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# The Governance of Arctic Climate Interventions

## Workshop Report

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# About this Report

This report is based on insights from a two-day workshop hosted by the Belfer Center's Arctic Initiative at the Harvard Kennedy School in late April 2025. The workshop brought together Indigenous, technical, academic, policy, and legal experts and practitioners to discuss the governance of research, testing, and potential deployment(s) of climate interventions in the Arctic.

This workshop was convened to facilitate Arctic-specific discussions about the governance of climate interventions with the view that this is both important and timely. Its aim was to provide a space to move beyond polarizing positions, enable constructive discussions, and consider and further develop Arctic-specific research questions and issues. This report aims to capture what occurred at the workshop, but at most, it provides only a snapshot of the diversity of perspectives and voices related to this topic in the Arctic region.

The workshop was a forum for sharing existing knowledge across fields and initiating a dialogue for future action. ***We did not seek to reach consensus amongst participants on the issues being discussed; this report is simply an overview of notable ideas, issues, and questions that emerged from the discussion.***

We gratefully acknowledge the Salata Institute for Climate and Sustainability at Harvard University for generously supporting this workshop.

## Introduction

The term 'climate interventions' pertains to deliberate, large-scale attempts to alter the climate system in a way that halts, slows down, or reverses global warming.<sup>1</sup> This definition encompasses a wide scope of geoengineering technologies, typically organized into the two categories of Carbon Dioxide Removal (CDR) and Solar Radiation Modification (SRM). CDR methods are anthropogenic activities that focus on removing carbon dioxide from the atmosphere, whereas SRM refers to increasing the reflectivity of the Earth-atmosphere system to solar radiation with the aim of reducing warming<sup>2</sup>.

Attempts to identify and implement climate intervention technologies in response to climate change are gaining increasing attention, as global efforts to curb greenhouse gas emissions have fallen short of global targets. Indeed, the pressure to pursue climate intervention technologies is likely to continue to increase. Evolving discussions have primarily focused on the technical feasibility of specific interventions; however, there is a need for transdisciplinary conversations and research that include technical experts, knowledge holders, rights-holders, and diverse stakeholders with varying perspectives, needs, and interests.

While climate interventions do not supplant the need for accelerated carbon reduction efforts, they could play a role in reducing the magnitude of anthropogenic global warming or reducing its impacts regionally. Encompassing a variety of approaches, climate intervention techniques range from "serious research projects to back-of-the-envelope calculations."<sup>3</sup> No complete framework(s) currently exist to ensure ethical research on and effective governance of climate interventions. Various legal mechanisms tend to focus on concerns about physical impacts and the damaging unintended consequences. Fragmented research and inadequate

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1 <https://www.agu.org/ethicalframeworkprinciples>

2 [https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15\\_AnnexI.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_AnnexI.pdf)

3 <https://www.uarctic.org/news/2023/10/saving-the-frozen-arctic-a-new-assessment-evaluates-potential-climate-action-measures-and-their-feasibility/>

research governance act as barriers to the effective advancement of knowledge and the associated reduction of uncertainties.<sup>4</sup>

The Arctic represents a particularly important region in which to ground these discussions. Not only is the Arctic warming three to four times faster than the global average,<sup>5</sup> it is also the location of many climate tipping points<sup>6</sup> and the focus of numerous potential climate intervention proposals and activities. The significant role the Arctic plays in regulating the Earth's climate, influencing weather phenomena around the world, has informed a growing desire to explore options for technologies to assist in slowing or reversing changes to the Arctic environment.

Arctic regional governance is characterized by strong intergovernmental collaboration among states and Arctic Indigenous Peoples organizations through the Arctic Council and other forums, despite significant constraints on cooperation with Russia stemming from its war in Ukraine. In terms of governing climate interventions, the track record of collaboration in the Arctic presents an opportunity to harness the region's unique governance norms related to engaging rights-holders and stakeholders in developing a path forward.

The first day of the workshop was structured around informational sessions. These sessions informed the themes for the second day's breakout group discussions, addressing key knowledge gaps and brainstorming potential next steps. These conversations were then summarized for the wider group, followed by a broader reflection on opportunities for future action. The workshop agenda and participant list are included in the appendix.

## Key Takeaways

### Assessments and Uncertainty

**How do we ensure that assessments of climate intervention activities in the Arctic consider a diversity of issues and perspectives, including the field's ethical, political, social, and environmental complexities? How can such assessments do so without reinforcing false certainty or sidelining urgent greenhouse-gas mitigation efforts?**

Key points raised in workshop discussions included the following:

- Preliminary efforts to evaluate climate interventions within a single framework, such as the UArctic rapid assessment,<sup>7</sup> have revealed challenges and risks in mapping the field in the Arctic context. These include the difficulty of accounting for the moral, ethical, and environmental implications of proposed interventions.
- There is a need for multiple, in-depth thematic assessments focused on ethics, governance, and impacts.

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4 <https://nap.nationalacademies.org/catalog/25762/reflecting-sunlight-recommendations-for-solar-geoengineering-research-and-research-governance>

5 <https://www.amap.no/documents/download/7310/inline>

6 Lenton, T. M., Rockström, J., Gaffney, O., Rahmstorf, S., Richardson, K., Steffen, W., & Schellnhuber, H. J. (2019). Climate tipping points — too risky to bet against. *Nature*, 575(7784), 592–595. <https://doi.org/10.1038/d41586-019-03595-0>

7 <https://www.uarctic.org/news/2023/10/saving-the-frozen-arctic-a-new-assessment-evaluates-potential-climate-action-measures-and-their-feasibility/>

- Arctic climate intervention technologies should be assessed with the participation of the diverse actors within the region, and these targeted assessments should be developed with input from Indigenous, legal, and policy experts.
- All assessments carry political weight; the act of evaluation itself can create false certainty in an uncertain and emerging field.
- While producing assessments is necessary, care must be taken to avoid framing geoengineering as a “solution” in ways that would distract attention from urgent mitigation and adaptation needs.
- The task ahead is to map the existing knowledge landscape while centering justice and plural perspectives and resisting normative assumptions.

## Indigenous Peoples’ Rights, Sovereignty, and Ethics

### **How can Arctic climate intervention governance frameworks uphold Indigenous Peoples’ rights and sovereignty, to prevent the perpetuation of colonial practices and promote ethical climate action?**

The Arctic is home to approximately 4 million people, including an estimated 500,000 Indigenous Peoples from more than 40 distinct groups with their own languages, cultures, and territories.<sup>8</sup>

Key points raised in workshop discussions included the following:

- The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007) affirms Indigenous Peoples’ rights to self-determination as a foundational principle. Article 19 asserts that states must consult in good faith to obtain Free, Prior, and Informed Consent (FPIC) before adopting measures that may affect them. As a result, those involved in climate-intervention activities have a responsibility to respect Indigenous Peoples’ sovereignty. In this regard, governance mechanisms in the Arctic have a role to play in addressing ethical and justice issues.
- Climate change in the Arctic is occurring within a broader colonial context that has imposed a legacy of dispossession and accumulation on Indigenous Peoples. Any development and deployment of climate intervention technologies and techniques in the Arctic without the consent of Arctic Indigenous Peoples who may be affected would once again impose policy decisions on them in ways that risk violating Indigenous Peoples’ individual and collective rights. This would be in contrast with the governance norms that exist in the Arctic, as well as the values of reciprocity and interrelation that many Indigenous Peoples hold with the natural world.
- There have been cases where climate interventions have been advanced without upholding the right of Indigenous Peoples to self-determination or obtaining FPIC. For example, the Harvard Stratospheric Controlled Perturbation Experiment (SCoPEX)-- intended to explore the feasibility and risks of Stratospheric Aerosol Injection (SAI)-- was strongly opposed by the Saami Council. It expressed concerns over the lack of consultation with Saami communities, the experiment’s fundamental incongruity with Saami People’s relationships with the natural world. The SCoPEX project was ultimately cancelled, and the Saami opposition was seen as a factor. The implications for the legitimization of future deployment of such techniques, and the lack of an existing governance framework for related experiments globally.

<sup>8</sup> <https://www.arcticwwf.org/our-priorities/arctic-communities/>

- Experiments like SCoPEX, and the possibility of others, illustrate the power imbalances that often exist in research and governance processes, and mistrust of scientific institutions and private actors, rooted in experiences of exclusion and exploitation.
- More work is needed to meaningfully engage Arctic Indigenous Peoples in every step of the decision-making process. Climate intervention initiatives can learn from concerns raised about past climate actions and potential ‘green colonialism’.
- Meaningful engagement is important. Participants cited persistent calls to incorporate Indigenous Peoples’ Knowledges into relevant assessments and research processes, not as supplementary to Western science but as integral to knowledge production. Along these lines, it was suggested that there be a push to rethink peer review processes and academic norms that exclude Indigenous epistemologies from entering deliberation settings. It was noted that institutions such as the Intergovernmental Panel on Climate Change (IPCC) are limited by rigid processes that are foundational to its operation as a scientific, policy-neutral body and are difficult to change.
- It is important to adhere to existing protocols developed by Indigenous Peoples for ethical engagement. For example, the Circumpolar Inuit Protocols for Equitable and Ethical Engagement<sup>9</sup> foregrounds the implementation of UNDRIP and provides clear guidance that should be followed in the climate intervention context.
- There are opportunities to consider interventions that embrace Indigenous Peoples’ Knowledges and lifeways by working with the environment. Indigenous Peoples continue to advocate for ecosystem approaches (e.g., reindeer herding<sup>10</sup>), and these should be supported by the international climate community. Participants noted that the current climate intervention narrative tends to focus too much on geoengineering techniques that may not align with Indigenous Peoples’ Knowledge and worldviews.
- It is important that the burden of the climate crisis not be shifted onto Indigenous Peoples; investment in education and capacity-building within Indigenous communities to engage in climate intervention debates is required for meaningful inclusion. Researchers should coordinate efforts to facilitate Indigenous involvement in ways that minimize the consultation burden placed on Indigenous Peoples and lessen the effects of engagement fatigue.

## Geopolitics and Security

**How do shifting geopolitical dynamics and security concerns influence the governance of climate intervention technologies in the Arctic? What are the implications for multilateral cooperation, regional stability, and Indigenous participation within existing frameworks like the Arctic Council?**

Key points raised in workshop discussions included the following:

- Climate interventions have geopolitical implications. Many proposed climate intervention approaches are global, or at least wide-scale in nature, raising attendant geopolitical concerns. Other proposed approaches are specific to the Arctic region and raise somewhat different geopolitical concerns.
- Stratospheric Aerosol Injection (the most researched and well-known form of SRM) poses unique

<sup>9</sup> <https://iccalaska.org/wp-icc/wp-content/uploads/2022/06/EEE-Protocols-LR-1.pdf>

<sup>10</sup> <https://climateinterventions.org/interventions/reindeer-herding/>

governance challenges, as the effects would be global. There is significant uncertainty about how these interventions can be suitably governed due to variations in impacts, and the many decades-long deployment timescale needed for safe, responsible use and the eventual ending of a given deployment. The lack of comprehensive pre-existing legal instruments for such novel techniques,<sup>11</sup> particularly because there is no natural 'home' for SRM governance in existing UN bodies or other global governance mechanisms, is another challenge.

- There are concerns that some SRM methods, as well as other approaches to climate interventions, could be undertaken unilaterally, which raises fears of triggering potential international tensions, military responses, and/or sanctions. Governance structures must therefore account for security dimensions, particularly around unilateral deployment risks.
- There is elevated interest in deploying SRM techniques in the Arctic, given the region's vulnerability to global warming and importance to the global climate system. Additionally, for large-scale SRM intervention ideas, the stratosphere's relatively low altitude in the polar regions makes them the only geographic locales where current aircraft might be able to do the deployment.
- The rules and norms that have helped to manage the Arctic since the early 1990s, represented most notably by the Arctic Council, are under threat. State actors could move away from collaborative governance norms due to shifts in global stability brought on by Russia's war in Ukraine, as well as the limitations this has placed directly on cooperative regional governance structures such as the Arctic Council.
- This trend presents significant risks for Indigenous Peoples, who, as Permanent Participants of the Arctic Council, have a clear status and role in the current governance structure. The development and deployment of climate intervention technologies outside of these norms would also threaten the Arctic Council itself, calling into question the role it plays in Arctic governance.
- Earlier setbacks to Arctic climate cooperation, such as the United States' withdrawal from the Paris Agreement in 2017, were compounded by the Trump administration's renewed withdrawal order in January 2025. These actions, coupled with a renewed emphasis on resource extraction and deteriorating international relations, have positioned the United States as a more unpredictable and less cooperative Arctic actor.

## Governance Gaps and Legal Complexity

**What governance structures and legal mechanisms are needed to address the ethical, jurisdictional, and equity challenges posed by climate intervention research and deployment in the Arctic? How can these frameworks ensure inclusive participation, transparency, and multilevel coordination amid global legal and geopolitical uncertainty?**

Key points raised in workshop discussions included the following:

- It is necessary to increase understanding among policymakers, researchers, and diplomats about the nature, risks, and implications of Arctic climate intervention research and potential deployment. Participants explored how governance mechanisms might be designed to be inclusive, equitable, and effective.

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<sup>11</sup> <https://www.c2g2.net/wp-content/uploads/20210802-C2G-EB-Arctic-.pdf>

- Decision-making processes should center the voices of those most affected, particularly Indigenous Peoples, climate-vulnerable communities, and youth.
- The rise of private funding and commercial involvement in climate intervention research requires the establishment of strong ethical and governance frameworks related to research, as well as guidance/requirements for on-the-ground engagements. It was suggested that transparent, publicly funded research should be prioritized.
- The absence of comprehensive national and international legal frameworks to govern climate interventions, research, and potential deployment raises significant concerns. Existing instruments such as the London Protocol, Montreal Protocol, and the Convention on Biological Diversity provide only partial and insufficient coverage. Furthermore, no consensus has emerged around an appropriate global forum for creating and exercising effective governance. While the Arctic Council is potentially well-positioned to lead in the regional context on exploring certain aspects of the issue, it remains vulnerable to broader geopolitical instability.
- Examples of moratoria, such as the International Agreement to Prevent Unregulated Fishing in the High Seas of the Central Arctic Ocean,<sup>12</sup> offer limited precedents, but considerable work would need to be undertaken to adapt these tools to address the issues raised by the prospect of Arctic climate interventions.
- There is a need for adaptive, multi-level governance tailored to the scale and type of intervention. While SRM may require global coordination, other interventions could be more effectively governed at regional or local levels.
- The Arctic – due to its environmental sensitivity, rapidly changing climate, and history of multilateral cooperation – was identified as a possible model for developing responsible regional climate intervention governance. It will be important to assess the suitability of the Arctic model for other regions or scales of governance.
- There is an urgent need to close gaps in communication and to build trust and public understanding. Misinformation, conspiracy theories, and opaque research practices have fueled public skepticism. Yet public support and engagement are essential to the legitimacy of any climate-intervention governance framework. Pros and cons of alternative decision-making processes deserve early attention.
- Currently, climate intervention research governance remains fragmented. While some states have developed national guidelines, they are not comprehensive, and there is no unified or coherent global policy framework. Moreover, the governance of research and the governance of deployment present distinct challenges and must be treated as such.
- Questions of institutional leadership remain open, with the United Nations Environmental Program (UNEP), World Meteorological Organization (WMO), the Montreal Protocol, and the Arctic Council all discussed as potential leaders. Participants also emphasized the need for cross-institutional dialogue, meta-assessments, and potentially the creation of a new international platform dedicated to the governance of climate interventions, while still pressing for urgent greenhouse-gas reductions and accelerating clean-energy production.

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<sup>12</sup> <https://arctic-council.org/news/introduction-to-international-agreement-to-prevent-unregulated-fishing-in-the-high-seas-of-the-central-arctic-ocean/>



# Strategic Pathways Forward

Suggestions put forward included the following:

1. **Expand and Diversify Assessments:** Multiple thematic assessments can be seen as complementary, especially to highlight blind spots and ethical concerns. Existing efforts (such as the UArctic Rapid Assessment and AMAP's pre-scoping work) should be built upon and expanded to include:
  - **Additional Indigenous-led assessments** (a Saami-led Indigenous assessment is already underway in association with the next steps of the UArctic Rapid Assessment),
  - **Geopolitical, legal, and ethical assessments,**
  - **Meta-research,** to synthesize and map knowledge gaps.
2. **Develop an Arctic-Specific Declaration or Set of Principles:** It would be useful to articulate agreed-upon principles for Arctic climate interventions governance. This effort could be spearheaded by a coalition of Arctic Indigenous Peoples organizations and supportive Arctic states. Such a document would have symbolic value, as a first step towards formal governance. The Arctic Council working groups could provide support in developing relevant assessments on different themes, to shape how climate interventions should be governed, and by helping to produce relevant information to support decision-making.
3. **Establish Ethical and Legal Review Mechanisms:** There may be utility in creating a dedicated ethics review board for Arctic climate interventions. Such a board could be co-governed by rights-holders, grounded in UNDRIP and existing ethical protocols. Legal assessments should aim to clarify existing legal vacuums and suggest frameworks for emergent technologies.
4. **Strengthen Research Governance and Oversight:** Existing research governance guidelines should be compiled and harmonized, (e.g. AGU code of conduct, Oxford Principles, national-level ethics policies). It would be beneficial to establish a registry of interventions to enhance transparency. Efforts must be founded on strong dialogues between researchers, policymakers, and civil society.
5. **Center Indigenous Leadership and Capacity Building:** Indigenous Peoples are rights-holders, not stakeholders. Indigenous actors must be resourced adequately and require specific funding to support models like Indigenous Peoples' advisory boards, co-investigator structures, and Indigenous-led educational programs. Indigenous Peoples must be involved at all stages: research, design, testing, and monitoring. As part of this, there is a need to recognize that the Arctic is a complex socio-ecological system. Climate interventions must be governed in relation to biodiversity, human communities, economy, and culture. This requires support for considering interventions that impact traditional land use, marine ecosystems, and Indigenous-led conservation.
6. **Advance Public Dialogue and Education:** There is broad recognition that effective governance requires public understanding of climate interventions. To achieve this, effort should be put towards creating informal governance dialogues, such as Global North and South alliances, international advocacy groups, and youth fellowships. Increasing public awareness depends on developing trusted messengers and ambassadors to disseminate scientifically backed information and public-facing education tools. It is important to invest in communication strategies that target mistrust and misinformation.

- 7. Explore a Moratorium or Non-Use Agreement:** The concept of a moratorium or non-use agreement was subject to mixed views, but several participants saw value in a moratorium on outdoor experiments or deployment in the Arctic. Such a mechanism could provide space for inclusive deliberation, act as a confidence-building measure, and be structured similarly to the Central Arctic Ocean Fisheries Moratorium: as precautionary, revisable and science backed.
- 8. Leverage Existing Initiatives and Milestones:** The upcoming International Polar Year (during which the United States will hold Arctic Council chairship) was repeatedly cited as an opportunity to elevate Arctic governance issues, embed ethical and Indigenous leadership into scientific programs, and drive cross-institutional coordination. There is an opportunity to encourage the Kingdom of Denmark and Sweden to take a more active role in building momentum on this topic in their Arctic Council chairships.

## Key Questions

A central aim of the workshop was to determine the questions that need to be asked to move forward with just and equitable governance strategies. To pursue suggested pathways forward, the diverse range of actors involved in the Arctic context all have a role to play. Here are some initial research questions to pursue that stem from conversations during the workshop.

### For Indigenous Leaders

1. How can Indigenous Peoples'-led assessments articulate and prioritize community-specific concerns, ethical values, and relationships with the Arctic environment in the face of emerging climate interventions?
2. What mechanisms are needed to establish and resource Indigenous Peoples' advisory boards or co-investigator structures across Arctic states and institutions?
3. How can traditional land use practices and Indigenous Peoples'-led conservation strategies be integrated into regional climate intervention frameworks as legitimate interventions in their own right?

### For Policymakers

#### Policy Making:

1. What steps are necessary to develop a regionally endorsed Arctic-specific declaration or governance framework for climate interventions, and how might this strengthen cooperative decision-making among Arctic states and Indigenous Peoples?
2. What safeguards should be put in place to prevent private actors from pursuing unilateral interventions in the Arctic?
3. How can moratoria or time-bound non-use agreements be designed to ensure precautionary, inclusive deliberation while remaining adaptive to future scientific and ethical considerations?

4. What role can policymakers play in building public awareness and trust to support evidence-based decision-making regarding climate interventions in the Arctic?
5. What roles can national governments and Arctic Council chairships (e.g. Kingdom of Denmark and Sweden) play in mainstreaming ethical governance of Arctic climate interventions through upcoming diplomatic and scientific milestones like the International Polar Year?

### **Policy Implementation:**

1. What regulatory frameworks—existing or emergent—can adequately govern climate intervention research and deployment by public and private entities in the Arctic, and how can these frameworks address ethical concerns?
2. What monitoring and enforcement mechanisms exist and/or need to be developed to facilitate the effective management of climate intervention activities in the Arctic?

## **For Technical Experts and Researchers**

1. How can ethical and legal review mechanisms be co-designed with Indigenous Peoples and other rights-holders to evaluate the appropriateness of Arctic climate intervention experiments?
2. What would a harmonized set of research governance standards look like for Arctic interventions, and how can existing frameworks (e.g., Oxford Principles, AGU codes, national ethics guidelines) be integrated or adapted to fit regional needs?
3. What design features should an Arctic-focused registry of climate intervention research include to maximize transparency, public trust, and scientific rigor?

## **For Private Sector Actors**

1. What responsibilities do private funders and companies have in ensuring their climate intervention activities align with Indigenous Peoples' rights, ethical norms, and region-specific governance expectations in the Arctic?
2. How can private-sector participation be structured to support publicly funded, transparent, and community-centered research models and reduce concerns about commercial interests in this field?
3. How might corporate actors contribute to building public trust and communication around Arctic climate interventions without reinforcing misinformation or skepticism?

## **For Legal Experts**

1. What existing or emerging legal frameworks can effectively govern climate intervention research and deployment in the Arctic, and how can they address jurisdictional gaps and ethical considerations within the current international legal system?

2. How can Arctic-specific governance mechanisms be developed to uphold the rights of Indigenous Peoples, particularly the right to self-determination, the right to full and effective participation in decision-making, and the obligation to obtain Free, Prior, and Informed Consent (FPIC), in the design and implementation of climate interventions with regional or global implications?
3. What is the legal viability and potential structure of a time-bound moratorium or non-use agreement on outdoor climate intervention experiments in the Arctic, and how can such instruments be designed to balance precaution, scientific inquiry, and inclusive governance?
4. Which regional or international institutions are best positioned to lead the governance of Arctic climate interventions, and how can cross-institutional coordination ensure legal clarity, transparency, and accountability, particularly in the face of private sector involvement and geopolitical instability?

## Conclusion

Climate intervention technologies pose an unprecedented governance challenge. As efforts accelerate to research, test, and potentially deploy these technologies, there is an urgent need to mainstream inclusive conversations about equitable and legitimate processes of decision making.

The Arctic Initiative's workshop convened an exploratory discussion to bring attendees to a common baseline, expand the conversation beyond technical aspects, and elevate the rights and concerns of Indigenous Peoples. There is pressing demand to advance this dialogue to develop multi-level governance mechanisms for research, and in anticipation of any large-scale testing or deployment. We propose the Arctic as a good place to start.

We hope that this report serves to inform the work of the diverse range of organizations involved in this complex governance issue, provokes continued interdisciplinary dialogue, and provides a systematic research agenda to further work in this field.

# Workshop Agenda

## Friday, April 25<sup>th</sup>

**8:30 Check in; Coffee and pastries**

**9:00 Safety briefing – Jennifer Spence, Belfer Arctic Initiative, HKS**

**9:05 Welcome – Henry Lee, Belfer Center's Arctic Initiative, HKS**

**9:15 Roundtable self-introductions**

**9:45 Overview of workshop – Jennifer Spence, Belfer Arctic Initiative, HKS** - A review of the purpose and structure of the workshop.

**Resource:**

Governance of Arctic Climate Interventions Workshop Overview

**10:00 Technical assessments of Arctic climate interventions**

*The term 'climate interventions' pertains to deliberate, large-scale attempts to alter the climate system in a way that halts, slows down, or reverses global warming<sup>13</sup>. This definition encompasses a wide scope of tools.*

*When considering the broad spectrum of proposed climate interventions, some of which could be implemented tomorrow, and some that may need decades more research and development, it is important to treat different techniques with specificity, as they pose vastly different environmental, social, economic, and political ramifications.*

This agenda item will focus on establishing a common understanding of the spectrum of tools identified as climate interventions in the Arctic.

Presentation **of the UArctic Frozen Arctic Rapid Assessment by Albert Van Wijngaarden, UArctic** followed by a plenary discussion.

**Resources:**

UArctic Frozen Arctic Rapid Assessment

C2G Evidence Brief – Climate-altering approaches and the Arctic

Ocean Visions

Scientific Advice Mechanism to the European Commission Evidence Review Report: Solar radiation modification

**10:45 Break**

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<sup>13</sup> <https://www.agu.org/ethicalframeworkprinciples>

## 11:00 Arctic Indigenous Peoples assessments of climate interventions

*The existing literature on Indigenous perspectives on climate interventions broadly describes a disconnect between a view that Indigenous voices necessarily be included in discussions around climate interventions, and the reality that current discourses are not set up to make it possible for Indigenous Peoples to express and have an audience for their concerns about risk, research and power (Whyte, 2018). This boils down to a key tension: Indigenous Peoples are increasingly discussed as stakeholders, yet not meaningfully included in shaping discourses or governance.*

This agenda item seeks to elevate the issues, questions, and concerns of Arctic Indigenous leaders in discussions about how climate interventions should be governed in the Arctic.

Presentations of the **Arctic Indigenous Peoples Assessment of Climate Interventions by Gunn-Britt Retter, Saami Council and Sara Olsvig, Inuit Circumpolar Council** followed by plenary discussion.

### Resource:

Literature review: Indigenous Perspectives on Climate Interventions in the Arctic

## 12:00 Lunch in room

## 1:00 Changing geopolitics and governance of climate interventions

*There currently exists no complete framework to ensure ethical research and governance of climate interventions. Various legal mechanisms developed primarily with other contexts in mind could apply to some varieties of intervention, but these mechanisms tend to focus on concerns about physical impacts. Fragmented research and research governance acts as a barrier to effective advancement of knowledge and the associated reduction of uncertainties<sup>14</sup>. Different interventions may trigger different governance systems, and suitable governance frameworks will be necessary for both research and deployment.*

*While the need for governance framework(s) for research and/or management of climate intervention are becoming more pressing, we are experience geopolitical changes in the Arctic and beyond that have direct implications for how these framework(s) could be developed and implemented.*

This agenda seeks to examine recent geopolitical changes and explore the governance issues that play a role in framing or constraining Arctic governance of climate interventions.

Presentations about **Changing Geopolitical Dynamics by David Balton, Belfer Center Arctic Initiative** and on **International Governance of Climate Interventions by Cynthia Scharf, Centre for Future Generations** followed by plenary discussion.

### Resource:

C2G Evidence Brief – Climate-altering approaches and the Arctic

Oomen J. Producing the Inevitability of Solar Radiation Modification in Climate Politics. *Ethics & International Affairs*. 2024;38(3):287-301. doi:10.1017/S0892679424000273

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<sup>14</sup> <https://nap.nationalacademies.org/catalog/25762/reflecting-sunlight-recommendations-for-solar-geoengineeringresearch-and-research-governance>

## **2:00 Arctic Governance of Climate Interventions**

*Many potential climate interventions involve activities in the Arctic. With this in mind, facilitating Arctic-specific discussions about the governance of climate interventions is both important and timely. Climate interventions remain an extremely polarizing topic, underscoring the need for transdisciplinary discussions that consider, for example, legal, ethical, environmental, socioeconomic, and cultural issues and include experts, knowledge holders, and diverse rights- and stakeholders with varying perspectives, needs, and interests.*

This agenda item will identify efforts to better understand existing legal and governance mechanisms that may structure the research and management of climate interventions in the Arctic.

Presentation of the **UArctic Governance Assessment of Climate Interventions by Romain Chuffart, University of Akureyri** followed by plenary discussion.

### **Resource:**

Chuffart, R., et al. (2023). Old Sea, New Ice: sea ice geoengineering and indigenous rights in Arctic Ocean governance. *The Polar Journal*, 13(2), 195–215.

## **2:30 Break**

## **2:45 Mapping what we know: Thematic breakout groups**

Proposed topics, which may be modified depending on interests and issues discussed:

1. What legal and governance mechanisms are currently being used to manage climate intervention research and/or deployment? What existing mechanisms could be used?
2. To what extent are existing governance mechanisms considered to be sufficient to ensure Indigenous Peoples and Arctic communities are included in decision-making related to climate intervention activities in the Arctic?
3. Who is working on assessing Arctic climate interventions and what are they working on (e.g. UArctic, Saami Council, AMAP, Ocean Visions, etc.)? Where are there and/or should there be connections between this work?
4. What might we learn from how past or present climate intervention activities in the Arctic have been managed? Are there other regions or issue areas that may provide lessons learned for how to manage climate intervention activities in the Arctic?

Each breakout group will be asked to select a rapporteur, who will present the key takeaways from the group in plenary. Each group will also be supported by an assigned notetaker, who will take detailed notes.

## **3:45 Reporting out from breakout groups**

Each breakout group will be invited to take 5-10 minutes to briefly summarize key takeaways from their discussions and respond to questions.

## **4:30 Review of Day**

**5:00 Adjourn**

**5:30 Reception and dinner**

**Location:** Henrietta's Table, at the Charles Hotel (1 Bennett St, Cambridge, MA 02138)

The restaurant is located up the stairs on the second floor of the hotel. We have reserved a private room at the back of the restaurant. See attached map for reference.

## **Saturday, April 26<sup>th</sup>**

**9:00 Reflections on first day**

**9:30 Moving the work forward – Thematic breakout groups**

Proposed topics, which may be modified depending on interests and issues discussed:

1. There are various assessments of Arctic climate interventions taking place. What are the current gaps or areas of assessment that need to be strengthened?
2. How could (or should) we advance efforts to establish Arctic governance mechanisms/ frameworks? Who could lead? Who should be involved?
3. What research activities could support meaningful dialogue and decision-making around the governance of climate interventions in the Arctic?
4. What are the features/characteristic of certain types of climate interventions that could be used to inform Arctic governance framework(s)? What other factors might inform the governance of their research and/or deployment?

Each breakout group will be asked to select a rapporteur, who will present the key takeaways from the group in plenary. Each group will also be supported by an assigned notetaker, who will take detailed notes.

**10:30 Break**

**10:45 Reporting out from breakout groups**

Each breakout group will be invited to take 5-10 minutes to briefly summarize key takeaways from their discussions and respond to questions.

**11:15 Reflecting on opportunities for future action and discussion**

A plenary discussion about where and how to continue to advance dialogue and decision-making about the governance of climate intervention activities in the Arctic.

**11:45 Next steps and closing remarks – John Holdren, Co-Chair of Belfer Center's Arctic Initiative, HKS**

A plenary discussion about next steps to produce a workshop summary and other materials, as appropriate, and consider opportunities for future discussions.

**12:00 Adjourn**



# Participant List

**Albert Van Wijngaarden**, PhD Candidate, Scott Polar Institute / UArctic

**Bridget Shayka**, Program Officer, Ocean Visions

**Cynthia Scharf**, Senior Fellow, Centre for Future Generations

**David Balton**, Senior Fellow, Belfer Arctic Initiative, HKS

**Diana Ürge-Vorsatz**, Vice Chair, IPCC's Working Group III (Mitigation)/Professor, Central European University

**Gabriella Gricius**, Colorado State University

**Gunn-Britt Retter**, Head of the Arctic & Environmental Unit, Saami Council / Arctic Initiative Advisory Board

**Hassaan Sipra**, Director of Global Engagement, The Alliance for Just Deliberation on Solar Geoengineering

**Henry Lee**, Co-Chair, Belfer Arctic Initiative/Environment Natural Resources Energy Program (ENRP), HKS

**Jennifer Spence**, Director, Belfer Arctic Initiative, HKS

**Jeroen Oomen**, Assistant Professor, Utrecht University

**John Holdren**, Co-Chair, Belfer Arctic Initiative/ Science, Technology, and Public Policy Program (STPP), HKS

**Joshua Horton**, Program Manager, Harvard Solar Geoengineering Research Program

**Julie Brigham Grette**, Co-Lead, AMAP Climate Expert Group/Professor UMass Amherst

**Justin Barnes**, Research Fellow, Belfer Arctic Initiative, HKS

**Odessa Chitty**, Research Assistant, Belfer Arctic Initiative, HKS

**Liz Hanlon**, Communication and Outreach Specialist, Belfer ENRP & STPP, HKS

**Margaret Williams**, Senior Fellow, Belfer Arctic Initiative, HKS

**Marisol Maddox**, Sandia Arctic Scholar, Wilson Center

**Peter Frumhoff**, Senior Science Policy Advisor, Woodwell Climate Research Center

**Riikka Karppinen**, Arctic Initiative Advisory Board

**Rolf Rødven**, Executive Director, AMAP Secretariat

**Romain Chuffart**, Professor, University of Akureyri

**Sara Olsvig**, International Chair, Inuit Circumpolar Council/Arctic Initiative Advisory Board Member

**Taa'ajj Ch'igiiontà'** (Evon Peter), Senior Researcher, University of Alaska Fairbanks/Arctic Initiative Advisory Board

**Tessa Varvares**, Senior Program Coordinator, Belfer Arctic Initiative, HKS

**Tiina Kurvits**, Senior Specialist, GRID-Arendal/UArctic

**Timo Koivurova**, Professor, University of Lapland/UArctic Thematic Network on Law/Co-Create Project