

Responsible reporting on climate repair*

(*and why language like this really matters)

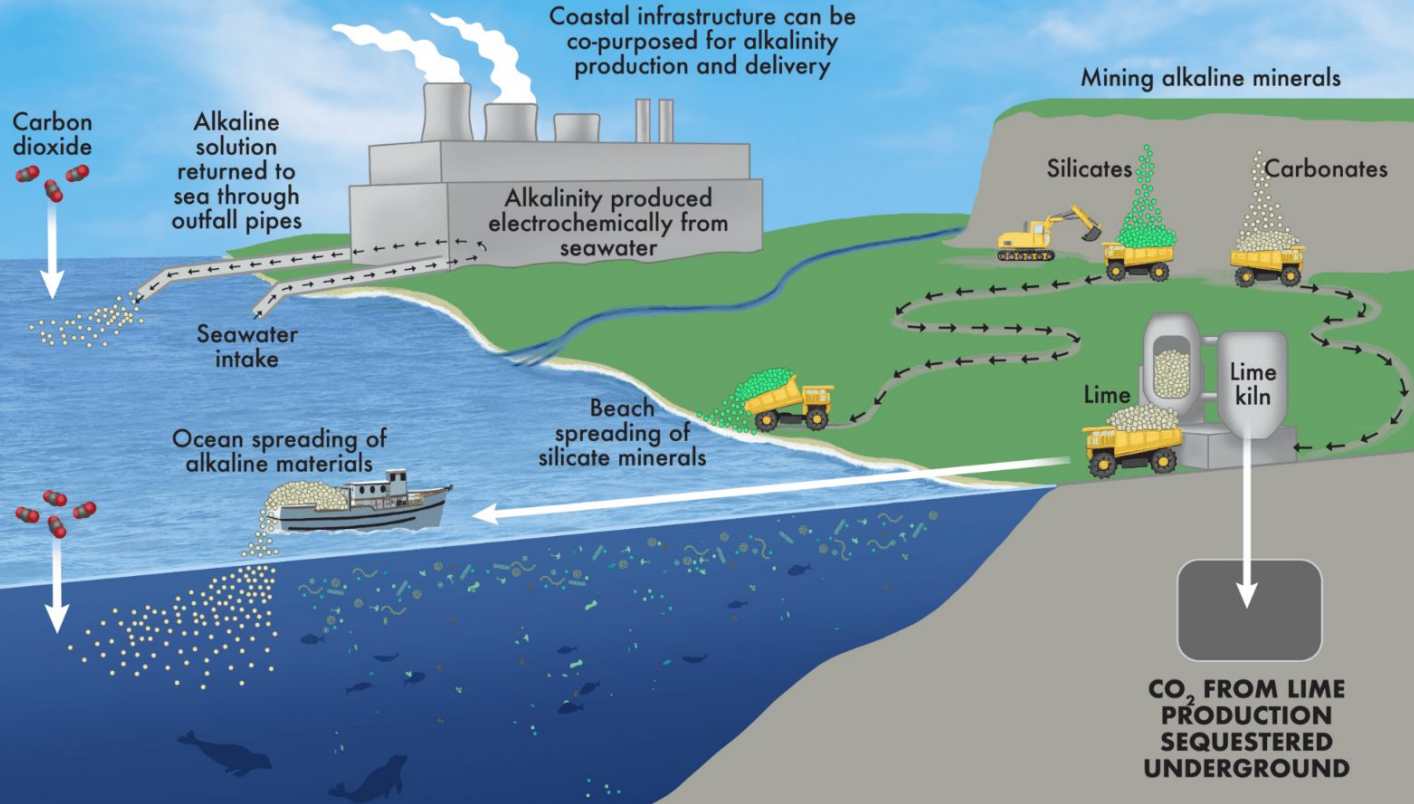
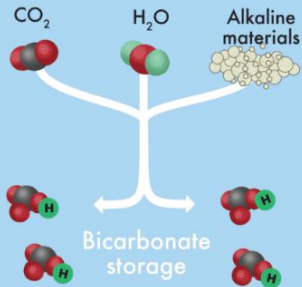
What's 'climate repair'?

- 1. What are these technologies?**
- 2. What are their issues?**
- 3. How should we report on them?**



OCEAN ALKALINITY ENHANCEMENT

CARBON DIOXIDE IN SEAWATER + ALKALINITY = CARBON STORED IN THE OCEAN AS BICARBONATE





A Dose of Antacids, a Quaint British Bay, and a Public Relations Fiasco

Uproar over an ocean alkalinity enhancement pilot project in St. Ives Bay raises an important question: who gets to decide where climate change projects are tested?

by Yannic Rack

June 18, 2024 | 5,000 words, about 25 minutes



**Carbon-dioxide
removal**

**Solar
geoengineering**

**Carbon-dioxide
removal**

**Solar
geoengineering**

Carbon-dioxide removal

- 1. Necessary for meeting our climate goals**
- 2. Addresses what's causing climate change in the first place**

Solar geoengineering

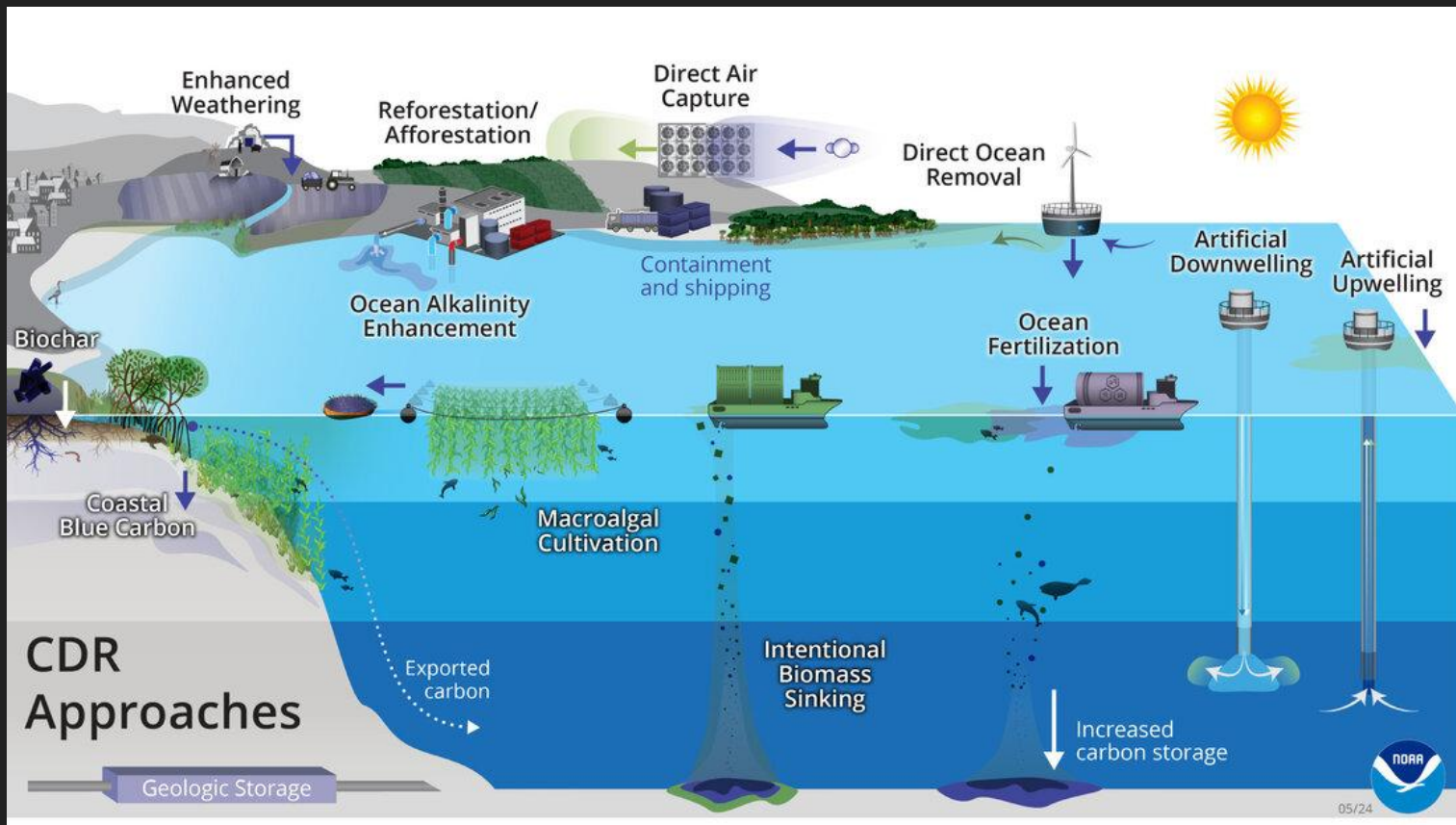
- 1. Doesn't address what's causing climate change in the first place**
- 2. Might provide some temporary cooling**

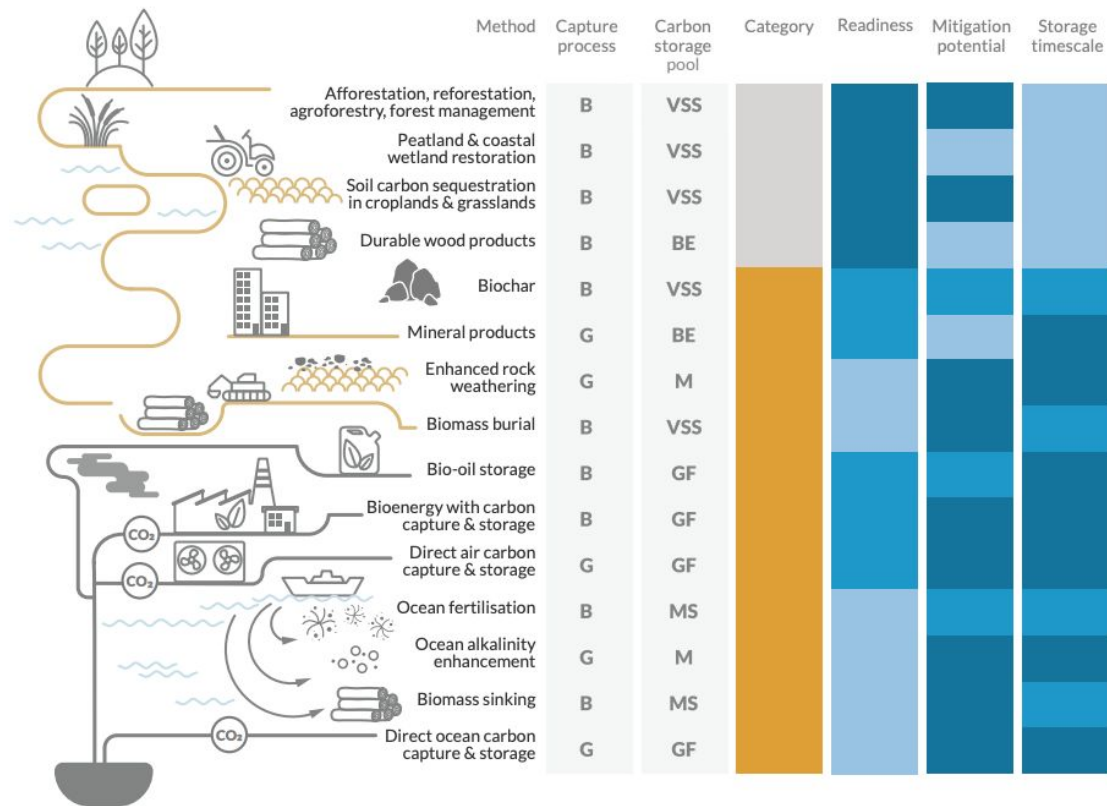


Carbon Dioxide Removal (CDR) is necessary to achieve net zero CO₂ and GHG emissions both globally and nationally, counterbalancing 'hard-to-abate' residual emissions.

CDR is also an essential element of scenarios that limit warming to 1.5°C or below 2°C by 2100, regardless of whether global emissions reach near zero, net zero or net negative levels.

IPCC 2022





Legend:

B Biological
G Geochemical

VSS Vegetation, soils and sediments
BE Built environment
GF Geological formations
MS Marine sediments
M Minerals

Conventional
Novel

High
Medium
Low

Large
Moderate
Small

> Ten millennia
Centuries to millennia
Decades to centuries

In Response to Climate Change, Governments are Relying on Land for Carbon Dioxide Removal.

We calculated how much land is included in pledges:
around 1 billion ha. That's about two thirds of the world's
arable land.

[DATA VISUALIZATIONS](#) [2025 LAND GAP REPORT](#)[2022 LAND GAP REPORT](#)[PAST ASSESSMENTS](#) 

**How do you know when
you've removed some carbon
dioxide?**



Andrew Yool

@DrYool

...

Goddamnit [#SouthernOcean](#)! Make your mind up! Are you more of a [#CO2](#) sink than we thought or less!?

AKA: Uncertain, difficult-to-measure, likely-to-be-changing process provides endless headline mill for PopSci outlets.

FEATURECLIMATE

The Southern Ocean may be less of a carbon sink than we thought

The water surrounding Antarctica may be belching more CO₂ than it takes in



ALT

FRIEND OR FOE? The water around Antarctica absorbs a lot of the

Home Nanotechnology Physics Earth Asti >

Southern Ocean absorbing more CO₂ than previously thought, study finds

by University of East Anglia



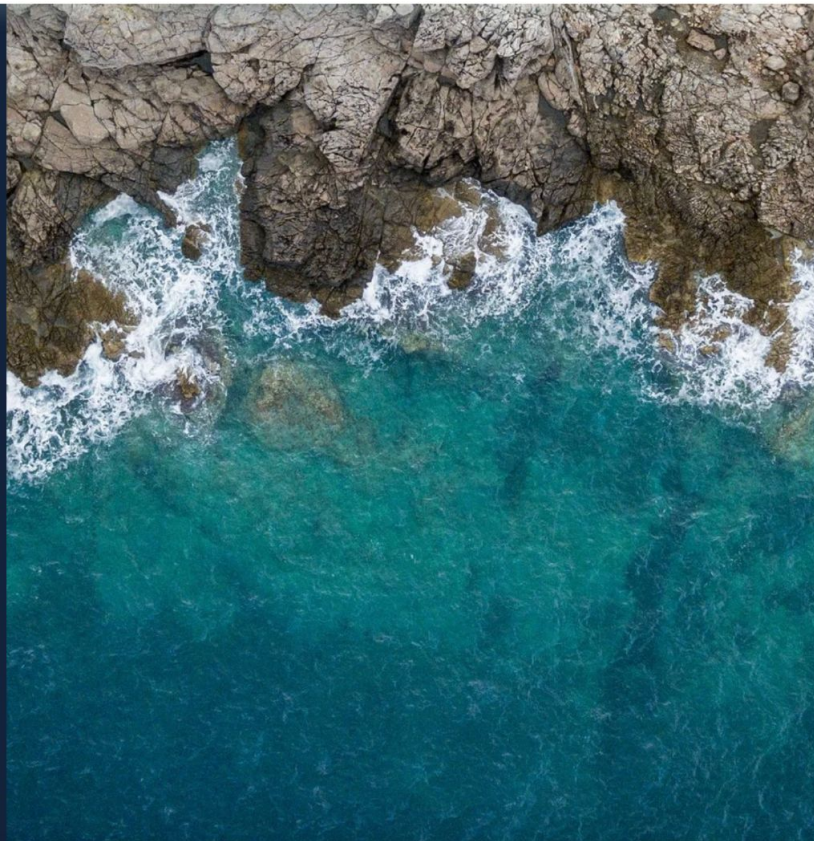
ALT

7:29 pm · 1 Aug 2024 from Southampton, England · 2,862 Views

Measurement, reporting and verification (MRV)



Carbon removal policy over the next few years will be consequential. We make sure those policies are effective and accountable.



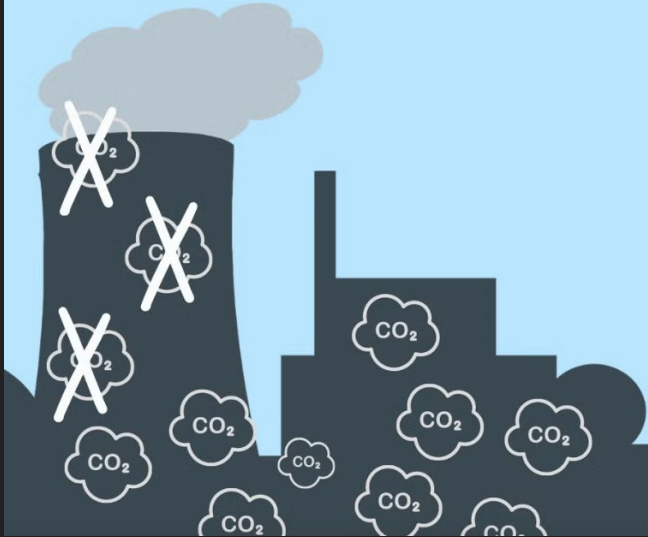
Can it scale?



**Carbon removal is NOT
carbon capture**

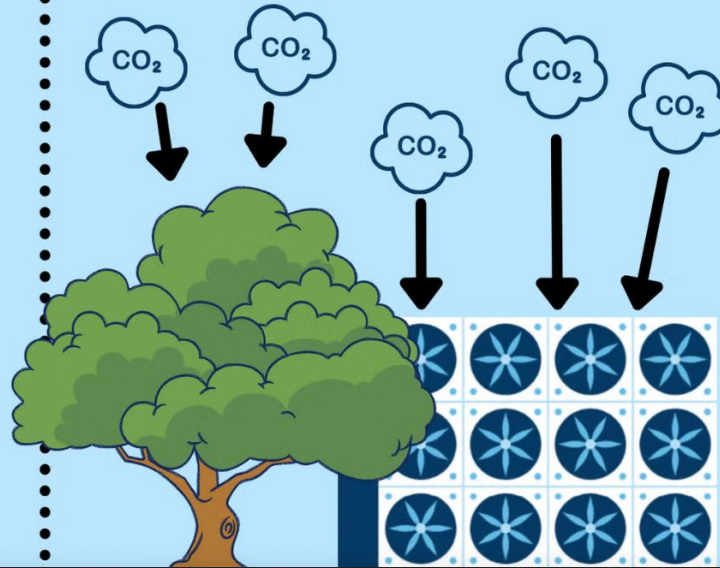
carbon capture

preventing CO₂ from entering the atmosphere



carbon removal

pulling CO₂ out of the atmosphere



**Carbon
removal**

**Carbon
capture**

**Does it remove
CO₂ from the
atmosphere?**



Which of these is a **carbon removal** method, and which is a **carbon capture** method?

- Bioenergy with carbon capture and storage (BCCS)
- Direct ocean capture (DOC)
- Carbon capture and storage (CCS)
- Direct air capture (DAC)
- Carbon capture, utilisation and storage (CCUS)

Which of these is a **carbon removal** method, and which is a **carbon capture** method?

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- **Carbon capture, utilisation and storage (CCUS)**

Is carbon capture an efficient way to tackle CO2?

6 August 2024

Share ↵ Save 📌

Adrienne Murray

Technology Reporter, Iceland



Climeworks' Icelandic plant captures CO2 direct from the atmosphere

It could be a scene from science fiction. Towering over dark, mossy lava fields are stacks of noisy machines the size of shipping containers, domes, and zig-zagging silver pipes.

Found 30km (19 miles) southwest of Iceland's capital Reykjavik, this is the world's largest direct air capture (DAC) facility.

Terminology is horrible!



A global,
independent
scientific
assessment
of Carbon
Dioxide
Removal

2nd EDITION | 2024

A collaboration led by Oliver Geden
(German Institute for International and
Security Affairs, SWP), Matthew J Gidden
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Wisconsin-Madison) and Stephen M
Smith (University of Oxford)



Carbon dioxide removal in the G20 pledges: limited and lacking credibility

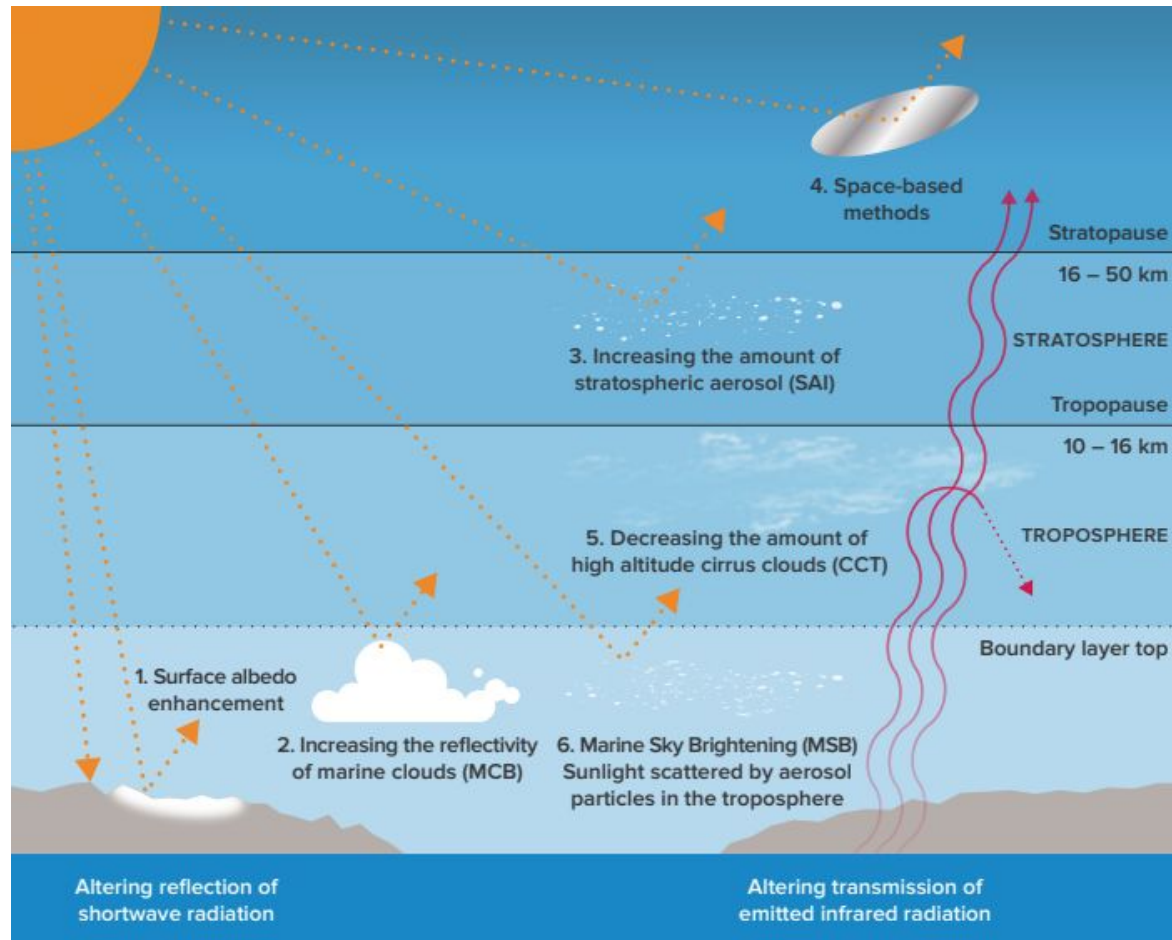
THE STATE OF
Carbon Dioxide Removal

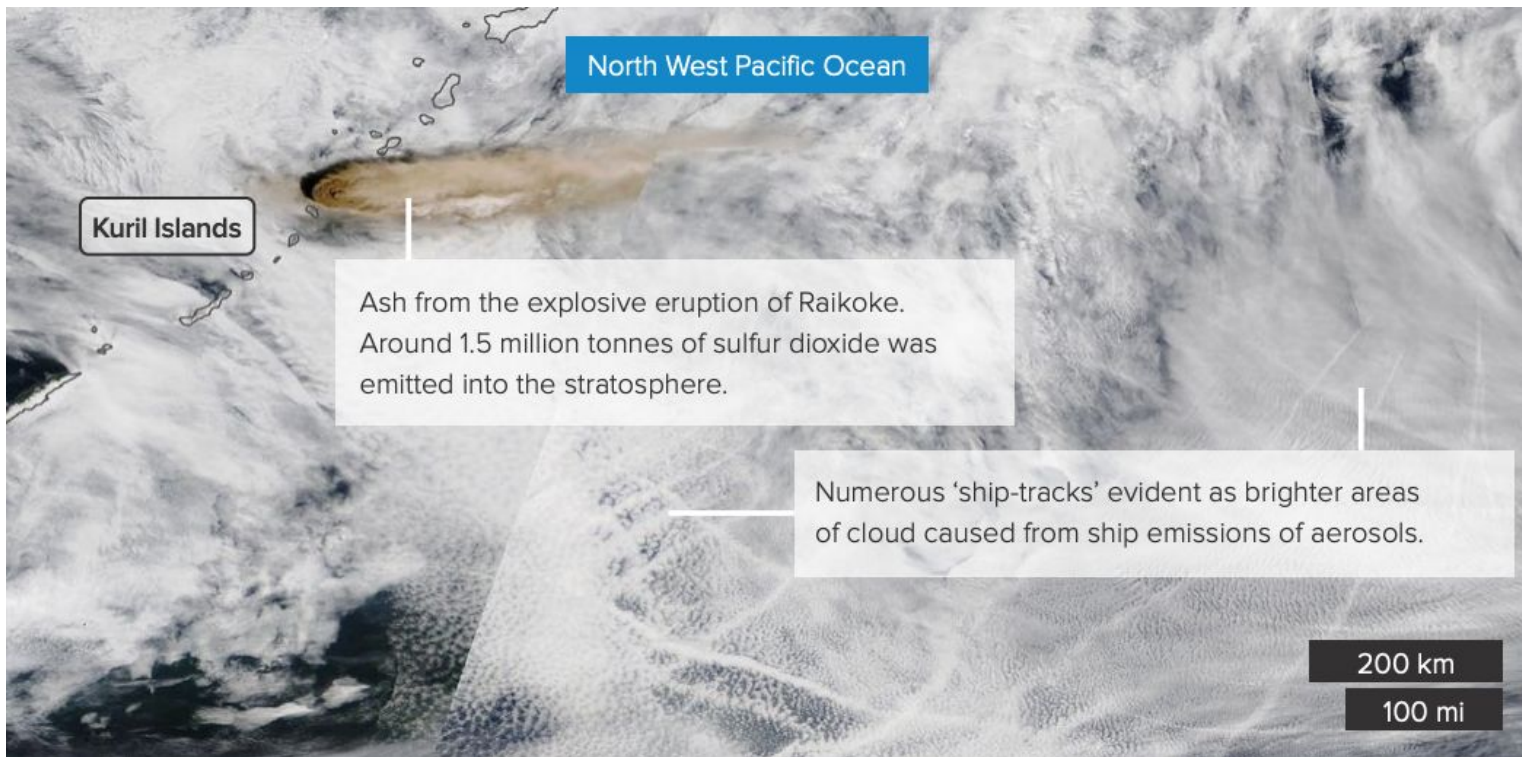
Insight Report

William F. Lamb, Carley C. Reynolds

stateofcdr.org

What's solar geoengineering?





North West Pacific Ocean

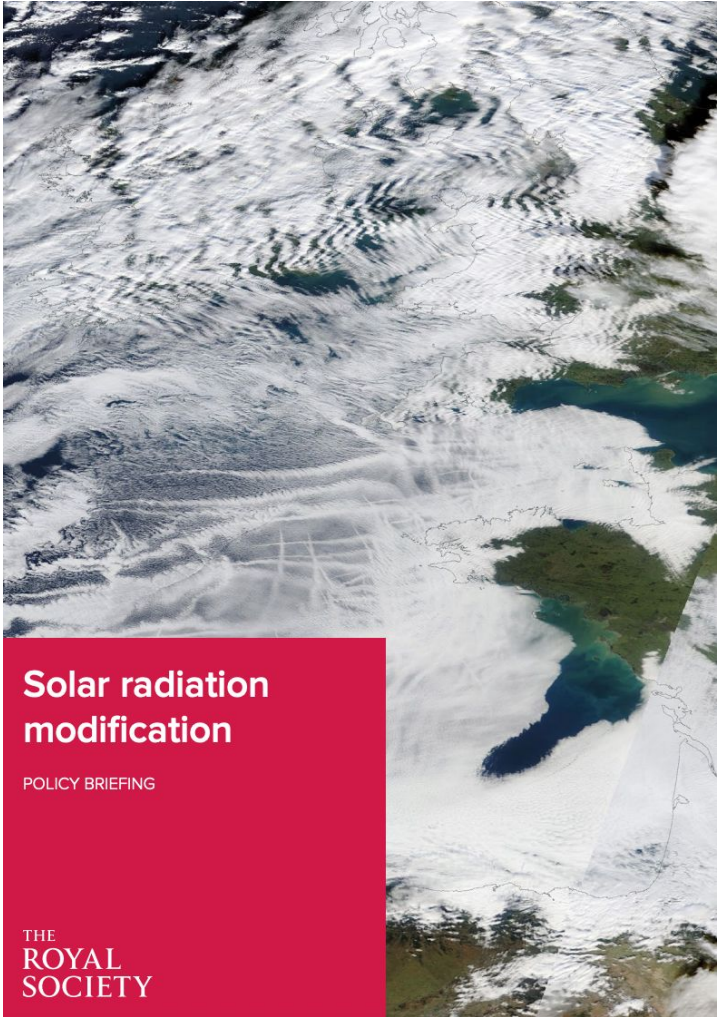
Kuril Islands

Ash from the explosive eruption of Raikoke.
Around 1.5 million tonnes of sulfur dioxide was
emitted into the stratosphere.

Numerous 'ship-tracks' evident as brighter areas
of cloud caused from ship emissions of aerosols.

200 km

100 mi

A satellite image of Earth's surface, showing a mix of white clouds, dark blue oceans, and green landmasses. The clouds are scattered across the frame, with some large, dense clusters and others more wispy. The landmasses are visible as green patches, with some showing distinct coastlines and internal features like rivers and lakes. The overall image has a high-contrast, somewhat grainy appearance, typical of satellite photography.

Solar radiation modification

POLICY BRIEFING

THE
ROYAL
SOCIETY

OPEN LETTER

We Call for an International Non-Use Agreement on Solar Geoengineering

We call for immediate political action from governments, the United Nations, and other actors to prevent the normalization of solar geoengineering as a climate policy option. Governments and the United Nations must assert effective political control and restrict the development of solar geoengineering technologies at planetary scale. Specifically, we call for an International Non-Use Agreement on Solar Geoengineering.

[Download in Other Languages](#)[View Signatories](#)

Solar geoengineering—a set of hypothetical technologies to reduce incoming sunlight on earth—is gaining prominence in debates on climate policy. Several scientists have launched research projects on solar geoengineering, and some see it as a potential future policy option.

PERSPECTIVE

Open Letter: Scientists Call for More Climate Intervention Research

Over a hundred scientists, including many who study climate change and its impacts, have signed an open letter calling for more research into climate interventions. Here, we feature the letter, which was written in response to a [study](#) arguing against such research.

Published September 26, 2025

Updated October 10, 2025



Cite this perspective



Climate change is accelerating, bringing more frequent disasters, destabilizing ecosystems, and straining societies' ability to respond. Meeting this challenge requires rapid emissions cuts, removal of carbon pollution, and a full exploration of all potential tools that could help reduce climate risk and save lives. It is very unlikely that current Nationally Determined Contributions will keep the global mean

Solar radiation modification is risky, but so is rejecting it: a call for balanced research

Claudia Wieners, Ben Hofbauer, Iris de Vries, Matthias Honegger, Daniele Visioni, Herman Russchenberg, Tyler Felgenhauer



Additional tool to fight global warming?

Society needs to deliberate whether SRM is to become an additional tool fighting climate impacts.



Three concerns about climate mitigation

Severe climate threats may already be on the horizon despite mitigation efforts.



Research and transparent assessment

Without research and transparent assessment we lack the basis for sound decision making in the future.



SRM research and ethics

Careful design of research activities is needed for ethical and robust research.



Conclusions - a call for balance

SRM may meaningfully reduce climate-induced risks, yet also introduce new risks. Balance is key.



Footnotes

These topics are complicated, but important for understanding humanities' predicament. Here we offer additional explanations.

Solar Radiation Modification: an additional tool to fight global warming?

As highlighted again by the most recent IPCC report [IPCC AR6], climate change is an unprecedented threat. With every day of continued emissions and with every tenth of a degree of additional warming,



OPEN ACCESS

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Safeguarding the polar regions from dangerous geoengineering: a critical assessment of proposed concepts and future prospects

Martin Siegert^{1*}, Heidi Sevestre², Michael J. Bentley³, Julie Bringham-Grette⁴, Henry Burgess⁵, Sammie Buzzard⁶, Marie Cavitte⁷, Steven L. Chown⁸, Florence Colleoni⁹, Robert M. DeConto⁴, Helen Amanda Fricker¹⁰, Edward Gasson^{1,11}, Susie M. Grant¹², Adriana Maria Gulisano^{13,14,15}, Susana Hancock¹⁶, Katharine R. Hendry¹², Sian F. Henley¹⁷, Regine Hock^{18,19}, Kevin A. Hughes¹², Deneb Karentz²⁰, James D. Kirkham^{12,16}, Bernd Kulesa²¹, Robert D. Larter¹², Andrew Mackintosh⁸, Valérie Masson-Delmotte²², Felicity S. McCormack⁸, Helen Millman²³, Ruth Mottram²⁴, Twila A. Moon²⁵, Tim Naish²⁶, Chandrika Nath²⁷, Ben Orlove^{28,29}, Pam Pearson¹⁶, Joeri Rogelj^{30,31,32}, Jane Rumble³³, Sarah Seabrook³⁴, Alessandro Silvano³⁵, Martin Sommerkorn³⁶, Leigh A. Stearns³⁷, Chris R. Stokes³, Julianne Stroeve³⁸ and Martin Truffer¹⁹

Criticisms of solar geoengineering

- 1. Moral hazard**
- 2. Dangerous distraction**
- 3. Slippery slope**
- 4. Governance issues**

**Is it feasible to ban solar
geoengineering?**



The Manmade Clouds That Could Help Save the Great Barrier Reef

Inside a bold — and controversial — effort to cool the water around this beloved ecosystem.

CLIMATE

Startups want to cool Earth by reflecting sunlight. There are few rules and big risks

APRIL 21, 2024 · 5:00 AM ET



Julia Simon



6-Minute Listen

+ PLAYLIST



Andrew Song and Luke Iseman of Make Sunsets ready for a launch. Iseman says they hope to someday cool the earth on a larger scale.

Julia Simon/NPR

**Who's funding a project, who
benefits from it, and whose
voices are being heard?**

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Advancing Justice in Solar Geoengineering Deliberation

The Alliance for Just Deliberation on Solar Geoengineering (DSG) is a global effort to elevate voices of climate vulnerable communities & nations in decision-making.

[Learn More](#)

Some principles for responsible reporting

1. Context is everything

It's important to remind people that reducing carbon-dioxide emissions is absolutely crucial to meeting any of our climate goals.

Reducing emissions is also more important in the short term than any climate-repair technologies.

2. Watch your language

People like technologies better when they are described as 'natural'.

It's possible to bias readers towards something (or against something) if you use this framing.

Instead, you could frame technologies more neutrally.

3. It's not just about the tech

The social and political conditions of any project are super-important.

Who's funding it? Who gets to make decisions? Who bears any downsides? How is the local community involved?

4. Depict risks in proportion

There will be upsides and drawbacks to any project.

Climate technologies have costs and potential ecological downsides. But so does unmitigated climate change.

Journalists play a crucial role!

There isn't always good scrutiny of these industries: we can provide independent analysis.

We can set the scene for public conversations about whether, how, and when these technologies might be used.

Good reporting is needed: the stakes are really high.

Questions?

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Reporting on Climate Repair: a tear sheet for journalists

William Lamb's checklist for responsible media coverage

Good reporting on carbon removal should:

- Highlight the need to reduce emissions alongside removal.
- Highlight where emissions come from.
- Make clear that removal is not a substitute for reductions — and that cutting emissions comes first.
- Avoid unconditional support or rejection.
- Acknowledge that no single solution can fix climate change.
- Identify and discuss risks.
- Identify and discuss benefits.
- Avoid confusing removal with offsets or avoided emissions.
- Avoid confusing removal with carbon capture (which stores carbon not drawn from the atmosphere).
- Avoid confusing removal with solar radiation modification.

Bellamy & Raimi's four-point guide to effective communication

1. **Be clear.** Use accessible language and analogies, but clarify how carbon removal differs from related processes.
2. **Be specific.** Avoid "nature-based" or "natural" framing; refer to individual methods or precise scientific terms.
3. **Be accurate.** Emphasise that removals must complement, not replace, emissions reductions.
4. **Be social.** Explain the governance and social arrangements, not only the technology itself — showing the alternative paths implementation could take.

Questions to ask:

Can the project scale meaningfully?

Would it require, for example, sprinkling rock dust across a land area twice the size of Europe — or kelp growing around the entire coast of the Americas?

What are the costs or side effects?

Consider energy, water, land, transport, and waste-disposal demands.

Note: Early proof-of-concept projects have costs that may not reflect long-term realities, once economies of scale apply.

What are the benefits?

Will the project restore a landscape, cool a coral reef, or remove measurable carbon dioxide from the atmosphere?

How are results being measured — and by whom?

Is an independent measurement agency involved, or is the company self-reporting its results?

How are potential environmental impacts tracked?

Did the project take baseline measurements — showing what an environment was like before a new chemical or technology was added?

What do local communities think?

What kind of input do residents have? Is the relationship between project and public two-way dialogue or one-way communication?

Who is funding the project?

What are the timelines, imperatives, and incentives? Is it funded by the sale of carbon-removal credits, and if so, how are those credits accounted for?

How is the project governed?

Who makes decisions about when the project starts or ends, and how it is run?

Compiled by Rebekah White, 2025. Based on original research and interviews for
The non-scientist's guide to reporting on climate repair.