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# Republicans In the United States Show Greater Support for Climate-Change Adaptation Than for Climate-Change Mitigation

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## DRAFT

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## Abstract

Adaptation to the negative consequences of climate change is of increasing relevance. Yet, there remains limited understanding of how opinions about adaptation differ from opinions about mitigating the further progress of climate change among climate skeptics. The present preregistered study compares Republicans' support for adaptation and mitigation across their beliefs, policy attitudes, and behavioral intentions. It also tests how framing adaptation as a response to extreme weather versus a response to climate change impacts Republicans' opinions. The researchers find that Republicans express more support for adaptation than mitigation, and even more so when adaptation is framed as a response to extreme weather, across all outcomes except behavior. Moreover, these results were strongest among Republicans with strong versus weak partisan identity. Focusing on adaptation as an important response to extreme weather could thus help build an effective climate change coalition inclusive of Republicans, even those with strong partisan identities.

#### 1. Introduction

Ideological division between the left and the right has long been understood as a major challenge to widespread public action to address climate change. Existing research has focused largely on how ideology impacts public beliefs, policy support, and behaviors aimed at climate change *mitigation*, i.e., minimizing human contributions to greenhouse gas emissions (e.g., Berkebile-Weinberg et al. 2024; Većkalov et al., 2024). Indeed, when it comes to mitigation, the ideological or partisan divide is widely documented, internationally and particularly in the United States (e.g., Bolsen et al., 2015; Hornsey et al., 2016; Tyson et al., 2023).

As the impacts from climate change become increasingly apparent, however, the response must also include *adaptation*, i.e., preparing humans to adjust to the consequences of climate change. These consequences include worsening extreme weather events, such as heatwaves, wildfires, drought, and storms (IPCC, 2023). Research exploring public support for adaptation remains nascent (van Valkengoed & Steg, 2019b), particularly the extent to which conservatives, and specifically Republicans in the United States, may be more amenable to adopting beliefs, policy support, and behaviors aimed at adaptation rather than at mitigation.

In the following sections, we review existing literature on the relationship between public support for mitigation and adaptation. This work suggests that Republicans may be more amenable to adaptation than to mitigation. Furthermore, this work also suggests that framing adaptation actions more narrowly as a response to severe weather, relative to framing it more broadly as a response to climate change, may further garner Republican support because it decouples adaptation from mitigation beliefs.

#### 1.1 Republican Support for Mitigation and Adaptation Approaches to Climate Change

Research consistently finds public support for climate change action is lower on the ideological right than on the left (e.g., Bolsen et al., 2015; Hornsey et al., 2016; Tyson et al., 2023). In the United States, this divide has corresponded with a rising partisan divide between Democrats and Republicans on environmental issues in the 21<sup>st</sup> century (Egan & Mullin, 2017; Karol, 2019). Scholars have put forth a host of explanations, including the role of conservative think tanks and elites (Oreskes & Conway, 2022), perceived conflict with a conservative value system averse to government intervention (Campbell & Kay, 2014), and a desire to affirm ideological group identity and norms (Bayes et al., 2020; Kahan, 2015).

The bulk of this work has exclusively studied outcomes associated with mitigation, i.e., beliefs about reducing the human contribution to climate change and support for behaviors and policies to do so. For instance, in a recent 60-country study of ideology and climate change interventions, outcomes included four items that gauge beliefs about reducing climate change, nine items that gauge support for policies to reduce greenhouse gas emissions, and a behavioral measure of tree-planting to fight climate change (Berkebile-Weinberg et al., 2024). Similarly, a 27-country test of scientific consensus messaging, one of the most prominent approaches to persuasive climate change communication, looked only at its effect on mitigation beliefs and policy support (Većkalov et al., 2024).

Much less work focuses on ideological division regarding outcomes associated with adaptation, i.e., beliefs about coping with the negative consequences of climate change and support for behavior and policies to do so. There is some evidence that opinions about adaptation emulate the polarization found in opinions about mitigation: there is less support for adaptation on the ideological right, even when accounting for relevant factors like personal experience with extreme weather events (Giordono et al., 2023; Harris & Howe, 2023; Ray et al., 2017). Moreover, mitigation and adaptation outcomes are correlated to each other, and to beliefs about the importance of addressing climate change, suggesting that those skeptical about mitigation may also be skeptical about adaptation (Blennow & Persson, 2009; Brügger et al., 2015; van Valkengoed et al., 2022). That said, the limited work that directly compares opinions about mitigation and adaptation suggests the ideological divide, while present, may not be as extreme when it comes to adaptation (Bateman & O'Connor, 2016; Giordono et al., 2023). Thus, there remains an incomplete understanding of the relationship between support for mitigation and adaptation approaches to addressing climate change (van Valkengoed & Steg, 2019b, p. 44-45).

In the U.S. context specifically, there is reason to expect that resistance to adaptation beliefs, policy support, and behaviors among Republicans may not be as strong as their welldocumented resistance to mitigation. The most prominent theoretical explanations advanced for the ideological polarization around mitigation do not hold as strongly for adaptation. First, while conservative think tanks in the United States have consistently and forcefully questioned the need for climate change mitigation (e.g., Cann & Raymond, 2018; Oreskes & Conway, 2022), conservative rhetoric seems less averse to adaptation. In a content analysis of climate change skeptic blog posts from conservative think tanks in the United States and Germany, Busch and Judick (2021) find an emergent refrain that prioritizes adaptation over mitigation, since it avoids negative economic consequences and can result in agricultural benefits. This suggests adaptation efforts may be more politically acceptable than mitigation efforts to conservative audiences. Indeed, prominent Republican lawmakers, such as Governors Ron DeSantis of Florida and Greg Abbott of Texas, have supported and funded large-scale efforts aimed at climate resilience without directly acknowledging the need to address climate change (Kahn et al., 2021). Second, while mitigation actions are often seen as conflicting with fundamental tenets of conservatism, such as defense of the free market and existing economic order (Campbell & Kay, 2014; McCright & Dunlap, 2010), adaptation actions better align with some conservative values. Adaptation behaviors to protect oneself from external threats invoke self-reliance, individualism, and personal responsibility; emergency preparedness coheres with the need for security and certainty, and the dangerous world beliefs that are associated with dimensions of conservatism (Hibbing, 2020; Jost et al., 2003; Moser, 2014). "Prepping" (i.e., preparing for an emergency) may also provide a cultural context in which adaptation actions are normalized by conservatives (Ford, 2023; Rivera-Kientz & Stewart, 2024).

Given that adaptation seems advantaged relative to mitigation, in terms of both elite advocacy and conservative values, this led to our first preregistered hypothesis:

**Hypothesis 1** (*Climate-change-approach effect*): Republicans will exhibit significantly more support—in the form of more positive beliefs, policy support, and behavioral intentions—for adaptation than for mitigation.

In testing this hypothesis, we follow recent work in separately investigating beliefs, policy support, and behavioral intentions (e.g., Bayes et al., 2020; Bolsen & Druckman, 2018). Although we expected more consistent support for adaptation than mitigation across each outcome, distinguishing between them is important because past research has suggested that they do not always move in the same direction and may have different antecedents (Berkebile-Weinberg et al. 2024; Levine & Kline, 2017). For example, interventions designed to boost adaptation support may have distinct effects on behavior outcomes, as there is some evidence that adaptation behaviors are less correlated with climate change beliefs, relative to support for adaptation policies (van Valkengoed et al., 2022).

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#### 1.2 Adaptation in the Context of "Severe Weather" versus "Climate Change"

While Republicans might express more support for adaptation than mitigation in general, how adaptation actions are framed could further influence this support. For example, extant work has found that mitigation attitudes, among Republicans specifically, are sensitive to the use of different terms. Framing the issue with the term "global warming" elicits decreased belief, perceived seriousness, and policy support relative to framing the issue with the term "climate change" (Schuldt et al., 2011; Schuldt et al., 2015; Villar & Krosnick 2011; c.f., Benjamin et al., 2017; Feldman & Hart, 2021).

When it comes to adaptation, focus group research indicates that one way to overcome ideological polarization is to avoid referencing any human causes of weather changes (Moser, 2014). This frame has been termed *agnostic adaptation*, with qualitative research showing its effectiveness among conservative communities in New York state as they advocated for managed retreat in response to Hurricane Sandy (Koslov, 2020). Not only does this frame allow conservatives to skirt the cultural identity threat of acknowledging the existence of climate change, but it may also be culturally aligned with group norms around "prepping" (Ford, 2023; Kahan, 2015). Conservatives can understand and react to the reality of the "constituent elements of climate change" like extreme weather events, without ever referring to the reality of climate change itself (Ford, 2023, p. 94).

There is also some evidence from larger, more controlled studies that framing adaptation actions without mentioning climate change can boost support among climate change skeptics. Removing the term "climate change" from measures of adaptation policy support and behaviors weakens or eliminates its correlation with belief about human-caused climate change, suggesting that individuals can support adaptation policies and behaviors despite questioning the need to address climate change (van Valkengoed et al., 2022). In addition, Chapman and Lickel (2016) find that presenting a famine as caused only by drought led climate change skeptics to exhibit stronger intentions to donate to victims, compared to when a famine is attributed to a drought brought on by climate change. Similarly, Carman et al. (2022) find that using the term "extreme weather" in place of "climate change" in outcome measures led to greater support among Republicans for adaptation policies, as well as personal and collective adaptation behaviors. Indeed, when measures do not invoke climate change, Republicans self-report engaging in more adaptation behaviors to prepare for severe weather emergencies than Democrats (Rivera-Kientz & Stewart, 2024).

This leads us to our second preregistered hypothesis:

**Hypothesis 2** (*Adaptation-framing effect*): Republicans will exhibit significantly more support in the form of more positive beliefs, policy support, and behavioral intentions—for adaptation actions when they are framed as a response to extreme weather only, relative to when they are framed as a response to extreme weather caused by climate change.

This hypothesis directly implies that framing adaptation in terms of climate change should attenuate the climate-change-approach effect described in Hypothesis 1. Labeling adaptation as a response to climate change more strongly equates it with mitigation, and thus likely eliminates the reduced polarization and value conflict that otherwise may be associated with adaptation. As a result, our preregistered prediction specified that the increased Republican support for adaptation over mitigation will be moderated by the way adaptation is framed, such that the advantage in support for adaptation should be greater when adaptation is framed without reference to climate change. We recognize that this prediction introduces a tension between approaches to addressing climate change, in that framing adaptation as a response to extreme weather without reference to climate change can undermine climate change mitigation efforts. We return to this tension in the Discussion section below.

#### 1.3 Possible Influences of Strength of Partisanship

Partisan motivated reasoning is a process whereby partisans prioritize their group's attitudes and beliefs when arriving at their own. Research suggests that Republicans' stances on mitigation reflect this type of thinking, such that they oppose mitigation, in part, to align with partisan norms (Bayes et al., 2020). This process is most likely to animate opinion formation among strong partisans, who care most about such norms (Bolsen et al., 2014, Appendix). Therefore, to the extent that norms from partisan identity might similarly shape reduced Republican resistance to adaptation, the effects hypothesized above should be more pronounced among Republicans with stronger partisanship attachments. Compared to weak Republicans, strong Republicans will be more motivated to adhere to group norms in rejecting mitigation actions, as well as rejecting adaptation actions when they are associated with climate change. Consequently, they should exhibit the largest difference in support between mitigation and adaptation, driven by a stronger rejection of mitigation, and be most influenced by the framing effect, due to a stronger rejection of the reference to climate change. Although this further hypothesis follows directly from previous findings, it was not directly preregistered and is therefore exploratory.

#### 2. Methods

To test these hypotheses, we conducted a survey experiment on a sample of Republicans in the United States in December 2024. Prior to data collection, the study's design, hypothesis, and analysis plan were pre-registered at <u>https://aspredicted.org/sy8b-vtvd.pdf</u> and study

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procedures were reviewed and received ethical approval by the [removed for anonymous peer review].

#### 2.1 Participants

Sample size for this study was determined using the parameters of a separate pilot study on a different research question (see Footnote 2), which was combined with the measures for the present study for efficiency. The target sample was 1,500 participants. Sensitivity analyses indicated that this sample provides 95% power to detect small effects, equivalent to d = .09 for the within-participants climate-change approach hypothesis and d = .19 for the betweenparticipants adaptation-framing hypothesis (Faul et al., 2007).

To achieve the target sample size, a total of 1,988 volunteers from the United States who identified as members of the Republican Party were initially recruited from the panel managed by Bovitz, Inc. Of these recruits, 34 (~2%) chose not to continue after reading the consent form, and another 136 (~7%) chose to terminate the survey before completing all the measures. Of those who completed the survey, 296 (~15%) failed at least one of the attention checks, and six (< 0.5%) asked that we not use their data in the analyses. Following the preregistered criteria, all of these participants were eliminated, leaving a total of 1,516 responses.

This final nonprobability sample ranged in age from 19 - 89, M = 51.2, SD = 15.7, and included 746 women, 769 men, and 1 individual who identified their gender as "other". Approximately 78% of the sample identified as White, 5% as Black or African American, 5% as Latino or Latina, 2% as Asian, < 1% as Native American, Pacific Islander, or Middle Eastern, and 9% as more than one race. Participants' median annual income was between \$40,000 and \$70,000, and 36% had a college or advanced degree, 39% had some college education but no degree, 23% had a high school degree, and 2% had not completed high school. These sample characteristics reasonably match the demographics of Republicans in the United States. For example, using American National Election Studies data from 2020, Voelkel et al. (2024) report that Republicans are 47% women and 53% men; 82% White, 3% Black, 8% Latino or Latina, and 3% Asian; and 34% with a college or advanced degree, 32% with some college, 28% with a high school degree, and 7% with no high school degree. The under-representation of low educated respondents is typical in many non-probability samples (e.g., Druckman et al., 2022, Appendix).<sup>1</sup>

#### 2.2 Procedures

After completing demographic questions, participants were randomly assigned to one of two experimental conditions, *extreme weather* or *climate change*, which varied whether each of the survey items they saw about adaptation did, or did not, explicitly attribute extreme weather to climate change (Carman et al., 2022). Survey items were constructed so that this manipulation was the only difference between the two conditions. For example, in the extreme weather condition, one adaptation belief measure read: "Do you think people should be doing less or more to adapt to negative impacts from extreme weather?" while the corresponding item in the climate-change condition read: "Do you think people should be doing less or more to adapt to negative impacts from extreme weather?" while the corresponding item in the climate-change condition read: "Do you think people should be doing less or more to adapt to negative impacts from extreme weather *that is brought on by human-induced climate change*?" (emphasis not in original). Within their assigned conditions, participants answered a series of such items measuring their beliefs, policy support, and anticipated behaviors around adaptation. All adaptation measures are described in detail in section 2.3.1 below, and the exact wording of all measures, with the experimental manipulation wording changes highlighted in brackets, is displayed in the left column of Table 1.

<sup>&</sup>lt;sup>1</sup> Voelkel et al. (2024) do not provide data for income.

Participants across both experimental conditions then completed a second set of items measuring their beliefs, policy support, and anticipated behaviors around mitigation. Mitigation measures were identical across both conditions and always appeared *after* the adaptation measures to avoid confounding the experimental manipulation, as, by definition, asking about reducing (i.e., mitigating) climate change necessarily must reference climate change. All mitigation measures are described in detail in section 2.3.2 below, and exact wording of all measures is displayed in the right column of Table 1. An attention-check item was also embedded within the mitigation items, asking participants to provide a specific response to demonstrate they were reading the questions carefully (Oppenheimer et al., 2008).

Finally, participants provided feedback they might have regarding the survey, were debriefed about the purpose of the study, and were given the opportunity to withdraw their data following this debriefing, as required by the Institutional Review Board.<sup>2</sup>

#### 2.3 Measures

We created three sets of questions to assess participants' adaptation and mitigation support, with each set forming a composite measure corresponding to our three outcomes of interest: participants' (a) beliefs about the need for, and importance of, addressing adaptation and mitigation, (b) support for specific government policies aimed toward these goals, and (c) likelihood of engaging in specific behaviors that support these goals. In constructing these measures, we drew on items appearing in existing adaptation and mitigation research whenever possible. Importantly, because testing the climate-change approach hypothesis requires us to

<sup>&</sup>lt;sup>2</sup> As part of a pilot test for a different line of research not reported here, before the adaptation and mitigation questions, participants completed questionnaires about either their science knowledge or their political priorities and received feedback about how their responses compared to other Republicans. Analyses showed that this feedback manipulation did not moderate any of the analyses reported below, Fs(4, 1506) < 1.91, ps > .10, and we thus collapsed reported results across this manipulation. Details about these analyses are available from the authors upon request.

directly compare participants' adaptation and mitigation support, we also carefully matched the adaptation and mitigation measures, such that each adaptation item corresponded with a conceptually similar mitigation item.

#### 2.3.1 Adaptation Measures

First, an *adaptation beliefs* composite was formed based on participants' ratings that harms from extreme weather are getting worse, that it is an important issue to address in the United States, and that people should be doing more to address it ( $\alpha = .86$ ). We constructed these measures to conceptually parallel the mitigation beliefs measures that capture participants' beliefs that climate change exists, is human-caused, and is important for various actors to address (see section 2.3.2).

Next, an *adaptation policy support* composite was formed based on participants' rated support for increased government regulation on building codes and infrastructure, mandated requirements for businesses to buy weather-related insurance, tax credits for people who take actions to adapt to extreme weather, and investment in research on adaptation methods ( $\alpha = .91$ ). Again, we constructed these measures to conceptually parallel the mitigation policy measures, which capture participants' support for increased government regulation, increased costs to businesses, tax credits for individual actions, and investment in research in order to reduce greenhouse gas emissions (see section 2.3.2). In so doing, we also selected specific adaptation policies that mirror common themes in adaptation research, such as changing building and zoning rules, protecting and greening infrastructure, and incentivizing insurance and home protection measures (e.g., Carman et al., 2022; van Valkengoed & Steg, 2019a).

Finally, an *adaptation behaviors* composite was formed based on participants' rated likelihood that they would purchase pumps or sandbags to protect their homes, obtain home

insurance for weather-related risks, seek information about coping with extreme weather, and discuss preparation for extreme weather with their neighbors ( $\alpha = .87$ ). Once again, we selected specific adaptation behaviors that mirror common themes in adaptation research, such as home protection measures, buying insurance, individual information seeking, and collective information sharing with neighbors (e.g., Carman et al., 2022; van Valkengoed & Steg, 2019a; van Valkengoed et al., 2022).

#### 2.3.2 Mitigation Measures

A *mitigation beliefs* composite was formed based on participants' ratings that climate change is occurring, that it is human induced, that reducing it is an important issue in the United States, and that people should be doing more to reduce it ( $\alpha = .90$ ). These items are typical measures that, taken together, capture participants' belief in the necessity and importance of reducing carbon emissions from human activity, and they appear in existing literature separately or combined into a composite belief score (Bayes et al., 2020; Feinberg & Willer, 2013; Leiserowitz et al., 2025; Wolsko et al., 2016).

A *mitigation policy support* composite was formed based on participants' rated support for regulating businesses that produce high levels of emissions, taxing such businesses, tax credits for people who take actions to reduce their own emissions, and investment into research on reducing human contributions to climate change ( $\alpha = .91$ ). These items were again drawn directly from existing mitigation research (Bayes et al., 2020).

Finally, a *mitigation behaviors* composite was formed based on participants' rated likelihood that they would purchase energy-efficient light bulbs and green electricity, seek information about reducing their carbon footprint, and discuss reducing their carbon footprint with their neighbors ( $\alpha = .91$ ). To select these specific mitigation behaviors, we included two

purchasing behaviors drawn from existing research (Attari et al., 2011; Bayes et al., 2020). The first mitigation purchase, lightbulbs, was selected to be similar in scale and type to the first adaptation purchase, sandbags, while the second mitigation purchase, electricity, was selected to be similar to the second adaptation purchase, insurance. Meanwhile, the last two mitigation behavior items were constructed to conceptually parallel the last two adaptation behavior items of individual information seeking and collective information sharing with neighbors (see section

### 2.3.1).

Adaptation, Extreme Weather Condition [with Climate Change Condition additions in brackets]	Mitigation
Beliefs	
Some people believe that the negative effects of extreme weather, such as heatwaves, wildfires, rising sea levels, drought, and storms, are getting worse [due to human-induced climate change]. Others believe they remain about the same.	Climate change refers to a long-term change in Earth's climate due to an increase in the average atmospheric temperature. What do you think? Do you think that climate change is happening?
What do you think? To what extent do you think extreme weather harms [due to human-induced climate change] remain about the same or are getting worse?	Assuming climate change is happening, to what extent do you think it is a result of Earth's natural changes, as opposed to human-induced?
When it comes to issues that the United States needs to address, would you say adapting to extreme weather [that is brought on by human- induced climate change] is unimportant or important?	When it comes to issues that the United States needs to address, would you say reducing climate change is unimportant or important?
Do you think people should be doing less or more to adapt to negative impacts from extreme weather [that is brought on by human-induced climate change]?	Do you think people should be doing less or more to reduce climate change?
Policy Support	
Do you oppose or support increased government regulation on building codes and infrastructure to adapt to extreme weather [that is brought on by human-induced climate change]?	Do you oppose or support increased government regulation on industries and businesses that produce a great deal of greenhouse emissions linked to climate change?

#### Table 1. Exact Measure Wording, Adaptation Items vs. Mitigation Items

ries and businesses that produce a great deal enhouse emissions linked to climate	
u oppose or support providing a tax credit to who take actions to reduce climate e? ncludes actions such as purchasing hybrid es, purchasing energy efficient appliances, investing in home insulation.	
Should the United States government decrease or increase investment into research on ways to reduce human contributions to climate change?	
dless of what you have done in the past, report how unlikely or likely you are to e in each activity in the future to reduce e change. Purchase energy efficient lightbulbs. Purchase green electricity. Seek more information on how to reduce your carbon footprint. Speak to your neighbors about reducing their carbon footprint.	

#### 3. Results

### 3.1 Climate-Change Approach and Adaptation-Framing Hypotheses

As described above, the preregistered climate-change approach hypothesis posits higher

levels of support for adaptation beliefs, policy, and anticipated behaviors than analogous

mitigation measures. The related preregistered adaptation-framing hypothesis suggests

participants randomly assigned to the extreme weather condition that framed adaptation as a

response to extreme weather will favor adaptation more than participants randomly assigned to

the climate change condition that framed adaptation as a response to extreme weather due to climate change. Meanwhile, this framing should not influence mitigation outcomes. Consequently, the framing that references climate change should lead to smaller differences between Republican support for adaptation and mitigation, resulting in an interaction between climate-change approach and adaptation-framing.

#### Figure 1

Beliefs about the Importance of, Support for Policy Concerning, and Anticipated Behavior toward Climate-Change Adaptation and Climate-Change Mitigation in the Extreme Weather vs. Climate Change Framing Conditions



*Note*. Beliefs and policy support were measured on 1-7 scales. Anticipated behavior was measured on a 1-5 scale. Error bars represent 95% confidence intervals.

		Frame	
	Extreme Weather	Climate Change	
Measure	M(SD)	M(SD)	<i>t</i> (1514), <i>d</i>
Beliefs			
Adaptation	4.60 (1.37)	4.34 (1.60)	3.29***, 0.17
Mitigation	4.22 (1.56)	4.23 (1.61)	0.20, 0.01
$t(1514), d_{av}$	11.39***, 0.26	3.13**, 0.07	
Policy Support			
Adaptation	4.59 (1.45)	4.23 (1.63)	4.27***, 0.22
Mitigation	4.18 (1.71)	4.17 (1.74)	0.20, 0.01
$t(1514), d_{av}$	10.79***, 0.28	1.59, 0.04	
Behaviors			
Adaptation	2.79 (1.16)	2.67 (1.18)	2.07*, 0.11
Mitigation	2.99 (1.05)	2.96 (1.06)	0.47, 0.02
$t(1514), d_{av}$	5.90***, 0.15	8.42***, 0.22	

**Table 2.** Mean Beliefs about, Anticipated Behaviors toward, and Policy Support for Climate-Adaptation and Mitigation Measures when Framed as "Extreme Weather" Versus "ClimateChange"

*Note.* Beliefs and policy-support measures were answered on 1-7 scales. Anticipated-behavior measures were answered on 1-5 scales. \* = p < .05, \*\* = p < .01, \*\*\* = p < .001.

These hypotheses were tested with 2 (approach: adaptation vs. mitigation) x 2 (frame: extreme weather vs. climate change) analyses of variance (ANOVAs) with repeated measures on the first factor. Separate analyses were conducted for beliefs, policy support, and anticipated behaviors. The results displayed in Figure 1 and Table 2 showed support for both the climatechange approach and adaptation-framing hypotheses for the beliefs and policy support measures, but not as clearly for the anticipated behavior measures.

We first turn to testing the climate-change approach hypothesis. When looking at the beliefs measures, participants indeed exhibited more supportive adaptation beliefs, i.e., believing that extreme weather was getting worse and adapting to it was important (M = 4.47, SD = 1.50), than mitigation beliefs, i.e., believing that climate change was happening and reducing it was

important (M = 4.32, SD = 1.59), F(1, 1514) = 104.4, p < .001,  $d_{av} = .10$ . Similarly, participants supported government policies that encouraged adaptation measures (M = 4.41, SD = 1.55) more than they supported policies that encouraged mitigation measures (M = 4.18, SD = 1.72), F(1, 1514) = 75.7, p < .001,  $d_{av} = .14$ . These results cohere with the climate-change approach hypothesis.

In contrast, surprisingly, for the anticipated behavior measures, participants reported *fewer* intentions to take actions supporting adaptation (M = 2.73, SD = 1.17) than intentions to take actions supporting mitigation (M = 2.97, SD = 1.06), F(1, 1514) = 102.8, p < .001,  $d_{av} = .22$ . This finding runs counter to the climate-change approach hypothesis, as well as the results for the other two measures.

Next, we tested the adaptation-framing hypothesis. Here, as expected, the extreme weather only framing, relative to the extreme weather due to climate change framing, resulted in significantly greater adaptation beliefs and adaptation policy support (see Table 2). Beliefs rose from 4.34 to 4.60 (p < .001) when the reference to climate change was omitted, while policy support increased from 4.23 to 4.59 (p < .001). Omitting the reference to climate change also significantly influenced the adaptation behavior measure, with reports of anticipated behaviors rising from 2.67 to 2.79 (p < .05). Meanwhile, as expected, the framing manipulation regarding adaptation did not have any significant effects on subsequent beliefs about, or policy support regarding, mitigating climate change (see Table 2). Thus, consistent with the adaptation-framing hypothesis, we find a significant approach x frame interaction for both the climate belief, F(1, 1514) = 33.04, p < .001, and policy support, F(1, 1514) = 41.29, p < .001, measures. However, the frame x approach interaction did not reach statistical significance for the behavior variable,

F(1, 1514) = 3.50, p = .06, although the pattern of results across conditions mirrored the other dependent variables. Overall, the results largely support the adaptation-framing hypothesis.

#### 3.2 Exploratory Strength-of-Partisanship Analyses

As noted above, additional exploratory analyses examined whether these primary results were moderated by the strength of participants' identification within the Republican party. Recall that among strong partisans, we expected a generally stronger rejection of mitigation as compared to adaptation, resulting in a larger difference between levels of adaptation and mitigation support consistent with the climate-change approach hypothesis. Among strong partisans, we also expected a stronger effect of framing adaptation in the context of climate change on support for adaptation, but not mitigation, consistent with the adaptation-framing hypothesis.

Because only a small percentage of the sample reported *leaning* Republican (~5%) or *weakly* identifying as Republican (~27%) versus *strongly* identifying as Republican (~68%), a categorical *weak* vs. *strong* identification variable was created by combining those who leaned or weakly identified with the party into a single category. ANOVAs for the beliefs, policy support, and anticipated behavior measures were repeated with the addition of all of the two- and three-way party identification interactions. To isolate the influence of party identification over other potential demographic correlates of this identification, these analyses also simultaneously controlled for the two- and three-way interactions of gender, race, age, income and education level with the climate approach and framing factors.<sup>3</sup>

<sup>&</sup>lt;sup>3</sup> Because of low numbers of participants in several specific non-white racial categories, it was necessary to use a simple *white* vs. *non-white* categorical variable to examine race effects.

		Frame		
	Extreme Weather		Climate Change	
Party ID	M(SD)		M(SD)	t(1500), d
<i>Weak</i> ( $N = 481$ )				
Adaptation	4.80 (1.37)		4.77 (1.38)	0.61, 0.06
Mitigation	4.56 (1.48)		4.77 (1.35)	1.13, 0.10
$t(1500), d_{av}$	4.10***, 0.17		0.15, 0.00	
<i>Strong (</i> $N = 1035$ <i>)</i>				
Adaptation	4.51 (1.41)		4.14 (1.66)	3.86***, 0.24
Mitigation	4.06 (1.58)		3.98 (1.66)	0.79, 0.05
$t(1500), d_{av}$	10.81***, 0.30		3.75***, 0.10	

**Table 3.** Mean Beliefs about Adaptation and Mitigation Measures when Framed as "ExtremeWeather" Versus "Climate Change" for Weakly and Strongly identified Republicans

*Note.* Beliefs measures were answered on 1-7 scales. Unadjusted means and SDs are displayed, but paired comparisons between conditions were conducted controlling for gender, race, age, income, and education. The overall main effect of party identification was significant in the linear model, F(1,1500) = 37.2, p < .001, d = 0.34. \* = p < .05, \*\* = p < .01, \*\*\* = p < .001.

**Table 4.** Mean Policy Support for Climate-Change Adaptation and Mitigation Measures whenFramed as "Extreme Weather" Versus "Climate Change" for Weakly and Strongly identifiedRepublicans

		Frame		
	Extreme Weather		Climate Change	
Party ID	M(SD)		M(SD)	<i>t</i> (1500), <i>d</i>
<i>Weak</i> ( $N = 481$ )				
Adaptation	4.75 (1.34)		4.67 (1.31)	1.08, 0.10
Mitigation	4.63 (1.52)		4.76 (1.38)	0.43, 0.04
$t(1500), d_{av}$	1.92, 0.08		1.35, 0.08	
<i>Strong</i> ( $N = 1035$ )				
Adaptation	4.51 (1.50)		4.02 (1.72)	4.77***, 0.30
Mitigation	3.98 (1.75)		3.89 (1.82)	0.71, 0.04
$t(1500), d_{av}$	11.83***, 0.33		2.90**, 0.07	

*Note*. Policy support measures were answered on 1-7 scales. Unadjusted means and SDs are displayed, but paired comparisons between conditions were conducted controlling for gender, race, age, income, and education. The overall main effect of party identification was significant in the linear model, F(1,1500) = 41.4, p < .001, d = 0.36. \* = p = .05, \*\* = p < .01, \*\*\* = p < .001.

As illustrated in Tables 3-4, for the beliefs and policy support measures, as expected, the decrease in scores on the mitigation versus adaptation measures, and the negative effects of the climate-change framing on the adaptation measures in particular were larger among strong rather than weak Republicans. That is, greater belief in the importance of, F(1, 1507) = 74.6, p < .001,  $d_{av} = .20$ , and greater support for policies on, F(1, 1507) = 63.6, p < .001,  $d_{av} = .19$ , adaptation vs. mitigation was more pronounced among strong Republicans than was increased belief in the importance of, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and stronger support for policies on, F(1, 1507) = 16.83, p < .001,  $d_{av} = .08$ , and  $d_{av} = .08$ ,  $d_{av}$  $(1507) = 1.87, p = .17, d_{av} = .01$ , adaptation vs. mitigation among weak Republicans. This was reflected in significant party identification x approach interactions; F(1, 1500) = 10.87, p = .001, for beliefs, and F(1, 1500) = 30.26, p < .001, for policy support. In addition, belief in and policy support for adaptation was significantly lower in the climate change than the extreme weather condition among strong Republicans but not among weak Republicans, although the three-way party identification x approach x frame interactions were short of significant, Fs(1, 1500) < 2.52, ps > .11. These results are largely consistent with the hypothesized influence of partial p strength.

**Table 5.** Mean Anticipated Behavior toward Climate-Change Adaptation and Mitigation whenFramed as "Extreme Weather" Versus "Climate Change" for Weakly and Strongly identifiedRepublicans

		Frame		
	Extreme Weather		Climate Change	
Party ID	M(SD)		M(SD)	t(1500), d
<i>Weak</i> ( $N = 481$ )				
Adaptation	2.84 (1.12)		2.91 (1.03)	0.17, 0.02
Mitigation	3.14 (0.98)		3.26 (0.88)	0.90, 0.08
$t(1500), d_{av}$	5.08***, 0.29		6.16***, 0.37	
<i>Strong (</i> $N = 1035$ <i>)</i>				
Adaptation	2.76 (1.18)		2.55 (1.23)	2.93**, 0.18
Mitigation	2.92 (1.08)		2.82 (1.11)	1.40, 0.09
$t(1500), d_{av}$	3.72***, 0.14		6.08***, 0.23	

*Note*. Anticipated behavior measures were answered on 1-5 scales. Unadjusted means and SDs are displayed, but paired comparisons between conditions were conducted controlling for gender, race, age, income, and education. The overall main effect of party identification was significant in the linear model, F(1,1500) = 15.9, p < .001, d = .22.\* = p < .05, \*\* = p < .01, \*\*\* = p < .001.

Similar to the results reported earlier, as shown in Table 5, the effects were again somewhat different for the anticipated behavior measures. In this case, weak Republicans showed a greater increase in their likelihood of personal mitigation behaviors vs. personal adaptation behaviors, F(1, 1507) = 19.02, p < .001,  $d_{av} = .32$ , whereas strong Republicans showed a lesser increase, F(1, 1507) = 4.20, p < .05,  $d_{av} = .18$ . This was reflected in a significant party identification x approach interaction, F(1, 1500) = 7.09, p = .007, measures. However, more similar to the beliefs and policy support measures, the likelihood of anticipated adaptation was lower in the climate change condition than in the extreme weather condition among strong Republicans, but not among weak Republicans, although this again did not result in a party identification x approach x frame interaction, F(1, 1500) = .08, p = .77.

Within the other demographic effects that were part of these exploratory analyses, only race and age showed additional independent moderation effects for at least two of beliefs, policy

support and anticipated behavior measures. These effects are detailed in the supplement, but overall, the results similarly showed that the climate-change approach and adaptation-framing hypotheses were most clearly supported and showed larger effects among participants most prototypical of the Republican party overall – i.e., white vs. non-white participants and older vs. younger participants.

#### 4. Discussion

Initial research on climate change beliefs and attitudes, sensibly, began with a focus on mitigation. Indeed, following the old adage "an ounce of prevention is worth a pound of cure," an ideal approach to addressing climate change would have mitigated the problem before its effects emerged. Yet, with this ideal far from realized, it is now essential to also understand how to increase public support for steps to minimize harm from climate change, particularly given the unequal distribution of adverse effects. The present study is a foray into this domain, with a specific focus on Republicans who, since the early 2000s, have been a highly climate skeptical population in the United States.

In testing preregistered hypotheses about Republican attitudes toward adaptation, we find that Republicans clearly exhibit stronger belief in the importance of adaptation and support for government policies that target adaptation, relative to mitigation beliefs and policies. This aligns with theoretical expectations insofar as adaptation coheres better with conservative values (e.g., security) than mitigation and has not been as intensely derogated in negative campaigns by conservative think tanks. Our results also show clear evidence that this greater support for adaptation beliefs and policies is substantially attenuated, if not entirely eliminated, when references to climate change are included in the context of adaptation and emerge primarily when adaptation is simply a response to "extreme weather." Thus, it is this latter, "agnostic" type of framing that appears most likely to stimulate greater support for responding to future extreme weather among Republican audiences (see also Carman et al., 2022; Chapman & Lickel, 2016; Koslov, 2020).

Our somewhat different patterns of results regarding behavior outcomes, relative to beliefs and policy support, suggest that avoiding references to climate change may remain somewhat helpful for boosting adaptation behaviors, but surprisingly, Republicans anticipated engaging in mitigation behaviors more than adaptation behaviors. On the one hand, this accentuates the importance of differentiating beliefs, policy support, and behaviors in the study of climate change more generally (e.g., Bayes et al., 2023; Levine & Kline, 2017). On the other hand, the finding highlights the challenges of understanding how climate change beliefs relate to behavioral intentions, not to mention actual behavior, which itself may differ from intentions (see van Valkengoed et al., 2024). It might be that individuals scored lower on the adaptation behaviors selected for study here because fewer people have engaged in such behaviors in the past, making such behaviors seem less familiar compared to mitigation behaviors. In addition, the adaptation purchasing behaviors in particular (e.g., purchasing sandbags or additional home insurance) might have been seen as involving increased spending, whereas the mitigation purchasing behaviors (e.g., purchasing energy efficient light bulbs or green electricity) might have been seen as cost-savings measures, making the latter somewhat more desirable (Levine & Kline, 2017). These are speculative explanations, and a full understanding requires further research on a wider set of possible behaviors related to both adaptation and mitigation.

Notably, in exploratory analyses, we also find that the observed effects are generally more significant among Republicans with stronger, relative to weaker, partisanship. This likely reflects greater aversion to climate change in general (e.g., behaviors and policies highly associated with mitigation and all references to the term "climate change" when describing extreme weather) among stronger Republicans. These results, along with the other demographic moderation effects detailed in the supplement, illustrate important heterogeneity within the Republican party that is important to recognize and further interrogate in future research.

Taken together, our results can offer insight into how to best approach the construction of climate change coalitions across party lines in the United States and affirm there are conditions where even strongly partisan Republicans are more likely to be receptive. At the same time, these insights bring up normative concerns in that they suggest that the ideal communication strategy for bringing Republicans into a wider coalition for climate change action seems to evade any discussion of climate change itself. If these individuals only engage in adaptation if they do not appropriately attribute extreme weather harms to climate change, this may result in an undesirable tension between encouraging optimal near-term adaptation and supporting longer-term mitigation. Therefore, research on strategies for encouraging greater adaptation among skeptical audiences must coexist alongside, rather than displace, continuing research on strategies for reducing climate change skepticism.

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#### **Supplemental Analyses**

The additional demographic moderation effects involving race and age for beliefs included significant race x frame x approach, F(1, 1500) = 5.17, p = .02, and age x frame x approach, F(1, 1500) = 11.25, p < .001, interactions. As shown in Tables S1 and S2, each moderator produced a similar pattern, with white and older Republicans showing greater differences between adaptation and mitigation beliefs overall, but particularly when adaptation beliefs were framed in terms of extreme weather vs. climate change. Non-white and younger Republicans still showed some consistent distinction between adaptation and mitigation beliefs when framed in terms of extreme weather vs. climate change, but not to the same degree. In addition, the overall pattern of these interactions was also somewhat different such that beliefs about the importance of mitigation were particularly low (rather than beliefs about the importance of adaptation and mitigation beliefs were framed in the context of climate change.

The additional moderation effects for policy support included a frame x age, F(1, 1500) = 4.80, p = .02 interaction. As shown in Table S4, older Republicans again showed larger differences between adaptation and mitigation beliefs overall, but particularly when adaptation beliefs were framed in terms of extreme weather vs. climate change. In contrast, young Republicans showed similar effects but to a lesser degree, again with a somewhat different pattern of results such that support for mitigation measures was particularly low (rather than support for adaptation measures being particularly high) when adaptation was framed only in terms of extreme weather. As shown in Table S3, there were not strong differences in the results for non-white and white Republicans on the policy support measures.

Finally, the additional moderation effects for the anticipated behavior measures included race x approach, F(1, 1500) = 9.85, p = .001, and age x approach, F(1, 1500) = 16.05, p < .001 interactions. As shown in Tables S5 and S6, a higher likelihood of behaviors supporting mitigation vs. adaptation was more prominent among white and older Republicans and often absent for non-white and younger Republicans. More details on all of these analyses are available from the authors.

		Frame		
	Extreme Weather		Climate Change	
Race ( $N = 337$ )	M(SD)	-	M(SD)	t(1500), d
Non-White				
Adaptation	4.84 (1.41)		4.83 (1.58)	1.37, 0.15
Mitigation	4.32 (1.62)		4.77 (1.60)	1.51, 0.16
$t(1500), d_{av}$	8.21***, 0.34		1.28, 0.04	
<i>White</i> $(N = 1179)$				
Adaptation	4.53 (1.36)		4.21 (1.59)	3.23***, 0.19
Mitigation	4.19 (1.55)		4.09 (1.58)	0.83, 0.05
$t(1500), d_{av}$	8.29***, 0.23		2.88**, 0.08	

**Table S1.** Mean Beliefs about Adaptation and Mitigation Measures when Framed as "ExtremeWeather" Versus "Climate Change" for Non-White and White Republicans

*Note.* Beliefs measures were answered on 1-7 scales. Unadjusted means and SDs are displayed, but paired comparisons between conditions were conducted controlling for gender, age, income, education, and party identification. The overall main effect of race was significant in the linear model, F(1,1500) = 7.07, p = .008. \* = p < .05, \*\* = p < .01, \*\*\* = p < .001.

		Frame		
	Extreme Weather		Climate Change	
Age	M (SE)	_	M(SE)	$t(1500), \beta$
Younger (~36 yrs.)				
Adaptation	4.73 (0.08)		4.66 (0.08)	0.76, 0.05
Mitigation	4.55 (0.08)		4.57 (0.08)	0.17, 0.01
t(1500), β	3.83***, 0.12		1.80, 0.05	
<i>Older</i> (~67 yrs.)				
Adaptation	4.46 (0.08)		4.00 (0.08)	4.14***, 0.29
Mitigation	3.90 (0.08)		3.88 (0.08)	0.18, 0.01
$t(1500), \beta$	11.87***, 0.36		2.62**, 0.08	

**Table S2.** Predicted Means for Beliefs about Adaptation and Mitigation Measures when Framedas "Extreme Weather" Versus "Climate Change" for Younger and Older Republicans

*Note.* Beliefs measures were answered on 1-7 scales. Means and standard errors *(SE)* for younger and older Republicans were estimated from a linear model at values of -1 SD and +1 SD from the sample mean (~51 years). The model also included gender, race, income, education, and party identification. The effect-sizes reported are the standardized  $\beta$ s from the model. The overall main effect of age was significant in the linear model, F(1,1500) = 57.5, p < .001. \* = p < .05, \*\* = p < .01, \*\*\* = p < .001.

		Frame		
	Extreme Weather		Climate Change	
Race ( $N = 337$ )	M(SD)		M(SD)	t(1500), d
Non-White				
Adaptation	4.72 (1.51)	4	1.82 (1.52)	0.74, 0.08
Mitigation	4.33 (1.70)	4	1.66 (1.70)	0.61, 0.07
$t(1500), d_{av}$	5.42***, 0.24	2	2.16*, 0.10	
<i>White</i> $(N = 1179)$				
Adaptation	4.54 (1.43)	4	1.07(1.62)	4.71**, 0.27
Mitigation	4.14 (1.70)	4	1.04 (1.73)	0.72, 0.04
$t(1500), d_{av}$	9.28***, 0.25	0	0.63, 0.02	

**Table S3.** Mean Policy Support for Climate-Change Adaptation and Mitigation Measures when

 Framed as "Extreme Weather" Versus "Climate Change" for Non-White and White Republicans

*Note.* Policy support measures were answered on 1-7 scales. Unadjusted means and SDs are displayed, but paired comparisons between conditions were conducted controlling for gender, age, income, education, and party identification. The overall main effect of race was significant in the linear model, F(1,1500) = 7.84, p = .005. \* = p < .05, \*\* = p < .01, \*\*\* = p < .001.

Frame Extreme Weather Climate Change M(SE)Age M(SE)*t*(1500), β Younger (~36 yrs.) Adaptation 4.71 (0.08) 4.52 (0.08) 1.58, 0.11 Mitigation 4.48 (0.08) 1.17, 0.08 4.35 (0.08) 6.68\*\*\*, 0.22 0.79, 0.03 *t*(1500), β Older (~67 yrs.) Adaptation 4.46 (0.08) 3.91 (0.08) 4.73\*\*\*, 0.34 Mitigation 4.03 (0.08) 3.83 (0.08) 1.65, 0.12 8.38\*\*\*, 0.27 *t*(1500), β 1.48, 0.05

**Table S4.** Predicted Means of Policy Support for Climate-Change Adaptation and Mitigation Measures when Framed as "Extreme Weather" Versus "Climate Change" for Younger and Older Republicans

*Note*. Policy support measures were answered on 1-7 scales. Means and standard errors *(SE)* for younger and older Republicans were estimated from a linear model at values of -1 SD (~ 36 years) and +1 SD (~67 years) from the sample mean (~51 years). The model also included gender, race, income, education, and party identification. The effect-sizes reported are the standardized  $\beta$ s from the model. The overall main effect of age was significant in the linear model, F(1,1500) = 33.0, p < .001. \* = p < .05, \*\* = p < .01, \*\*\* = p < .001.

		Frame		
	Extreme Weather		Climate Change	
Race	M(SD)		M(SD)	t(1500), d
<i>Non-White</i> $(N = 337)$				
Adaptation	3.08 (1.18)		3.19 (1.07)	0.26, 0.03
Mitigation	3.13 (1.12)		3.30 (1.10)	0.42, 0.05
$t(1500), d_{av}$	0.81, 0.04		1.78, 0.10	
<i>White</i> $(N = 1137)$				
Adaptation	2.70 (1.14)		2.53 (1.17)	2.48*, 0.14
Mitigation	2.94 (1.03)		2.87 (1.04)	0.95, 0.06
$t(1500), d_{av}$	6.19***, 0.22		8.63***, 0.31	

**Table S5.** Mean Anticipated Behavior toward Climate-Change Adaptation and Mitigation when

 Framed as "Extreme Weather" Versus "Climate Change" for Non-White and White Republicans

*Note.* Anticipated behaviors measures were answered on 1-5 scales. Unadjusted means and SDs are displayed, but paired comparisons between conditions were conducted controlling for gender, age, income, education, and party identification. The overall main effect of race was significant in the linear model, F(1,1500) = 20.6, p < .001. \* = p < .05, \*\* = p < .01, \*\*\* = p < .001.

	Fi	rame	
	Extreme Weather	Climate Chang	e
Age	M (SE)	M(SE)	$t(1500), \beta$
Younger			
Adaptation	3.06 (0.06)	2.93 (0.05)	1.68, 0.12
Mitigation	3.15 (0.06)	3.14 (0.05)	0.14, 0.01
t(1500), β	1.73, 0.08	4.25***, 0.19	
Older			
Adaptation	2.51 (0.06)	2.39 (0.06)	1.56, 0.11
Mitigation	2.83 (0.06)	2.77 (0.06)	0.76, 0.05
t(1500), β	6.56***, 0.28	7.53***, 0.34	

**Table S6.** Predicted Means of Anticipated Behavior toward Climate-Change Adaptation and Mitigation when Framed as "Extreme Weather" Versus "Climate Change" for Younger and Older Republicans

*Note*. Anticipated behaviors measures were answered on 1-5 scales. Means and standard errors *(SE)* for younger and older Republicans were estimated from a linear model at values of -1 SD (~ 36 years) and +1 SD (~67 years) from the sample mean (~51 years). The model also included gender, race, income, education, and party identification. The effect-sizes reported are the standardized  $\beta$ s from the model. The overall main effect of age was significant in the linear model, F(1,1500) = 76.0, p < .001. \* = p < .05, \*\* = p < .01, \*\*\* = p < .001.