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Public concerns about solar geoengineering research in the United States



Holly Jean Buck ¹✉, Prerna Shah ², Janet Z. Yang ³ & Laura Arpan ³

Solar geoengineering is receiving increased private research funding at a time of growing social media speculation about government weather control. This can complicate public deliberation on solar geoengineering research. Using interviews ($N = 64$), focus groups ($N = 10$), and a national survey ($N = 3076$), we explore initial impressions of the US public on solar geoengineering research, including views on research and beliefs that atmospheric modification to combat global warming is currently ongoing. We find more opposition than support for research and a strong preference for research based in universities. Twenty percent of respondents believed it is partly or completely true that the US government is currently putting chemicals into the atmosphere to counteract global warming, and nearly half of respondents are unsure. We theorize belief in ongoing solar geoengineering not primarily as misinformation, but as para-environmentalism, representing a permutation of environmental concern that deserves further research and engagement.

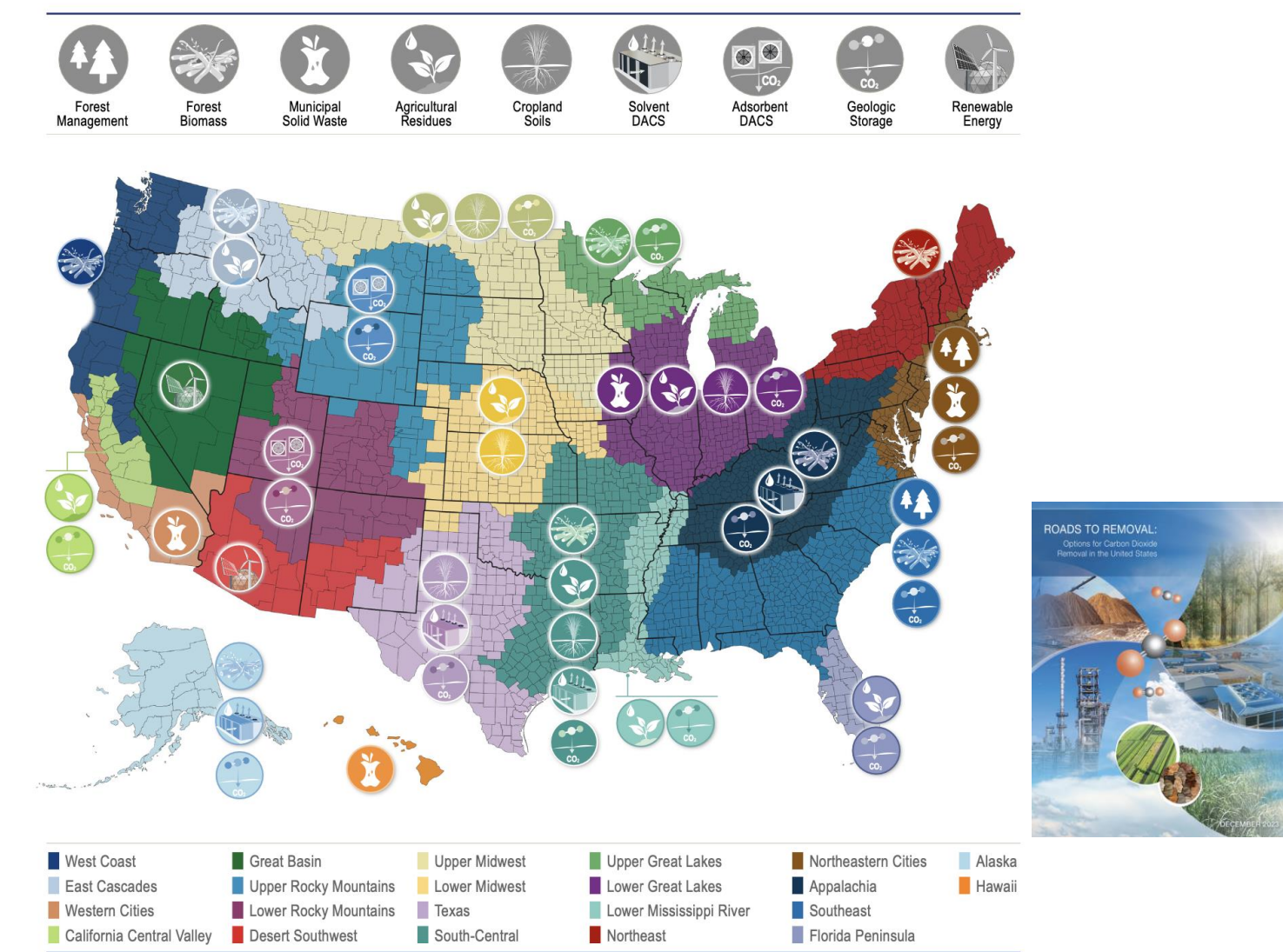
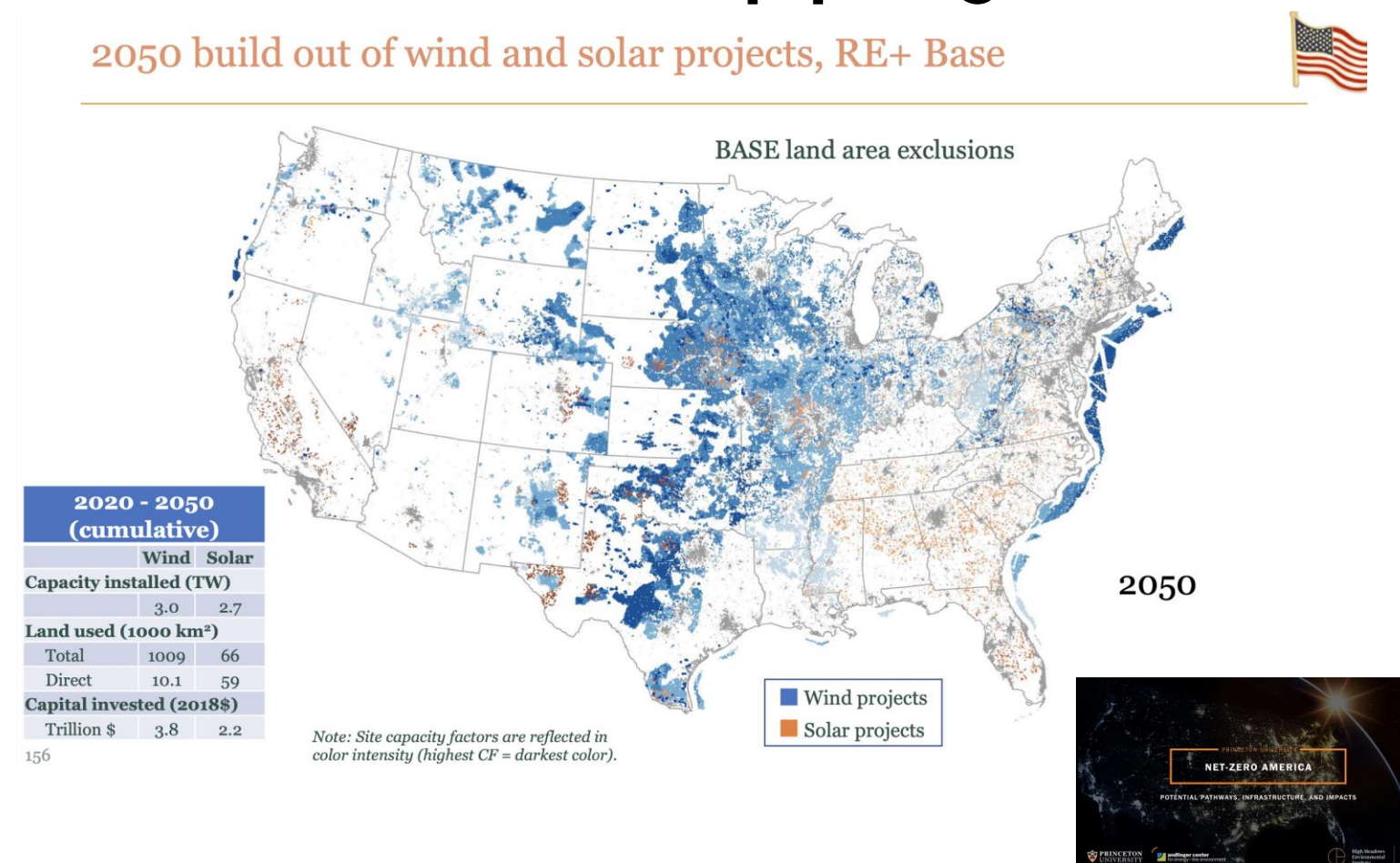
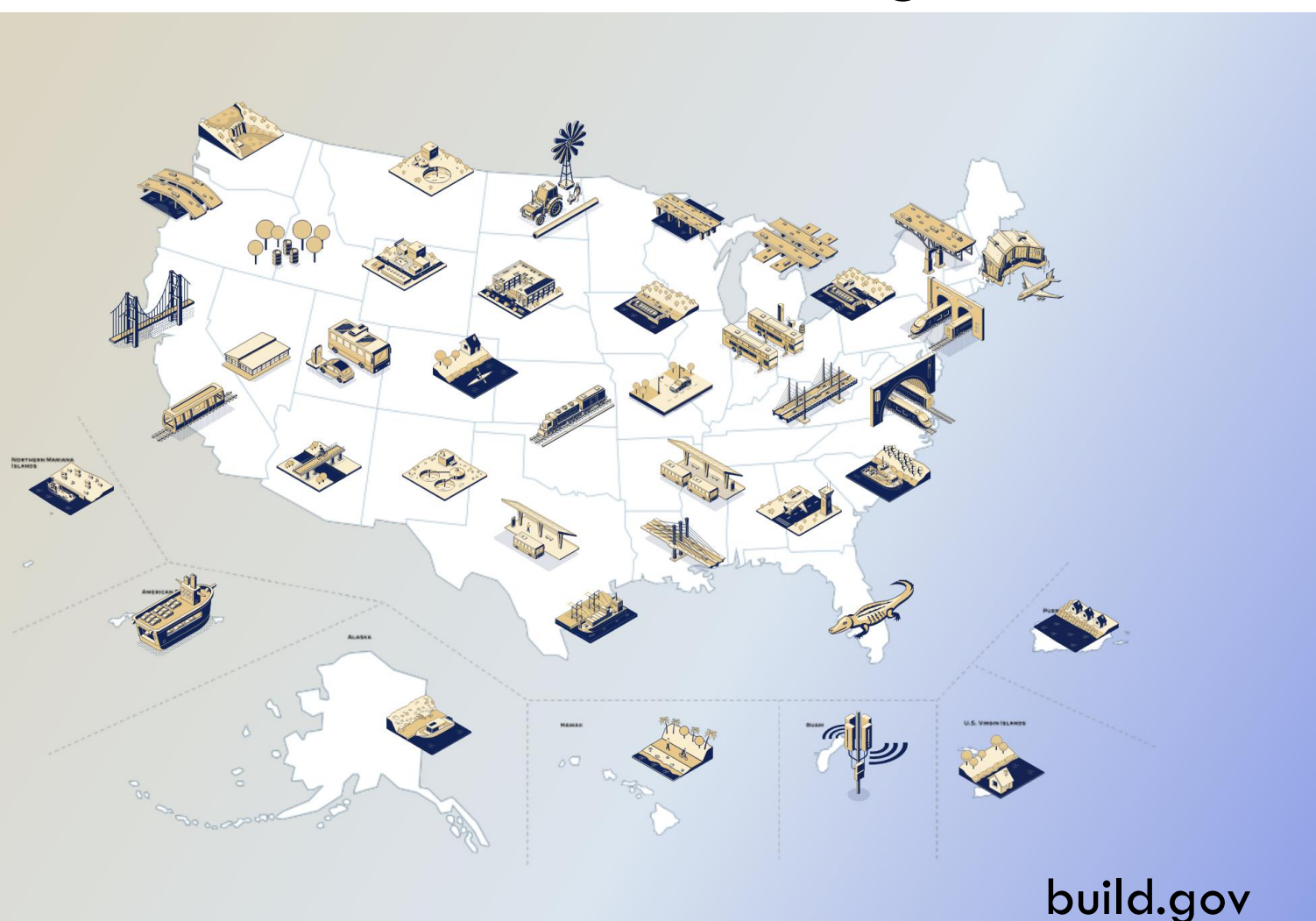
**RFF SRM Social
Science Workshop**

**Prerna Shah
Holly Buck**

Sept. 5 2025

Mapping the social landscape for net zero study: rationale

- Context: increasing geospatial analysis of the opportunities, constraints, and impacts of the energy transition
- Increasing emphasis on “place-based” policy
- How can we bring social dimensions to this mapping?



Research questions

Grounding climate technologies in context: What pressing issues are communities facing, and how do these intersect with how climate projects are viewed or developed?

Feasibility: What technical, political, and social constraints do communities identify to scaling up climate technologies?

Benefit: What benefits do people see from clean energy, carbon removal, or solar geoengineering developments? What would be necessary for those benefits to be realized, and not just hypothetical?

Vulnerability: Who is vulnerable to harms from climate tech projects or policies, and what can be done to address potential harms?

Research methods

- 5 regions: California (northern Sierra), Alaska, Oklahoma, West Virginia, Maine
- Interviews with community leaders, 20-30 per area — government, NGOs / CBOs, agriculture, business, community development, local academic energy and environment experts
- Observation — event participation and site visits
- Focus groups with public (2 per site) — with and without visualization intervention
- Nationally representative survey with regional oversampling (n=3076)



Survey snapshot

YouGov, Sept. 2024, N = 3056, with oversampling in five study regions

Survey flow:

- Desired economic basis
- Procedural justice measures
- Net zero familiarity and perception,
- Attitudes on types of climate tech projects, including carbon removal,
- Solar geoengineering perceptions,
- Environmental and science identity measures

Solar geoengineering introduction

based on Rosenthal et al. 2023

11. Some people have heard about solar geoengineering before and some people haven't. How familiar are you with solar geoengineering?

[Very familiar, somewhat familiar, just a little familiar, It's new to me]

Solar geoengineering means reducing the amount of sunlight that reaches the Earth. One type of solar geoengineering that scientists are exploring is called stratospheric aerosol injection.

Scientists have observed that when volcanoes erupt, they release gases into the upper atmosphere that block sunlight from reaching the Earth's surface. This blocking of sunlight cools the planet.

Based on that effect, scientists have proposed using high-altitude aircraft or balloons to release special gases into the atmosphere to help make the planet cooler. But there may be some problems with this solution. Some scientists think the release of the gases can harm the ozone layer. The gases may also harm the environment and agriculture. They may also affect regional climates, for example by impacting the amount of rain that falls in certain places.

Solar geoengineering questions

12. What is the first thing that comes to mind when you think about solar geoengineering? [open-ended]

13. Do you support or oppose further scientific research into solar geoengineering?
[strongly support, somewhat support, neither support nor oppose, somewhat oppose, strongly oppose]

14. Who do you think should do research on solar geoengineering?

[Governments, researchers in universities, nongovernmental organizations, private companies, citizens, I do not support further research] [Multiple responses allowed]

15. Is it true or false that the United States government has a secret program that uses airplanes to put harmful chemicals into the air (often called “chemtrails”)?
[Completely false, somewhat false, somewhat true, completely true, unsure]

16. Is it true or false that the United States government is currently operating a program that uses airplanes to put chemicals into the air in order to counteract global warming?
[Completely false, somewhat false, somewhat true, completely true, unsure]

Table 1 | Predictors of self-reported familiarity with SRM and support for SRM research (standardized regression coefficients are shown, listwise deletion)

	Familiarity with SRM	Support for SRM research	
Block 1:			
Age	−0.19***	−0.17***	−0.17***
Female	−0.10***	−0.01	−0.02
White	−0.05*	−0.01	−0.01
Hispanic	−0.03	0.02	0.02
Education	0.04*	0.04*	0.05*
Income	−0.01***	0.00	0.01
R^2	0.06	0.07	0.07
Block 2:			
Political ideology	0.09***	−0.22***	−0.25***
Interest in political news	0.11***	−0.04*	0.03
Importance of religion	0.11***	0.01	−0.01
Environmental identity	0.04	0.12***	0.13***
Science identity	0.18***	0.03	0.04
ΔR^2	0.07	0.11	0.11
Block 3 ^a			
Chemtrails are true	0.09***	−0.18***	--
Atmospheric modification is already happening	0.11***	--	−0.11***
ΔR^2	0.07	0.03	0.01
Adjusted R^2	0.13	0.21	0.19
F -test	$F_{11, 2549} = 35.15^{***}$	$F_{12, 2542} = 57.98^{***}$	$F_{12, 2544} = 52.35^{***}$

Assumptions related to hierarchical linear regression, like normality and multicollinearity, were met/ corrected. **p* < 0.05; ***p* < 0.01; ****p* < 0.001.

The bold values indicate significant predictors in the regression model.

^aThese two variables were highly correlated (*r* = 0.66, *p* < 0.001). They were analyzed separately to avoid multicollinearity issues.

What is associated with support for SRM?

Young

High education

Liberals

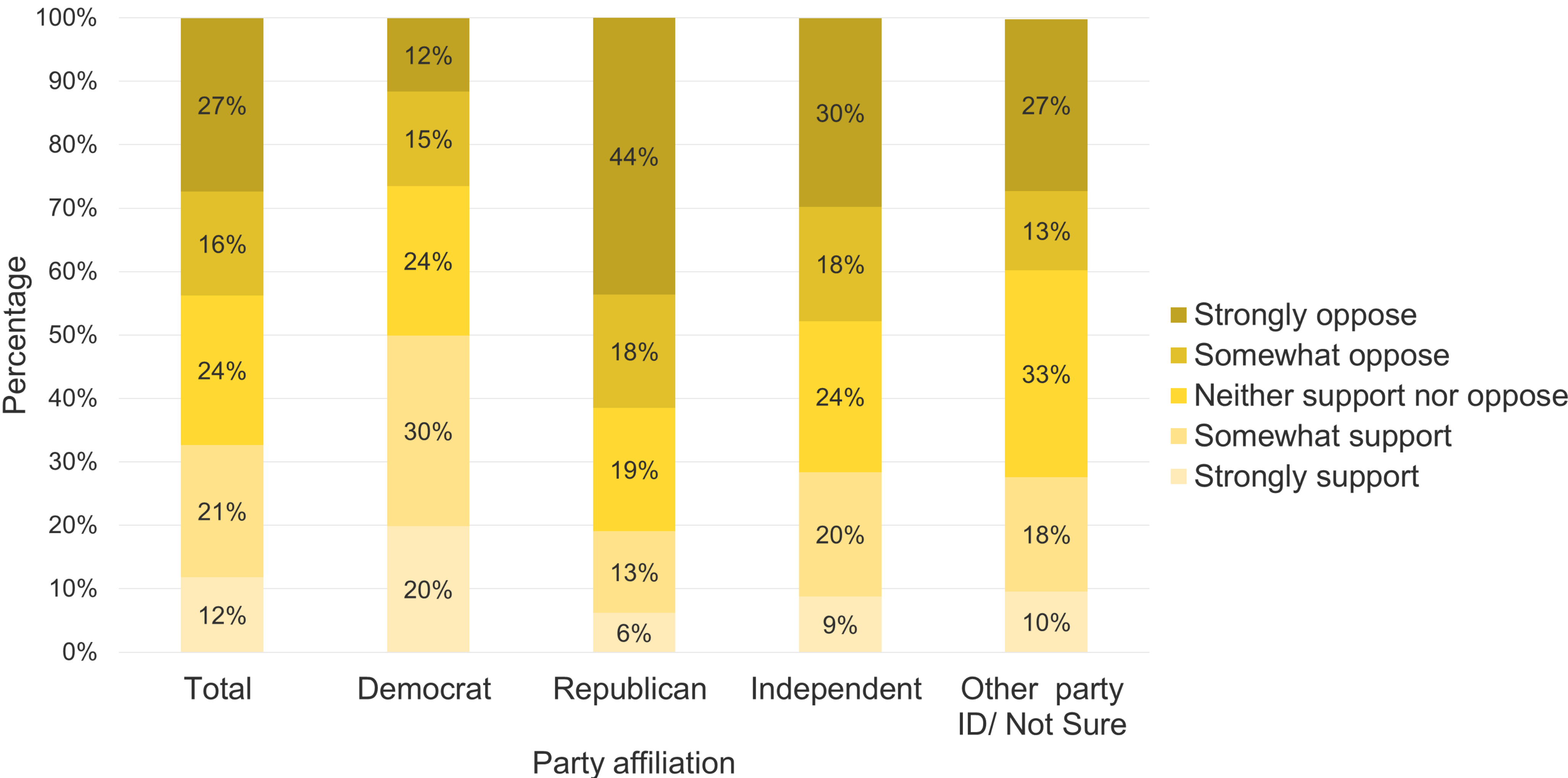
Less interest in political news

Strong environmental identity

Did not believe in chemtrails/airborne interventions

More opposition than support for research

"Do you support or oppose further scientific research into solar geoengineering?"



University-based research widely preferred

"Who do you think should do research on solar geoengineering?" (multiple answers allowed)

Researchers in universities (71.3%)

Governments (43%)

NGOs (43.8%)

Private companies (32.6%)

Citizens (16.7%)

Initial reactions: Low levels of familiarity with SRM with highly reluctant and deeply conditional acceptance of further study

Table 2 | Prevalence of initial reactions to SRM in open-ended survey responses

Reaction type	Prevalence	Examples
1. Skeptical and cautious	22.4% (<i>n</i> = 690)	Risky, dangerous, scary, “more harm than good”, unintended consequences
2. Skeptical and cautious, but pointing to the need for research	4.3% (<i>n</i> = 132)	“There is a potential benefit, but it could also harm. We need to do more research to insure the benefit outweighs the negative impact”, “further testing is needed”, “It’s a very interesting idea, but a lot more thought and research would have to go into it before implementation. It sounds very risky”.
3. Strong rejection	25% (<i>n</i> = 770)	Strong language about outcomes like “devastation”, “disaster”, “It will kill Earth”; statements about playing God (“It’s a very bad idea. Nobody should be messing with God’s Earth. PERIOD.”); stupid, crazy, insane; statements in the imperative mode (“Stop messing around with nature. All of your supposed knowledge will bring destruction!”)
4. Impossible, expensive, or impractical	4.3% (<i>n</i> = 131)	Impossible, expensive, costly, unfeasible, will not work, waste of money, unrealistic
5. Association with solar panels	3.6% (<i>n</i> = 110)	Solar panels, getting energy from solar, electricity from solar (while SRM is not connected with solar energy, the word “solar” has these connotations for some)
6. Chemtrails	1.3% (<i>n</i> = 41)	Chemtrails, spraying the atmosphere with planes, people trying to control our weather, “solar geoengineering has been going on for over 20 years LOOK UP”
7. Strong support for research	.03% (<i>n</i> = 10)	“I feel solar geoengineering is a great idea. It’s a way that we could possibly help save our planet,” “I think it is a good idea and I really support it”.
8. Science fiction	2.4% (<i>n</i> = 74)	Science fiction, “Star Trek stuff”, bad disaster movies in general — in order of frequently mentioned: episode of <i>The Simpsons</i> where Mr. Burns blocks out the sun (<i>n</i> = 13), <i>The Matrix</i> , <i>Snowpiercer</i> , <i>Futurama</i> , “The plot of Highlander II. Nobody wants the plot of Highlander II”.

Perceptions of airborne chemical programs over time

2011	2016	2024	2024
“Do you believe it is true that the government has a secret program that uses airplanes to put harmful chemicals into the air?”	“Do you believe it is true that the government has a secret program that uses airplanes to put harmful chemicals into the air (often called “chemtrails”)?”	“Is it true or false that the government has a secret program that uses airplanes to put harmful chemicals into the air (often called “chemtrails”)?”	“Is it true or false that the government is currently operating a program that uses airplanes to put chemical into the air in order to counteract global warming?”
Completely true: 2.6%	Completely true: 9%	Completely true: 10%	Completely true: 8%
Somewhat true: 14%	Somewhat true: 19%	Somewhat true: 10%	Somewhat true: 12.5%
	Somewhat false: 15%	Somewhat false: 7%	Somewhat false: 8%
	Completely false: 32%	Completely false: 34%	Completely false: 22%
	Unsure: 25%	Unsure: 39%	Unsure: 49.5%
Mercer et al (2011)	Tingley & Wagner (2017)	Buck et al (2025)	Buck et al (2025)

Say it with me:

No

We will not comply. Period.

No to Eating Bugs.

No to Medical Mandates.

No to Vaccine Passports/Digital ID.

No to Social Credit Systems.

No to Geoengineering.

No to Involuntary Biomodification.

No to Global Sovereignty.

☒ **YES TO NATURAL LAW.**

☒ **YES TO HUMAN RIGHTS.**

TERRESTRIAL HUMAN RIGHTS

"Conspiracy theorists" 🏰 after accurately predicting the past 10 years of

- ✓ Facial recognition
- ✓ Drones in our skies
- ✓ Rampant censorship
- ✓ Digital Identification
- ✓ Digital currencies
- ✓ **Geoengineering**
- ✓ Smart cities
- ✓ State/media collusion

Maybe it's time to start listening?



Chemtrails: a turn of the millennium concern

- Late 1990s - early 2000s: idea of chemtrails spreads on late-night radio
- Understood as “hoax” or “urban legend”

THE TRUTH IS UP THERE

PORTLAND "CHEM TRAIL" TRACKERS SAY TERRORISTS AREN'T THE ONLY DANGERS LURKING IN THE SKIES

By Chris Lydgate

September 25, 2001 at 5:00 pm PDT

Every morning when she opens her eyes, Patricia Leedy, a Hillsboro antique dealer, rolls out of bed, pulls back the blinds and scans the sky. She's not worried about the terrorists. She's worried about jet contrails.

Not the ordinary contrails, the needle-thin lines which dissipate within minutes. Leedy has seen those all her life. What worry her, what gnaw at her, what set her pulse racing and her joints aching and her lungs itching, are what she calls the *chemtrails*--the thick, white plumes that linger for hours, their wispy tendrils meshing into a ghostly veil that smothers the sky.

Professor William Randall, who teaches chemistry at Lewis & Clark College, has seen them, too. So have chimney sweeper Mark Guy, writer Deborah Yates, photographer Courtney Scott and trumpet player Derek Sims.

United States
Environmental Protection
Agency

Air and Radiation
(6205J)

EPA430-F-00-005
September 2000
www.epa.gov



Aircraft Contrails Factsheet

Summary

This fact sheet describes the formation, occurrence, and effects of “condensation trails” or “contrails.” It was developed by scientific and regulatory experts at the Environmental Protection Agency (EPA), the Federal Aviation Administration (FAA), the National Aeronautics and Space Administration (NASA), and the National Oceanic and Atmospheric Administration (NOAA) in response to public inquiries regarding aircraft contrails. Contrails are line-shaped clouds sometimes produced by aircraft engine exhaust, typically at aircraft cruise altitudes several miles above the Earth’s surface. The combination of water vapor in aircraft engine exhaust and the low ambient temperatures that often exists at these high altitudes allows the formation of contrails. Contrails are composed primarily of water (in the form of ice crystals) and do not pose health risks to humans. They do affect the cloudiness of the Earth’s atmosphere, however, and therefore might affect atmospheric temperature and climate. The basic processes of contrail formation described in this fact sheet apply to both civil and military aircraft.

What are contrails?

Contrails are line-shaped clouds or “condensation trails,” composed of ice particles, that are visible behind jet aircraft engines, typically at cruise altitudes in the upper atmosphere¹. Contrails have been a normal effect of jet aviation since its earliest days. Depending on the temperature and the amount of moisture in the air at the aircraft altitude, contrails evaporate quickly (if the humidity is low) or persist and grow (if the humidity is high). Jet engine exhaust provides only a small portion of the water that forms ice in persistent contrails. Persistent contrails are mainly composed of water naturally present along the aircraft flight path.

How are aircraft emissions linked to contrail formation?

Aircraft engines emit water vapor, carbon dioxide (CO₂), small amounts of nitrogen oxides (NO_x), hydrocarbons, carbon monoxide, sulfur gases, and soot and metal particles formed by the high-temperature combustion of jet fuel during flight. Of these emitants, only water vapor is necessary for contrail formation. Sulfur gases are also of potential interest because they lead to the formation of small particles. Particles suitable for water droplet formation are necessary for contrail formation. Initial contrail particles, however, can either be already present in the atmosphere or formed in the exhaust gas. All other engine emissions are considered nonessential to contrail formation.

¹This fact sheet focuses on contrails produced by aircraft engine exhaust. However, the term “contrail” is also used to refer to the short trails sometimes briefly appearing over aircraft wings or engine propellers, especially under mild, humid conditions. These contrails consist entirely of atmospheric water that condenses as a result of local reductions in pressure due to the movement of the wing or propeller.



Concern resonates with environmentalists

► SUMMER 2002

Stolen Skies: The Chemtrail Mystery

Jet Trails in the Sky Used to Disappear. Now they Linger.

BY WILLIAM THOMAS

H.R.2977 - Space Preservation Act of 2001

107th Congress (2001-2002)

BILL Hide Overview ✕

Sponsor: [Rep. Kucinich, Dennis J. \[D-OH-10\]](#) (Introduced 10/02/2001)

Committees: House - Science; Armed Services; International Relations

Latest Action: House - 04/19/2002 Unfavorable Executive Comment Received from DOD. [\(All Actions\)](#)

Tracker: ⓘ **Introduced**

107th CONGRESS
1st Session

H. R. 2977

To preserve the cooperative, peaceful uses of space for the benefit of all humankind by permanently prohibiting the basing of weapons in space by the United States, and to require the President to take action to adopt and implement a world treaty banning space-based weapons.

- (B) Such terms include exotic weapons systems such as--
- (i) electronic, psychotronic, or information weapons;
 - (ii) chemtrails;
 - (iii) high altitude ultra low frequency weapons systems;
 - (iv) plasma, electromagnetic, sonic, or ultrasonic weapons;
 - (v) laser weapons systems;
 - (vi) strategic, theater, tactical, or extraterrestrial weapons; and
 - (vii) chemical, biological, environmental, climate, or tectonic weapons.

(C) The term ``exotic weapons systems'' includes weapons designed to damage space or natural ecosystems (such as the ionosphere and upper atmosphere) or climate, weather, and tectonic systems with the purpose of inducing damage or destruction upon a target population or region on earth or in space.

2000s and 2010s: idea of chemtrails travels globally on the internet

But by the 2020s:

- Language of geoengineering and SRM, not chemtrails
- Belief that geoengineering is ongoing for purposes of climate control / masking the ongoing climate collapse

Exponential growth has brought us to a very dark place. Collectively, we have chewed up, guzzled, belched, and spat out more than the planet can replace in any time frame that matters. In other words, we have long since exceeded Earth's carrying capacity.

Governments can no longer provide for their populations, and the Controllers know this: they know that we are about to hit the wall at full velocity, and they aim to be the last ones standing—if only to rule over the ashes of a toxic legacy.

A primary objective of these operations (which include engineered *winter*) is a last ditch effort to keep the masses from panicking by sowing doubt as to the true extent of the damage already done to the climate. These engineered cool-downs come at the cost of a greater overall warming, while simultaneously contaminating the entire web of life.

RFK: “Geoengineering is a threat that is probably as dangerous to us as climate change itself”

Wignington: “Given the severity of climate collapse, why would we think that governments around the world wouldn’t deploy this in a last ditch effort to keep business as usual until the last possible moment?”



People, most environmentalists today focus on climate and climate is a real issue. And I've spent 40 years looking at that science, but what we've seen over the past couple of years is that that issue has been captured, hijacked in many ways by the World Economic Forum and particularly by Bill Gates. And they're doing the same thing to us as the pharmaceutical industry does, which is they aggravate the problem and then sell us the solution.

And of course the solution that they want for climate are more social controls. And then the big solution of geoengineering projects, which of course Bill Gates is funding all over the world. And today, I want to talk about geoengineering and particularly as it's related to climate because it is a threat that the environmental community needs to know about and the rest of us need to know about.

It is a threat that is probably as dangerous to us as climate change itself. And that's why I've invited today to talk to us Dane Wignington, who is the producer of the

“Well, most people don't really know like, what companies push whatever stuff out of their factories... Like, even today, like even now, we won't really know if whatever they're pushing there will give us cancer or kill us off faster.” (Wasilla, Alaska)

“And as far as the chemtrails, I'm like, I heard about it and I thought, I don't know. I don't know. But then I noticed it myself. I just saw it and then I started realizing, I started seeing where different states were outlawing it. My main source of information, outside information, if I don't go and look it up myself is X, I'm on X. And I see a state that they have outlawed it, their governors outlawed it.” (Oklahoma City)

Are these aerosols that they're using carcinogens? I mean —

Speaker 5 (01:09:03):

What's in it?

Speaker 4 (01:09:04):

Yeah. Is it going to soak into our plants and back into the earth when back into our bodies? Because eating this stuff,

Speaker 6 (01:09:12):

I don't think we need more aerosols in the atmosphere just because we already do that with crops, pesticides or mosquito vector spray.

And I don't know if it happened here in Chico, but I know in Gridley a few months ago, got some weird rain that left a yellow residue on the ground and I've never seen that my entire life. And it wasn't like, oh, maybe it was from something else. You could see the residue from the rain and it was yellow.

Speaker 3 (01:09:43):

They spray a lot of these olive branches and stuff with some nasty stuff. And the groves around Chico are very toxic. I know people that bought groves nut groves and they lost two or three dogs in the first year they were there. They're licking the plants and stuff, but they have to spray 'em. So that's an aerosol is a fumigant. And what's sprayed in the air is another thing that EPA is trying to work with I think. So there's a lot of nasty stuff flying out there, but in this town, you don't get this in New York City, won't get them worried about spraying nut farms. But here in this little area, I drove through one once and it was like there was a cloud. They said, what am I going through?



“This would really freak out my Sky Watch friends, really freak them out. They're convinced that the government's spreading aluminum all over the United States in order to make their populace more compliant.

... I've been aware of these kinds of plans. I've never seen them growing like this before and I get the science. I think the implementation would freak out the populace to a really major extent. I think 20% of us would be willing to go to war over it.

....I think getting people on board with it is going to be a massive challenge and it'll be the kind of thing that costs politicians their careers.” — interviewee, Paradise, California



Para-environmentalism: a form of environmentalism that exists alongside traditional environmentalism

- Para-environmental ideas are not grounded in empirics, and hence don't possess the legitimacy of environmental ideas
 - So they are trafficked outside of environmental institutions, and by people who may not have "environmentalist" identities
 - Yet they have roots in traditional environmentalist concerns about the unintended consequences of chemistry, industrial technology, and agriculture — especially with regards to under-regulated big corporations, power dynamics, agency, transparency, etc.

This means that communication strategies that address those concerns are needed



Rep. Marjorie Taylor Greene   

@RepMTG



I am introducing a bill that prohibits the injection, release, or dispersion of chemicals or substances into the atmosphere for the express purpose of altering weather, temperature, climate, or sunlight intensity. It will be a felony offense.

I have been researching weather modification and working with the legislative counsel for months writing this bill.

It will be similar to Florida's Senate Bill 56.

We must end the dangerous and deadly practice of weather modification and geoengineering.

8:59 AM · Jul 5, 2025 · **8.2M** Views



15K



29K



119K






6.6K



Post your reply

Reply



Rep. Marjorie Taylor Greene    @RepMTG · Jul 5



This is not normal.

I want clean air, clean skies, clean rain water, clean ground water, and sun shine just like God created it!!

No person, company, entity, or government should ever be allowed to modify our weather by any means possible!!

Table 5 | Predictors of belief in airborne chemical programs (standardized regression coefficients are shown, listwise deletion)

	Chemtrails are true	Atmospheric modification is already happening
Block 1:		
Age	−0.05**	−0.10***
Female	0.22***	0.09***
White	−0.02	−0.02
Hispanic	0.01	0.01
Education	−0.10***	−0.06**
Income	−0.09***	−0.08***
R^2	0.06	0.04
Block 2:		
Political ideology	0.26***	0.23***
Interest in political news	−0.09***	−0.04
Importance of religion	0.13***	0.12***
Environmental identity	−0.03	−0.01
Science identity	−0.03	−0.01
ΔR^2	0.13	0.09
Adjusted R^2	0.19	0.13
F-test	$F_{11, 2544} = 54.52^{***}$	$F_{11, 2546} = 34.18^{***}$

Response categories for both outcome variables were coded as completely false = 1, somewhat false = 2, unsure = 3, somewhat true = 4, and completely true = 5. Assumptions related to hierarchical linear regression, like normality and multicollinearity, were met/corrected.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Key demographics and beliefs/interests predict para-environmental beliefs

Young
Female

Low education
Low income

Conservatives

Low interest in political news
(Chemtrails only)

Religious

Recommendations

- Disseminating accurate information about solar geoengineering before conspiratorial beliefs are formed
 - ✓ Inoculation
 - ✓ Pre-bunking
- Interventions that frame the problem solely as misinformation in need of correction are likely to backfire

Two-way engagement methods

- ✓ Key role of local and regional universities
- ✓ More research to understand para-environmental views

Thank you! Questions?

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On the job market!
Please scan the QR code
to know more:



Dr. Holly Buck
Associate Professor
Dept. of Environment and
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www.decarb.social

Extra Slides

Semi-structured interviews

Respondents were asked:

- In thinking about solar geoengineering, what are some of the initial questions, concerns, or opportunities that come to mind?
- What do you think the potential risks and benefits of solar geoengineering might be?
- Do you think there should be research in this area? If so, how do you think it should be done?

Focus groups

Respondents were asked:

- In thinking about solar geoengineering, what are some of the initial questions, concerns, or opportunities that come to mind?
- What do you think the potential risks and benefits of solar geoengineering might be?
- Do you think there should be research in this area? If so, how do you think it should be done?

Survey

The survey was fielded from Sept. 4 to Sept. 23, 2024. Participants ($n = 3076$) were recruited and compensated by YouGov. The sample included 2000 US General Population participants with oversampling from Alaska ($n = 189$), West Virginia ($n = 196$), Maine ($n = 189$), Oklahoma ($n = 205$), and Northeastern California ($n = 297$). Participants in the main General Population sample ($n = 2000$) were matched to a politically representative “modeled” sampling frame of US adults on gender, age, race, and education (see Table 7 for survey demographics).

Extra Slides

Survey

Open-ended response analysis. Responses were examined by two coders based on nine categories derived from focus group and interview results: firm rejection, risky, unsure, chemtrails, solar power, impossible/expensive, nuanced support for research, strong support for research or deployment, and science fiction. Two coders completed two rounds of coding, each with 10% of the statements ($n = 300$) and achieved a high level of inter-rater reliability ($\kappa > 0.8$) for all nine categories. Thereafter, the remaining statements were assessed by one coder.

Hierarchical, linear regression analyses controlled for demographics, political ideology (1 = very liberal, 5 = very conservative, $M = 3.01$, $SD = 1.16$), interest in political news (1 = hardly at all, 2 = only now and then, 3 = some of the time, 4 = most of the time, $M = 3.18$, $SD = 0.96$), importance of religion (1 = not at all important, 2 = not too important, 3 = somewhat important, 4 = very important, $M = 2.6$, $SD = 1.20$), environmental identity (average of two items, I think of myself as someone who is concerned about the environment; Being environmentally friendly is an important part of who I am, averaged index: $M = 5.01$, $SD = 1.43$, $\alpha = 0.85$), science identity (average of two items, I think of myself as someone who is interested in science; Being informed about science is an important part of who I am, $M = 5.05$, $SD = 1.41$, $\alpha = 0.87$), belief in chemtrails ($M = 2.56$, $SD = 1.31$), and belief in atmospheric modification already happening ($M = 2.77$, $SD = 1.16$) as shown in Tables 1, 5 in the paper.

Table 7 | Survey sample demographics ($N = 3076$)

Variables	<i>M</i> (SD) or Percentage (<i>n</i>)
Age	51.33 (17.05)
Female	53.9% (1657)
Race	
White	71.1% (2186)
Black	9.5% (291)
Hispanic	8.2% (252)
Asian	3.3% (101)
Native American	1.7% (51)
Two or more races	4.1% (125)
Other	2.3% (70)
Education	
Less than a high school diploma	4.1% (125)
High school degree or equivalent	29.3% (902)
Some college	21.2% (653)
2-year college	10.3% (318)
4-year college	21.7% (666)
Post-graduate degree	13.4% (412)
Family income	
Less than \$10,000	6.2% (191)
\$10,000–\$29,999	17.8% (549)
\$30,000–\$49,999	15.5% (477)
\$50,000–\$79,999	20.1% (617)
\$80,000–\$149,999	21.1% (648)
\$150,000 or more	9.1% (280)
Prefer not to say	10.2% (314)
Party identity	
Democrat	32.2% (991)
Republican	28.2% (867)
Independent	28.9% (889)
Other	10.7% (329)