

# Arctic at the crossroads

Annual Report of the Special  
Representative on the Arctic and  
High North

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## Introduction

The Arctic and High North regions continue to serve as a bellwether for global climate disruption, environmental instability, and geopolitical transformation. In 2025, the pace of change in the region has further accelerated—scientifically, politically, and strategically. The Arctic is warming nearly four times faster than the global average, and this unprecedented temperature rise is reshaping ecosystems, destabilizing permafrost, and driving ice loss on a scale not previously observed. These environmental changes are no longer abstract projections—they are measurable, visible, and rapidly altering the daily lives of Arctic indigenous communities.

Simultaneously, the region's geostrategic importance has grown significantly. Once considered a zone of peace and science-driven cooperation, the Arctic is now becoming a region of intensified military presence, competition over critical infrastructure, and growing interest in untapped resources—including rare earth minerals, fossil fuels, and new maritime routes opened by retreating ice. While most Arctic states continue to emphasize adaptation, infrastructure investment, and resilience-building in national policies, there is also a marked prioritization of military preparedness due to the ongoing war in Ukraine. The expansion of NATO—most notably with Finland and Sweden joining the alliance—has further recalibrated Arctic security dynamics. These dual tracks, namely climate urgency and strategic assertiveness, are increasingly in tension.

2025 also marks the 50th anniversary of the Helsinki Final Act, a historic document that enshrined the principles of peaceful coexistence, territorial integrity, and cross-border cooperation. This milestone offers a moment of reflection for OSCE participating States on how those foundational principles can be reimagined for Arctic governance today, where environmental stressors and political fragmentation risk undermining decades of progress in confidence-building and joint stewardship.

This year's report highlights key developments in five interlinked domains: environmental change, scientific progress, policy reform, security challenges, and community resilience, while offering practical recommendations for reinforcing regional cooperation, safeguarding Arctic ecosystems, and ensuring that the benefits of adaptation reach those most affected.

## Environmental Overview: A Region Under Stress

Scientific assessments and peer-reviewed literature underscore that the Arctic is warming approximately four times faster than the global average. This amplification has had sweeping consequences.

The summer of 2024 witnessed one of the lowest Arctic Sea ice extents in recorded history.<sup>1</sup> More significantly, multi-year ice, a critical buffer against seasonal extremes, continued to retreat. Pressure ridges, which provide structural resilience against ice collapse, have dramatically decreased. The trend suggests that the Arctic Ocean could be functionally ice-free in summers by mid-century.<sup>2</sup>

Meanwhile, Greenland's ice sheet continues to lose mass at an alarming rate. Scientists warn that precipitation events are becoming more extreme, with rain increasingly replacing snow, further accelerating ice melt and destabilizing permafrost.

Rising marine temperatures have introduced persistent marine heatwaves, altering food web dynamics and stressing key species like Arctic cod and zooplankton. In tandem, underwater noise pollution driven by increased shipping traffic is disrupting marine mammal behavior. Studies stress that without mitigation, underwater sound levels in the Arctic may double by 2030.

The compounding effects of warming, habitat loss, and acoustic pollution are undermining biodiversity. Indigenous communities, whose livelihoods rely on healthy ecosystems, are among the most affected. Polar bears, walruses, and bowhead whales are all facing mounting stress.<sup>3</sup>

At COP29 in Baku, the Arctic Council emphasized the urgent challenges facing the cryosphere—the planet's frozen water systems—which are melting at unprecedented rates, driving sea level rise and disrupting global climate patterns. Indigenous peoples, who depend on and protect these fragile environments, highlighted the need for their rights and knowledge to be fully recognized in climate policies. The conference also raised concerns about potential large-scale climate disruptions, such as the collapse of the

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<sup>1</sup> <https://arctic.noaa.gov/report-card/report-card-2024/>

<sup>2</sup> <https://www.worldwildlife.org/pages/polar-bears-and-climate-change>

<sup>3</sup> <https://www.arcticwwf.org/newsroom/news/new-report-calls-for-arctic-policy-action-on-underwater-noise/>

Atlantic Meridional Overturning Circulation (AMOC), underscoring the critical need for inclusive, science-based, and rights-respecting approaches to safeguard the Arctic's future.<sup>4</sup>

## Scientific Research: Progress Amid Uncertainty

The Arctic has rapidly shifted from a remote frontier to a critical global observatory, offering key insights into the consequences of climate change. The Arctic and High North have become a region for understanding large-scale environmental transformations. Today, Arctic science is not only documenting rapid change but also urgently working to forecast cascading impacts on global weather systems, ecosystems, and human well-being.

Contemporary Arctic research has evolved beyond isolated observations of melting ice and thawing permafrost. Scientists now address cross dimensional questions that span climate systems, biodiversity loss, zoonotic diseases, infrastructure risk, and social vulnerability. Multidisciplinary collaboration is increasingly essential to grasp the complexity of Arctic change.

One of the most pressing scientific priorities is the thawing of permafrost, which is destabilizing landscapes and compromising buildings, roads, and other infrastructure across the circumpolar North. This transformation affects everything from natural drainage systems to the structural integrity of remote communities.<sup>5</sup> Simultaneously, the shrinking extent and duration of sea ice has introduced unpredictability into travel routes, traditional subsistence practices, and marine navigation, raising serious safety concerns for both local populations and shipping operators.

The distribution of Arctic species—both terrestrial and marine—is also shifting, creating new challenges for northern food systems and increasing the risk of zoonotic disease transmission.<sup>6</sup> These changes are not isolated to the Arctic but signal transformations that may unfold globally in the coming decades, as similar trends migrate southward.

Critically, Indigenous knowledge is increasingly being recognized as essential to understanding and responding to Arctic change. Indigenous

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<sup>4</sup> <https://www.highnorthnews.com/en/focus-arctic-challenges-cop29>

<sup>5</sup> <https://www.thearcticinstitute.org/permafrost-thaw-warming-world-arctic-institute-permafrost-series-fall-winter-2020/>

<sup>6</sup> <https://www.sciencedirect.com/science/article/pii/S0048969724070268>



communities, with generations of observational insight and adaptive practices, have long maintained a holistic view of the interconnected Arctic environment. Their contributions are indispensable in co-producing knowledge, monitoring environmental shifts, and designing culturally appropriate adaptation strategies. Greater inclusion of Indigenous-led research, data sovereignty, and educational opportunities for Indigenous youth are key priorities for a more equitable and effective Arctic science agenda.

Research in the Arctic must also address the deep disparity in services and infrastructure between the North and South. Remote Arctic communities often rely on expensive and environmentally damaging diesel fuel, delivered just once or twice a year. Sustainable energy transitions—such as low-maintenance green technologies adapted to harsh climates—represent both an environmental and social imperative.<sup>7</sup>

As political tensions reshape scientific diplomacy, maintaining open scientific exchange and rebuilding international partnerships will be vital. Pan-Arctic observation networks and long-term monitoring programs remain critical to tracking trends, informing early warning systems, and ensuring that policy is rooted in robust, inclusive evidence.

Arctic science is no longer just about the North—it is about the future of the planet. The stakes for interdisciplinary, Indigenous-informed, and internationally cooperative research have never been higher.

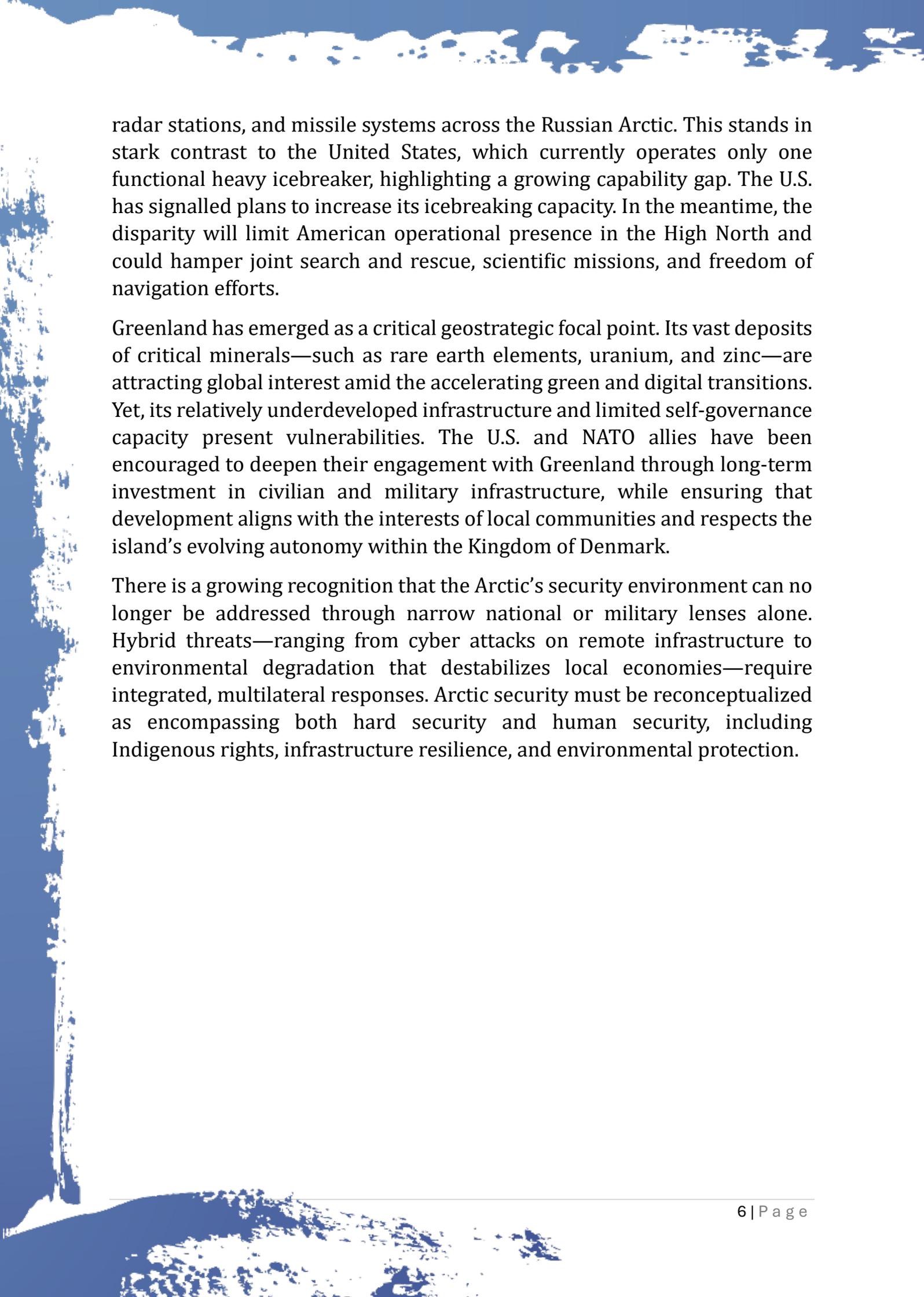
## **Security and Geopolitics**

Geopolitical interest in the Arctic is growing rapidly, driven by its increasing accessibility due to climate change, its untapped natural resources, and its strategic location at the intersection of North America, Europe, and Asia. The region is witnessing a notable shift from being primarily a zone of scientific cooperation and environmental stewardship to one of heightened strategic competition.

The militarization of the region raises significant concerns. Russia has dramatically expanded its military posture in the Arctic, maintaining the world's largest fleet of icebreakers—numbering around 40, including several nuclear-powered vessels—alongside reopened Cold War-era bases,

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<sup>7</sup> <https://arctic-council.org/news/green-energy-shift-in-the-arctic/>

An aerial photograph of a snowy, mountainous landscape. A winding road leads up a slope towards a small, white building with a dark roof. The terrain is rugged and covered in snow, with some rocky outcrops visible. The sky is overcast and grey.

radar stations, and missile systems across the Russian Arctic. This stands in stark contrast to the United States, which currently operates only one functional heavy icebreaker, highlighting a growing capability gap. The U.S. has signalled plans to increase its icebreaking capacity. In the meantime, the disparity will limit American operational presence in the High North and could hamper joint search and rescue, scientific missions, and freedom of navigation efforts.

Greenland has emerged as a critical geostrategic focal point. Its vast deposits of critical minerals—such as rare earth elements, uranium, and zinc—are attracting global interest amid the accelerating green and digital transitions. Yet, its relatively underdeveloped infrastructure and limited self-governance capacity present vulnerabilities. The U.S. and NATO allies have been encouraged to deepen their engagement with Greenland through long-term investment in civilian and military infrastructure, while ensuring that development aligns with the interests of local communities and respects the island’s evolving autonomy within the Kingdom of Denmark.

There is a growing recognition that the Arctic’s security environment can no longer be addressed through narrow national or military lenses alone. Hybrid threats—ranging from cyber attacks on remote infrastructure to environmental degradation that destabilizes local economies—require integrated, multilateral responses. Arctic security must be reconceptualized as encompassing both hard security and human security, including Indigenous rights, infrastructure resilience, and environmental protection.

## Policy Recommendations

In light of the developments outlined above, the following recommendations are offered to civil society, legislators and policymakers:

- **Strengthen Underwater Noise Regulations:** Support Arctic Council efforts to limit ship speeds, mandate route adjustments, and promote low-noise vessel technologies. Additionally, encourage development and adoption of real-time monitoring systems to assess underwater noise and its impacts on marine life.
- **Enhance Arctic Science Diplomacy:** Restore and expand multilateral science collaboration, especially with non-Arctic states like Japan and South Korea. Promote inclusive knowledge exchange that integrates Indigenous knowledge with scientific research to ensure holistic understanding and innovative solutions.
- **Invest in Resilient Infrastructure:** Direct funding to Arctic communities—especially in Alaska and Greenland—for port upgrades, broadband access, climate-resilient housing, and renewable energy projects to reduce reliance on fossil fuels and improve sustainability.
- **Support Indigenous-Led Climate Adaptation:** Ensure meaningful participation of Indigenous peoples in policy-making and scientific research.
- **Integrate Arctic into National Security Planning:** Update Arctic strategies to reflect emerging hybrid threats—from climate-induced migration to cyber vulnerabilities in remote infrastructure. Promote confidence-building measures among Arctic states to reduce military tensions and enhance crisis communication mechanisms.
- **Advance Sustainable Resource Management:** Develop frameworks for responsible mineral extraction and shipping activities that prioritize environmental protection and local community benefits, minimizing ecological disturbance and social disruption.
- **Prioritize Arctic Fire and Cryosphere Monitoring:** Support improved surveillance and early warning systems for wildfires and cryosphere changes.
- **Strengthen Multilateral Cooperation and Dialogue:** Foster enhanced collaboration among Arctic and non-Arctic states, Indigenous peoples, scientific communities, and international organizations to ensure transparent decision-making, shared

responsibility, and coordinated responses to environmental and security challenges.

## Conclusion

The Arctic's transformation is no longer a projection—it is a lived reality. From receding sea ice to rising strategic competition over resources and maritime routes, the region now stands at a geopolitical crossroads. Whether the Arctic remains a zone of cooperation or devolves into one of confrontation will depend on the political will of both Arctic and non-Arctic actors. Its long-standing identity as a peaceful, science-driven, and cooperative region is increasingly at risk—challenged by strategic mistrust, military buildup, and fragmented governance.

Without bold diplomacy and renewed commitment to shared responsibility, the Arctic could become a new flashpoint of great-power rivalry, undermining decades of confidence-building, Indigenous stewardship, and environmental cooperation.

The OSCE Parliamentary Assembly, through its Special Representative on Arctic Issues, calls for strengthened multilateralism, science-based policymaking, and concrete action to safeguard Arctic communities and ecosystems. Only through collective leadership and sustained engagement can we ensure that the Arctic remains a model of peace, sustainability, and resilience.

This year also marks the 50th anniversary of the Helsinki Final Act—a landmark in cooperative security, environmental stewardship, and respect for sovereignty. As the Arctic faces escalating environmental stress and renewed strategic competition, the principles of the Helsinki Final Act are more relevant than ever. Dialogue, transparency, and peaceful engagement must remain central to maintaining stability in the High North.

The Arctic, once a symbol of constructive East-West cooperation, must not become a casualty of geopolitical fragmentation. In reaffirming the Helsinki principles, OSCE participating States have both an opportunity and an obligation to uphold a vision of the Arctic as a region of peace, scientific collaboration, and shared responsibility.

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