment.

Visibility

Visibility refers to the extent to which a crisis can be captured by visuals that provoke an emotional reaction. Previous research has emphasized the importance

of using evocative images to garner support for humanitarian crises (McKay and Perez 2019). COVID-19 is highly visible in the sense that citizens cannot visit the grocery store without seeing shoppers in masks and screens in front of the cashiers. Media images of stadiums filled with hospital beds and daily briefings by senior government officials are equally important for provoking fear. By contrast, the climate crisis seems less visible despite the increasing use of imagery in climate change communication (Wang et al. 2018). Much of the iconography of the climate crisis—from polar bears drowning to glaciers melting—contributes to the idea that its impacts are remote and abstract for most citizens in the world and do not reflect the urgency of this crisis (Schroth et al. 2014; Shields 2019). Even where the images are closer to home, as in the Australian wildfires or Superstorm Sandy, there are lingering questions about causality.

Proximity

Proximity is the degree to which a crisis appears near to an observer. COVID-19 outbreaks have occurred in nearly every country, making this a proximate crisis for many. On the other hand, the climate crisis suffers from a “spatial optimism” dilemma wherein wealthy people in the industrialized world see the consequences of the climate crisis happening primarily elsewhere (Dolsak and Prakash 2020; Tvinnereim et al. 2020). Public opinion research supports the importance of psychological distance as those who witness the effects of the climate crisis in their own backyard are both more concerned and more willing to pay for responsive policies (Kim and Wolinsky-Nahmias 2014; Rickard et al. 2016).

Accountability

Accountability is the degree to which individuals feel personally accountable for their own health and safety during a crisis. For example, the relationship between attending a crowded indoor gathering and potentially catching COVID-19 is direct and evident. This stands in contrast to the murkier relationship between choosing to fly frequently or eat more meat and suffering the effects of a changing climate. Individuals often fail to see a clear connection between their actions and environmental consequences, even those with knowledge of the climate crisis (Dolsak and Prakash 2020; Norgaard 2011). Accountability seems higher in COVID-19 because the pandemic directly threatens individuals and health systems, whereas in the climate crisis, the impacts on human lives are perceived by many as indirect through changes to natural systems (Rosenbloom and Markard 2020).

Universality

Universality refers to the degree to which a crisis is perceived to affect everyone equally. At the outset of the pandemic, COVID-19 was perceived to pose an equal threat to persons in positions of power (e.g., Boris Johnson). In hindsight, we now

know that COVID-19 kills people of color and poor individuals at a far higher rate than white and affluent ones, partially because of structural barriers to health care access (Dorn et al. 2020). However, this knowledge emerged only *after* state responses were already in place. Responses to the climate crisis, on the other hand, occur in a context where the non-universality of consequences are widely acknowledged (Roberts and Parks 2007). The climate crisis stands to impact sub-Saharan Africa and small island states far more than wealthy OECD countries. Even within wealthy countries, the impacts of climate change will be felt most acutely by people of color and lower-income communities that lack the resources to adapt. Therefore, the perception of low universality may contribute to less decisive climate governance.

Expertise

Expertise captures the degree of trust in the epistemic community with the most knowledge about a crisis. A pandemic focuses attention on a different epistemic community than an environmental catastrophe. However, not all epistemic communities are viewed as equal in the eyes of policy makers. Responses to COVID-19 draw on the expertise of doctors and epidemiologists, arguably the most authoritative of epistemic communities due to the perceived infallibility of medical research methodologies (Leão and Gil 2019). Indeed, a broader condition of “medicalization” has been observed across a number of global governance issue areas—in which health authorities are empowered to intervene and redefine a problem in medical terms (Elbe 2011). By contrast, there is some degree of mistrust among policy makers when it comes to climate experts drawing on knowledge from multiple disciplines. This mistrust severs the links between knowledge-making authority and decision-making authority (Lovbrand 2009). Climate scientists have been politicized in a way that doctors were not in the early months of the pandemic (Chinn et al. 2020). The degree of trust in experts is closely related to the amount of public dissent over crisis response and, consequently, to the capacity to respond quickly and decisively to crises. In the case of COVID-19, the political cost of attacking doctors was initially much higher than the political cost of attacking academics and climate activists.

Legibility

Legibility is the extent to which a crisis lends itself to simple and straightforward political responses and the degree to which a simple cause–effect relationship can be observed between responses and outcomes (Scott 1998). In a pandemic, individuals must limit their chances of becoming infected, and governments must enact public policy to support this end. The prospects for a savior technology are straightforward: either a vaccine or a viable treatment. To avoid infection, individuals can avoid large group gatherings, wash their hands frequently, and wear a mask. All of these responses have a clear cause–effect relationship to a

desired outcome, that is, preventing the spread of the virus. The climate crisis is far less legible at all scales. Climate governance responses often have complex causal chains in which a successful outcome at one scale often depends on conditions at another (Bernstein and Hoffmann 2018). While a number of policy solutions exist—from carbon pricing to voluntary offsetting—the effects of these solutions are often difficult to trace. Consider, for example, the sequence of conditional relationships that links the purchase of a carbon offset for air travel with an actual reduction in carbon emissions. The difficulty of identifying this connection, even for climate experts, illustrates the low legibility of climate governance.

Crisis Characteristics and Governance Responses

These eight crisis characteristics provide a lens through which scholars, activists, and policy makers can compare and contrast crises. However, they also have explanatory and predictive value inasmuch as we can expect crises with high values across multiple characteristics to be associated with faster and farther-reaching governance responses. If one envisions a crisis as falling along a spectrum within each of the eight crisis characteristics, then COVID-19, measured at the starting point of the pandemic from the perspective of a policy maker in the industrialized world, would score higher across all eight categories than the climate crisis measured at the same point in time by the same audience. Thus, COVID-19 invited a swifter and more decisive political response.

Admittedly, there is considerable variation in political responses to both COVID-19 and the climate crisis. Explaining this variation is outside the scope of this article. Our point is that, in general, one can expect stronger and faster responses when crises score higher on these eight characteristics. At the same time, we recognize that these characteristics do not account for all the variation in political responses and that other variables outside this explanatory model should also be taken into account. In this case, the opposition and obstructionism of the fossil fuel lobby play an important role in conditioning political responses to the climate crisis (Colgan et al., forthcoming). One cannot solely attribute this opposition to longer mobilizing time due to low immediacy. Rather, it stems from the fact that certain interest groups profit from the causes of climate change in a way that lacks a parallel in COVID-19.

Crisis characteristics are related to each other such that a change to the value of one crisis characteristic can lead to change in the value of another. Take the relationship between transience and legibility, for example. Climate change, a long slow-moving problem, has given rise to a complex amalgam of overlapping governance systems promoting different actions, or a regime complex, as it has been termed elsewhere (Keohane and Victor 2011). Put more simply, the longer the climate crisis endures, the less legible it becomes. Similar claims can be made for many of the other crisis characteristics, as with visibility and proximity or immediacy and accountability. While the two crises we discuss here present a remarkable contrast across all characteristics, future research should consider

more nuanced cases to explore the interaction effects of different characteristics on political responses.

Implications for the Climate Crisis

COVID-19 and climate change are different varieties of crisis, yet they are interconnected in numerous ways. Warming temperatures and deforestation create increased disease vectors that may lead to the next global pandemic. It is fair to say that addressing the climate crisis may play a key role in avoiding future pandemics. What lessons, then, can we learn from COVID-19 to trigger quicker, farther-reaching, and stronger climate policy? First, much more can be done to highlight the growing immediacy, visibility, proximity, and universality of the climate crisis, making the case of an existential threat to gather more support from policy makers and citizens (Colgan et al., forthcoming). Specific strategies for altering the value of these characteristics include changing frames and visuals in climate communication; launching policy campaigns that have broader constituencies, such as the Green New Deal; and mobilizing young people who are more likely to suffer firsthand the impacts of the climate crisis (Klein 2019; Shields 2019). Indeed, before COVID-19, there were already trends in this direction, as reflected by the Fridays for Future movement. It is crucial to continue this momentum in the post-COVID era as changing demographics and more severe and frequent extreme weather events will continue to increase the value of these crisis characteristics for climate change.

Second, policy makers—inasmuch as they have some agency over crisis responses—should increase the legibility of responses to the climate crisis at all scales. As an example, straightforward pledges to phase out coal by a certain date are far more legible (and arguably more effective) than pledging an abstract number as a nationally determined contribution under the Paris Climate Agreement (Rauner et al. 2020). Another strategy is to emphasize the transient properties of some policy interventions. For example, the “pain” from building clean energy capacity or expanding public transit is temporary, but the benefits will accrue over many years, while the costs of the transition will decrease. Wherever possible, policy makers should look to trigger lock-in effects that prevent future reverses and gradually expand the population supporting relevant changes (Levin et al. 2012). Additionally, policy makers can and should make efforts to protect climate experts from political interference. At a minimum, this means allowing scientists the freedom to disseminate their research to the public without political oversight.

Finally, while the focus of this article is on state responses, one cannot forget the unique features of the climate crisis as a multiscale problem (Bernstein and Hoffmann 2018). The strength of the fossil fuel lobby domestically coupled with numerous weak commitments under the Paris Climate Agreement internationally means that states alone are unlikely to provide a solution. For this reason, scholars, policy makers, and concerned citizens should continue to support action outside the state system through local and regional interventions as well as through transnational networks.

There are a few reasons why nonstate action is necessary. First, crisis characteristics vary in relation to the observer. Thus, nonstate actors may have different values of immediacy, proximity, accountability, or other characteristics and be impelled to take swifter or farther-reaching action than states. Consider the immediacy of the climate crisis for the insurance industry or coastal homeowners, for example. Second, polycentric approaches to climate governance can guard against efforts to discredit or defund any single organization. We have already witnessed such efforts with the Trump administration's move to terminate its relationship with the World Health Organization. Given the challenges of state-led, top-down approaches to crisis governance, more emphasis must be placed on bottom-up efforts from nonstate actors.

Hamish van der Ven is an assistant professor in the School of Environment and the Department of Political Science at McGill University in Montreal, Canada. His research focuses on the role of business and markets in addressing transnational environmental challenges. His work has been published in journals such as *Global Environmental Change, Regulation & Governance*, and *Review of International Political Economy*. He also wrote a book published by Oxford University Press entitled *Beyond Greenwash: Explaining Credibility in Transnational Eco-Labeling*. Learn more about his research at hamishvanderven.com.

Yixian Sun is a lecturer (assistant professor) in international development in the Department of Social and Policy Sciences at the University of Bath. He studies transnational governance, environmental politics, and sustainable development, with a focus on the changing role of China in global sustainability governance. His research has been published in major academic journals, including *Nature Food, Ecological Economics, Global Environmental Politics, Global Food Security*, and the *Review of International Political Economy*. Learn more about his work at yixiansun.com.

References

- Adger, W. Neil, Catherine Butler, and Kate Walker-Springett. 2017. Moral Reasoning in Adaptation to Climate Change. *Environmental Politics* 26 (3): 371–390. DOI: <https://doi.org/10.1080/09644016.2017.1287624>
- Bernstein, Steven, and Matthew Hoffmann. 2018. The Politics of Decarbonization and the Catalytic Impact of Subnational Climate Experiments. *Policy Sciences* 51 (2): 189–211. DOI: <https://doi.org/10.1007/s11077-018-9314-8>, PMID: 31007288, PMID: PMC6445480
- Bjorck, Albena. 2016. Crisis Typologies Revisited: An Interdisciplinary Approach. *Central European Business Review* 5 (3): 25–37. DOI: <https://doi.org/10.18267/j.cebr.156>
- Bordoff, Jason. 2020. Sorry, but the Virus Shows Why There Won't Be Global Action on Climate Change. *Foreign Policy* (blog), March 27. Available at <https://foreignpolicy.com/2020/03/27/coronavirus-pandemic-shows-why-no-global-progress-on-climate-change/>, last accessed November 22, 2020.
- Brulle, Robert J. 2014. Institutionalizing Delay: Foundation Funding and the Creation of U.S. Climate Change Counter-movement Organizations. *Climatic Change* 122 (4): 681–694. DOI: <https://doi.org/10.1007/s10584-013-1018-7>

- Cheng, Cindy, Joan Barceló, Allison Spencer Hartnett, Robert Kubinec, and Luca Messerschmidt. 2020. COVID-19 Government Response Event Dataset (CoronaNet v.1.0). *Nature Human Behaviour*, 4 (7), 756–768. DOI: <https://doi.org/10.1038/s41562-020-0909-7>, PMID: 32576982
- Chinn, Sedona, P. Sol Hart, and Stuart Soroka. 2020. Politicization and Polarization in Climate Change News Content, 1985–2017. *Science Communication* 42 (1): 112–129. DOI: <https://doi.org/10.1177/1075547019900290>
- Colgan, Jeff, Jessica F. Green, and Thomas Hale. Forthcoming. Asset Revaluation and the Existential Politics of Climate Change. *International Organization*.
- Dolsak, Nives, and Aseem Prakash. 2020. Here's Why Coronavirus and Climate Change Are Different Sorts of Policy Problems. *Forbes* (blog), March 15. Available at <https://www.forbes.com/sites/prakashdolsak/2020/03/15/heres-why-coronavirus-and-climate-change-are-different-sorts-of-policy-problems/#391895d39e6f>, last accessed November 22, 2020.
- Dorn, Aaron van, Rebecca E. Cooney, and Miriam L. Sabin. 2020. COVID-19 Exacerbating Inequalities in the US. *The Lancet* 395 (10232): 1243–1244. DOI: [https://doi.org/10.1016/S0140-6736\(20\)30893-X](https://doi.org/10.1016/S0140-6736(20)30893-X)
- Elbe, Stefan. 2011. Pandemics on the Radar Screen: Health Security, Infectious Disease and the Medicalisation of Insecurity. *Political Studies* 59 (4): 848–866. DOI: <https://doi.org/10.1111/j.1467-9248.2011.00921.x>
- Galbraith, Eric, and Ross Otto. 2020. Why We're Seeing a Unified Global Response to Coronavirus but Not Climate Change. *The Narwhal* (blog), March 20. Available at <https://thenarwhal.ca/why-were-seeing-a-unified-global-response-to-coronavirus-but-not-climate-change/>, last accessed November 22, 2020.
- Guterres, António. 2018. Secretary-General's Remarks on Climate Change [as Delivered]. United Nations Secretary-General, September 10. Available at <https://www.un.org/sg/en/content/sg/statement/2018-09-10/secretary-generals-remarks-climate-change-delivered>, last accessed November 22, 2020.
- Hale, Thomas, Sam Webster, Anna Petherick, Toby Phillips, and Beatriz Kira. 2020. Oxford COVID-19 Government Response Tracker. Blavatnik School of Government. Data use policy: Creative Commons Attribution CC BY standard.
- Karlsson, Christer, Charles Parker, Mattias Hjerpe, and Bjorn-Ola Linner. 2011. Looking for Leaders: Perceptions of Climate Change Leadership Among Climate Change Negotiation Participants. *Global Environmental Politics* 11 (1): 89–107. DOI: https://doi.org/10.1162/GLEP_a_00044
- Keohane, Robert O., and David G. Victor. 2011. The Regime Complex for Climate Change. *Perspectives on Politics* 9 (1): 7–23. DOI: <https://doi.org/10.1017/S1537592710004068>
- Kim, So Young, and Yael Wolinsky-Nahmias. 2014. Cross-National Public Opinion on Climate Change: The Effects of Affluence and Vulnerability. *Global Environmental Politics* 14 (1): 79–106. DOI: https://doi.org/10.1162/GLEP_a_00215
- Klein, Naomi. 2019. *On Fire: The Burning Case for a Green New Deal*. Toronto, ON: Knopf.
- Leão, Luciana de Souza, and Eyal Gil. 2019. The Rise of Randomized Controlled Trials (RCTs) in International Development in Historical Perspective. *Theory and Society* 48 (3): 383–418. DOI: <https://doi.org/10.1007/s11186-019-09352-6>
- Levin, Kelly, Benjamin Cashore, Steven Bernstein, and Graeme Auld. 2012. Overcoming the Tragedy of Super Wicked Problems: Constraining Our Future Selves to Ameliorate Global Climate Change. *Policy Sciences* 45 (2): 123–152. DOI: <https://doi.org/10.1007/s11077-012-9151-0>

- Lovbrand, Eva. 2009. Revisiting the Politics of Expertise in Light of the Kyoto Negotiations on Land Use Change and Forestry. *Forest Policy and Economics* 11 (5–6): 404–412. DOI: <https://doi.org/10.1016/j.forpol.2008.08.007>
- McKay, Deirdre, and Padmapani Perez. 2019. Citizen Aid, Social Media and Brokerage After Disaster. *Third World Quarterly* 40 (10): 1903–1920. DOI: <https://doi.org/10.1080/01436597.2019.1634470>
- Norgaard, Kari Marie. 2011. *Living in Denial: Climate Change, Emotions, and Everyday Life*. Cambridge, MA: MIT Press. DOI: <https://doi.org/10.7551/mitpress/9780262015448.001.0001>
- Oppenheimer, Michael. 2015. Adapting to Climate Change: Rising Sea Levels, Limiting Risks. *Social Research* 82 (3): 673–680.
- Rauner, Sebastian, Nico Bauer, Alois Dirnacher, Rita Van Dingenen, Chris Mutel, and Gunnar Luderer. 2020. Coal-Exit Health and Environmental Damage Reductions Outweigh Economic Impacts. *Nature Climate Change* 10 (4): 308–312. DOI: <https://doi.org/10.1038/s41558-020-0728-x>
- Rickard, Laura N., Z. Janet Yang, and Jonathon P. Schuldt. 2016. Here and Now, There and Then: How “Departure Dates” Influence Climate Change Engagement. *Global Environmental Change* 38 (May): 97–107. DOI: <https://doi.org/10.1016/j.gloenvcha.2016.03.003>
- Roberts, J. Timmons, and Bradley C. Parks. 2007. *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy*. Cambridge, MA: MIT Press.
- Rosenbloom, Daniel, and Jochen Markard. 2020. A COVID-19 Recovery for Climate. *Science* 368 (6490): 447. DOI: <https://doi.org/10.1126/science.abc4887>, PMID: 32355005
- Schroth, Olaf, Jeannette Angel, Stephen Sheppard, and Aleksandra Dulic. 2014. Visual Climate Change Communication: From Iconography to Locally Framed 3D Visualization. *Environmental Communication* 8 (4): 413–432. DOI: <https://doi.org/10.1080/17524032.2014.906478>
- Scott, James C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.
- Shields, Fiona. 2019. Why We’re Rethinking the Images We Use for Our Climate Journalism. *The Guardian*, October 18, sec. Environment. Available at <https://www.theguardian.com/environment/2019/oct/18/guardian-climate-pledge-2019-images-pictures-guidelines>, last accessed November 22, 2020.
- Tvinnereim, Endre, Ole Martin Læg Reid, Xiaozhi Liu, Daigee Shaw, Christopher Borick, and Erick Lachapelle. 2020. Climate Change Risk Perceptions and the Problem of Scale: Evidence from Cross-National Survey Experiments. *Environmental Politics* 29 (7): 1–21. DOI: <https://doi.org/10.1080/09644016.2019.1708538>
- Wang, Susie, Adam Corner, Daniel Chapman, and Ezra Markowitz. 2018. Public Engagement with Climate Imagery in a Changing Digital Landscape. *WIREs Climate Change* 9 (2): e509. DOI: <https://doi.org/10.1002/wcc.509>
- Walker, Lee Demetrius, and Richard W. Waterman. 2008. Elections as Focusing Events: Explaining Attitudes Toward the Police and the Government in Comparative Perspective. *Law & Society Review* 42 (2): 337–366. DOI: <https://doi.org/10.1111/j.1540-5893.2008.00344.x>