

CHINA AND THE 21ST CENTURY ARCTIC: Opportunities and Limitations

Copyright 2022 The Author(s)



Creative Commons License
This work is licensed under a
Creative Commons Attribution-
NonCommercial-NoDerivatives 4.0 International
License.

Abstract: In 2018 The People’s Republic of China (PRC) released its Arctic policy and articulated its position, principles, and goals as a “near-Arctic state.” In the years since, China has become a central focus of the growing academic and professional discourse surrounding the emerging Arctic and has positioned itself as a consequential actor in regional affairs. This article examines the opportunities and limitations for China in the High North by focusing on its four key drivers for Arctic engagement: resource extraction, international shipping, scientific pursuits, and international prestige. This article finds that while China’s involvement in Arctic affairs is growing, there are still significant roadblocks to its ambitions, which it will need to overcome in order to reach its goal of being recognized as an Arctic power.

Key words: China, Arctic,
Shipping, Energy, Polar Silk Road

Introduction

In 2018 The People's Republic of China (PRC) released its Arctic policy and articulated its position, principles, and goals as a "near-Arctic state."¹ According to the Chinese Ministry of Foreign Affairs, this policy was written "to guide relevant Chinese government departments and institutions in Arctic-related activities and cooperation, to encourage relevant parties to get better involved in Arctic governance, and to work with the international community to safeguard and promote peace and stability in, and the sustainable development of, the Arctic."² Since then, China has become a central focus of the growing academic and professional discourse surrounding the emerging Arctic and has positioned itself as a consequential actor in regional affairs.

The PRC's growing presence in the region since the beginning of the 21st century has been met with widespread suspicion regarding Beijing's intentions in the region. The Arctic Eight (The USA, Canada, Russia, Denmark, Norway, Iceland, Sweden, and Finland) reject China's self-affixed near-Arctic label, with former US Secretary of State Mike Pompeo going as far as to call it "communist fiction."³

1 This publication was created within the implementation of the project START/SOC/034 Western Preparedness for the 21st Century Realities of a Great Power China: A Scenario Based Evaluation that was supported by the project Grant schemes at CU No. CZ.02.2.69/0.0/0.0/19_073/0016935.

2 (The State Council Information Office of the People's Republic of China 2018)

3 (Langley 2021)

The Chinese application for permanent observer status on the Arctic Council, which has no authority or privilege outside being able to observe Council meetings in an official capacity, took seven years before it was approved after considerable internal deliberation. Even China's closest geopolitical ally, Russia, has met Beijing's Arctic ambitions with a cold shoulder despite the latter extensively financing Russia's infrastructure and hydro-carbon projects in Siberia.

What then drives China to further invest economic and political capital in a distant region where both the environment and the states which inhabit it are hostile to outside influence? This paper examines four key factors which draw China to the Arctic: resource extraction, international shipping, scientific pursuits, and international prestige. Furthermore, it will highlight the limitations China faces to its Arctic ambitions coming from both the environment and from Arctic states. These are approached within a near to mid-term time frame, focusing on recent developments and those which are likely to take place by the 100th anniversary of the PRC in 2049.

This article will first briefly outline China's history in the Arctic from its beginnings in the early 20th century, then as the Republic of China, to the present day, highlighting key events which have led to China's current positioning in the High North. Following this overview is a detailing of how Chinese interests in resource extraction, international shipping,

prestige building, and scientific pursuits have drawn China into the region, noting specific examples of ongoing and future projects as well as related geopolitical maneuvers. Finally, a conclusion will project into the future and hypothesize likely developments in the Arctic involving China up to 2030 in light of both environmental and geopolitical realities in the present day.

A Brief History of China in the Arctic

China's present-day forays into Arctic affairs are not the first instance of Chinese interest in the High North; in fact, China has been a participant in Arctic geopolitics to varying degrees since the days of the Republic of China (ROC) after the collapse of the Qing Empire.⁴ On July 1, 1925 the ROC signed the Spitsbergen Treaty (later renamed the Svalbard Treaty), which recognizes Norwegian sovereignty of the Svalbard archipelago in return for signatory states being allowed to pursue peaceful economic interests on the islands.⁵ The Spitsbergen Treaty was one of many international agreements in the midst of the post-World War One treaty frenzy, which looked to settle the post-war order and establish new paradigms of influence around the world. France invited the ROC to join the treaty as a signatory with the aim of recovering the influence in China it was losing

to the rising power of the United States. The ROC, in turn, was interested in participating in any international agreements where it could be perceived as an equal nation and quickly worked to ratify the treaty. However, as is noted by Nengye Liu (2021), the ROC had no real interest in Arctic affairs at the time of signing the treaty and was possibly not even aware of the discussions and issues surrounding the archipelago: "As a weak nation who was struggling with its survival from domestic chaos and foreign invasions, China had no capacity to exercise its rights and pursue its interests in a remote part of the world like the Svalbard archipelago. The Treaty was forgotten, as if it never existed, for more than 65 years."⁶

The PRC, founded in 1949, had in its early years no more interest in Arctic affairs than the ROC had before it. Its first decades were spent rebuilding after the prolonged civil and international conflict China had experienced since the collapse of the Qing Empire. Furthermore, disastrous central planning, exemplified by the Great Leap Forward, and internal discord by way of numerous political purges and the Cultural Revolution, drained resources and expertise which might have otherwise been directed toward geographical pursuits such as polar exploration. After the death of Mao Zedong in 1976, the PRC began to stabilize internally to the point where extra-territorial expeditions were viable and considered worthwhile pursuits by the central party. The first polar expedition was

4 It is important to note that the ROC of 1925 and the modern ROC (Taiwan) are not the same geopolitical actor, although Taiwan, as does the PRC, claims successorship to the dealings of the ROC of 1912-1949

5 (*Svalbard Treaty* 1920)

6 (Liu 2021, 2)

sent south to Antarctica in 1984 and met with great success, constructing the Great Wall research station, which continues to function to this day. It took more than a decade, until 1999, for China to conduct its first Arctic expedition with intent to research phenomena related to climate change to project meteorological shifts further south in China.⁷ This was followed by nine subsequent scientific expeditions to the High North, the most recent of which occurred in 2020, each with broadened scientific goals with often more than 100 researchers taking part in each trip.⁸ During this period as well, China began constructing polar research stations in Norway, Iceland, and Sweden to further its research on climate change and a number of other fields. These stations continue to host scientists year-round and have contributed to the ever-increasing flow of Arctic-related scientific research now being published out of China.⁹

China's interest in the Arctic remained primarily scientific until the end of the first decade of the 21st century. Alexeeva and Lasserre (2012) found that no major Chinese academic works centered on Arctic political issues before 2007 out of 680 works they examined sourced from Wanfang Data, China's largest search engine at the time.¹⁰ In April 2007 China applied for permanent observer status on the Arctic Council, the region's premiere

governance and diplomacy forum, and afterwards numerous Chinese research articles were published on topics such as Arctic governance, inter-region relations, Arctic legal and political regimes, and China's engagement in the region.¹¹ In May 2013 the Arctic Council granted China permanent observer status alongside Japan, South Korea, Singapore, and India, its largest expansion of observers to-date. Though permanent observers have few rights outside of attending Council meetings and working groups, China's successful bid was a significant step forward for their Arctic ambitions, as it legitimized, at least to some degree, the validity of a growing internal belief that China was an Arctic power with an inherent claim to participation in the region's governance.¹² The same year the cargo ship *Yong Sheng* operated by COSCO Group sailed from Dalian, China, to Rotterdam, The Netherlands, along the Northern Sea Route, which hugs Russia's northern coast, the first such voyage of its kind, highlighting not only the fundamentally shifting climate of the High North, but also China's new presence in Arctic affairs.¹³

In January 2018 China released its first white paper on Arctic policy, outlining its official position on several Arctic issues and emphasizing its own legitimacy in Arctic affairs as a 'near-Arctic state', including references to its status as a signatory to the 1925 Spitsbergen

7 (Sun July, 46-47)

8 (Doshi, Dale-Huang, and Zhang 2021)

9 (The Arctic Institute 2020)

10 (Alexeeva and Lasserre 2012, 81)

11 (Sun 2014, 47)

12 (Sun 2018, 4)

13 (Bryant 2013)

treaty.¹⁴ A key take-away from the white paper is China's desire for a more internationalized Arctic, which would have non-Arctic states take on a larger role in the region's governance and affairs, though throughout the paper China reiterates that littoral states do have sovereign rights over the region in line with those laid out in the United Nations Convention on the Law of the Sea (UNCLOS), which non-Arctic states are obliged to respect. However, this respect is intended to be reciprocal, with Arctic states allowing extra-regional actors the freedom to conduct activities in the region so long as they are in accordance with the law and in the interests of the international community.¹⁵

Another important facet of this white paper was its outline of an expansion to their Belt and Road Initiative (BRI) northward, a "Polar Silk Road"(PSR), which Beijing claims will "facilitate connectivity and sustainable economic and social development of the Arctic."¹⁶ The PSR takes its shape in three sea routes emerging in the High North due to climate change: The Northern Sea Route, Northwest Passage, and the Trans-Polar route, which are explained in greater detail in a subsequent section of this paper. The PSR aims to bring 'win-win' results to China's participation in Arctic affairs, with the white paper stating "[all] stakeholders

in this area should pursue mutual benefit and common progress in all fields and activities. Such cooperation should ensure that the benefits are shared by both Arctic and non-Arctic states...."¹⁷ As Greiger (2018) accurately notes, one of the primary goals of the white paper was to deflect Western concerns about China's growing Arctic ambitions and present China as a 'responsible major country' committed to international law and cooperation.¹⁸ Their courting efforts appear to have missed the mark, as much of the subsequent non-Chinese literature released after the white paper by both Arctic actors and civil society meets China's Arctic enthusiasm with a cold shoulder at best, and more often than not with suspicion.¹⁹

Detailing China's Arctic Interests

China's interests in the Arctic stem from four key drivers: diversifying trade routes, securing raw materials and resources, advancing their scientific understanding of climate change, and garnering international prestige; these interrelate and synergize to create a catalyst which pushes China towards greater Arctic engagement. Within China multiple entities are involved in Arctic policy-making and execution, most obviously national institutions such as the Politburo of the Chinese Communist Party and the Ministry of Foreign

14 (The State Council Information Office of the People's Republic of China 2018, II) The PRC is recognized as the inheritor of the ROC's signatory status

15 (Grieger 2018)

16 (The State Council Information Office of the People's Republic of China 2018, II)

17 (The State Council Information Office of the People's Republic of China 2018, III)

18 (Grieger 2018, 2-3)

19 (Wishnick 2017, 59-65) (Adam 2018) (Grieger 2018)

Affairs, but also sub-national institutions such as provincial governments, state-owned enterprises (SOEs) such as the shipping conglomerate COSCO, and different research institutes and think-tanks from civil society.²⁰ This section takes into account the plurality of different agendas and goals these entities have set for themselves in the High North, but also the wider implications they have for China as an Arctic actor and the other Arctic states with which China interacts on the international stage.

Resource Extraction

Resource extraction has long been a cornerstone of Arctic economics and is its primary contribution to the world economy. Many of the modern settlements in the Arctic exist solely to support the countless oil rigs, gas fields, mining operations, lumber mills, and fisheries, which dot the region's coast and interior. The receding ice and warming temperatures brought about by climate change have created new opportunities for extraction enterprises to expand into areas previously too inhospitable for profitable ventures, generating an economic boon for Arctic states and territories.²¹

The most important of these resources for China are hydrocarbons (liquid natural gas (LNG) and petroleum), and mineral resources, specifically rare earth elements.

20 (Kossa 2019, 20-21, 25-26)

21 (Lavengood 2021, 473)



Arctic drilling platforms are technologically sophisticated infrastructure which extract hydrocarbons from far below the seabed and drive the High North's economy.

These resources are the lifeblood of China's economy and even a limited disruption in their supply ripples throughout their economy with consequences valued in billions of yuan. Securing a diverse portfolio of suppliers for these vital resources is paramount for China to avert economic disaster and assure continued, predictable growth. Within Chinese domestic discourse, resources in the evolving Arctic present an opportunity to both pursue new extraction ventures as well as promote "energy cooperation and achieve joint economic development" with other Arctic actors.²²

Hydrocarbon Extraction

China is the world's largest consumer of energy and its internal demands for power grow in-step with its expanding economy. Hydrocarbons are an existential resource for China and in 2020 accounted for nearly a third of all energy produced in the country, a figure which will only grow as China increasingly

22 (Andersson, Zeuthen, and Kalvig 2021, 118)

shuns domestic coal consumption.²³ Securing a diverse portfolio of suppliers is a key priority for Beijing, as the supply chains which lead to China are fraught with hazards such as pirates along the Strait of Malacca as well as geopolitical tensions in areas like the South China Sea, where foreign navies could harass or even blockade shipments, should the flashpoint turn into a conflict. The abundance of hydrocarbons in the Arctic has been a key driver of Chinese interest in the region.²⁴

China's primary partner in this endeavor is Russia, which has received billions of dollars' worth of Chinese investments in the last decade. The flagship project of this partnership is the Yamal LNG project in Sabetta, Siberia, on the coast of the Gulf of Ob, which is 29.9% Chinese-owned through the Chinese National Petroleum Corporation (20% stake) and the Silk Road Fund (9.9% stake). Additionally, two Chinese financial firms have loaned substantial sums to the Yamal project on 15-year-terms; the Export-Import Bank of China provided a loan for \$10.7 billion USD while the China Development Bank loaned the project \$1.5 billion USD.²⁵ These loans covered two-thirds of the project's external lending needs and were a lifeline to Yamal LNG after financial sanctions from the West limited Russia's borrowing capabilities after its invasion of Crimea in 2014.²⁶ In return,

China receives a steady supply of LNG, 94 billion cubic meters in 2020 through the 'Power of Siberia' pipeline, as well as technical experience working in extraction operations in the Arctic.²⁷

Despite initial enthusiasm for the project and wider joint hydrocarbon ventures in the Arctic, Sino-Russian cooperation has not met the high expectations seen in government communiques and releases, as well as in earlier academic research on the topic.²⁸ This discrepancy stems first from a mutual misunderstanding of expectations regarding the partnership. Russia has a keen interest in maintaining full control over Arctic projects due to the region's importance in the national economy; this is especially true in light of the fact that hydrocarbon assets now make up a significant portion of the Russian economy.²⁹ China meanwhile expects involvement in project management and decision-making when making high-value investments like Yamal LNG, and expects as well the capacity to build its own expertise in Arctic economics and technology in exchange for its investments and lines of credit, which Russia is reluctant to provide or facilitate, again out of concern for its own economic interests.³⁰ Additionally, Beijing is wary of both the implications of further cooperation with Russia in light of increasing sanctions from the West

23 (Center for Strategic and International Studies 2022)

24 (Stronski and Ng 2018, 25)

25 (Kossa 2019, 29)

26 (Stronski and Ng 2018, 28)

27 (Downs 2022)

28 (Alexeeva and Lasserre 2018, 274)

29 (Warsaw Institute 2020) (Stronski and Ng 2018, 25-31)

30 (Pincus 2019, 5)

due to the war in Crimea, and what one Chinese scholar called an “unfriendly” environment for investment with a legal system which “functions poorly and corruption is rampant.”³¹

In spite of these issues, China and Russia will doubtlessly continue joint hydrocarbon ventures in the near future. The planned ‘Power of Siberia 2’ pipeline will double Russian gas exports to China and connect the existing Russia-China pipeline network with the same network that supplies Europe.³² This would allow Russia to sell to China gas originally intended for customers in Central and Eastern Europe, who are now looking to wean themselves from their traditional energy supplier, as well as answer a demand in China for LNG, which is expected to double by 2035.³³

Mineral Extraction - Rare Earth Elements (REEs)

Mineral extraction has emerged as one of the most anticipated industries in the evolving Arctic, as large deposits are becoming more accessible as the perennial ice melts due to climate change. It is one of the oldest industries in the High North, with ore-producing mines existing for hundreds of years in northern Scandinavia and gold rushes shaping the North American Arctic at the end of the 19th century. In the present day this incipient resource cornucopia has drawn investments

from state, subnational, and private actors from around the world-system; this potential has even garnered the attention from the wealthiest individuals on the planet, demonstrated by Jeff Bezos and Bill Gates’ backing of an extraction operation in Greenland worth hundreds of millions of dollars and covering an area the size of Luxembourg.³⁴

REEs are a group of 15 elements found in a multitude of modern technologies and products ranging from consumer items like cell-phones and computer processors to medical and industrial goods such as MRI contrast agent and the high-powered magnets found in electric-generating windmills. The ‘rare’ in rare earth element is a misnomer, as these elements and the minerals they are found in are among those most common in the Earth’s crust; however, finding them in deposits sufficient for economic exploitation is indeed a rare geological phenomenon. China has held a near-monopoly on REEs since the 1990s, producing 85-95% of the world’s supply, and has had a policy of reduced raw REE export since 2010.³⁵ REEs are a strategic asset for China and the regulation of their extraction, use, and trade is subject to five-year plans from the Ministry of Industry and Information Technology, which are directly approved by the State Council.³⁶

31 (Pincus 2019, 5) (Downs 2022)

32 (Ridgewell 2022)

33 (Iden 2022)

34 (Bluejay Mining PLC 2022) (Bykova 2022)

35 (Van Gosen et al. 2014)

36 (Andersson, Zeuthen, and Kalvig 2021, 6-7)

In recent years Beijing has shown an increasing interest in mineral extraction in the Arctic to diversify its supply of REEs and to maintain its near-monopoly on value chains. It is currently invested in six Arctic REE projects in an advanced stage of development: one in Alaska, three in Northern Canada, and two in Greenland; the latter two projects in Greenland are the focus of this section due to their disproportionately higher geopolitical impact than those in Alaska or Canada.³⁷

Greenland achieved self-government in 2009 and maintains a high degree of autonomy within the Kingdom of Denmark on all matters save foreign relations and security. Since then, the public discourse on full independence from Denmark has been ongoing; however, a significant roadblock is the island's dependence on subsidies from Copenhagen. An annual 'block grant' from the Danish government of roughly 3.9 billion DKK (\$614 million USD) makes up nearly half of the Greenlandic public budget, which runs the infrastructure, schools, and other public services of the island's 56,000 inhabitants.³⁸ For independence-minded Greenlandic politicians the necessity to wean the island from Danish subsidies is an existential task, which could be possible with recent discoveries of REE deposits emerging from ice-lock and known deposit sites becoming increasingly accessible for extraction.³⁹

China is looking not only to secure REE supplies but also to gain influence in the region. The country has increasingly invested in Greenlandic projects through SOEs and poised itself as a potential benefactor and ally to an independent Greenland.⁴⁰ However, similarly to hydrocarbon extraction, mineral extraction in the Arctic is a technologically and financially intensive task due to the local climate and the remote location of extraction sites. China's two REE projects in Greenland, Kanefjeld and Kringlerne (also known as Tanbreez), located in the far south of the island, are speculated to have some of the largest deposits of REEs in the world, though the profitability of these mines has yet to be proven and are vulnerable to market fluctuations as well as increased attempts by other global actors such as the US, EU, and Australia to wrest the REE monopoly from China.⁴¹

There is also the risk of public and political opinion in Greenland turning against the mines, though not necessarily for reasons of international intrigue. REE extraction generates large amounts of waste during the initial crushing and refining processes, and in the case of the Kvanefjeld mine this waste would have radioactive properties tied to local deposits of uranium found in the same ore as the REEs.⁴² Plans to store the waste in a nearby lake caused public outrage and sparked parliamentary elections in 2021

37 (Andersson, Zeuthen, and Kalvig 2021, 5,9)

38 (International Trade Administration 2021)

39 (Conley and Rahbek-Clemmensen 2018)

40 (Jiang 2018) (Wishnick 2017, 47-49)

41 (Kalvig and Lucht 2021)

42 (Gronholt-Pedersen and Onstad 2021)

which saw the left-wing opposition party Inuit Aaqatigiit come to power, a party which is publicly against the mining project and has vowed to block further development of the project. The company Greenland Minerals and Energy, which heads the project and whose largest investor is Shenghe Resources, a majority state-owned Chinese company, has entered into negotiations with the new Greenlandic government in an attempt to save the project, which could collapse should proposed legislation pass through the Greenlandic parliament. This legislation would ban mining exploration of deposits with uranium concentrations higher than 100 parts per million, which is labeled as 'very low-grade' by the World Nuclear Association.⁴³

Despite the present lack of profitability of these REE ventures and their vulnerability to the changing winds of Greenlandic public opinion, Chinese investments in Greenland should be viewed not only through an economic lens. The island is strategically positioned in the Arctic for shipping and scientific research (detailed in the following sections), as well as for military purposes, and could act as a foothold for China in the Arctic in the coming decades. This is of course tentative based on China's relations with Denmark, but also possibly a future independent Greenland. China has also looked to divest from 'conflict minerals' sourced from less-than-reputable suppliers in the global south, which, though financially inexpensive, have a steep cost in its international prestige.

43 (Jiang 2021, 23-27)

Sourcing REEs in Greenland could be an alternative to conflict minerals as the island does not have the litany of societal and economic problems associated with mineral extraction in the global south. However, the steep start-up costs to running these mines and their aforementioned questionable profitability forecasts could leave this alternative shelved for the time being.⁴⁴

Arctic Shipping

Shipping in the High North has long been a dream tarnished by the harsh realities of an ice-locked sea. Many distinguished exploration expeditions such as the Hudson voyages (1609-11) and the Russian Great Northern Expedition (1733-43) aspired to and failed to find navigable sea routes that would facilitate travel between Europe, Asia, and the North American east coast. With the onset of global climate change, the ice-pack, which for the breadth of human history was considered permanent, has rapidly shrunk, and in many areas become seasonal.⁴⁵ This has created a growing shipping season in the Arctic, which permits east-west travel along the top of the planet following emerging sea routes, which could save weeks of shipping time and hundreds of thousands of dollars in operating costs per transit— a potential boon for a global economy hinged on just-in-time (JIT) logistics.

44 (Bhumann 2018)

45 (National Snow & Ice Data Center 2022)

China is an international shipping Goliath, controlling the second largest global commercial fleet and hosting seven of the world's ten busiest ports on its coast. Additionally, China holds ownership of over 100 ports across 63 different countries and is speculated to control nearly 10% of Europe's port capacity.⁴⁶ Shipping is an integral part of BRI and has played a key role in Beijing's economic planning domestically and internationally. China's massive manufacturing sector relies on JIT logistics not only to supply factories with raw materials and resources, but also to ensure the timely shipping of finished goods to global markets. Haunting China's JIT stability are two geopolitical issues: piracy, most prevalent in the Gulf of Aden, and the number of choke points Chinese ships destined for European ports must pass through, principally the Strait of Malacca.⁴⁷

The evolving Arctic has revealed three Arctic sea routes: the Northern Sea Route (NSR), which hugs the Russian coast connecting East Asia and Europe, the Northwest Passage (NWP), which snakes through the Canadian Archipelago and exits near the southern tip of Greenland, and the Transpolar Sea Route (TSR), which crosses the North Pole from the Bering Strait to the North Sea. Presently, the TSR's shipping season remains short, erratic, and unsuitable for economic exploitation in the short term until climate change in the Arctic becomes more pronounced, thus

making the route more navigable with 'ice-free' summers,⁴⁸ speculated to begin in the early 2030s.⁴⁹ Meanwhile, the NWP remains underdeveloped by its custodial power, Canada, and is comparatively time-consuming to navigate compared to the NSR and TSR, thus lowering its economic utility. Therefore, only the NSR remains relatively feasible for China, whose primary shipping destinations via Arctic routes are located in Europe.⁵⁰ The focus for the remainder of this section therefore will be China's present and future involvement in Arctic shipping by way of the NSR.

As with hydrocarbon extraction, China's use of the NSR is intertwined with its relationship with Russia, which is an active, protective steward of the emerging sea route. The NSR is a 40% shorter journey to European markets than the Suez Canal Route and bypasses the aforementioned hazards of Malacca and the Gulf of Aden, offering China an alternative trade route which is not only time-saving, but also saves in fuel, personnel, and insurance costs.⁵¹ Those benefits, however, are mitigated by several tempering factors which lower Chinese enthusiasm for the NSR compared to traditional shipping routes, key of which are: shipping season length and Arctic climate, Russian stewardship, and emerging land-based alternatives.

46 (Rochat and Strangio 2021)

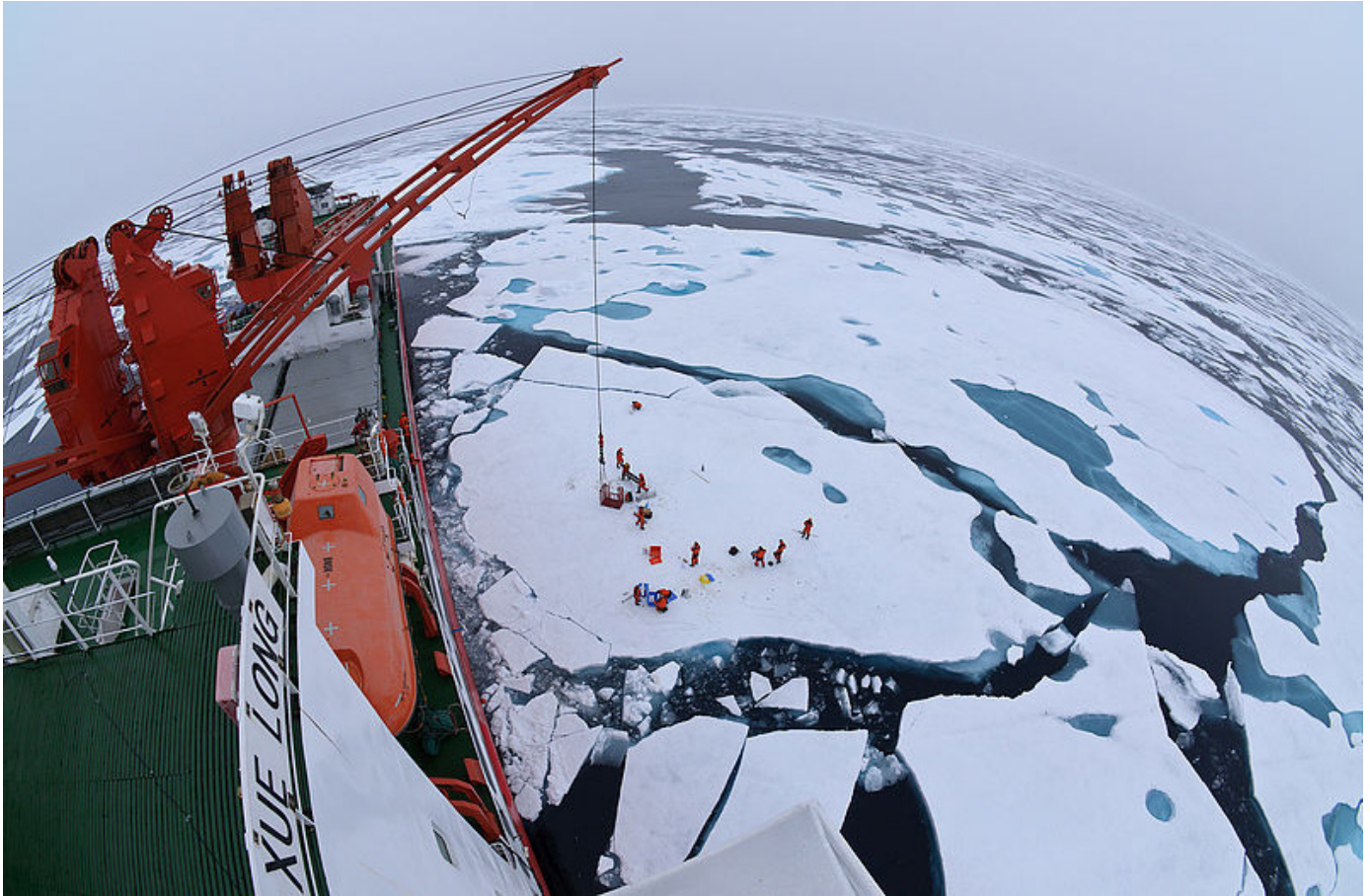
47 (Kobzeva 2020, 341)

48 Ice-free in this case meaning sea ice concentrations low enough not to present a navigation hazard

49 (Aksenov et al. 2017, 307-308)

50 (Melia, Haines, and Hawkins 2016, 9725-9727)

51 (Zheng et al. 2019, 34)



The XueLong is a Chinese icebreaking research vessel which conducts lengthy expeditions to both the Arctic and Antarctic.

Beginning with the NSR's shipping season, which is directly correlated with the Arctic climate, the route's operability, though growing, still remains erratic and unpredictable. Late/early season cold snaps and changes in prevailing winds can form or shift ice floes into sea lanes, which can trap ships that do not have ice-breaking capabilities or are not escorted by dedicated icebreakers. Such a case occurred in November 2021 at the end of the shipping season when 24 ships were stranded along the NSR for nearly a month as they waited for assistance from a single nuclear icebreaker from the Russian

NSR administration (NSRA).⁵² Month-long disruptions in transit are detrimental to JIT economics and shipping companies wary of planning routes which could freeze (literally and figuratively) overnight; guaranteeing avoidance of such phenomena further shrinks the shipping season by roughly one month, cumulatively making the utility of the NSR that much less. Ice-classed ships which could weather floes or have ice-breaking capabilities are significant investments for shipping companies, possibly unwilling to

52 (Humpert 2021)

take on such costs for the comparatively modest savings that can come from Arctic shipping. Besides, ice-classed ships sail at slower speeds and burn more fuel than ships designed for temperate waters, further mitigating the benefits of the NSR for Chinese shipping companies.⁵³

Next, the NSRA's stewardship over the length of the NSR could stifle China's use of the NSR in the short to mid-term future. Russia does not view the NSR as an international waterway, but rather as a route within internal waters, which, along with its hydrocarbon reserves, will reignite the Russian economy for the 21st century. Russia maintains strict, protectionist control over the NSR requiring pre-registration for transit, the contracting of Russian ice-breakers, as well as the contracting of Russian ship pilots along the route.⁵⁴ In addition to these requirements, many key economic activities, such as transporting hydrocarbons and coal, have been allotted exclusively to Russian-flagged vessels.⁵⁵ For China, which prefers to maintain as many mechanics of economic activity in-house as possible, these requirements and restrictions sour advantages that the NSR might bring as, again similar to hydrocarbon extraction, China maintains a cautious suspicion of opaque Russian regulatory and government organizations such as the NSRA.⁵⁶

Finally, emerging land-based alternatives evolving out of BRI could limit future Chinese interest in the NSR, namely rail transportation. In a competitive scenario-based analysis between Arctic shipping, the Suez Canal route, and the China-Europe railway, Zheng et. al. (2020) found the NSR to be non-competitive with the rail alternatives that will become available as BRI expands throughout the decade and beyond.⁵⁷ Indeed, investments in well-established technologies such as rail transportation, which offer not only more reliability than climate-sensitive Arctic shipping but also lower overall costs and flexibility, are likely to be easier sells than the still unproven value in committing the necessary resources to transit shipping along the NSR.

These hurdles should not be seen as insurmountable, nor do they deter Chinese interest in shipping along the NSR; however, they do present realities which muffle ambition for the near future. Meanwhile, NSR partnership projects between Russian and Chinese entities such as *Arctic Maritime Transport*, a partnership between Novatek, Sovcomflot, and COSCO specializing in LNG transportation, show possible niche investments from China in Arctic shipping which could prove to be profitable as the route becomes more developed.⁵⁸

53 (Congressional Research Service 2021, 55-56)

54 (DeGeorge 2019)

55 (Moe 2020, 212-213)

56 (Kobzeva 2020 (Moe 2020, 224)

57 (Zheng et al. 2019, 43)

58 (Moe 2020, 217)

Scientific Research

Scientific pursuits in the Arctic are perhaps Beijing's most touted contribution to the region and are one of its primary means of engaging with Arctic actors. As China first began to look north in the 1990s, its motivations were centered on climate research and understanding how meteorological shifts in the Arctic could impact weather systems within China in the near future. In the 21st century these endeavors have become multi-faceted, focusing not only on climate, but also on the flora and fauna of the Arctic, atmospheric phenomena such as the aurora borealis, geology, and outer space research.

China maintains active participation in a number of track 1 (government to government) and track 2 (NGO, academia, etc.) Arctic research organizations and initiatives, which furthers not only its scientific goals, but also provides formal venues where China is able to present itself as a cooperative, *Arctic* actor. These multilateral organizations, such as the International Arctic Science Committee, the Pacific Forum on Polar Sciences, and the China-Nordic Arctic Research Center, offer Beijing opportunities to engage with Arctic states in a non-political setting and create working relationships which, when matured, can act as catalysts for future cooperation in the business or policy sphere.⁵⁹ Unlike diplomats and civil servants, who serve in multiple postings for at times as briefly as one to two years throughout their careers, scientists will very often remain at the same faculty

or research institution for decades, further increasing their value as tools of public diplomacy as their influence and reputations compound over time.⁶⁰

These efforts of scientific public diplomacy have been successful with many Arctic actors, especially those in Scandinavia, where China now runs three research stations: Yellow River Station (Norway, Svalbard), the China-Iceland Arctic Science Observatory (Kárhóll, Iceland), and the China Remote Sensing Satellite North Polar Ground Station (Kiruna, Sweden).⁶¹ One planned research station in Finland, however, never came to light despite years of negotiations and planning due to security concerns from the Finnish military, a not unheard-of worry from defense forces that Chinese research stations could be dual-use intelligence gathering installations.⁶²

In the coming years, as climate change becomes more pronounced and effective research becomes paramount, China is likely to capitalize on its now decades-long Arctic science programs and present itself as an attractive collaborative partner for both Arctic states and non-Arctic states. This 'back door' to recognition and involvement in the High North highlights Beijing's increasing finesse in public diplomacy, especially around sensitive topics regarding regions which traditionally have seen little or no Chinese involvement.

59 (Bowman and Xu 2020, 11-13)

60 (Su and Mayer 2018, 25-26)

61 (Kopra 2020)

62 (YLE 2021)

Additionally, the technical experience they gain during their extended periods above the Arctic Circle provides an excellent opportunity to shed the necessity of reliance on others for future Arctic endeavors. However, as has been seen in the fallout from Russia's 2022 invasion of Ukraine and the boycotting of many Russian-hosted events in the field of Arctic research, participation in international scientific collaboration can be stifled, or outright halted, due to state-level actions in geopolitics.⁶³ China's involvement in a number of international flashpoints, such as the South China Sea dispute and its decades of cross-strait tensions with Taiwan, could present significant roadblocks to its public diplomacy ambitions in Arctic science, should these flashpoints ignite.

International Prestige

Despite China's meteoric rise to the heights of many traditional metrics of state power since the beginning of the 21st century, such as GDP, military size, and scientific output, its permanent representation on the UN security council, and its significant clout in international relations, China is still frequently referred to as a 'rising' or 'aspiring' power in the media and in academic literature, diminishing what is empirically a leading state in the world system. China, of course, does not refer to itself as 'rising' or 'aspiring', but rather views itself as already having achieved a status of equality among leading states. This highlights a facet of international dynamics where

China's deep pockets and influence-garnering can only go so far: making itself prestigious on the international stage and in the minds of other leading states.

In his book *War and Change in World Politics*, Robert Gilpin defines prestige as "the perceptions of other states with respect to a state's capacities and its ability and willingness to exercise its power," further elaborating that "Prestige, rather than power, is the everyday currency of international relations, much as authority is the central ordering feature of domestic society."⁶⁴ States with high prestige among their peers are afforded a respect or even deference in international affairs, which separates 'great' powers from the wider global community. Great powers use this prestige as a tool of soft power to influence others with the weight of their reputation substituting the weight (and cost) of hard power options. China is cognizant of its prestige deficiency; its economic immensity, growing power projection, and advancing technological capacity have indeed bestowed significant international renown; however, its authoritarian governance, coercive diplomacy, internal repression of minorities, and mercantilist business practices have fomented more animus than esteem. Addressing this issue, Xi Jinping announced in 2014: "We should increase China's soft power, give a good Chinese narrative, and better communicate China's messages to the world."⁶⁵

63 (Dickie and Afanasieva 2022)

64 (Gilpin 1981, 31)

65 (Shambaugh 2015, 99)

The Arctic presents China with an opportunity to showcase itself in an emerging region as a leader on equal footing with other great powers, not only in regards to its political stature, but also to highlight its growth technologically and diplomatically.⁶⁶ This is in line with China's 'striving for achievement' (奋发有为) international strategy, which was adopted by the CCP in 2013, emphasizing foreign policy serving the needs of national rejuvenation and shaping external affairs in a favorable direction.⁶⁷ Important within this strategy as well is consolidating a 'friendly neighborhood' for China to thrive in; considering that China sees itself a near-Arctic state, it can be assumed that the Arctic will be included in its neighborhood strategizing in the near and mid-term future. In 2019 the 'Arctic Circle China Forum' was hosted in Shanghai with more than 500 participants from 30 countries and was the largest event ever held in China with an exclusively Arctic focus. The fact that many of the same North American and European ministers, who had just attended the Arctic Council Ministerial meeting in Finland, arrived in Shanghai directly following the former's adjourning shows that China's prestige pursuits might be bearing fruit.⁶⁸

This particular driver of Chinese involvement in the Arctic synergizes with its aforementioned scientific pursuits. As China is unable to participate in Arctic governance outside of

its limited role as a permanent observer at the Arctic Council and is constrained economically in the theater by geographic realities and the sovereignty of other states, science remains an avenue for gaining prestige not only in the Arctic, but internationally as well.⁶⁹ China intends to develop its scientific and technological capabilities over the course of the decade to the point where it no longer needs to rely on foreign technology for polar activities; should this come to fruition, it will allow China not only to stand independently from Arctic states in its ambitions, but also to use this indigenous technology to offer Arctic access (ice breakers, extraction equipment, etc.) to states outside of the traditional dynamic set forth by Arctic states.⁷⁰

China's Arctic Future - Conclusion

China's role in the future of the Arctic is as inevitable as the disappearance of polar sea ice. Beijing will seek to expand its influence politically, economically, and scientifically in the High North over the next decade, presenting itself, and possibly becoming, an Arctic actor with sufficient prestige in the theater to be respected and deferred to similarly to Arctic states. Over the next decade many of the Arctic projects and initiatives China has begun or involved itself in over the previous decade will have matured and solidified its legitimacy in the region.

66 (Kopra 2018, 133, 135)

67 (Yan 2014, 165-166)

68 (Nilsen 2019)

69 (Kossa 2019, 22-23)

70 (Nikulín 2020, 5-8)

China's capacity to implement massive economic resources in long-term projects is a key tool for this geopolitical endeavor. Its investments and partnership with Russia in hydrocarbon extraction, exploratory mineral extraction projects in Greenland, and the establishment of multiple research stations across the Arctic, are providing Beijing with the know-how to develop its own Arctic capacities and reduce its dependence on others to achieve its goals. By 2030 when ice-free summers are projected to begin, China will have the means to produce its own ice-class cargo vessels to move goods, and most importantly resources, along the NSR and TSR to its ports and has already begun constructing the nuclear powered ice-breakers which will escort them along the route.⁷¹ These ships will also carry Chinese-made extraction equipment and crews to remote mines and hydrocarbon wells across the Arctic, potentially allowing for the entire resource chain 'from ground to factory' to be executed entirely in-house for China, a significant achievement which will further diversify its resource and energy portfolio providing both economic and security benefits. China's Arctic research meanwhile will have established and ingrained itself within the Arctic science community on-par with many Arctic states. Beijing will use this platform to both bolster its image as an Arctic actor among Arctic states as well as to present itself as a gateway and model for other aspiring 'near-Arctic states,' boosting its international prestige as an enviable actor with significant reach across the world-system.

71 (Zhen 2021)

These are not guarantees, however. The Arctic states are well aware of China's intentions in the High North and are divided as a group and internally as to how to approach this newcomer to what has historically been an exclusive area of state participation. A cautious approval and chilly reception are likely to continue throughout the decade, especially as the NATO Arctic states (which soon may include Sweden and Finland) coalesce as a bloc in the region and are likely to tie extra-regional affairs involving China, such as Taiwan and the South China Sea, to their relations with China in the Arctic in a similar fashion to their boycotting cooperation with Russia in many Arctic forums after the 2022 invasion of Ukraine.⁷² China's closest ally in the region, Russia, can also be expected to keep Beijing at arms-length for the foreseeable future, apprehensive of the prospect of an economic and political giant gaining a potentially controlling sway in an area of critical economic and strategic importance for its national prosperity. This could change considering the fallout of Russia's invasion of Ukraine, which is likely disastrously to affect its economic futures for the next decade. China could remain the only international actor of significance willing to invest in projects in the Russian Arctic; should this be the case, China may push Moscow for concessions in the Arctic, which it will have no other choice than to accept in light of its own economic restraints.

72 (DeGeorge 2022)

The evolving Arctic presents many opportunities for China in the 21st century which would not have been possible without climate change and China's own rise to international prominence. The next decade will determine if China can secure a seat at the table of Arctic leaders and hinges on its ability to maneuver carefully in a sensitive and exclusive geopolitical region.

Works Cited

- Adam Lajeunesse. 2018. "Finding "Win-Win": China's Arctic Policy and What It Means for Canada." Canadian Global Affairs Institute.
https://www.cgai.ca/finding_win_win_chinas_arctic_policy_and_what_it_means_for_canada.
- Aksenov, Yevgeny, Ekaterina E. Popova, Andrew Yool, A.J. G. Nurser, Timothy D. Williams, Laurent Bertino, and Jon Bergh. 2017. "On the future navigability of Arctic sea routes: High-resolution projections of the Arctic Ocean and sea ice." *Marine Policy* 75 (01): 300-317.
<https://doi.org/10.1016/j.marpol.2015.12.027>
- Alexeeva, Olga, and Frederic Lasserre. 2012. "China and the Arctic." *Arctic Yearbook 2012*, (08), 80-90. <https://doi.org/10.4000/chinaperspectives.5958>
- Alexeeva, Olga, and Frederic Lasserre. 2018. "An analysis on Sino-Russian cooperation in the Arctic in the BRI era." *Advances in Polar Sciences* 29 (4): 269-282.
<https://doi.org/10.13679/j.advps.2018.4.00269>
- Andersson, Patrik S., Jesper W. Zeuthen, and Per Kalvig. 2021. "Chinese Mining in Greenland: Arctic Access or Access to Minerals?" In *China's Arctic Engagement*, 114-135. Akureyri, Iceland: Northern Research Forum.
- The Arctic Institute. 2020. "China." The Arctic Institute.
<https://www.thearcticinstitute.org/countries/china/>.
- Bhumann, Karin. 2018. "Chinese Mineral Sourcing Interests & Greenland's Potential as a Source of 'Conflict-Free' Minerals." In *Arctic Yearbook 2018: Special Section: China & the Arctic*, 84-101.
- Bluejay Mining PLC. 2022. "Disko-Nuussuaq." Bluejay Mining.
<https://bluejaymining.com/projects/greenland/disko-nuussuaq/>.
- Bowman, Liz, and Qinchao Xu. 2020. *China in the Arctic: Policies, Strategies, and Opportunities for Alaska*. Fairbanks, Alaska: Center for Arctic Policy Studies, University of Alaska, Fairbanks.
- Bryant, Dennis. 2013. "Yong Sheng Traverses NSR." Maritime Logistics Professional.
<https://www.maritimeprofessional.com/blogs/post/yong-sheng-traverses-nsr-14026>.
- Bykova, Alina. 2022. "Bezos and Gates-Backed Mining Company Prepares to Drill in Greenland." *High North News*. <https://www.highnorthnews.com/en/bezos-and-gates-backed-mining-company-prepares-drill-greenland>.

Center for Strategic and International Studies. 2022. "How Is China's Energy Footprint Changing? ChinaPower Project." ChinaPower Project. <https://chinapower.csis.org/energy-footprint/>.

Congressional Research Service. 2021. *Changes in the Arctic: Background and Issues for Congress*. Feb 1, 2021. N.p.: Congressional Research Service.

Conley, Heather A., and Jon Rahbek-Clemmensen. 2018. "Arctic Temperatures and Greenland Politics Heat Up Center for Strategic and International Studies." Center for Strategic and International Studies. <https://www.csis.org/analysis/arctic-temperatures-and-greenland-politics-heat>.

Dickie, Gloria, and Dasha Afanasieva. 2022. "Ukraine conflict hurts Russian science, as West pulls funding." *ArcticToday*. <https://www.arctictoday.com/ukraine-conflict-hurts-russian-science-as-west-pulls-funding/>.

Doshi, Rush, Alexis Dale-Huang, and Gaoqi Zhang. 2021. "Northern expedition: China's Arctic Activities and Ambitions." Brookings. <https://www.brookings.edu/research-northern-expedition-chinas-arctic-activities-and-ambitions/>.

Downs, Erica. 2022. "SIPA Center on Global Energy Policy Q&A Europe's Dependence on Russian Gas with Anne-Sophie Corbeau." Columbia Energy Exchange. <https://www.energypolicy.columbia.edu/research/qa/qa-china-russia-energy-relations-will-new-oil-and-natural-gas-deals-help-russia-weather-economic>.

Gilpin, Robert. 1981. *War and Change in World Politics*. N.p.: Cambridge University Press. <https://doi.org/10.1017/CBO9780511664267>

Grieger, Gisela. 2018. "China's Arctic Policy- How China aligns rights and interests." European Parliamentary Research Service. [https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI\(2018\)620231](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2018)620231).

Gronholt-Pedersen, Jacob, and Eric Onstad. 2021. "Geopolitics is making two rare earths mining projects in Greenland more complicated." *ArcticToday*. <https://www.arctictoday.com/how-geopolitics-is-complicating-two-greenland-rare-earths-mining-projects/>.

Humpert, Malte. 2021. "Early Winter Freeze Traps Ships in Arctic Ice, Highlighting Weak Safety Regime." *High North News*. <https://www.highnorthnews.com/en/early-winter-freeze-traps-ships-arctic-ice-highlighting-weak-safety-regime>.

Iden, Mark. 2022. "Power of Siberia 2 Pipeline Puts Ever More Pressure on Europe." *Pipeline Technology Journal*.
<https://www.pipeline-journal.net/news/power-siberia-2-pipeline-puts-ever-more-pressure-europe>.

International Trade Administration. 2021. "Denmark - Other Areas in the Kingdom of Denmark." International Trade Administration. <https://www.trade.gov/country-commercial-guides/denmark-other-areas-kingdom-denmark>.

Jiang, Yang. 2018. "China in Greenland." DIIS.
<https://www.diis.dk/en/research/china-in-greenland>.

Jiang, Yang. 2021. *Chinese Investments in Greenland: Origins, Progress and Actors*. Copenhagen: Danish Institute for International Studies.

Kalvig, Per, and Hans Lucht. 2021. "Greenland's minerals to consolidate China's rare earth dominance?" DIIS. <https://www.diis.dk/en/research/greenlands-minerals-to-consolidate-chinas-rare-earth-dominance>.

Kobzeva, Mariia. 2020. "Strategic partnership setting for Sino-Russian cooperation in Arctic shipping." *The Polar Journal* 10, no. 2 (08): 334-352.
<https://doi.org/10.1080/2154896X.2020.1810956>

Kopra, Sanna. 2018. "Climate change and China's rise to great power status." In *The Global Arctic Handbook*, 125-139. N.p.: Springer.
https://doi.org/10.1007/978-3-319-91995-9_8

Kopra, Sanna. 2020. "China and its Arctic Trajectories: The Arctic Institute's China Series 2020." The Arctic Institute.
<https://www.thearcticinstitute.org/china-arctic-trajectories-the-arctic-institute-china-series-2020/>.

Kossa, Martin. 2019. "China's Arctic engagement: domestic actors and foreign policy." *Global Change, Peace & Security* 32, no. 1 (July): 19-38.
<https://doi.org/10.1080/14781158.2019.1648406>

Langley, William. 2021. "China rejects Pompeo's challenge to its 'near-Arctic nation' claim." *South China Morning Post*.
<https://www.scmp.com/news/china/diplomacy/article/3116633/china-rejects-mike-pompeos-challenge-its-near-arctic-nation>.

Lavengood, Zachary. 2021. "The Evolving Arctic in the World-System." *Journal of World-Systems Research* 27, no. 2 (08): 468-493.
<https://doi.org/10.5195/jwsr.2021.1042>

Liu, Nengye. 2021. "China and one hundred years of the Svalbard treaty: Past, present and future." *Marine Policy* 124 (12). <https://doi.org/10.1016/j.marpol.2020.104354>

Melia, N., K. Haines, and E. Hawkins. 2016. "Sea Ice Decline and 21st Century trans-Arctic Shipping Routes." *Geophysical Research Letters*, no. 43 (09), 9720-9728.
<https://doi.org/10.1002/2016GL069315>

Moe, Arild. 2020. "A New Russian Policy for the Northern Sea Route? State Interests, Key Stakeholders, and economic opportunities in Changing Times." *The Polar Journal* 10, no. 2 (08): 209-227.
<https://doi.org/10.1080/2154896X.2020.1799611>

National Snow & Ice Data Center. 2022. "Arctic Sea Ice News and Analysis | Sea ice data updated daily with one-day lag." National Snow and Ice Data Center.
<http://nsidc.org/arcticseaicenews/>.

Nikulin, Maksim. 2020. "The Arctic as a potential space for Great Power Competition." *IOP Conference Series Earth and Environmental Science*, (09). 10.1088/1755-1315/678/1/012034. <https://doi.org/10.1088/1755-1315/678/1/012034>

Nilsen, Thomas. 2019. "China seeks a more active role in the Arctic." *Barents Observer*. <https://thebarentsobserver.com/en/arctic/2019/05/china-seeks-more-active-role-arctic>.

Pincus, Rebecca. 2019. *China and Russia in the Arctic*, Testimony before the US-China Economic and Security Review Commission. N.p.: Center for Naval Warfare Studies.

Reuters. 2022. "Finland, Sweden could join NATO this summer - ArcticToday." *ArcticToday*. <https://www.arctictoday.com/finland-sweden-could-join-nato-this-summer/>.

Ridgewell, Henry. 2022. "'Power of Siberia 2' Pipeline Could See Europe, China Compete for Russian Gas." *Voice of America*.
<https://www.voanews.com/a/power-of-siberia-2-pipeline-could-see-europe-china-compete-for-russian-gas-/6402242.html>.

Rochat, Matthew, and Sebastian Strangio. 2021. "China's Growing Dominance in Maritime Shipping" *The Diplomat*.
<https://thediplomat.com/2021/12/chinas-growing-dominance-in-maritime-shipping/>.

Shambaugh, David. 2015. "China's Soft-Power Push: The Search for Respect." *Foreign Affairs* 94, no. 4 (08): 99-107.

Staalesen, Atle. 2019. "Russia sets out stringent new rules for foreign ships on the Northern Sea Route - ArcticToday." *ArcticToday*.
https://www.arctictoday.com/russia-sets-out-stringent-new-rules-for-foreign-ships-on-the-northern-sea-route/?wallit_nosession=1.

The State Council Information Office of the People's Republic of China. 2018. "China's Arctic Policy." Full text: China's Arctic Policy.
http://english.www.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm.

Stronski, Paul, and Nicole Ng. 2018. *Cooperation and Competition, Russia and China in Central Asia, the Russian Far East, and the Arctic*. Washington DC: Carnegie Endowment for International Peace.

Su, Ping, and Maximilian Mayer. 2018. "Science Diplomacy and Trust Building: 'Science China' in the Arctic." *Global Policy* 9, no. 3 (11): 23-28. <https://doi.org/10.1111/1758-5899.12576>

Sun, Kai. 2014. "Beyond the Dragon and the Panda: Understanding China's Engagement in the Arctic." *Asia Policy* 18 (July): 46-51.
<https://www.jstor.org/stable/10.2307/24905275>. <https://doi.org/10.1353/asp.2014.0023>

Sun, Kai. July. "Beyond the Dragon and the Panda:: Understanding China's Engagement in the Arctic." *Asia Policy*, no. 18 (2014), 46-51.
<https://www.jstor.org/stable/24905275>. <https://doi.org/10.1353/asp.2014.0023>

Sun, Yun. 2018. "The Intricacy of China's Arctic Policy." Stimson.
<https://www.stimson.org/2018/intricacy-chinas-arctic-policy/>.

"Svalbard Treaty," Article 2. 1920. Paris, France.
<https://www.jus.uio.no/english/services/library/treaties/01/1-11/svalbard-treaty.xml>.

Van Gosen, Bradley S., Philip L. Verplanck, Keith R. Long, Joseph Gambogi, and Robert R. Seal II. 2014. "The Rare-Earth Elements—Vital to Modern Technologies and Lifestyles." USGS Publications Repository. <https://pubs.usgs.gov/fs/2014/3078/pdf/fs2014-3078.pdf>.
<https://doi.org/10.3133/fs20143078>

Warsaw Institute. 2020. "Russia's Economy Is Becoming Heavily Dependent on Hydrocarbons." Warsaw Institute.
<https://warsawinstitute.org/russias-economy-becoming-heavily-dependent-hydrocarbons/>.

Wishnick, Elizabeth. 2017. *China's Interests and Goals in the Arctic: Implications for the United States*. Carlisle Barracks, PA: United States Army War College Press.

Yan, Xuetong. 2014. "From Keeping a Low Profile to Striving for Achievement." *The Chinese Journal of International Politics* 7, no. 2 (04): 153-184. <https://doi.org/10.1093/cjip/pou027>

YLE. 2021. "Defence Ministry blocked Chinese plans for research airbase in Lapland." *YLE*. <https://yle.fi/news/3-11820411>.

Zhen, Liu. 2021. "China to develop new heavy icebreaker for 'Polar Silk Road.'" *South China Morning Post*. <https://www.scmp.com/news/china/diplomacy/article/3155860/china-develop-new-heavy-icebreaker-polar-silk-road>.

Zheng, Qingcheng, Tingyu Lu, Kun-Chin Lin, Kum Fai Yuen, and Kevin X. Li. 2019. "The Competitiveness of Arctic Shipping over Suez Canal and China-Europe Railway." *Transport Policy* 86 (11): 34-43. <https://doi.org/10.1016/j.tranpol.2019.11.005>