Frozen Ambitions: Concerns Regarding China's Arctic Polar Policy

by Phil Kerber and John P. Ringquist

In the new era of strategic power competition with the People's Republic of China (PRC), the Arctic and Antarctic regions present unprecedented opportunities and challenges in commerce, strategic posture, and natural resource exploitation. New sea routes through the Arctic region strategically shorten distance between European and Asian markets. Such sea routes offer China an enticing means to advance both military and commercial interests.

As sea ice melts and exposes new sea lines of communication through the Arctic, Greenland and its periphery increasingly present tremendous economic and posture opportunities for those nations with secure Arctic access. Expansionist Chinese presence in the polar regions, coupled with new technology investment, demonstrate both the will and capability to advance commerce, posture, and resource exploitation opportunities.

China regards its presence and activities in the Arctic and Antarctic as essential to its global ambitions. In two articles in this edition of the *InterAgency Journal*, the authors explore PRC polar interests—first in the Arctic, continued in part two with an interpretation of parallel PRC influence in the Antarctic.

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PRC Arctic Context

Since President Xi Jinping came to power in 2012, the Arctic region acquired a position of national prominence in China. In 2014, Xi Jinping linked the Arctic's importance to China's rising role as a great maritime power.[1] Liu Cigui, former director of the China State Oceanic Administration, identified in 2014 China's commercial and scientific interest in Arctic waterways, its interest in oil and gas reserves, and China's intention to "not be left behind" as catalysts in the creation of a polar policy. Such policy identified strategic objectives and resources.[2] Three years later, on January 17, 2017, President Xi Jinping, at the World Economic Forum in Davos, Switzerland, emphasized Chinese global economic dominance depended on the Belt and Road initiative and the "opening up" of the Arctic to common development and exploitation.[3] Arctic shipping routes are considered the third Silk Road corridor of the Belt and Road Initiative, and, therefore, China sees them as a major component of its geopolitical and economic goals and as a way to demonstrate its ability to innovate and adapt to changing conditions. However, polar regions offer potential for non-commercial and non-scientific purposes. Chinese strategy considers the polar regions to also serve as strategic terrain on par with the ocean seabed or space.[4] The Arctic sea lanes provide a solution to some of China's economic goals. Estimates from Chinese military strategy documents claim the Arctic's northern route will save twenty-two percent of the distance versus the traditional routes from China through the Red Sea to Europe. Additionally, admitting freighters through Arctic routes present few transit limitations related to hull size or draft—both of which are significant transit constraints for Panama Suez Canal transits.[5] The China Ministry of Foreign Affairs claims Chinese freedom of navigation is guaranteed passage in accordance with international law and China's hydrographic surveys conducted in recent years are for the betterment of all nations who may choose to transit the Arctic waters.[6] Such statements and references clearly indicate PRC intent to exploit new sea lanes through the polar regions.

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The Arctic region also provides significant strategic posture opportunities to include potential placement of missile defense capabilities, terrestrial space tracking, and command and control (C2) locations to direct both undersea and aerial drones. The Chinese military document, *The Science of Military Strategy*, identified the ongoing efforts to reinforce sovereignty rights in the Arctic through military bases, exercises, and demonstrations as an important way for Arctic nations to prevent competitors from undercutting their use of Arctic space for security purposes.[7] China recognizes that having a voice is not enough and claims must be backed up by physical presence.

In recent months, Greenland's position in the Arctic has captured significant attention by the Trump Administration due partially to the strategic posture possibilities its location holds. Greenland's natural resources also invite great international interest, which is unlikely to diminish at a time when competition over rare earths and strategic metals are so essential to meet the demand of electric vehicle construction, other manufacturing needs, and alternative energy technologies. Greenland's resources are naturally alluring to the Chinese government and Chinese companies.

In such a competitive environment, only comprehensive interagency and national efforts through the employment of the U.S. diplomatic,

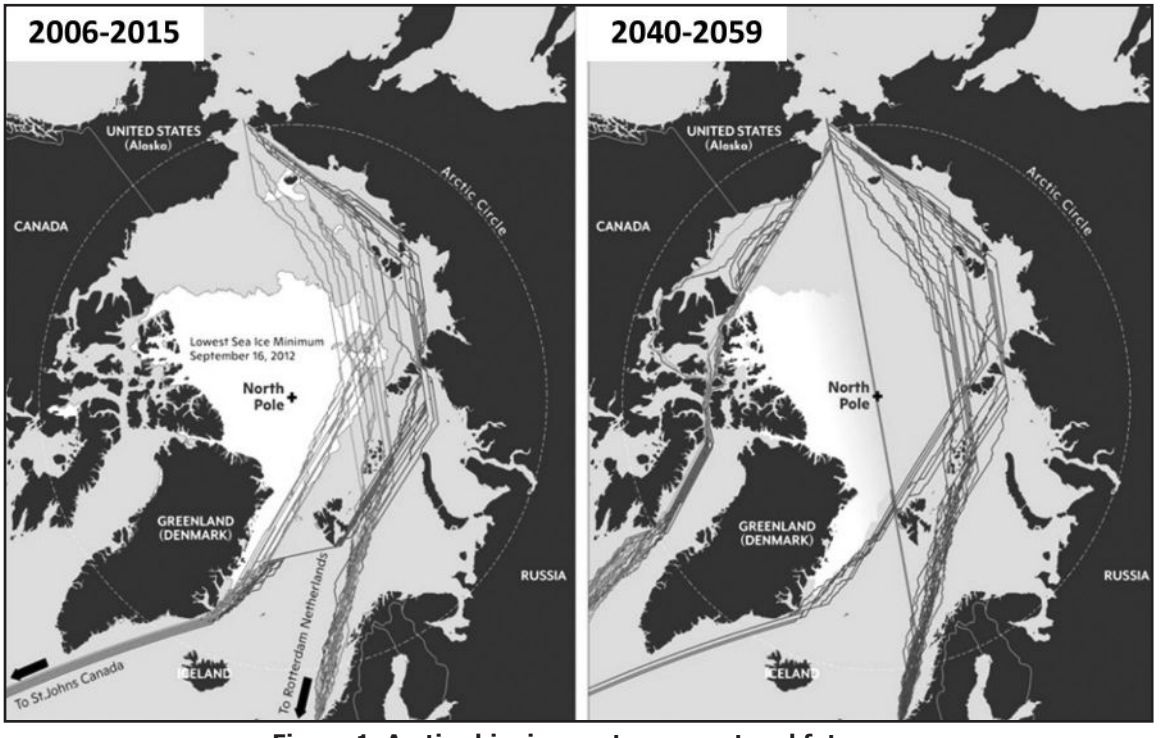

Figure 1. Arctic shipping routes current and future.
The security implications for the United States, Canada, and Russia are evident.
Source: Adapted from NOAA Arctic https://arctic.noaa.gov/report-card/report-card-2022/satellite-record-of-pan-arctic-maritime-ship-traffic/

information, military, and economic (DIME) levers of power will secure U.S. polar interests. Given Chinese activities in the South China Sea characterized as "gray zone"…or rather ICAD,[8] coupled with debt trap diplomacy efforts through various Belt Road Initiatives (BRI), the world must exercise caution when considering the true methods and nature of Chinese global intentions.[9] The U.S. and the international community must closely monitor, and both deter and prepare to counter potential destabilizing activities in the polar regions, especially as China advances its capacity for Arctic power projection. China already utilizes its growing fleet of ships to demonstrate capacity to conduct long-duration operations in the Arctic. As of mid-2024, its three icebreakers could simultaneously operate in the Arctic to showcase a mobile, yet potentially semi-permanent Arctic presence. Chinese employment of icebreakers in 2024 occurred during the backdrop of Chinese efforts to "acquire land in Finland, ports in Norway and Sweden, and airports in Greenland." Such acquisition efforts were resisted by these Arctic states—wary of China's intentions and the potential for militarization of such infrastructure and locations. China's policy of civil-military fusion also avails Chinese scientific research in the polar regions to the military, especially oceanographic and hydroacoustic studies, like those conducted in the South China Sea.[10] Given the breadth of such activities, the U.S. must address any perceived malign actions "across the DIME" synchronized with allied and partner efforts.

Potential Chinese threats to U.S. interests could originate from overtly military means, or perhaps more probably from the non-military "levers of DIME" to secure territory, shape access and global perception in these regions. New climate and technology advancements coupled with polar climate change currently

afford new opportunities in the previously-ice bound polar regions. Figure 1 and its corresponding maps demonstrate how the security and economic situation will change over the next three decades as anticipated melting of polar ice form new sea lanes for shipping, military maneuvers, and resource extraction. Sea lane and airspace dominance take on greater importance when space and undersea dimensions of competition are factored into the security calculus. The Chinese policy of creating economic and diplomatic opportunity where other nations fail to challenge claims can be expected in this region.

Legal and Diplomatic Concerns Regarding China in the Polar Regions

China defined itself as a "Near-Arctic State" in 2019 and claimed itself as one of the continental states closest to the Arctic Circle despite its approximate 900-mile distance[11] from the Arctic Circle. Despite its notable geographic distance from the Arctic, the PRC claims it has the right to address regional and global issues in the Arctic, especially in areas it considers to directly impact Chinese security and economic interests. In short, the PRC possesses no geographic claim but recognizes the region's current and potential value. Given the PRC's past actions "across the DIME" with regards to extraterritorial claims in other parts of the world, the U.S., its allies, and its partners should naturally exercise concern regarding Chinese ambitions. China's security claims in the Arctic naturally draw international interest given its aggressive and legally dubious claims in other parts of the world. Perhaps the most notable and dubious declaration China's made is the now "Ten-Dash Line"[12] claims in the South China Sea (SCS). However legally questionable, the PRC SCS claims are loosely based on printed lines found on an old Republic of China (ROC) map. Without international legal legitimacy, the PRC employs such map as a basis to exclude concerns and claims of other South China Sea claimant nations. Fortunately, other nations do appeal to international law regarding disputed claims. The 2016 United Nations Convention on the Law of the Seas (UNCLOS) Arbitral Ruling ruled in favor of Philippines claim which runs counter to China's assertions.[13] The U.S., its allies, and partners must anticipate PRC efforts to construct claims or exert efforts to secure interests in the polar regions, even with no international legal standing and at the expense of the international rules-based order. The logic for China's current legal and diplomatic maneuvering is involves access to Arctic shipping routes and the energy resources to provide China geostrategic advantages. A 6,000-kilometer sea lane through the Arctic provides a better option rather than the existing principal trade route passing through the Malacca Strait and Suez Canal to European markets. Further, the Arctic contains significant gas and oil energy reserves yet to be fully exploited.[14] China, therefore, relies on shaping existing agreements or laws to justify access to the Arctic including the use of UNCLOS.

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Diplomatically, the PRC claims its various treaty memberships and its role as a permanent member of the UN Security Council entitles China influence in decisions concerning Arctic peace and security issues. Through such memberships, China also claims various rights in the Arctic Sea to include entitlements to conduct research, overflight, navigation, fishing, laying infrastructure (cables and pipelines), and resource exploration/exploitation in the Arctic Sea areas. China also leverages its membership in scientific bodies and through its membership in the Svalbard Treaty[15] to expand research related to economic development and

climate studies. As per the 2018 policy paper "China's Arctic Policy," the idea of a "Polar Silk Road" ties into China's Maritime Silk Road concept. Chinese relations with Arctic nations support development of potential shipping routes and economic development. China supports hydrographic and route studies for Arctic shipping lanes and employs the Arctic Council to influence Arctic-related treaties and agreements.[16] However, history shows the PRC selectively obeyed or exploited laws to suit Chinese interests.

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Successfully defending U.S. interests will require an adroit U.S.-led interagency and multinational approach given China's penchant to manipulate agreements and treaties in China's favor. One example of such manipulation of existing treaties involves the 1925 Spitzbergen Treaty (now commonly referred to as the Svalbard Treaty), that gave signatories[17] commercial access to the Norwegian islands. The PRC later exploited the treaty to gain China a place on the International Arctic Science Committee in 1996, and the establishment of a research station in 2004 on Spitzbergen Island in the Svalberg archipelago. In 2013, China gained observer status on the Arctic Council, and by 2019 utilized its scientific research station on Spitzbergen Island to test the BeiDou satellite system.[18] The BeiDou satellite system is a dual-purpose system, like most Chinese commercial endeavors, and can both monitor the weather or provide precision weapon guidance. The BeiDou satellite ground stations in the Arctic are ostensibly for scientific research, but satellite tracking efforts provide a blueprint for how China will employ the Arctic for scientific, security, and economic matters. These multiple use efforts contradict the Ottawa Declaration,[19] which emphasizes the Arctic Council would not deal with matters related to military security.[20,21] Such negotiations clearly fall under the U.S. Department of State authorities to confront in international forums such as the United Nations and the G20.

The abuse of the scientific access is part of Chinese strategy to gain an advantage for future operations in the Arctic and Antarctic, as well as prevent competitors from gaining strategic advantage from their research. The PRC autocratic structures and military strategy support the natural fusion of civil and military power. Civilian science missions provide justification for Chinese military support to operations, or so China asserts. Its professional literature urges the military use every opportunity to engage in polar missions to gain the change to "test equipment, technology and medical support alongside missions that enhance the military's long-distance force projection capabilities, while also increasing the use of military transport, ships and special polar vehicles." The military is encouraged to demand the right to exercise these capabilities and to advocate for search and rescue training or mission participation. Such military-civilian fusion increase military capacity with polar monitoring, air, sea, and land maneuver, and operational success in challenging conditions.[22] China's military continues to actively engage in developing the capabilities necessary to successfully operate in the polar regions.

Strategic Positioning in the Arctic: The Diplomatic, Military and Economic Ways and Means

China claims "freedom of navigation" patrols as justification for Chinese military patrols in the Arctic, around the Aleutian Islands, and within the U.S. exclusive economic zone. Chinese naval patrols in the Arctic are designed

to gain experience operating in northern waters while gauging U.S. and Canadian reactions. China's "freedom of navigation" claims and Chinese ventures into the Arctic demonstrate the expansion of China's global blue water and polar ambitions. China cannot operate effectively in the north without substantial knowledge of the Bering Strait, Aleutian Islands and the Strategic Sea Line of Communication (SLOC) they form. As a self-declared "near Arctic" state, China's efforts include designing and building a fleet force capable to successfully operate and support its Arctic ambitions. Plans for such a force include icebreakers, Coast Guard vessels, and other specialized ships. Such plans already manifested completion of at least three icebreakers by 2024 and additional research icebreakers for oceanographic and bathymetric studies under various stages of construction or development.

The Chinese military recognize the value of the polar regions and name them the "strategic commanding heights" implying the strategic value these regions possess. The PRC also recognized the air distance advantages between the two hemispheres, which make the polar regions "aviation key positions" that increase flight penetration capability. The Arctic also presents opportunities as the ideal region for concealing nuclear strikes from submarines and continues to get probed by various PRC military vessels.[23] Since 2021, PRC military incursions often feature a mix of military and Coast Guard ships. In 2021, a four-ship Chinese People's Liberation Army Navy group included a guided-missile cruiser, a guided-missile destroyer, a general intelligence vessel, and an auxiliary vessel that passed within 46 miles of one of the Aleutian Islands. During this patrol, the U.S. Coast Guard cutters Bertholf and Kimball tracked the vessels.[24] Although Chinese commentators and government spokesmen claimed the ships were entering the region in response to U.S. ships in the South China Sea, a pattern of Chinese naval intrusions in subsequent years reveals a conscious intent to test and probe U.S. reactions in the Aleutian -Bering Strait SLOC. Only a year later in September 2022, the Coast Guard cutter Kimball and a C-130 tracked a flotilla that contained three Chinese ships and four Russian ships in the region. The flotilla was spotted eighty-six miles north of Kiska Island in the Aleutians.[25] Such military voyages off the coast of Alaska will likely increase in frequency and assertiveness as the PRC tests developing polar sea routes and U.S. maritime and air defenses.

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Such activities increasingly show evidence of bilateral participation with Russia. One such naval contingent was tracked in 2023 when eleven Russian and Chinese vessels patrolled near the Alaskan coast with the standard "freedom of navigation" exercise excuse. The contingent attracted an escort of four U.S. destroyers and anti-submarine aircraft due to its unprecedented size.[26] China repeated the exercise without Russian partners in 2024 with a four-vessel group, which again contained a guided missile destroyer and a guided missile cruiser sailing within the U.S. economic exclusion zone.[27] China's named "Coast Guard," already known to travel well beyond Chinese territorial waters, will likely also joint in Arctic operations. Such activities indicate not only a growing blue water capability, but an Arctic capability near U.S. shores.

China's declaration of a new "Polar Silk Road" through northern polar waters signaled PRC intent to expand power into the region to protect shipping and establish conditions favorable to Chinese trade and security.

Much is written concerning Chinese efforts to strengthen access to natural resources and mitigate risks posted to Strategic SLOC such as the Malacca Strait. BRI projects provide various capabilities such as extending overland pipelines and trade routes through neighboring countries like Myanmar and Pakistan, while other infrastructure efforts increase access to trade and hydrocarbons from Russia. The PRC is aggressively establishing natural resources and market resilience. The global economy demands secure and reliable access through SLOCs such as the Strait of Malacca, Strait of Hormuz, Bab el-Mandeb, and the Suez and Panama Canals. A loss or degraded access to such SLOCs would significantly damage the Chinese economy.[28]

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The Northeast Passage, Northwest Passage, and the Central Passage in the Arctic increasingly provide important trade route options, and, as China asserts, freedom of navigation and access to these routes should be regulated by international law. However, this assertion counters China's own efforts to deny other nations access to Chinese exclusive economic zones and ability to conduct freedom of navigation patrols in waters China perceives as strategic including the Taiwan Strait and South China Sea. Threading the diplomatic needle with China in the Arctic requires close cooperation between the U.S. and Arctic allies to ensure adherence to international rules and norms in both international waters. As China increases the number of sea and air patrols, the U.S. must also increase its regional presence.

One example of how China could potentially affect the security and economic situation in the region could involve China securing access to Adak Island in the Aleutian Island chain. A Chinese shipping company suspected of being a military front reputedly offered to lease the Adak naval base annually; the current owner, the Aleut Corporation has declined.[29] NORTHCOM and INDOPACOM recognize the base's usefulness and importance: its three usable piers and two 8,000-foot runways, a hangar, and storage for over twenty million gallons of fuel.[30]Adak, Alaska represents contested space and another example of a multiple use strategic access point to enable trade routes, science and security in the Arctic region.

China has demonstrated that the northern route can be commercially viable. Since 2018 Chinese shipping lines have completed repeated voyages from Asia to Europe, and recently from Shanghai to St. Petersburg. The route the Chinese have chosen follows the Russian coast and offers China an alternative to southern routes for energy and trade to flow into China. Although PRC's attempts to acquire land along this route failed, such efforts highlight the importance of better cooperation between U.S. alliances with EU partner states and the strategic importance of U.S. and EU partner states' involvement in Greenland.[31] Chinese ambitions in Greenland are well-known. The U.S. must work with NATO and EU partners to develop and action a strategy to provide Greenland with viable commercial partners as well as security guarantors that enable Greenland's use as a hub for dual use technologies for U.S. and EU. Due to its proximity and potential posture placement capabilities, a permanent Chinese presence in Greenland would threaten Canada and U.S. interests.

The international community should expect China to continue to develop and employ Arctic trade routes to Europe and eventually seek and set conditions to extract resources from the Antarctic. The U.S. and European allies must monitor such trade route developments. Until

the international community is in a post-Ukraine conflict scenario, few opportunities will exist to collaborate with Chinese and European nations in Arctic trade route development.

Unfortunately, the entry of Chinese naval or supposed "Coast Guard" platforms into the Arctic in recent years created a dangerous precedent with potential for escalation of U.S. and NATO force presence. By most western Pacific analysts, the China Coast Guard is a paramilitary law enforcement force, used aggressively to pursue China's maritime strategy goals. Perhaps ironically and despite aggressive actions in places like the South China Sea, China's Coast Guard could conceivably and eventually participate in environmental preservation efforts. Logistically, the PRC Coast Guard does not lack capabilities. The PRC Coast Guard fleet comprises over 150 vessels augmented by two 12,000-ton ships—the largest maritime law enforcement ships in the world.[32]

Chinese ships have trained for at-sea replenishment and can expect to demonstrate a force presence across the world's sea lanes including both polar regions. The Chinese Coast Guard likely intends to regularly operate in the Arctic where it can support Chinese intentions to access energy and mineral resources. The commercial and military implications of these research studies will demonstratively showcase PRC presence in the region.[33] In a similar manner to the Arctic, the Chinese Coast Guard is a formidable force, which will undoubtedly increase periodic presence in the Antarctic. Developing a means in which the PRC can responsibly contribute to reducing illegal, unreported, and unregulated (IUU) fishing and illegal maritime activities could significantly share environmental protections costs while protecting global fisheries. Unfortunately, the PRC faces monumental challenges to rehabilitate its reputation and nurture sufficient trust with the international community to potentially contribute to such efforts.

Hybrid Activities, Cables, and Polar Information Flow

Many of China's Coast Guard vessels are re-purposed naval vessels and as such retain military weaponry.[34] Although it is unknown if the Coast Guard will employ force to safeguard China's interests in the Arctic, China's use of hybrid warfare techniques would not bar the Coast Guard from augmenting military ship missions or providing support to "research and scientific discovery ships." China's threat to the Arctic and Antarctic is not confined to overt military measures and fleet operations. China's hybrid war doctrine includes measures to ensure its security and the security of Chinese investments. With emerging PRC technologies, Chinese capabilities to enhance both information gathering and information denial operations will continue to grow. China now claims a deep-sea cable cutting capability, which could sever underwater cables as deep as four kilometers below the surface—twice the depth of current telecommunications cables placement.

China now claims a deep-sea cable cutting capability...

Widely reported last year, China allegedly severed underwater cables by dragging anchors in the Baltic Sea behind the "Yi Peng 3" ship, but this novel cable cutting capability can now be deployed by China's submersible vehicle crews to target "armored" cables. Chinese researchers claim such a device will be used for innocuous salvage and seabed mining.[35] Global information flow, not to mention the sparse and remote civilian infrastructure and populations in the Arctic would disproportionately suffer if any such subsea cables were severed.

Most hostile actions against cable communication networks will directly harm multiple countries. There are some exceptions

where a cable's disruption will principally harm only one country. Russia's Polar Express Undersea Cable is one such example. It is solely owned and operated by Russia with over 400 km established.[36] The Russian cables serve Russia's interests, but other proposed cables could threaten Chinese security interests in East Asia and Greenland. European nations proposed new subsea cable routes from Europe to Asia and North America under the Arctic Sea and ice. One of these proposals includes the "Polar Connect Cable," which will originate in Norway and pass through the North Pole and onward to Japan, South Korea, and the Asia-Pacific region via the Bering Strait. The 10,000 km distance from Norway to Japan would reduce latencies and provide greater network resilience. Another such cable, the 14,000 km-long "Far North Fiber Project" runs from the Nordic Countries to Japan, via Greenland, Canada, and Alaska and the West Coast U.S. The cable will run through the Northwest Passage– the sea lane running through the Arctic Archipelago of Canada and south of Greenland. The loss of such a critical communication capability could take eighty days to replace, only if the icebreakers and cable laying ship could be deployed.[37]

The internet communication pushed through subsea cables poses significant vulnerabilities to cutting, tapping, or damage.

Potential Chinese malign actions against these new subsea cables could give China an information advantage if China chooses to employ cable cutting technology against Arctic telecommunication cables. Furthermore, if China could tap these subsea cables, the intelligence value would be significant. The underseas cables in the Arctic and emerging PRC technology to cut or tap into these cables pose a significant security challenge to information flow across the global community.

The internet communication pushed through subsea cables poses significant vulnerabilities to cutting, tapping, or damage. Such actions can catalyze significant communication and data blackouts. These interruptions would significantly degrade civilian, commercial, mining, and hydrocarbon industries operating in the Arctic. An example of such a cable is the Alaska Quintillion Arctic Subsea Cable system as the only U.S. subsea fiber network in the Arctic. The 1900-kilometer-long system runs from Nome to Prudhoe Bay. The cable is "100% armored with cable landings shielded within a steel conduit up to a mile offshore and buried over ten feet below the seabed," but even with such protection, remains vulnerable to compromise. The cable must come onshore to six stations, five of which are remote and half without port facilities.[38] Though the energy and economic degradation caused by the cutting of an undersea cable may be difficult to imagine, it is not inconceivable. Last year's cable cuts in the Baltic could be replicated in the Arctic. Conceivably, China and Russia both possess a capability to conduct such globally disruptive actions, if they deem their interests would benefit.

Arctic Data Collection – Not Simply "Science"

China augments its surveillance in the Arctic with new technology that may inform future battle plans. Chinese icebreakers drop surveillance buoys into Arctic waters with scientific instruments, which could gather information essential for submarine operations or submarine tracking. Scientific studies in the Arctic can serve dual use purposes and should be suspected of direct government links to the Chinese People's Liberation Army where any information of strategic value will be used accordingly. This included research conducted as part of an international team.[39] The information

on ice, sea salinity, and competing naval forces will be useful for China's Shang 3 (Type 093B) Class Nuclear Attack Submarines were built for Arctic use.[40] Chinese data collection efforts in the Arctic clearly serve a military purpose.

The data Chinese intelligence efforts are gathering is being actively incorporated into China's operational plans as part of China's efforts to create "informationized" and "intelligentized" AI-driven data to create autonomous battlefield decision making programs. The knowledge of the Arctic and Antarctic China lacks is bolstered by sensors and scientific studies in these regions.[41] China's access to the Antarctic region facilitates dual use scientific research centers, which likely also collect intelligence. Attempts to deny China access to intelligence gathered through sensor emplacement must be coordinated by U.S. intelligence agencies with multilateral partners and allies. Such partner and ally efforts must block China's capabilities to disrupt U.S. and NATO Command and Control efforts. Efforts to limit PRC capacity to disrupt intelligence collection in the Arctic require broad multilateral cooperation across each nation's interagency environment.

Greenland's Riches and Strategic Position

Greenland has pursued a variety of projects that China has been a major partner in financing and exploring. Greenland's Large Scale Project Act gave it the authority to recruit foreign workers, and, in consequence, China attempted to bring in large numbers of employees to help develop Greenland's rare earths and zinc deposits. Chinese foreign policy objectives have expressly identified control of rare earths and strategic metals sources, and Chinese tariffs in 2025, combined with earlier restrictions on rare earths magnet exports in 2024, emphasize China's intention to dominate exports and production worldwide.[42] However, Greenland's environmental regulations and its harsh climate stymied Chinese intentions. The two rare earth mines in operation are unlikely to serve as enclaves for Chinese investment unless domestic political and legal conditions change.[43] China's failure to gain a lasting foothold in Greenland is in part due to environmental policies, but U.S. companies and the Department of State played a significant role since the beginning of the Trump administration putting global attention on Greenland's value and importance to the United States and NATO.

United States officials who visited Greenland in 2024 convinced the CEO of Tanbreeze Mining, a rare earths mining company, to not sell their mine to the Chinese. Ultimately the American company Critical Metals acquired the Tanbreeze holdings and projects mining for eudialyte, which is rich in rare earth elements such as neodymium, cerium, lanthanum, and yttrium, and gallium. These rare earths are used to make rare earth batteries that are essential to American national defense. The American company Green Roc is also exploring graphite deposits, a potential source of the material after China's decision to restrict access to minerals necessary for electric vehicles and batteries.[44]

Of the thirty-four critical raw minerals, Greenland has twenty-five.

Greenland's mineral wealth is not bounded by rare earths. Greenland also has significant deposits of copper, nickel, zinc, gold, diamonds, iron ore, and tungsten. Of the thirty-four critical raw minerals, Greenland has twenty-five.[45] Chinese control of these resources would provide a vast array of commercial and strategic advantages. However, given China's inability to create significant political change despite attempting to provide financial incentives, any future Chinese economic moves would be

constrained by an international presence led by the United States to deny China a commercial position like its domestic rare earths hegemony.

Additionally, Greenland's strategic position is defined by the modern weapons, sensors, and communications systems that could operate from the island as well as the potential for the sea lines of communication around the island to be used for naval transit from the Pacific Ocean to the Atlantic Ocean. Chinese submarines could employ the same sea approaches Soviet submarines once. The existing U.S. Pituffik Space Base in Greenland is used for missile defense and space surveillance. China could create similar capacity if granted land leases for commercial ventures. China attempted to gain a presence in Greenland in 2016 when a bid by Hong-Kong based company General Nice to assume control of the abandoned naval base at Grønnedal was blocked by the Danish government. Further, China wants to establish research stations in Greenland like those in the Antarctic that could serve as BaiDou-2 satellite ground control stations. These efforts require consistent monitoring; Greenland as of 2025 can negotiate international agreements with foreign states.[46] Emplacing dual-use sensors in the Arctic circle would help China control their own satellites and gather intelligence on U.S. systems.[47] As suspected in the Antarctic, "scientific" research stations could also be employed to gather data that could inform Chinese military responses or shape Chinese plans.

The need for icebreaker polar support for commercial and military activities will necessitate cooperation across government agencies and through multinational relationships.

Recommendations for Competition with China in the Polar Regions

Our recommendations are fourfold and concern a mix of material, tactical, and diplomatic efforts. First, we recommend that the U.S. commission additional icebreakers. As of 2025 the U.S. has two icebreakers. President Trump claims that he has ordered forty to be built.[48] It is uncertain how long such procurement efforts will take, but international companies from amongst U.S. partner countries expressed interest in this proposal. Outside the U.S., this effort could even leverage partner shipyards in Canada, Finland, and elsewhere to meet Canadian and U.S. needs.[49] These icebreakers should be operated through a collaborative relationship between the Coast Guard under the Department of Homeland Security and the Department of Defense.

The need for icebreaker polar support for commercial and military activities will necessitate cooperation across government agencies and through multinational relationships. The U.S. must possess sufficient capability to support effective interagency and multinational missions and maintain sufficient polar presence. China's construction and polar deployment activities indicate intent to maintain a permanent or semi-permanent polar presence through heavy rotation of its icebreaker fleet which will soon number between four and six vessels depending on when China's nuclear-powered icebreaker ship project is completed.[50,51] Such capability supports China's rights of passage claims through polar waters while straining U.S. partner and allied aircraft and maritime vessel surveillance coverage. Even if the production of forty icebreakers proves unaffordable or the construction requirements produce a low number of vessels, the addition of any number will significantly enhance U.S. Arctic presence capabilities. The U.S. can also request the assistance of NATO allies for Arctic

icebreaker support, but in the realm of Great Power Competition possession of capabilities and numbers of ships conveys capability to other nations.

Our second recommendation involves U.S. negotiation of a permanent naval presence at the Grønnedal Naval Base in Greenland. Like parallel efforts involving the potential reactivation of the Adak Naval Base in Alaska, through Grønnedal the U.S. government can posture a forward deployed presence near Chinese arctic areas of interest. The Grønnedal base requires significant diplomatic effort with NATO and the EU, of which might serve to partially resolve the Trump Administration's desire to acquire Greenland. A U.S. base would reinforce mutual security requirements and assuage partners that Greenland's periphery could eventually be secured through multilateral and joint monitoring and patrol efforts. Such actions would better secure sea lane northern approaches to Europe and Canada. U.S. diplomatic efforts will function best if synched with cooperative development plans for Greenland's mineral wealth while assuring the residents of Greenland such arrangements are in their best interests. Although U.S. companies purchased mining rights to some of Greenland's inland resources, resources offshore from Greenland require commensurate attention. The U.S., EU, and NATO share interests to prevent China from monopolizing Greenland's resources and exploiting its strategic location. Permanent U.S. access to Grønnedal will secure such interests.

Conclusion

For decades, the People's Republic of China communicated its polar intentions in government speeches, news releases, and military documents. Coupled with the formulation of a significant icebreaker fleet, other PRC multiple-use maritime and polar capabilities increasingly raise global security concerns regarding Chinese intentions. Given PRC actions in recent years in other maritime and disputed environments, the PRC proved its willingness to probe and test the viability of international norms, national boundaries and the national resolve of those nations who have long adhered to the rules-based international order. China's broad partnership and cooperation with Russia in the Artic has forged new opportunities for commercial and military ventures. The world will closely watch how the PRC manages its Arctic and Antarctic relationships with Russia and others as China pursues new transit opportunities and commercial interests in the "Near Arctic." China's efforts to leverage "scientific" investment to simultaneously gain valuable dual-use data for both military and scientific purposes demonstrate China's capability and willingness to employ destabilizing ICAD methods. If questionable PRC actions in the South China Sea and elsewhere are indicative of Chinese intent in the polar regions, the U.S. must strengthen interagency and multilateral cooperation to reinforce the rules-based order that historically stabilizes the Arctic and Antarctic regions.

China's drive for rare earth mineral dominance poses economic and security risks for all countries with limited or nonexistent access to such resources.

China's drive for rare earth mineral dominance poses economic and security risks for all countries with limited or nonexistent access to such resources. The possibility of a Chinese owned and operated mining and port facility with dual use capability poses a security nightmare for the U.S., Canada, EU, and NATO. Despite contemporary arguments in various political arenas, Greenland sustains strategic prominence in the northern hemisphere not only

for metals and minerals, but for new shipping lanes as Arctic ice continues to melt. In recent years, the U.S. belatedly responded to potential Chinese strategic moves by slowly reenergizing military and diplomatic efforts. China's employment of diplomatic, commercial, and military pressure will escalate as economic and security demands for reliable food, energy, and mineral sources continue to grow.

The U.S. must lead development of a comprehensive multilateral effort to reinforce existing agreements designed to minimize conflict in the polar regions and assist polar region states to resist Chinese encroachment. Failure to act in a whole-of-government multinational approach synchronized with our allies and partners risks the PRC achieving commercial and security goals which may conflict, or worse, harm the collective interests of the U.S. and its allies and partners. The U.S. risks creating opportunities for PRC and Russia efforts harmful to U.S. interests through U.S. indecision coupled with indistinct priorities and fractured alliances and partnerships. Competition is healthy, but monopolizing resource access and deliberate undercutting the international order risks potential conflict…even at the ends of the world. ***IAJ***

Notes

1 Matti Puranen & Sanna Kopra, "China's Arctic Strategy – A Comprehensive Approach in Times of Great Power Rivalry," *Scandinavian Journal of Military Studies*, 6, no. 1 (2023): 243, https://sjms.nu/articles/10.31374/sjms.196.

2 Bree Feng, "China Seeks to become a 'Polar Region Power," *The New York Times,* November 19, 2014, https://archive.nytimes.com/sinosphere.blogs.nytimes.com/2014/11/19/china-seeks-to-become-a-polar-region-power/

3 Heather Conley, "China's Arctic Dream," Center for Strategic and International Studies, February 2018, https://www.csis.org/analysis/chinas-arctic-dream

4 *Zhanlüe xue* [*The Science of Military Strategy, 2020 Revision*], National Defense University Press, 2020, Beijing, China. As translated: In Their Own Words: The Science of Military Strategy, China Aerospace Studies Institute, January 2022. Air University Press,

5 Ibid, 162. Shanghai Port to the European port of Rotterdam.

6 "China's Arctic Policy" China Ministry of Foreign Affairs, January 26, 2018, https://www.mfa.gov.cn/eng/zy/wjzc/202405/t20240531_11367520.html

7 *Zhanlüe xue*, 165.

8 ICAD (illegal, coercive, aggressive and deceptive) is increasingly entering the maritime lexicon amongst Southeast Asian nations. The acronym was coined by Armed Forces of the Philippines GEN Romeo. Conceptually, "gray zone" is overused, in one sense complacent, and too ambiguous to sufficiently describe nature of PRC activities.

9 Carl Thayer, "The State of the South China Sea: Coercion at Sea, Slow Progress on a Code of Conduct," *The Diplomat,* January 27, 2025, "https://thediplomat.com/2025/01/the-state-of-the-south-china-sea-coercion-at-sea-slow-progress-on-a-code-of-conduct/

10 Michael Paul, "China's Arctic Turn," German Institute for International Politics and Security, February 13, 2025, https://www.swp-berlin.org/10.18449/2025C08/

11 Eric Niiler, "China's Scientists are the New Kids on the Arctic Block," *Wired*, May 2019, https://www.wired.com/story/chinas-scientists-are-the-new-kids-on-the-arctic-block/.

12 The PRC originally used a map with nine dashes, but since 2023 seem to reference a "ten dash" map that encompasses Taiwan as the basis of its claims.

13 Andrew Wong, "China: We are a 'Near-Arctic State', and we want a 'Polar Silk Road', *CNBC*, February 14, 2018, https://www.cnbc.com/2018/02/14/china-we-are-a-near-arctic-state-and-we-want-a-polar-silk-road.html?msockid=1bd3f6bce622671c1bc3e37ee7a46686

14 Maud Descamps, "The Ice Silk Road: Is China a "Near-Arctic-State"?" Institute for Security and Development Policy, February, 2019, https://www.isdp.eu/publication/the-ice-silk-road-is-china-a-near-artic-state/

15 Originally commonly referred to as the "Spitsbergen Treaty" – due to the original name of the Arctic Archipelago, for which it was named.

16 "China's Arctic Policy," The State Council Information Office of the People's Republic of China (1st edition), January 2018, https://english.www.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm

17 Signed by the Republic of China in 1925.

18 Clingendael Institute, "Presence before Power: Why China became a Near-Arctic State," *Clingendael Report,* June 2020, https://www.clingendael.org/pub/2020/presence-before-power/2-presence-before-power-why-china-became-a-near-arctic-state/

19 Of note, the PRC did not sign the 1996 Ottawa Declaration which established the Arctic Council.

20 Sarah Sewell, Tyler Vandenberg, and Kaj Malden, "China's BeiDou: New Dimensions of Great Power Competition," Belfer Center for International Affairs, February 2023, https://www.belfercenter.org/publication/chinas-beidou-new-dimensions-great-power-competition

21 Clingendael Institute.

22 *Zhanlüe xue*, 166.

23 *Zhanlüe xue*, 163.

24 Christopher Woody and Ryan Pickrell, "US Coast Guard cutters shadowed Chinese warships sailing near remote US territory in Alaska," *Business Insider,* September 14, 2021, https://www.businessinsider.com/us-coast-guard-shadowed-chinese-warships-near-alaska-2021-9

25 Mark Theissen, "Coast Guard Spots Chinese, Russian Naval Ships Off Alaska Island," *Associated Press*, September 26, 2022, https://www.navytimes.com/news/your-navy/2022/09/27/coast-guard-spots-chinese-russian-naval-ships-off-alaska-island/

26 Michael Gordon and Nancy A. Youssef, "Russia and China Sent Large Naval Patrol Near Alaska," *Wall Street Journal*, August 6, 2023, https://www.wsj.com/articles/russia-and-china-sent-large-naval-patrol-near-alaska-127de28b?ref=northernjournal.com

27 Nathaniel Herz, "Inside the U.S. Coast Guard's Aleutian Encounter with China's Military — and What it Means," *Washington State Standard*, July 18, 2024, https://washingtonstatestandard.com/2024/07/18/inside-the-u-s-coast-guards-aleutian-encounter-with-chinas-military-and-what-it-means/

28 Showmik Sarker Prottoy, "The Strait of Malacca: China's Lifeline and Potential Doom?," International Policy Institute, October 29, 2024, https://intpolicydigest.org/the-platform/the-strait-of-malacca-china-s-lifeline-and-potential-doom/

29 "Chinese Shipping Company Wants to Lease the Former U.S. Base at Adak," *The Maritime Executive*, April 10, 2025, https://maritime-executive.com/article/chinese-shipping-company-wants-to-lease-the-former-u-s-base-at-adak

30 Patty Neiberg, "The Navy May Revive This Forgotten Alaskan Base That Sits Halfway to Russia," *Task and Purpose*, April 17, 2025, https://taskandpurpose.com/news/wwii-base-adak-aleutian-islands/?utm campaign=dfn-ebb&utm medium=email&utm source=sailthru

31 Yong Jian, "Why China's Ice Silk Road has Trump up in Arctic Arms," *Asia Times*, January 13, 2025, https://asiatimes.com/2025/01/why-chinas-ice-silk-road-has-trump-up-in-arctic-arms/#

32 Ryan Chan, "China's 'Monster Ship' Puts on Show of Force Near US Treaty Ally," *Newsweek*, March 28, 2025, https://www.newsweek.com/china-news-coast-guard-monster-ship-east-china-sea-japan-2051861

33 John Grady, "China Coast Guard Now Operating in the Bering Sea," U.S. Naval Institute, October 3, 2024, https://news.usni.org/2024/10/03/china-coast-guard-now-operating-in-the-bering-sea

34 Alyssa Chen, "China Coast Guard: What Does it Do and How Did it Become so Powerful?" *South China Morning Post*, July 1, 2024, https://www.scmp.com/news/china/diplomacy/article/3268460/china-coast-guard-what-does-it-do-and-how-did-it-become-so-powerful

35 James Saunders, "China Shows Off Powerful New Technology Which Could Cripple US Military Dominance in Future Wars," *GB News*, March 25, 2025, https://www.msn.com/en-us/news/world/china-shows-off-powerful-new-technology-which-could-cripple-us-military-dominance-in-future-wars/ar-AA1BsqUX?ocid=BingNewsSerp

36 Alexandra Middleton and Bjorn Ronning, "Geopolitics of Subsea Cables in the Arctic," The Arctic Institute, August 2, 2022, https://www.thearcticinstitute.org/geopolitics-subsea-cables-arctic/

37 Dan Swinhoe, "Arctic Subsea Cable Through the North Pole Proposed, Data Center Dynamics, May 31, 2024, https://www.datacenterdynamics.com/en/news/arctic-subsea-cable-through-the-north-pole-proposed/

38 "Quintillion's Subsea System in the Arctic: Cable Landing Station Operations in Extreme Environments," *Quintillion*, November 17, 2022, https://www.quintillionglobal.com/quintillions-subsea-system-in-the-arctic-cable-landing-stationoperations-in-extreme-environments/.

39 David Fraser, "Canadian Military Says It Has Tracked, Stopped China Surveillance in Arctic Waters," *The Canadian Press*, February 22, 2023, https://www.cbc.ca/news/politics/dnd-china-surveillance-operations-airspace-waters-1.6756548

40 Jeff G. Gilmour, "China in the Arctic," *Canadian Naval Review*, February 10, 2024, https://www.navalreview.ca/2024/02/china-in-the-arctic/

41 Shannon Vaughn, "AI Dependence and Political Blind Spots Undermine Beijing's War Strategy," *Foreign Policy Research Institute*, March 18, 2025, https://www.fpri.org/article/2025/03/ai-dependence-and-political-blind-spots-undermine-beijings-war-strategy/

42 Pritam Garcha, "Greenland's Pursuit Of Independence: Implications For China-Greenland Relations And Arctic Resource Management," Organization for World Peace, June 7, 2024, https://theowp.org/reports/greenlands-pursuit-of-independence-implications-for-china-greenland-relations-and-arctic-resource-management/

43 "Explainer: The Geopolitical Significance of Greenland," Belfer Center for Science and International Affairs, https://www.belfercenter.org/research-analysis/explainer-geopolitical-significance-greenland

44 Melanie Burton and Ernest Scheyder, "US lobbied Greenland Rare Earths Developer Tanbreez Not to Sell to China," *Reuters*, January 9, 2025, https://www.reuters.com/markets/commodities/us-lobbied-greenland-rare-earths-developer-tanbreez-not-sell-china-2025-01-09/

45 Greenland: Land of Enormous Mineral Wealth," Institute for Energy Research, January 27, 2025, https://www.instituteforenergyresearch.org/international-issues/greenland-land-of-enormous-mineral-wealth/

46 Clingendael Institute.

47 Todd Prince, "As Russia and China Step Up Arctic Presence, Greenland Grows In Importance For U.S.," Radio Free Europe, January 13, 2025, https://www.rferl.org/a/russia-china-arctic-greenland-trump/33273910.html

48 Housnia Shams, "Donald Trump reveals US 'Ordering 48 Icebreaker Ships' as he Plots Greenland Takeover," *Irish Star,* March 22, 2025, https://www.msn.com/en-us/news/politics/donald-trump-reveals-us-ordering-48-icebreaker-ships-as-he-plots-greenland-takeover/ar-AA1ASw3L

49 Stewart Magnuson, "NATO Summit News: U.S., Canada, Finland Sign Agreement to Build Icebreakers," *National Defense*, July 11, 2024, https://www.nationaldefensemagazine.org/articles/2024/7/11/us-canada-finland-sign-agreement-to-build-icebreakers

50 Justin Katz, "ICE Pact: Why the US Had to Recruit Help in Race with Russia, China for Arctic Icebreakers," Breaking Defense, August 16, 2024, https://breakingdefense.com/2024/08/ice-pact-why-the-us-had-to-recruit-help-in-race-with-russia-china-for-arctic-icebreakers/

51 Trym Eiterjord, "Checking Back in on China's Nuclear Icebreaker," *The Diplomat,* February 13, 2023, https://thediplomat.com/2023/02/checking-back-in-on-chinas-nuclear-icebreaker/