Abstract

Are green beliefs affected by experiencing a climate disaster? Prior research examines many factors that could influence public opinion on climate change and other green opinions such as trust in science, political ideology, media framing, risk perception, and personal vulnerability. With this research, I argue that experience with a climate disaster leads to a rise in perceived vulnerability, which shapes belief in climate change, where partisanship serves as a moderator for forming green opinions. The analysis was conducted using data collected from a 2025 survey where participants were asked about their opinions on a range of green opinions. The results show that belief in climate change is highest for all partisan groups after experiencing a climate disaster, but the amount that belief increases by varies differently for each group. Also, it shows that groups who believe in one or more green opinions have higher belief in other more extreme green opinions. Regardless of partisanship, these findings show that experiencing a climate disaster shapes belief in the existence of anthropogenic climate change, and the development of green opinions. Ultimately, as climate disasters become more frequent, more people will begin to believe in the existence of anthropogenic climate change and trust climate scientists.

Introduction

Hurricane Helene, one of the deadliest US storms of the 21st century, had severe impacts in Western North Carolina. Thousands of homes were destroyed, and tens of thousands of homes were damaged. $59.6 billion damage was accumulated as a result, and over 100 people lost their lives from this disaster (Cooper, 2024). While hurricanes themselves are not a new problem, hurricanes are becoming increasingly devastating (Lespier, et al., 2025). In particular, North

Carolina suffered so heavily from Helene because the people were not prepared to handle the magnitude of this storm. One explanation attributes increased frequency and intensity of climate disasters, such as hurricanes, to climate change (Vinod, 2017).

To answer this question, it needs to be understood that climate change is indeed occurring. According to NASA scientists, the evidence for climate change is undeniable. Since the 19th century, the planet's surface temperature has risen 2 degrees Fahrenheit. This growth has occurred mostly in the past 40 years at an unprecedented rate of warming that is 10 times faster than ever before. As a result, extreme events are in fact increasing in frequency including climate disasters such as droughts, wildfires, increased rainfall events, record high temperatures and notably hurricanes (NASA, 2024).

After these climate-related disasters occur, people are left to pick up the pieces and decide how to move forward in relief efforts. People also must think about how these problems can be addressed to prevent devastation from happening again. People look for the root causes, and some are led to believe in the connection between climate change and increased climate disasters (Sloggy et al., 2021). I also argue that increasingly green opinions are also created following climate disasters. I define green opinions as a range of public opinions regarding anthropogenic climate change including the following; belief in the existence of anthropogenic climate change, belief that anthropogenic climate change is a serious concern for the United States, and belief that action needs to be taken by the government to regulate emissions.

This raises the question as to how the formation of green opinions is affected by closeness to climate disasters. What is it that leads some people to believe in anthropogenic climate change after experiencing climate disasters while others continue to deny it? Why do some people develop more green opinions than others following climate disasters?

This paper focuses on how experiencing a climate disaster influences belief in the existence of anthropogenic climate change and other green opinions. I begin by reviewing the literature to assess what we know about public opinions on climate change. Next, I propose a theory that green opinions are more likely to be created as a result of increased closeness to climate disasters. I propose a mechanism by which green opinions are influenced by proximity to disasters, mediated by the belief that one is personally vulnerable and moderated by media diet.. Then, I follow this section with a review of the methods I used to test this theory. I present the results I found and how they relate to my theory. Finally, I conclude my paper with a discussion of the importance of green opinions.

Studying Public Opinion on Climate Change

It is important to differentiate naturally occurring climate change from anthropogenic climate change. Anthropogenic climate change is the rising of global temperatures due to human activities that increase greenhouse gas emissions in the atmosphere. In the current environment, few people truly dispute that climate change is occurring; however, roughly 17% of people are skeptical of or entirely deny the existence of climate change caused by human activity (Stanford, 2024). In climate change research, 99% of studies on the source of climate change agreed on human causes. (Lynas et al., 2021). If scientists can reach nearly a full consensus on the linkage between human activities and climate change, then why do only 83% of people believe in it? (Stanford, 2024). Are factors such as closeness to climate disasters part of the answer to this puzzle?

There is a large body of research that discusses the influence of climate change on public opinion (Drews & van den Bergh, 2015). Many factors influence belief in climate change and support for ameliorative action. Some studies focus on trust in scientists (Lubell et al. 2007,

Malka et al. 2009; Marquatt-Pyat et al., 2011) while others focus on the influence of political ideology and media framing on climate change belief (Leiserowitz, 2006; McCright, 2008; Park & Vedlitz, 2013; Zhao et al., 2011; Brulle et al., 2012; Hornsey et al., 2016; Merry, 2024). Other studies focus on the influence of weather and climate events on public opinion (Marquatt-Pyat et al., 2011; Owen et al., 2012; Park & Vedlitz, 2013; Howe et al., 2019; Sloggy et al., 2021; Marlon et al., 2022) while others study the influence of risk perception and personal vulnerability (Lorenzoni & Pidgeon, 2006; Marlon et al., 2022; DeBono, Vincenti, & Calleja, 2012; McCright, 2008; Zahran, Brody, Grover, & Vedlitz, 2006). These factors provide a different framework for how public opinion on climate is influenced and are grouped into categories below.

Denial, Trust, and Political Bias

Some scholars found that trust in scientists and climate policy elites is an important factor in influencing climate change belief (Lubell et al. 2007, Malka et al. 2009). Alternatively, there is disagreement as to whether there is enough evidence to prove trust in scientists has a role in influencing climate change belief. Despite an increase in the public's trust of scientists over time, there was not an increase in the public's belief of climate change (Marquatt-Pyat et al., 2011). However, there is disagreement as to whether trust in scientists has really increased over time because of the occurrence of a modest rise in skepticism of climate change (Rabe & Borick, 2010; Marquatt-Pyat et al., 2011).

Concurrently, other studies have focused on alternative factors influencing belief in climate change, including media coverage (Brulle et al., 2012; Merry, 2024), partisanship (Marquatt-Pyat et al., 2011; Hornsey et al., 2016; Merry, 2024), and political ideology (Leiserowitz, 2006; McCright, 2008; Park & Vedlitz, 2013; Zhao et al., 2011). On the literature concerning media perception and public belief in climate change, there is a debate among

scholars as to whether there is a direct relationship between climate change belief and the media. Studies focusing on the role of the media often find little to no effect of news preferences on belief in climate change (Brulle, 2012), though others point to the important role news exposure plays in both concern and self-efficacy (Merry, 2024). There is a larger consensus among scholars that politics is a factor that influences green opinions; however, there is no one singular consensus as to how the mechanism for this works. One line of theory is that partisanship acts as a moderator between exposure and climate belief (Merry, 2024).

As for political ideology, it is generally agreed that Democratic party affiliation and left-wing political orientation are strongly associated with more policy support (Leiserowitz, 2006; McCright, 2008; Park & Vedlitz, 2013; Zhao et al., 2011). However, global warming ranks lower on the list of priorities for regulatory measures than other environmental problems regardless of political orientation (Saad & Jones 2016). As of 2024, the public's view changed on the importance of addressing global warming as they demanded more governmental climate action, despite new-right political parties receiving more votes (Bouman et al., 2024). This suggests that people might be more concerned about climate change now as an issue than in 2016. The reasoning behind this rise in concern needs to be explored more. Bouman's study presents an alternative theory that politics or partisanship might not moderate climate belief like previously believed. Studying partisanship or political affiliation as a moderator is an avenue that can be further developed in the literature.

Weather, Climate Events, Risk, and Personal Vulnerability

There have been some studies focusing primarily on how weather and climate events shape public opinion on climate change belief. Multiple scholars claim that belief in climate change is influenced by either fluctuations in weather (Marquatt-Pyat et al., 2011) and/or by

climate events (Owen et al., 2012; Sloggy et al., 2021). However, some scholars disagree with this idea and find weak or little evidence supporting a relationship between weather and climate and public opinion (Park & Vedlitz, 2013; Howe et al., 2019; Marlon et al., 2022).

Another avenue of study is proximity or distance with climate change and its influence on public belief. Many studies reported that perceived harm and overall concern for personal risk is a significant factor in shaping public belief in climate change (DeBono et al., 2012; McCright, 2008; 1999; Zahran et al., 2006). People in the US as well as in Europe tend to care about climate change more when it relates to their own personal experience, trust, and knowledge (Lorenzoni & Pidgeon, 2006). Due to global warming increasing, there is a rise in perceived harm for individuals in every state. However, policy support for addressing climate change only increased in New York and California. (Marlon et al., 2022). Why do people outside NY and CA believe in climate change but not want climate policies to be implemented? The factors that allow an individual to not support climate change policies, but to believe in climate change need to be further studied. There are some studies that research about policy beliefs, but the formation of green opinions is an avenue of research that seems relatively underdeveloped in the literature.

Theory

The literature on climate change public opinion finds that public opinions on climate change differ greatly in levels of belief in climate change and how to address it. I develop a theory here that people's formation of these distinct green opinions is determined by their perceived vulnerability and their consumption of media. Following a climate disaster, increased perceived vulnerability mobilizes people to be concerned. The media they consume will determine whether they change their underlying opinions, but the type of media they consume is

dependent on their partisanship. First-hand experience with a climate disaster should lead to greener beliefs, but only for those individuals who do not consume conservative media.

Perceived Vulnerability

Depending on where an individual lives, they may be more exposed to frequent or more severe climate disasters. Geography determines the likelihood that someone will experience a climate disaster. Being in close proximity to a climate disaster means that a person is more likely to experience a climate disaster's effects firsthand. The threat of firsthand experiences with climate change impacts a person's perception of the legitimacy of climate change through their perceived vulnerability to the effects of climate change. As a person witnesses a disaster, they watch those around them, their friends and neighbors suffer from loss of property, livelihood, or of a loved one. This in turn increases their perceived vulnerability because they realize that they could experience these events rather than just hear about them, and that they could suffer real consequences because of them. They realize that this could potentially happen to them, and that they too can lose important things. They fear for their future and wonder what the next climate disaster could mean for them. This potential loss gives them a personal stake in wanting to prevent climate disasters from happening again.

Perceived vulnerability alone does not always lead people to believe in anthropogenic climate change, however. What drives people to mobilize their perceived vulnerability to associating a linkage between human activity and climate change is their partisanship. Partisanship influences many lifestyle choices including the media that an individual consumes (Stanford Report, 2024). A highly partisan person typically reinforces their party's beliefs by consuming media that confirms their biases and avoids consuming those outside sources that challenge their preexisting beliefs (Van der Meer, et al., 2020). Someone who is not as partisan

may consume media that is outside their beliefs because they are not as loyal to their party as a highly partisan person. Overall, the degree of someone's partisanship influences the media they consume.

The significance of the media someone consume lies within the differences of political framing of an issue. News channels such as Fox News, which typically appeal towards conservative audiences, often frame the increased intensity of climate related disasters as not being related to climate change (Fisher, 2025). They typically either deny the existence of anthropogenic climate change altogether, or they acknowledge its existence, but are not urgently concerned with mitigating the issue. This means that conservative media often denies any such linkage between increasing climate disasters and anthropogenic climate change.

On the other side, news channels like MSNBC or CNN tend to appeal to more liberal audiences. They will often frame the issue of climate disasters as being a direct result of climate change and often suggest that mitigation of the issue is urgently needed. A person with strong partisanship to the left will likely choose to watch or read liberal news stations that convince them to believe in the existence of anthropogenic climate change and other more green opinions. Alternatively, a person with weak partisanship might watch a mixture, none, or some random combination of news sites, and consequently develop a variety of opinions of climate change legitimacy or they won't develop strong opinions at all. A person with strong partisanship to the right will likely choose to watch or read conservative news stations that often dispute the connection of the rise of climate disasters and anthropogenic climate change which leads them to deny the existence and urgency of anthropogenic climate change. Therefore, I hypothesize the following:

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H1. As a person's closeness to climate disasters increases, their perceived vulnerability will increase.

H2. If a person with increased perceived vulnerability does not consume conservative media, then they will be more likely to believe in the existence of anthropogenic climate change.

Belief in Climate Change and Support for Ameliorative Action

After experiencing a disaster firsthand, one outcome is developing belief in the legitimacy of anthropogenic climate change. However, other green opinions can form following this belief as well. If someone believes in the existence of climate change then they will have to decide whether they think that the issue is a serious concern. Belief that emissions need to be reduced will logically follow concern for the seriousness of this issue because if they believe that it is serious then, they will likely have an opinion about how to address the issue. Belief in climate change is a necessary precondition for believing in its seriousness and wanting to do something about it. Having an opinion about how to reduce emissions will follow the development of this opinion because emissions are the perceived cause of anthropogenic climate change that needs to be addressed. A smaller number of people will want government intervention to reduce emissions whereas others will not; however, they must believe in emissions reduction first to come to this belief. This leads to our second set of hypotheses:

H3. As a person becomes more likely to believe in the existence of anthropogenic climate change, they will become more likely to believe in the seriousness of the issue.

H4. As a person becomes more likely to believe in the seriousness of the issue, they will become more likely to believe in reducing emissions through government regulation.

Research Design

To test these hypotheses, I use data collected from the 2025 University of Mary Washington Political Science Omnibus Survey. This survey measured three main outcomes including green opinions such as belief in anthropogenic climate change, belief that climate change is serious, and belief that the government should address climate change by regulating greenhouse gas emissions. First, I examine whether experiencing a climate disaster leads to greater belief in climate change. To measure experience, I rely on the survey item "Climate disasters are naturally occurring extreme weather events such as hurricanes, floods, excessive rainfall, wildfires and droughts. Within the last year, what has been your experience with a climate disaster?" coded experience (1), and no experience (0). I asked this question specifically because experience with a climate disaster should be subjective to the individual, because it is an individual's perceived vulnerability that is moderating the relationship not an individual's actual vulnerability.

For measuring belief in climate change, I rely on the survey item "Assuming it is happening, do you think that the increase in the world's temperature over the past 100 years was caused mostly by things people did, mostly by natural causes, or about equally by things people did and by natural causes?" coded as belief (1) and no belief (0). I coded both the "things people did" and the "about equally by things people did and by natural causes" as belief because they both acknowledge the existence of anthropogenic climate change whereas those who believe in only "mostly natural causes" do not acknowledge that they believe that climate change is being caused by human activity.

The second outcome I examine is how serious the public perceives global warming to be with varying levels of belief in anthropogenic climate change. To measure the belief in seriousness, I rely on the survey item "If nothing is done to reduce global warming in the future, how serious of a problem do you think it will be for the United States? Very serious, somewhat serious, not so serious, or not serious at all?" coded as serious (1) and not serious (0). I grouped "very serious" and "somewhat serious" together and "not so serious" and "not serious at all" together because they share the same general attitudes about the seriousness of climate change. I used the same belief variable coded earlier.

The third outcome I examine is the belief that the US government needs to regulate greenhouse gas emissions. I examine this as a function of seriousness to compare the beliefs of those who believed in the seriousness of global warming with those who didn't on government regulation, also sorted by partisanship. To measure government regulation, I rely on the survey item "As you may have heard, greenhouse gases are thought to cause global warming. In your opinion, do you think the federal government should or should not limit the amount of greenhouse gases that US businesses put out?" coded as gov'treg (1) and no gov'treg (0). I used the same seriousness variable I coded earlier. Then, I examine if partisanship moderates these three relationships. To measure partisanship, I asked participants to place themselves on a 7-point party ID scale that I rescaled into a 3-point scale coded Democrat (1), Independent (2), and Republican (3). I grouped the strong partisan, not strong partisan, and lean Independents together for both parties. Then, I used the Stata app to analyze this data and to formulate crosstabs for each relationship. From those crosstabs, I also ran linear regressions to determine the significance of each partisan group within each outcome.

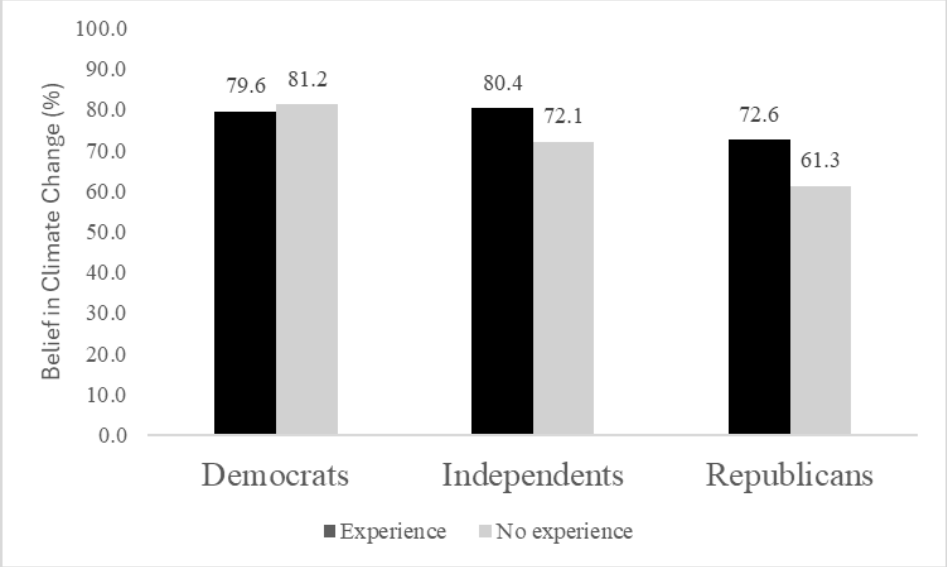
Results

The relationship between experience with a climate disaster and belief in climate change is depicted in Figure 1. For Democrats, belief in climate change is higher among individuals who have not experienced a climate disaster compared to those who have experienced a climate disaster. With a large sample of roughly just over 400 participants (N=415), the difference between 79% to 81% is not a big gap. This gap is not substantive enough to suggest a relationship, likely because of a potential belief ceiling. It is harder to increase beyond 79% to 80% belief than it is to increase at increase beyond 60% to 70% belief because 79% is already such a high level of belief. Both those who experienced a climate disaster and those who have not having high belief in climate change can be explained by Democrats being mostly affirmed of their beliefs in climate change to begin with. Democrat's beliefs on climate change not significantly changing after experiencing a climate disaster supports my first hypothesis because these Democrats aligned with their parties' views on climate change regardless of their experience with a climate disaster.

When testing Independents, the sample size was a lot smaller than the Democrats (N=137). There was a positive trend in belief in climate change among people who experienced a climate disaster compared to those who did not, with an increase from 72% to 80% following experience with a climate disaster ($p>0.05$). The gap in belief of climate change between the two Independent groups was relatively larger than the gap for the Democrats. However, the small sample size for this group makes it difficult to determine if the difference is substantive enough to warrant a relationship. If this study were to be replicated with a larger sample size, then possibly this relationship could be explored more, and could be important to determining the significance of climate disasters in forming beliefs independent of preconceived political biases.

When testing Republicans, there was a larger sample size (N=404). There is a relatively large gap in belief between those who have experienced a climate disaster and those who have not ($p<0.05$). The difference between the two groups increases from 61% to 72% for those who experienced a climate disaster, indicating a positive relationship between belief and experience. This difference is substantive enough to suggest that more Republicans believe in climate change after experiencing a climate disaster because a 10% increase is a large amount to increase in the context of green opinions. The reason for this could be increased perceived vulnerability, or it could maybe mean that Republicans are not as affirmed in their beliefs about climate change as Democrats and are more malleable individuals. These findings do not align with my first hypothesis as Republican partisanship does not inherently prohibit formation of belief in climate change after a disaster. Democrats had 79% belief in climate change which is still higher than Conservatives 72%; however, I was surprised to see that Republicans are not that far behind in belief. This challenges my first hypothesis as Republicans may still form a link between climate change and climate disasters after a personal experience, in despite of their political affiliations and biases.

Figure 1: Belief in Climate Change vs Experience of a Climate Disaster by Partisanship



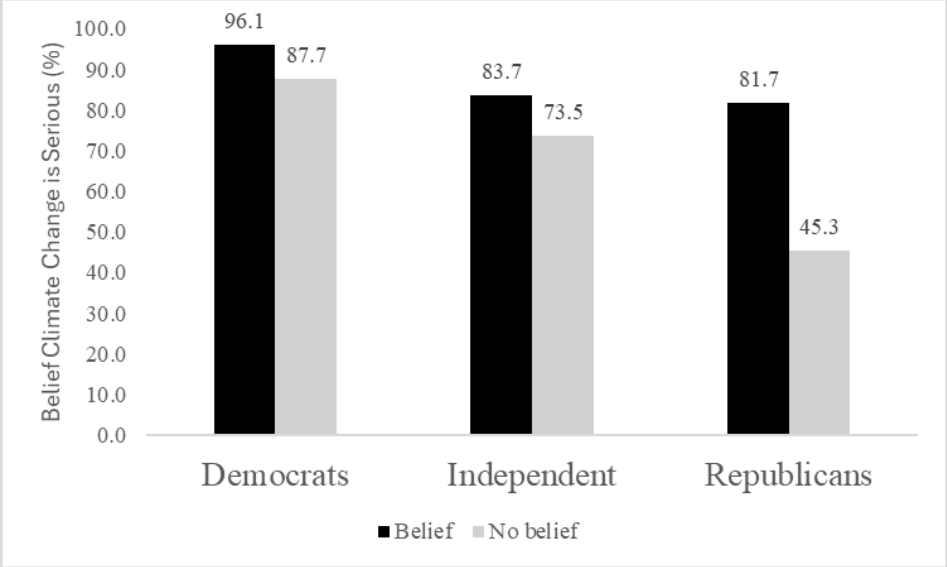
When examining other green opinions, I surveyed how belief in climate change influenced belief in seriousness of climate change. Also, I sorted this by partisanship to see how the results compare among the Democrats, Independents, and Republicans (refer to Figure 2). There is a positive relationship for Democrats between those who believe in climate change and those who believe that climate change is serious ($p<0.05$). This means that more Democrats believe that climate change is serious when they initially believe in climate change. The difference between 87% belief and 96% belief is substantive enough to suggest that this relationship exists because that is a steep increase in belief at already high levels (N=418). In the context of public opinion, a 10% increase in belief is substantively significant.

For Independents, there is a relatively large gap in belief of seriousness between individuals who believe in climate change and those who do not. There is an increase in belief of

seriousness from 75.53% to 83.65% after belief in climate change ($p>0.05$). Although, this sample size once again is too small to really show a substantive increase in belief among Independents (N=138). This makes it hard to determine if being a nonpartisan moderates the relationship between climate change belief and belief in the seriousness of the problem.

For Republicans, there is a very large gap between believers in climate change and non-believers in belief of seriousness ($p<0.05$). Non-believers of climate change believed in the seriousness of climate change 45% of the time compared to 81% of the time for believers of climate change (N=408). This is over a 35% increase in the percentage of people who believe in climate change which is very substantive in terms of belief in a green opinion. Not only do over 50% of people believe in seriousness, but also over 80% of people believe in seriousness who believe in climate change. This positive relationship is consistent with my second hypothesis about green opinions as green opinions rose from those who already believed in climate change. This aligns with my theory's logic that people who believe that climate change is real are more likely to believe in its seriousness.

Figure 2: Belief in Climate Change vs Belief in Seriousness of Climate Change by Partisanship

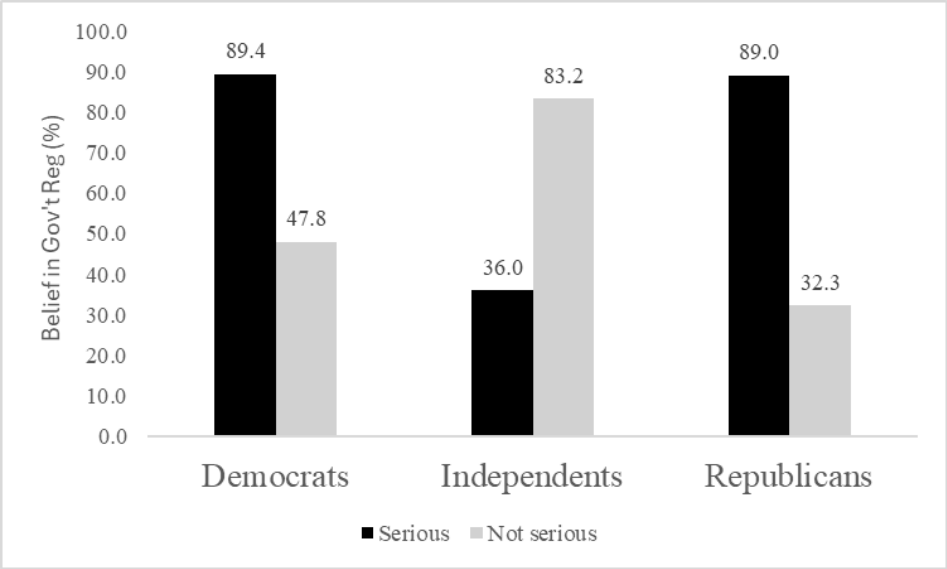


The last green opinion I examine is the influence of belief in seriousness of climate change on belief in government regulations of greenhouse gas emissions (aka GHGs). This is also sorted by partisanship to see how partisanship moderates this relationship (Figure 3). There is a very large gap in belief of government regulation of GHGs between Democrats who believe that climate change is serious and those who do not believe that it is serious (N=418). There is over a 40% increase in belief of government regulation ($p<0.05$), and that difference is very substantive in the context of belief in government regulation. Opinions on government regulation tend to be very strong and static for people who are partisan, so for belief to increase this much for Democrats means the effect of changing the belief in seriousness is very substantively significant. This supports my fourth hypothesis because people who believe climate change is serious have a higher percentage of people who believe in government regulations on GHGs than people who believe climate change is not serious.

The effect of varying belief in seriousness of climate change for Independents is also very apparent; however, the relationship seems to follow a negative trend rather than a positive one. There is a large gap between those who believe that climate change is serious and those who believe it is not serious in belief on government regulation on GHGs, which is roughly a 47% difference. There is a higher percentage of Independents who believe that climate change is not serious who believe in government regulations on GHGS than those who believe it is serious. That directly contradicts my fourth hypothesis, as I previously theorized that belief in seriousness would increase belief in government regulations. However, this sample size for Independents is still very small, which limits the accuracy of the sample (N=138).

Republicans have the opposite relationship when varying beliefs in seriousness as 89% of believers in the seriousness of climate change believe in government regulation of GHGs whereas 32% of non-believers in the seriousness of climate change believe in government regulations of GHGs (N=406). This large gap in belief ($p<0.05$) is very substantive as Republicans are also very typically set in their opinions on government regulation. For belief in government regulation to increase by over 50% for Republicans means that the effect of varying seriousness is very significant. This relationship supports my fourth hypothesis as believing in seriousness did increase the Republican's beliefs on desiring government regulation.

Figure 3: Belief in Seriousness of Climate Change vs Belief in Gov't Regulations of GHGs



Conclusion

After experiencing a climate disaster, there was a higher percentage of Republicans who believed in anthropogenic climate change; however, Democrats did not differ significantly in their beliefs of climate change after experiencing a climate disaster. This is because belief for Democrats was high to begin with. This supports my theory that Democrats have a higher percentage of belief in climate change than Republicans despite the lack of a significant difference for Democrats after experiencing a disaster. This study also shows that Republicans are amenable to changing their beliefs after a disaster which contradicts the idea that being partisan to the right discourages conservatives from forming belief in anthropogenic climate change. Belief in the seriousness of climate change rises with belief in climate change for both Democrats and Republicans which supports my second hypothesis. Belief in government regulations of GHGs is higher for people who believe that climate change is serious than for

people who believe that it is not serious for both Democrats and Republicans which supports my third hypothesis.

In the context of the literature, this study conforms to prior studies that suggest that Democrats have higher support for climate change policies. This study adds that Democrats have more support for government regulations on greenhouse gases. This study explores one possible mechanism for the influence of politics on green opinions where the literature lacks a consensus on the effect of political factors. More green opinions could be explored in the literature, but this study begins to examine if partisanship moderates the development of green opinions. The green opinions this study focuses on examining are belief in anthropogenic climate change, the seriousness of climate change, and government regulation of GHGs. Additionally, this study conforms with the prior literature in that people do change their belief on the existence of anthropogenic climate change after having personal experience with a climate disaster.

This study could be improved if given more time to explore other confounding factors as well as being able to examine the moderators of the causal mechanism more extensively. Increased perceived vulnerability was surveyed; however, I did not test perceived vulnerabilities effect on belief in climate change and instead relied on the effect of an individual's perception of experiencing a climate disaster to test changes in belief of climate change. It would be more comprehensive to support my hypothesis if both perceived vulnerability and experience with a climate disaster's effect were analyzed. How partisanship influences media consumption needs to be examined in greater depth as well to test the mechanism of the theory. Also, if the survey I collected data from had a larger sample of people including more Independents, then the results would be more accurate and useful to assess the validity of my hypothesis.

The development of green opinions is crucial to garnishing support for climate policies in America. Only through these policies will our nation be able to address the threat of climate change, and its looming effects such as climate disasters. By acknowledging increasing climate disasters as an effect of climate change, both federal and state governments will be pressured to prepare and improve relief and mitigation efforts after these disasters. This will save countless lives and infrastructure. In the future, scholars can examine more about other moderators that lead Republicans and Independents to develop belief in green opinions. They can also examine what factors drive individuals to support certain green policies but oppose others.

Works Cited

Attari, S. Z., Schoen, M., Davidson, C. I., DeKay, M. L., Bruine de Bruin, W., Dawes, R., & Small, M. J. (2009). Preferences for change: Do individuals prefer voluntary actions, soft regulations, or hard regulations to decrease fossil fuel consumption? *Ecological Economics*, 68, 1701 –1710. http://dx.doi.org/10.1016/j.ecolecon.2008.10.007

Bouman, T., Steg, L., & Dietz, T. (2024). The public demands more climate action, not less: Rising political climate opposition does not reflect public opinion. *Climatic Change*, *177*(11), Article 167. https://doi.org/10.1007/s10584-024-03832-0

Brulle, R. J., Carmichael, J., & Jenkins, J. C. (2012). Shifting public opinion on climate change: an empirical assessment of factors influencing concern over climate change in the U.S., 2002–2010. *Climatic Change*, *114*(2), 169–188. https://doi.org/10.1007/s10584-012-0403-y

Cooper, R. (2024). *Hurricane Helene Recovery: Revised Damage and Needs Assessment*. North Carolina Office of State Budget and Management. https://www.osbm.nc.gov/hurricane-helene-dna/open#:~:text=Hurricane%20Helene%20has%20left%20significant,of%20Hurricane%20Florence%20in%202018.

DeBono, R., Vincenti, K., & Calleja, N. (2012). Risk communication: climate change as a human-health threat, a survey of public perceptions in Malta. *European Journal of Public Health*, *22*(1), 144–149. https://doi.org/10.1093/eurpub/ckq181

Drews, S., & van den Bergh, J. C. J. M. (2015). What explains public support for climate policies? A review of empirical and experimental studies. *Climate Policy*, *16*(7), 855–876. https://doi.org/10.1080/14693062.2015.1058240

Egan, P. J., & Mullin, M. (2017) Climate Change: US Public Opinion. *Annual Review of Political Science*, 20:209-227. https://doi.org/10.1146/annurev-polisci-051215-022857

Fisher, A. (2025, August 28). From Katrina to Helene: A timeline of Fox News' hurricane

misinformation, harmful narratives, and climate denial. *Media Matters*. https://www.mediamatters.org/hurricanes/katrina-helene-timeline-fox-news- hurricane-misinformation-harmful-narratives-and-climate

Hornsey, M. J., Harris, E. A., Bain, P. G., & Fielding, K. S. (2016). Meta-analyses of the determinants and outcomes of belief in climate change. *Nature Climate Change*, *6*(6), 622–626. https://doi.org/10.1038/nclimate2943

Howe, P. D., Marlon, J. R., Mildenberger, M., & Shield, B. S. (2019). How will climate change shape climate opinion? *Environmental Research Letters*, *14*(11), 113001. https://doi.org/10.1088/17489326/ab466a

Leiserowitz, A. (2006). Climate Change Risk Perception and Policy Preferences: The Role of Affect, Imagery, and Values. *Climatic Change*, *77*(1–2), 45–72. https://doi.org/10.1007/s10584-006-9059-9

Lespier, D., Gibson, K., and Kelly, C. (2025, June 9). *Climate Change-Fueled Hurricanes Are Increasingly Destructive and Costly for U.S. Communities*. CAP. https://www.americanprogress.org/article/climate-change-fueled-hurricanes-are-increasingly-destructive-and-costly-for-u-s-communities/

Lorenzoni, I., & Pidgeon, N. F. (2006). Public Views on Climate Change: European and USA Perspectives. *Climatic Change*, *77*(1–2), 73–95. https://doi.org/10.1007/s10584-006-9072-z

Lubell, M., Sammy Zahran, & Vedlitz, A. (2007). Collective Action and Citizen Responses to Global Warming. *Political Behavior*, *29*(3), 391–413. https://doi.org/10.1007/s11109-006-9025-2

Malka, A., Krosnick, J. A., & Langer, G. (2009). Association of Knowledge with Concern About Global Warming: Trusted Information Sources Shape Public Thinking. *Risk Analysis*, *29*(5), 633–647. https://doi.org/10.1111/j.1539-6924.2009.01220.x

Marlon, J. R., Wang, X., Bergquist, P., Howe, P. D., Leiserowitz, A., Maibach, E., Mildenberger, M., &

Rosenthal, S. (2022). Change in US state-level public opinion about climate change: 2008–2020. *Environmental Research Letters*, *17*(12), 124046. https://doi.org/10.1088/1748-9326/aca702

Marquart-Pyatt, S. T., Shwom, R. L., Dietz, T., Dunlap, R. E., Kaplowitz, S. A., McCright, A. M., & Zahran, S. (2011). Understanding Public Opinion on Climate Change: A Call for Research. *Environment : Science and Policy for Sustainable Development*, *53*(4), 38–42. https://doi.org/10.1080/00139157.2011.588555

McCright, A. M. (2008). Social bases of climate change knowledge, concern, and policy support in the U.S. general public. *Hofstra Law Review* 37(4), 1017 –1046.

Merry, M. K. (2024). Climate change news coverage, partisanship, and public opinion. *Climatic Change*, *177*(12), Article 171. https://doi.org/10.1007/s10584-024-03831-1

NASA. (2024, October 23). *Evidence*. https://science.nasa.gov/climate-change/evidence/

Owen, A. L., Conover, E., Videras, J., & Wu, S. (2012). Heat waves, droughts, and preferences for environmental policy. *Journal of Policy Analysis and Management*, 31, 556 –577. doi:10.1002/pam.21599

Park, H. S., & Vedlitz, A. (2013). Climate hazards and risk status: Explaining climate risk assessment, behavior, and policy support. *Sociological Spectrum*, 33, 219 –239. https://doi:10.1080/02732173.2013.732900

Rabe, B. G., & Borick, C. P. (2010). The Climate of Belief: American Public Opinion on Climate Change. *Issues in Governance Studies*. Retrieved October 20, 2025, from https://icsusa.org/wp-content/uploads/icsusamedia/documents/2010/2010%20The%20Climate%20of%20Belief%20American%20Public%20Opinion%20on%20Climate%20Change.pdf

Saad L, Jones JM. 2016. *U.S. concern about global warming at eight-year high*. Washington, DC: Gallup. http://www.gallup.com/poll/190010/concern-global-warming-eight-year-high.aspx

Shwom, R., Bidwell, D., Dan, A., & Dietz, T. (2010). Understanding U.S. public support for domestic climate

change policies. *Global Environmental Change,* 20, 472 –482. http://dx.doi.org/10.1016/j.gloenvcha.2010.02.003

Sloggy, M. R., Suter, J. F., Rad, M. R., Manning, D. T., & Goemans, C. (2021). Changing opinions on a changing climate: the effects of natural disasters on public perceptions of climate change. *Climatic Change*, *168*(3), Article 25. https://doi.org/10.1007/s10584-021-03242-6

Stanford Report. (2024, October 31). Partisanship sways news consumers more than the truth, new study shows. https://news.stanford.edu/stories/2024/10/new-study-shows-that-partisanship-trumps-truth#:~:text=Partisanship%20sways%20news%20consumers%20more,confirmed%20a%20participant's%20political%20beliefs.

Van der Meer, T. G. L. A., Hameleers, M., & Kroon, A. C. (2020). Crafting Our Own Biased Media Diets: The Effects of Confirmation, Source, and Negativity Bias on Selective Attendance to Online News. *Mass Communication & Society*, *23*(6), 937–967. https://doi.org/10.1080/15205436.2020.1782432.

Thomas, V. (2017). *Climate Change and Natural Disasters*. Routledge.

Washington Post. (2017, September 28). Majority of Americans now say climate change makes hurricanes more intense. https://www.washingtonpost.com/news/energy-environment/wp/2017/09/28/majority-of-americans-now-say-climate-change-makes-hurricanes-more-intense/.

Zahran, S., Brody, S. D., Grover, H., & Vedlitz, A. (2006). Climate change vulnerability and policy support. *Society & Natural Resources*, 19, 771–789. http://dx.doi.org/10.1080/08941920600835528

Zhao, X., Leiserowitz, A. A., Maibach, E. W., & Roser-Renouf, C. (2011). Attention to Science/Environment News Positively Predicts and Attention to Political News Negatively Predicts Global Warming Risk Perceptions and Policy Support. *Journal of Communication*, *61*(4), 713–731. https://doi.org/10.1111/j.1460-2466.2011.01563.x