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Swords and Ploughshares

Global Security, Climate Change, and the Arctic



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Introduction

by MATTHEW A. ROSENSTEIN

This issue of *Swords and Ploughshares* examines the complex set of global security challenges that are emerging as a result of warmer temperatures and melting ice in the Arctic region. Several developments in the past few years have heightened awareness about the prospects for international conflict and cooperation in the Arctic. Reports of newly navigable waters due to openings in the Arctic sea ice, and of scientific research chronicling the upward trend in air and ocean temperatures and potential large stores of untapped oil and gas in the region, triggered media coverage about a possible future “race for resources.” The planting of the Russian flag on the seabed of the North Pole in summer 2007 sparked concerns among North American and European policymakers and military strategists about Russian intentions. This increased attention was followed by a series of strategic policy documents and press releases from the Arctic coastal states—Canada, Denmark/Greenland, Norway, Russia, and the United States—and other relevant nations, international bodies, security organizations, and indigenous groups wishing to stake their positions and assert their rights and interests in the region.

For policymakers and analysts alike, the contemporary Arctic presents a particularly acute convergence of compelling problems and opportunities related to global security, foreign affairs, climate change, environmentalism, international law, energy economics, and the rights of indigenous populations. The goals of this publication are two-fold: to provide thoughtful analysis of recent developments in the Arctic both from scientific and geopolitical perspectives; and to offer careful and informed assessments of how evolving conditions in the Arctic might impact the broader global security framework and relations between the international actors involved, not to mention the region’s inhabitants and ecosystem.

The articles in this issue were contributed by each of four panelists invited by the Program in Arms Control, Disarmament, and International Security

(ACDIS), the European Union Center, and the Russian, East European, and Eurasian Center at the University of Illinois to participate in a November 2009 symposium entitled “Global Security, Climate Change, and the Arctic: Implications of an Open Northwest Passage.” The symposium and this publication were supported through grants to the host centers from the European Commission, the US Department of Education (Title VI international education program), and the John D. and Catherine T. MacArthur Foundation.

In the first article, William Chapman summarizes the consensus findings of the scientific community regarding trends in Arctic warming, sea ice coverage, and sea ice thickness. His article provides useful contextual background for the discussion in subsequent articles of geopolitical considerations in the Arctic. Chapman gives the reader glimpses of a large store of information culled from various tools: historical and contemporary temperature readings, sea ice coverage comparisons captured by satellite images, and sea ice thickness measurements by sonar instruments and onboard satellite platforms. At one point, he presents data about summer Arctic sea ice coverage gathered from over a dozen different international research computer models. It is noteworthy not only that those studies indicate measurable sea ice loss, but also that the observed reduction in sea ice coverage in the past few decades has outpaced the models’ predictions. While Chapman cautions that the models cannot promise, for instance, accurate forecasts as to when sea ice might recede completely in a given location, or exact coordinates for navigable transit routes, nevertheless the trends clearly point to longer Arctic navigation seasons in the future, which may in turn lead to increased commercial shipping and resource exploitation opportunities.

In the next article, Klaus Dodds asserts that the climatological changes described by Chapman are indeed translating into the “acceleration and intensification” of access to the Arctic, the use of its resources, and associated challenges and problems in areas such as security, governance, and environmental management. Dodds draws particular attention to law of the sea issues. He describes the territorial claims and ongoing outer continental shelf mapping efforts by coastal states. He also conveys how increased accessibility and interest in the region may conspire to introduce additional contingencies, such as prospects for further militarization of the Arctic, and heightened sovereignty concerns of coastal states that might accompany the rising volume of maritime traffic. Taken together, these issues beg further questions about governance of the Arctic, and whether existing legal frameworks and venues for stakeholder discussion are sufficiently developed, yet also flexible

enough to adapt to rapidly shifting conditions. Dodds concludes his article with the provocative insight that the dynamic process of framing the Arctic as a place is becoming increasingly complex, reflecting competing and overlapping visions of what the Arctic represents for diverse stakeholders.

In the third article, Ingrid Lundestad discusses US security policy in the Arctic, as well as US relations with other state actors as they pertain to the Arctic. Lundestad begins by briefly tracing the historical course of US Arctic policy, recounting how during the Cold War, Arctic affairs—like many aspects of international security—were viewed primarily through the prism of the US-Soviet rivalry. As global security dynamics began to shift near the end of the 20th century, US interest in the Arctic waned. However, near the end of George W. Bush's second term in January 2009, the White House issued a presidential directive on national security and homeland security reasserting US presence in the Arctic. The document was informed by traditional aspects of US Arctic policy, but also framed by new security imperatives and changed economic and environmental circumstances. Lundestad proceeds to describe current US priorities in the Arctic, and analyzes how US policies interact with those of Russia and the Nordic countries. She notes that US attention to the Arctic remains modest given the country's multifaceted security agenda. Lundestad also asserts that, sensational media reports notwithstanding, the region offers more opportunities for US cooperation with Russia and others than it does possible points of confrontation.

Michael Byers concludes this publication with a discussion of what the future might hold for the Arctic. He touches upon interlinked issues with respect to climate change, commercial activities, security, international law, international institutions, and indigenous peoples. In the process, Byers introduces additional subjects worth monitoring as further changes unfold in the Arctic: specific environmental risks from marine shipping; the growth of eco-tourism; multinational coordination of search

and rescue missions; international agreement on shipping guidelines; non-state security threats; and advocacy leadership by transnational indigenous peoples' movements (such as the Inuit Circumpolar Council) for the environment and the rights of traditional inhabitants of a given locale to be involved in nation-state sovereignty disputes. Byers closes with a sobering warning that excitement over Arctic oil and gas should not obscure the dangers of continued dependency on fossil fuels.

Although the four articles presented here treat a wide range of issues and undoubtedly the authors' views diverge on some specific points, one can discern certain shared conclusions. First, the contributors launch their discussions from the basic premise that the Arctic climate is changing quickly. The more penetrating and likely more interesting set of questions that follow regard *where* the ice is melting; *which type* of ice is melting; *when* it is melting; *to what extent* will it enable increased transit; and *what the impacts* might be on the inhabitants of the region, the countries with the means and interest in tapping resources there, and the globe's overall security, climate, and economic systems. Second, the authors who have written about geopolitical and foreign policy issues in this publication tend to agree that cooperation in the Arctic is more likely than conflict. More specifically, they find that the lone dispute over land territory in the Arctic is minor and manageable; that coastal states are following agreed upon protocols to pursue continental shelf claims, and are working constructively with each other in cases where there are overlapping claims; and that the existing international legal regime, while complex and still evolving, should enable cooperative governance of the Arctic. Finally, the contributors to this issue clearly agree that ongoing emphasis needs to be placed on addressing the rights and needs of indigenous peoples in the Arctic region, minimizing negative ecological impacts, and reducing points of contention among states. If such precepts are heeded, then the Arctic of the future may very well offer more cause for optimism than alarm.

ARCTIC REGION



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Short Takes

The world's arctic and sub-arctic areas which we use and occupy transcend political boundaries.

—Charter of the Inuit Circumpolar Council, adopted 31 July 1998

The costs of climate change are already being paid by the peoples and communities of the Arctic.

—Achim Steiner, Executive Director of the UN Environment Programme (UNEP), 10 April 2007

[The existing legal] framework provides a solid foundation for responsible management by the five coastal States and other users of this Ocean through national implementation and application of relevant provisions. We therefore see no need to develop a new comprehensive international legal regime to govern the Arctic Ocean.

—The Ilulissat Declaration, statement from the five Arctic coastal states, 28 May 2008

The main problems relating to Arctic governance include the fragmentation of the legal framework, the lack of effective instruments, the absence of an overall policy-setting process and gaps in participation, implementation and geographic scope.

—“The European Union and the Arctic Region,” Communication from the Commission of the European Communities to the European Parliament and the Council, 20 November 2008

Our first and main task is to turn the Arctic into a resource base for Russia in the 21st century. Using these resources will guarantee energy security for Russia as a whole.

—President Dmitry Medvedev, address to Russian Security Council, 17 September 2008

The United States has broad and fundamental national security interests in the Arctic region and is prepared to operate either independently or in conjunction with other states to safeguard these interests.

—US Presidential Directive on Arctic Region Policy, 9 January 2009

Canada is an Arctic nation and an Arctic power...the Arctic and the North make up more than 40 percent of our land mass and are home to more than 100,000 Canadians, many of them Inuit and First Nations members whose ancestors have inhabited the region for millennia.

—Lawrence Cannon, Canadian Minister of Foreign Affairs, announcing the release of the Government of Canada's Northern Strategy, 26 July 2009

Only when the ice breaks will you truly know who is your friend and who is your enemy.

—Inuit proverb



► Sea ice has been both a blessing and a curse to Arctic nations, providing protection along their northern borders from enemy naval threats, while at the same time inhibiting trade and commerce.

► Recent climate change in the Arctic has brought about the prospect of navigation interests exploiting the Northern Sea Route and Northwest Passage.

Arctic Climate Change: Recent and Projected

by WILLIAM L. CHAPMAN

The Arctic is entombed in darkness for a large part of the year. Even in summer when the sun hovers just above the Arctic horizon for much of the day, the oblique sun angles ensure only modest amounts of sunlight are absorbed at the surface. The lack of solar energy throughout the year allows the region to release its energy to space without replenishment.

The resulting frigid air temperatures in the Arctic are sufficient to freeze salt-laden seawater at the surface of the Arctic Ocean and peripheral seas. This sea ice has been both a blessing and a curse to Arctic nations, providing protection along their northern borders from enemy naval threats, while at the same time inhibiting trade and commerce along those same sea routes.

But climate change is threatening to alter this picture in significant ways. While global surface air temperatures have increased about +0.8°C over the past century, air temperatures in the Arctic have increased at more than twice this rate (+1.8°C) over this same period. Arctic warming has implications for many other climate variables. Snow cover has decreased over Northern Hemisphere landmasses, altering agricultural schedules and practices. Permafrost is degrading in large parts of the Arctic with implications for infrastructure and construction hazards in the region. Glaciers have been receding in most countries, forcing changes in water resource use and reservoir policies. But the most important change related to global commerce and security has been the associated decrease in extent of sea ice cover in the Arctic Ocean.

Arctic sea ice area reaches its maximum extent in March of each year and melts back to about half the maximum area in September. The summer melt season exposes a small fraction of the Arctic Ocean,

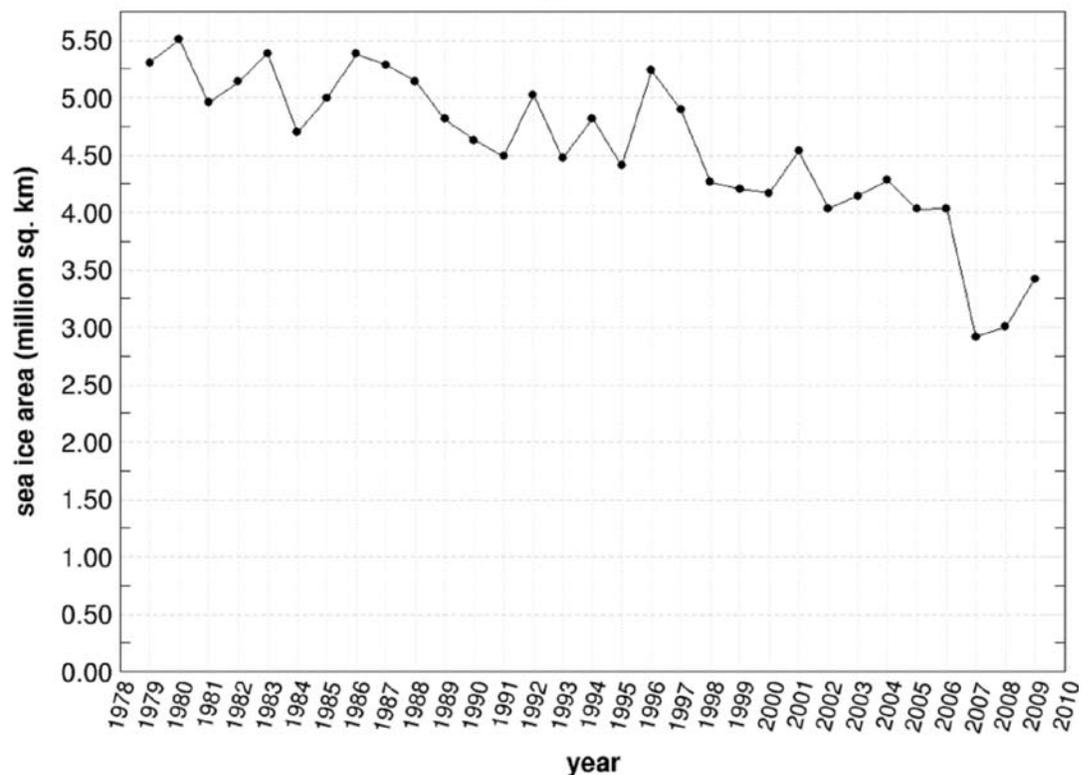


Figure 1 Observed seasonal minima of sea ice coverage in the Arctic.

but for most of recorded history the summer melt has not been sufficient to enable safe navigation of the Northern Sea Route and the Northwest Passage. A navigable Northern Sea Route would save almost half the shipping time and resources of the traditional shipping route south of Asia via the Suez Canal. Similar savings are gained when navigating the Northwest Passage along the northern coast of North America instead of the southern trek via the Panama Canal. Recent climate change in the Arctic has brought about the prospect of navigation interests exploiting these shortened routes.

Recent Climate Change in the Arctic

Seasonal minima of sea ice in the Arctic have declined about 40% over the past several decades (Figure 1). September sea ice covered a little more than 5.25 million square kilometers of the Northern Hemisphere in the late 1970s and has shrunk to less than 3 million square kilometers in 2007. Recently, 2008 and 2009 saw slightly higher sea ice coverage, but still below the long-term trend line causing the 30-year trend to decrease even more from the previous years (accelerating sea ice loss).

Figure 2 shows the September Northern Hemisphere sea ice coverage for the first three years of the satellite era (1979–1981) and the most recent three years of the satellite record (2007–2009). The fraction of sea ice at a given location is color-coded so that the purples indicate near complete coverage of sea ice (90–100%) and the yellows and reds

correspond to 50% coverage or less. While there has been notable loss of sea ice in the North Atlantic sector of the Arctic, the majority of the sea ice loss in the Arctic has been on the Pacific side where sea ice is typically thinnest.

Sea ice grows and melts with changes in near surface air and ocean temperatures, but it also responds to the surface winds, and to a lesser extent, the surface ocean currents. Sea ice drifts around the Arctic Ocean in response to surface winds. Drift speeds are typically centimeters per second, but can get much higher when strong Arctic storms blow. The frequent storms entering the Arctic from the North Atlantic and the relative lack of storminess north of Alaska result in a climatological pattern of ice drift that is generally away from the Siberian coast, north across the pole, and toward Greenland and Canada's north coast. The resulting convergence of sea ice against the north coast of Greenland and Canada causes compaction of the sea ice, strengthening and thickening it by creating compression and pressure ridges. Thus, sea ice is typically older and 3–5 meters thick in this region and only 1–2 meters thick along the north coast of Siberia.

The harsh conditions of the Arctic make direct observations of sea ice thickness difficult. As a result, historic thickness data are sparse in both space and time. What few direct observations we have include point-source measurements from occasional Arctic field programs and limited declassified sea ice draft observations from upward-looking sonar instruments

► Summer sea ice coverage and sea ice thickness in the Arctic have decreased by approximately 40% over the most recent several decades.

► Global climate models project Arctic temperatures to warm 2.5° to 5°C in the case of the early greenhouse gas mitigation scenario and 4.5° to 8°C in the business-as-usual scenario.

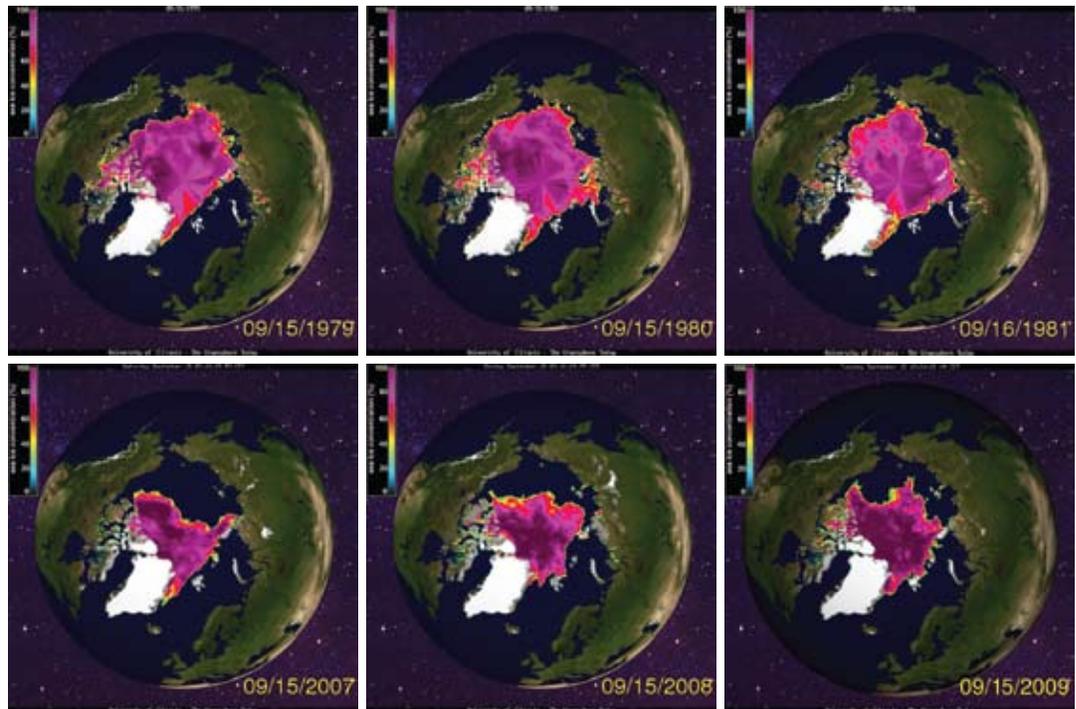


Figure 2 September Northern Hemisphere sea ice coverage.

mounted onboard military submarine cruises under the sea ice. Only recently has progress been made in obtaining remotely sensed sea ice thickness measurements from instruments onboard satellite platforms. Still, these limited thickness data reveal a pattern of sea ice loss very consistent with that seen in the coverage data. For the Arctic Ocean as a whole, sea ice thickness has decreased by approximately 40% for co-located observations over the most recent several decades.

Accelerating sea ice loss in recent years has provided new opportunities for navigation via both the Northwest Passage and the Northern Sea Route. The Northern Sea Route has been open to navigation for at least one and as much as eight weeks for three of the past four years. The Northwest Passage has a southern route and a more expeditious northerly path through the straits of the Canadian Archipelago. The northern route of the Northwest Passage was navigable for a few weeks for the first time in the sea ice record in 2007 (Figure 3). The southern route of the Northwest Passage was navigable for several weeks for three of the past four years.

Projected Climate Change in the Arctic

While it is impossible to know the exact changes in store for the Arctic climate over the coming decades, computer models can be used to simulate potential climate change due to increasing greenhouse gases. Global climate models are constructed by portraying the laws of physics governing the air, sea, land, and ice as computer code to be processed at hundreds of thousands of grid points comprising a virtual earth. The performance of these global climate models in simulating recent observed climate has improved

markedly over the past two decades. Basic variables such as temperature and pressure are well simulated by most global climate models, so that the simulated biases from observations are small. Secondary parameterized quantities like precipitation and cloud cover show general similarities to observations, but the details in many cases are not perfect. Nevertheless, these models represent the state-of-the-art in projecting global climate change.

As stipulated by the Intergovernmental Panel on Climate Change (IPCC), modeling centers from around the world simulate future climate with three different scenarios of greenhouse gases. These scenarios vary from aggressive replacement of fossil fuel consumption with renewable energy options in the next few decades, to a business-as-usual scenario that continues to inject greenhouse gases into the atmosphere at the current rates into the next century.

The global climate models respond to these widely varying scenarios of greenhouse gas increases with corresponding ranges of warming rates. Global climate models project Arctic temperatures to warm 2.5° to 5°C in the case of the early greenhouse gas mitigation scenario and 4.5° to 8°C in the business-as-usual scenario. The spatial pattern of the warming looks very similar to the observed warming of recent decades, with high latitude land masses warming the most, and tropical and ocean regions warming the least. In all scenarios and all models, the warming is largest in the Arctic and sea ice loss is a primary factor.

The reasons for this enhanced Arctic warming are directly related to the importance of sea ice in the earth's climate system. Sea ice, and more specifically snow-covered sea ice, is a highly reflective surface

► Several climate models project reduction of the sea ice by about half, while in the remainder the majority of the sea ice will be melted by the end of this century.

► It is noteworthy that the observed sea ice loss for the recent past has outpaced the loss projected by all the global climate models forced with increased greenhouse gas concentrations during the same period.

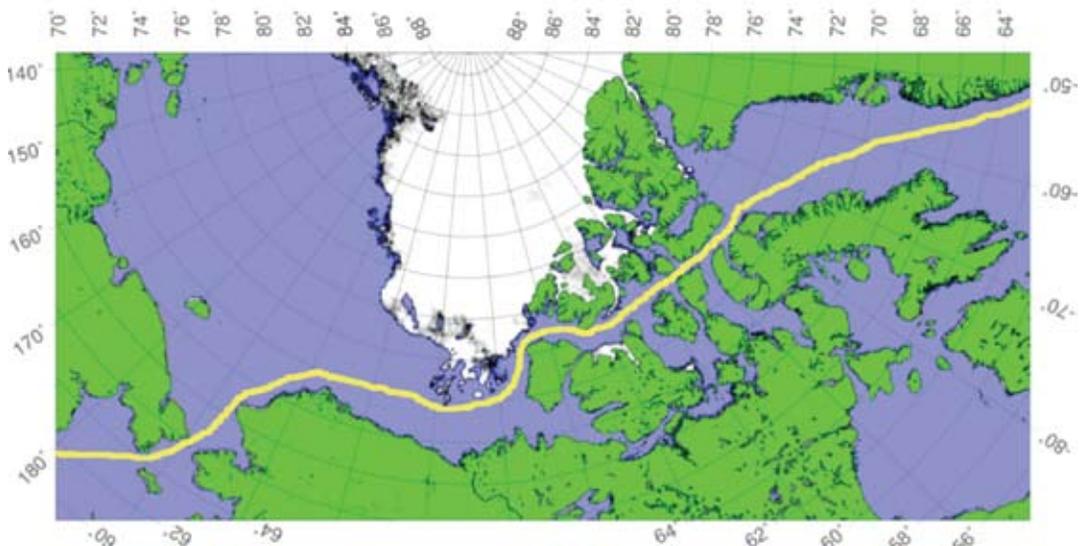


Figure 3 The northern route of the Northwest Passage was navigable for a few weeks for the first time in the sea ice record in 2007.

(high albedo), especially compared to a relatively dark ocean (low albedo). When the planet warms slightly, some sea ice is lost. A reduction in sea ice exposes more open ocean to the sun's rays during the Arctic summer. Additional sunlight is absorbed in the absence of sea ice during the long summer days. The additional energy absorbed by the oceans will warm the ocean surface and the air above it. The resulting increase in ocean and air temperatures will melt even more sea ice, completing an ice-albedo positive feedback loop. This positive feedback mechanism is one of the primary driving factors for enhanced Arctic warming in an environment with increased greenhouse gas concentrations.

► As the sea ice melts in the coming decades, the thinner areas of the Northern Sea Route (north of Siberia) will likely make it—as opposed to the Northwest Passage and its thicker sea ice—the first of the major Arctic routes to open for navigation for extended periods.

While the ice-albedo feedback is not a factor in winter, the loss of sea ice still plays an important role in Arctic warming. Normally, sea ice acts as an insulator between the bitter cold winter air temperatures and the relatively warm underlying ocean. A loss of winter sea ice removes some of this insulating layer and exposes the cold Arctic air masses to vast amounts of energy (and moisture) from the warmer ocean surface. Climatological winter temperatures can vary by more than 10°C depending on the presence or lack of sea ice: warmer without sea ice, colder with ice.

Throughout recorded history transportation via the Arctic Ocean has been limited by the existence

of a near continuous and impenetrable sea ice cover. The potential for future navigability in the Northern Sea Route and the Northwest Passage depends on the projected changes of summertime sea ice extent in the Arctic. Figure 4 shows simulations for the past century and projections for the 21st century of September sea ice extent in the Northern Hemisphere obtained from output from thirteen global climate models. In all cases the global climate models project sea ice loss over the two centuries. A handful of models reduce the sea ice by about half and the remainder melt the majority of the sea ice by the end of this century. It is important to note that both the Northern Sea Route and the Northwest Passage are already near the southern limit of the summertime sea ice. Thus, any additional loss of sea ice from this point forward will result in dependably navigable passageways and extend the navigation season proportional to the sea ice loss.

The series showing the observed sea ice loss for the past three decades is superimposed in red on Figure 4. It is noteworthy that the observed sea ice loss for the recent past has outpaced the loss projected by all the global climate models forced with increased greenhouse gas concentrations during the same period. This could point to deficiencies in the global climate models—that is, the sea ice loss may not be sensitive enough to changes in greenhouse gases. Alternatively,

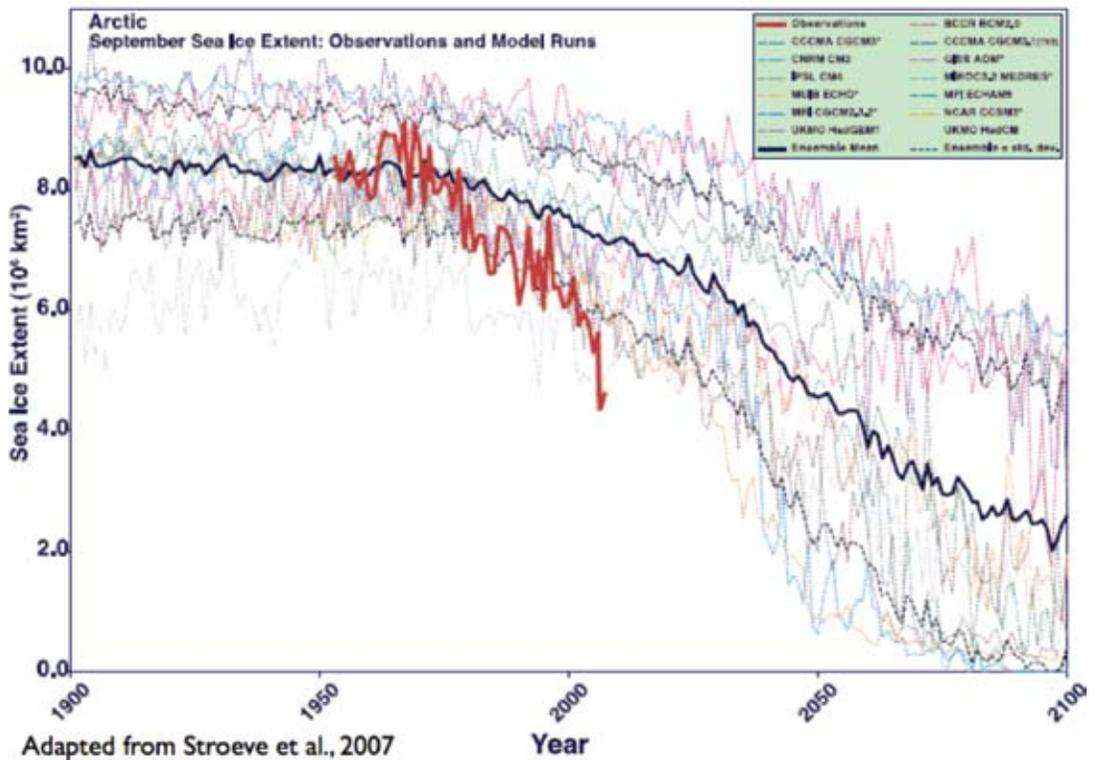


Figure 4 Simulations and projections by thirteen separate global climate models for September sea ice extent in the Arctic. The red line indicates observed data.

the recent observed sea ice loss may be an extreme case of natural variability. It is this author's opinion that the former is much more likely.

While there is broad agreement in the future projections of Arctic climate and sea ice extent, it is prudent to outline the inherent uncertainties. First, the climate models are imperfect. But, there is likely sufficient skill to make the kind of qualitative assessments asserted here. Second, a range of projections needs to be considered since the human factors and response to increasing greenhouse gases are largely unknown. Finally, when assessing the potential for regionally specific changes (such as navigation through specific straits and passages), the coarse climate models may not have sufficient detail in their resolution or parameterizations to accurately depict these changes. Thus, we are limited to generalized conclusions with the current state-of-the-art.

Implications for Navigation

These broad-brush hemispheric sea ice projections can be tailored to more specific navigation outlooks by applying reasoning relating to the climatological spatial pattern of geographic ice thickness. Realizing that the younger, thinner ice is typically found along the north coast of Siberia and the older, thicker ice is typically found along the north coast of Canada, we can infer that as the sea ice melts in the coming decades, the thinner areas of the Northern Sea Route (north of Siberia) will likely be the first of the major Arctic routes to open for navigation for extended periods. The proximity of the Northwest Passage to a source region of older, stronger and much thicker sea ice makes predicting future Northwest Passage navigability a riskier proposition. While much of the Northwest Passage is surrounded by land masses and may, in fact, warm more than the Northern Sea Route, the remaining thick ice north of the Canadian Archipelago will pose a perennial risk for thick sea ice drifting south into and around the Canadian Archipelago at the whim of anomalous and persistent weather patterns, especially those favoring a strong southerly wind regime. The implications to navigation interests are that the predictability for a Northwest Passage open to navigation is not as high as the Northern Sea Route. Even if probabilities are high for an open Northwest Passage in a given year, close monitoring of week-to-week weather patterns will be required due to the uncertainty of the near-

term weather patterns and potential for hazards to rapidly develop.

Nevertheless, we have developed projections of navigability of the Northern Sea Route for the rest of this century. Navigation depends not only on the amount of sea ice in the region, but also on the ice capabilities of the vessel. For vessels with little ice strengthening, navigation can presently be expected for 2-3 weeks on an average. By mid-century, the navigation season is expected to grow to 4-5 weeks and by the end of this century, the navigation season for non-strengthened vessels is projected to be almost three months. For vessels that have had some strengthening of their hulls to successfully navigate in thin ice conditions, the current navigation season is about three weeks. By mid-century projected navigation season for these vessels increases to ten weeks and by the end of this century, to four months.

Similar increases to length of the navigation season can be expected for the Northwest Passage. However, as stated earlier the reliability of these projections is subject to more short-term weather fluctuations. Weekly and even daily weather and sea ice monitoring will be an essential component to successful navigation of the Northwest Passage, even under the most extreme climate change scenarios. Still, the recent climate changes experienced in the Arctic, and those expected to accelerate in the coming decades, are providing unique opportunities for navigation and commerce and unprecedented challenges to communities and nations bordering this pristine environment.

■

William Chapman is a research scientist in the Department of Atmospheric Sciences at the University of Illinois at Urbana-Champaign. His research is focused on climate processes and climate change in the Polar Regions. His work entails analyzing many sources of cryospheric data from observations and model output. Chapman is currently investigating recent and projected changes in surface air temperatures and sea ice over the Arctic and Antarctic. Additionally, he has been looking into errors and biases of Global Climate Model (GCM) simulations of the Polar Regions. He is becoming increasingly interested in novel ways to disseminate scientific results to interested public and policy makers. A portal to many of the results of Chapman's research can be accessed at <http://arctic.atmos.uiuc.edu>.

From Frozen Desert to Maritime Domain: New Security Challenges in an Ice-Free Arctic

by KLAUS DODDS

In January 2009, NATO representatives held a meeting in Iceland to consider the future security challenges pertaining to a thawing Arctic. For much of the Cold War, the presence of thick pack ice in the High North had offered a proverbial security blanket—traversing the ice was possible both above and below but it generally involved nuclear-powered icebreakers and nuclear submarines. Soviet, American and British submarines, for example, travelled under the polar ice-pack during the Cold War and contemporary Hollywood films such as *Ice Station Zebra* conveyed well the difficulties involved in navigating the shifting patterns of ice distribution. Understanding ice dynamics was a major priority during the Cold War not only in terms of detecting enemy movements but also in enabling NATO craft to avoid detection, especially when involved in covert surveillance operations. NATO's strategic planning for the Arctic was premised on the presence of ice—detecting and avoiding icebergs, ice cover and implications for sonar and navigation.

In recent years, earth scientists have warned that sea ice cover in the Arctic is thinning. In September 2007, dramatic satellite imagery was released showing that the fabled Northwest Passage was open for a short period of time in the summer season. In September 2009, it was reported that two German cargo ships had traversed the Northern Sea Route (NSR), as they departed from South Korea and travelled along the Russian coastline to their eventual port of call in Rotterdam. The two ships were able to complete the journey because of a reduction in sea ice cover. The use of the NSR is significant—it cuts 4,000 nautical miles off the standard 11,000 mile voyage via the Suez Canal. It yields substantial savings in time and fuel costs. It also, as a direct consequence, reduces the carbon footprint of shipping. With the permission of the Russian authorities, this transit was also noteworthy because in the past very few non-Russian commercial vessels have actually used this route. In part the NSR was impassable because of the presence of sea ice, but passage has also been restricted due to the fact that the NSR has been considered to be a highly strategic sensitive zone.

Sea ice thinning combined with enhanced accessibility of the Arctic formed the core area of concern for the NATO meeting—and it is worth remembering that four out of the five Arctic coastal states are NATO members—Canada, Denmark, Norway and the United States. The specter of an ice-free Arctic might on the one hand offer advantages but on the

other hand, it also poses challenges and even dangers. Avoiding the kind of media sensationalism that has predicted conflict and bedlam in the near future, what is needed is a more sober assessment of the contemporary Arctic, which is nonetheless mindful of the fact that bio-physical changes in the region are ongoing and do pose serious challenges to indigenous communities, to energy companies, to Arctic coastal states, to security organizations and other users and interested parties. It does, moreover, pose questions about how the region is governed and whether existing bodies such as the Arctic Council are sufficiently robust and dextrous to address a changing High North.

A Changing Arctic: Acceleration and Intensification

Sea ice thinning and the prospect of an ice-free Arctic in the next couple of decades underwrite much of the contemporary discussion about the strategic significance of the region. With the loss of a natural barrier, it is widely feared that the Arctic will become increasingly accessible and exploited, with attendant implications for peace and security not to mention global environmental change. It is worth bearing in mind that the Arctic has not always been as isolated from “southerly” developments as this characterization might imply. In the eighteenth and nineteenth centuries, for instance, whalers and sealers were highly active in exploiting living resources and the Arctic was tied into national, regional and global economies. Trading networks existed between and beyond the Arctic, as the Hudson Bay Trading Company typified. Oil and gas companies, in the 1960s onwards, also ensured that energy related networks of drilling rigs, pipelines and logistical support likewise occupied the Arctic landscape and seascape. Moreover, in more recent times, the diffusion of long-range pollutants has also illustrated only too well the impact of industrial development for a region largely removed from centers of mass production and energy consumption.

So what has changed is better thought of as examples of acceleration and intensification. After all, the presence of sea ice was a sufficient deterrent in the late 1960s when the problematic voyage of the *SS Manhattan* persuaded energy companies that it made better sense to develop a pipeline network in Alaska rather than rely on ships to transport hydrocarbons to overseas markets. Arctic coastal states such as Canada, while mindful of voyages by the *Manhattan* through the Northwest Passage, are now considerably more concerned about the implications of an accessible Arctic and the manner in which other operators might seek to traverse through their “internal waters.” This is a contested issue, as other countries including the United States consider the Northwest

► Understanding Arctic ice dynamics was a major priority during the Cold War not only in terms of detecting enemy movements but also in enabling NATO craft to avoid detection, especially when involved in covert surveillance operations.

► It is worth remembering that four out of the five Arctic coastal states are NATO members—Canada, Denmark, Norway and the United States.

Passage to be an international strait, where the rights of innocent passage prevail. So thinning ice will accelerate anxieties and indeed possible conflict over access rights and in particular strategically sensitive maritime passages in the north-west and north-east of the High North.

With greater access so, it is feared (by some at least) will come more intense use of resources with consequent implications for Arctic ecosystems. One recent event more than anything else can be cited to symbolize this concern over intensification. The planting of the Russian flag on the bottom of the central Arctic Ocean in the summer of 2007 was widely interpreted as a sign of things to come. In part, this act only mattered because domestic and international audiences saw it. Outside of Russia, the dominant interpretation was that this was indicative of Russian spatial expansionism and domination of place. Russia, so the image suggested, was advertising its territorial ambitions to take over the central Arctic Ocean for its own benefit. A large number of media reports subsequently adopted the frame of “scramble for resources” to issue portentous warnings about the region becoming a scene of discord. So in this sense intensification refers not only to conflict potential but also that there would be further exploitation of the Arctic.

This notion of the Arctic as an underground treasure trove awaiting exploitation was given further credence by the release in 2008 of the US Geological Survey’s Circum-Polar Resource Evaluation survey, which produced a report and some striking maps detailing undiscovered oil and gas potential. It was not the first to draw attention to this potential but it nonetheless showed clearly that the vast majority of hydrocarbon possibility resides within continental shelf areas and that most of the reserves are projected to be located in less than 500 meters of water. The USGS estimate that there might be, for instance, anywhere between 40 billion to 160 billion barrels of oil in the High North. The vast majority of undiscovered gas potential lies off the Russian coastline but the survey suggests that hydrocarbon potential off the coastlines of Greenland is noteworthy. These estimates are just that—they do not, for example, take into account technical difficulties and it is highly possible that much of this potential may not actually be exploited. Most analysts of the oil and gas industry would caution anyone thinking that exploitation of these resources is likely to occur in the near future. While energy companies are interested, the operating conditions in the Arctic are difficult and it may well be that a period of 20–30 years would be necessary for exploitation of new fields.

However, what is clear is that the prospect of oil and gas potential in the Arctic has provoked a series of activities and debates—much of it ongoing. Two areas are worth highlighting. The first revolves around

the law of the sea and outer continental shelf claims. The Russian flag planting exercise, while of no international legal significance, coincided with ongoing attempts to map the central Arctic Ocean. Under Article 76 of the United Nations Convention on the Law of the Sea, signatories such as Russia (but not the United States, which has yet to ratify the agreement) have an opportunity to submit a report to the Commission on the Limits of the Continental Shelf (CLCS), which contains evidence that there are outer continental shelf areas relevant to particular coastal states and their existing exclusive economic zones. In essence, Article 76 provides a mechanism for coastal states to expand their resource rights over the ocean floor providing they demonstrate to the satisfaction of the CLCS that there is a geological and oceanographic case for support. This is a time consuming and expensive process. Mapping and delimiting the ocean floor is not straightforward and critically evidence has to be presented, which supports the claim that there is indeed an outer continental shelf. In 2001, Russia made a submission to the CLCS and claimed a substantial part of the Arctic Ocean as part of its outer continental shelf. The CLCS, composed of geologists, oceanographers and geophysicists, reviewed the submission and deferred judgement. They asked for further evidence and the 2007 expedition to the Arctic Ocean (which led to the flag planting) was designed to gather more evidence. Other coastal states in the Arctic such as Canada and Denmark are also collecting evidence for their outer continental shelf submissions, while Norway has already received and adopted the findings of the CLCS following its submission in 2006.

The issue of outer continental shelf delimitation is complex but not insubstantial. All five coastal states in the Arctic have expressed a desire to submit evidence in due course to the CLCS, even the non-signatory United States. If accepted, it would mean that coastal states could extend their resource rights by another 150 nautical miles from the maximum extent of their exclusive economic zone. Depending on the recommendations of the CLCS, the legal and political geography of the Arctic Ocean will change as outer continental shelves are established and potentially areas of deep seabed proclaimed if they reside outside outer continental shelf zones. If there are areas of deep seabed then the resources therein become part of the common heritage of the global community and administered by the International Seabed Authority. What some observers fear is that Russia is trying to claim a sizeable expanse of outer continental shelf and if successful then it would have enhanced resource rights. However, the CLCS has not received any revised submission from Russia so it is highly premature to assume that the business of outer continental shelf definition has been finalized.

► **The planting of the Russian flag on the bottom of the central Arctic Ocean in the summer of 2007 was widely interpreted as a sign of things to come.**

► **Most analysts of the oil and gas industry would caution anyone thinking that exploitation of untapped High North resources is likely to occur in the near future.**

► **Under Article 76 of the Law of the Sea, signatories such as Russia have submitted reports to the Commission on the Limits of the Continental Shelf to expand their resource rights over the ocean floor.**

Discussing the resource potential of the Arctic has also proven provocative in another key area and that involves indigenous populations. One thing to be clear on is that indigenous communities are as divided about resource development as more southerly constituencies. The ongoing consultation and public reaction to the Mackenzie Gas Project in Northern Canada is indicative of a diversity of opinion. Native peoples have spoken powerfully about the realities of traditional life based on hunting, fishing and trapping. Some have welcomed the possibility of new revenue streams while others fear that it will further undermine the fragile ways of life. The lengthy consultation process has also drawn attention to existing rights and duties in legislation such as Canada's Constitution Act of 1982. The eventual exploitation of gas in the region will ultimately be shaped as much by regulatory delay as it will by prevailing gas prices and market conditions. Elsewhere in the Arctic, the prospect of energy resources off the coastline of Greenland has stimulated debates about future independence from Denmark. In November 2008, 75% of the country's electorate voted for greater autonomy and some Greenlanders believe that new revenue streams from oil and gas will provide the financial nourishment for eventual independence.

The Greenland example reminds us that while some countries (e.g. Canada) and organizations (e.g. NATO) may worry about an ice-free Arctic, for others it offers opportunities both onshore and offshore. For the moment, the Arctic is in the midst of an interregnum as actors and organizations debate the implications of something that has not yet happened—the disappearance of the ice in the worst-case scenario. As with Cold War nuclear planning, much of the assessments and investments in futurology are predicated on the assumption that the ice will present less of a barrier to human activity, and that for the moment the melting and thinning processes are exposing new challenges from infrastructural instabilities to enhanced resource exploitation in areas such as oil, gas and fishing, not to forget other activities such as tourism, mining and timber harvesting.

Finally, the militarization of the Arctic also needs to be noted here as an example of acceleration and intensification of activity. All five coastal states have produced in recent years new strategies for their northern territories. Canada, for instance, issued a Northern Strategy and the current Harper government has made much of its commitment to extend the military presence in the Canadian archipelago. In the final days of the George W. Bush administration, the US released a presidential directive that reaffirmed the significance of the region for the country and linked homeland security to resource development, sustainability and accessibility. It also urged the US Senate to ratify the Law of the Sea. In Russia,

the Security Council drafted a new strategy that reaffirmed the determination of the country to establish a new military unit designed to protect the country's Arctic territory—onshore and offshore. The ice-breaking fleet is to be upgraded, over-flight patrolling stepped up and enhanced investment in mapping and surveillance of the Russian Arctic enacted. All the Arctic coastal states are concerned, even preoccupied, with the implications for their sovereignty if the region becomes more accessible due to diminishing ice cover.

Governing the Arctic

The Arctic is a very different kind of place to the Antarctic, and unlike the polar continent, there does not exist an over-arching treaty (1959 Antarctic Treaty) to govern the High North. For much of the Cold War, it was a highly militarized space, which was patrolled and surveyed above and below the waters of the Arctic Ocean. Both NATO and Russia prepared and planned for possible military operations in and out of the Arctic. With the ending of the Cold War, Russian General Secretary Mikhail Gorbachev raised the possibility in 1987 of the Arctic being transformed into a zone of peace. Thereafter, a series of initiatives (e.g. 1991 Arctic Environmental Protection Strategy) were launched with the expressed aim of improving co-operation between the neighbouring coastal states and the proximate countries of Finland, Iceland and Sweden. The most notable of these initiatives was the establishment of the Arctic Council in 1996, which remains the primary mechanism for regional governance. The remit of the Arctic Council is circumscribed—it does not consider military/security issues and it does not possess any legislative authority. It is an inter-governmental forum, which recognises the presence of indigenous communities as permanent participants (e.g. Inuit Circumpolar Council) and a series of observers including Britain, China, South Korea and Germany. With its five working groups, the Arctic Council has produced a series of important assessments and declarations pertaining to climate change, development, resources, pollution and monitoring and assessment of the regions' ecosystems.

In the last few years, however, the governance of the Arctic has become more complex and controversial. The five coastal states, sensing the changing governance dynamics, issued in May 2008 the Ilulissat Declaration reaffirming their role as primary guardians of the High North and their commitment to the Law of the Sea as the mechanism for resolving any outstanding overlapping claims to the Arctic Ocean. The declaration did create friction between the five coastal states and other permanent participants of the Arctic Council, with Finland, Iceland and Sweden expressing concerns about their exclusion. The Ilulissat Declaration clearly does pose a challenge to the

▶ Indigenous communities are as divided about resource development as more southerly constituencies.

▶ All five Arctic coastal states have produced in recent years new strategies for their northern territories.

▶ The Arctic Council, established in 1996, remains the primary mechanism for regional governance.

Arctic Council and the latter's role in promoting oceanic management and environmental protection. The Inuit Circumpolar Council also expressed their reservations about the 2008 declaration and noted that issues such as living resource management and the evolving security policies of Arctic coastal states have implications for indigenous peoples and their livelihoods.

In October 2008, the European Parliament considered the interests of the EU in the Arctic and noted that three member states have substantial engagements (Denmark, Finland and Sweden) while another two (Iceland and Norway) are close partners through the European Economic Agreement. While Greenland is not a member of the EU, this regional organization has become increasingly active in promoting an Arctic policy. The European Parliament not only reaffirmed interests including navigational, energy and fishing interests but also proposed an alternative model of governance. Rather than promoting a Law of the Sea approach, it was suggested that a new governance structure might be developed, which was more inclusive and less dependent on geographical proximity to the Arctic. In other words, looking to the 1959 Antarctic Treaty, the question was posed as to whether the Arctic might not have a remit and membership structure that gives little to no significance to whether a state is coastal or non-coastal. The European Commission has been tasked with further developing the EU's Arctic policy and this might include requesting observer status on the Arctic Council for example.

Extra-territorial countries such as Britain, China and South Korea have also expressed increased interest in the Arctic, citing climate change, shipping and energy security as national interests. China's growing polar science program is noteworthy as Chinese scientists now routinely travel to both Polar Regions in order to carry out research into sea ice change and global warming. South Korea and the Port Authority of Singapore are examples of how both state and non-state actors have expressed interest in the possibility of the Arctic emerging as a transit hub in the next two decades. These actors alongside others will put further pressure on the Arctic Council, which is not a treaty-based organization as mentioned earlier. There is no sign either that the permanent participants wish to develop, for instance, an Arctic Treaty inspired by some kind of hybridized version of the Antarctic Treaty. It may well be that other governance regimes including the Law of the Sea gradually undermine the efficacy of the Arctic Council even if it has been pioneering in some regards, especially in terms of ensuring representation for indigenous communities within an inter-governmental forum.

► **The May 2008 Ilulissat Declaration created friction between the five coastal states and other permanent participants of the Arctic Council.**

► **Rather than promoting a "narrow" Law of the Sea approach, the EU has suggested that a new governance structure might be developed, which was more inclusive and less dependent on geographical proximity to the Arctic.**

► **Each framing of the Arctic by different stakeholders carries with it specific understandings of the Arctic as a place. There is not just one Arctic, there are several.**

Conclusion

Global environmental change with the specific prospect of a seasonably ice-free Arctic is transforming the question of governance. Interest has been renewed in Arctic energy resources, fishing, shipping lanes and navigation and tourism not to forget the long-term sustainability of indigenous communities. Over the next twenty years, a variety of actors and institutions ranging from the EU to NATO to China will challenge the legal and geopolitical status quo pertaining to the Arctic. Depending on the stakeholders concerned, different framings of the Arctic are being mobilized from "imperilled home" to "transit zone"—a "northern Mediterranean" to "common heritage" and finally "maritime domain." Each framing carries with it specific understandings of the Arctic as a place. There is not just one Arctic, there are several. Over the coming decades, we will witness competing evaluations of resources, accessibility, governance and security. Ongoing debates pertaining to marine governance exemplify this trend—as coastal and non-coastal states mobilize different visions of the Arctic as a zone of conflict and co-operation.

Futurology is always a difficult and dangerous business. While skeptical of some of the more dystopian visions of conflict, the reality is that the governance of the Arctic is going to become more complex and that it is extremely unlikely that the five coastal states are going to have it all their own way. As the claimant states in the Antarctic discovered in the late 1950s, it is sometimes better to engage in new governance arrangements when a spirit of goodwill prevails.

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US Security Policy and Regional Relations in a Warming Arctic

by INGRID LUNDESTAD

► In the Cold War setting, Arctic affairs were to a large extent perceived as part of the Cold War rivalry.

► As the Cold War came to an end, the attention given to the north became reduced.

► Late in the Bush presidency, the administration decided that it needed to update its Arctic policy, which had last been reviewed by the Clinton administration in 1994.

Since 2006, the Arctic states have issued individual policy statements and strategy documents on the Arctic region. These announcements represent and reflect a growing interest in the region, as the Arctic icecap is retreating, opening up to increased presence and new types of activity in the north. While the United States has had a limited interest in Arctic affairs since the end of the Cold War, it has recently started to put the region on the agenda. An Arctic Region Policy was signed by the then outgoing Bush administration in January 2009, and the Obama administration has indicated that it will follow up on this policy, emphasizing Arctic cooperation.

In this article, we will explore US security policy and regional relations in the north. The article addresses the evolution of US security policy in the Arctic, and moves on to discuss present US security priorities, focusing on both traditional priorities as well as newer elements related to the changing environment in the north. Next, we will examine US regional relations, centering on Russian security policy while also including a brief overview of the regional approaches of the Nordic countries. Lastly, the article indicates how future US priorities and relations in the Arctic may become interlinked with broader foreign policy goals of President Obama.

The article deals with the broader circumpolar approach of the United States, and especially US regional relations with the Arctic states mentioned above. It does not address issues specific to North American Arctic affairs. In the article, the Arctic is defined as the areas north of the Arctic Circle, although Iceland is included as it is generally considered an Arctic state.

The Evolution of US Security Policy in the Arctic

In the Cold War setting, Arctic affairs were to a large extent perceived as part of the Cold War rivalry, the region being the area in which the two superpowers geographically faced each other. The three non-superpower Arctic coastal states—Canada, Denmark and Norway—became members of the American-led NATO alliance from its onset in 1949. The United States set up bases in the north, most importantly in Alaska, Canada, Greenland and Iceland, as another element in its global strategy to contain the Soviet Union. With the Reagan administration's efforts to more actively confront the Soviet Union in the maritime domain in the early 1980s, the northern dimension's relevance to US policy increased.

As the Cold War came to an end, the attention given to the north became reduced. With the thawing of East-West relations, low tension in the area meant that the United States and others did not see the region as urgently important. Some cooperation came into place, especially as the Arctic Council was established in 1996 as a forum to deal with issues of environmental protection and sustainable development in the north. In terms of security policy, defense cooperation on the handling of nuclear material from the now former Soviet Union was a most central feature.

Nonetheless, in the period from the early 1990s to the start of the 21st century, the United States showed relatively little interest in developments in the Arctic, despite it continuing to be the most powerful state in the world and one of the five Arctic coastal states. In the search for a new strategic agenda in the post-Cold War era, the Arctic had no vital place in US policy. While the region had global relevance in the superpower conflict, the region was only in limited ways part of broader American strategic thinking once the Russians no longer were perceived as a threat to US interests or allies.

However, late in the Bush presidency, the administration decided that it needed to update its Arctic policy, which had last been reviewed by the Clinton administration in 1994. The stated background for this policy evaluation were the developments during the preceding decade and a half in national policies on homeland security and defense, as well as the effects of climate change and increasing human activity in the region. Awareness of the energy potential of the region and the establishment of forums for regional cooperation were also stated as elements influencing the need for a policy review. In addition, it may be added that the increased attention given to the region by other actors, most importantly as shown through Russian statements and actions, contributed to put the region on the multifaceted American agenda. The resulting outcome was the announcement of the National Security Presidential Directive-66/Homeland Security Presidential Directive-25 on Arctic Region Policy of January 9, 2009. In the document, the Bush administration declared that the United States has both broad and fundamental national security interests, as well as fundamental homeland security interests, in the Arctic region.

Present US Security Priorities in the Arctic

US Arctic policy as presented in the directive addresses several interconnected issues. To concentrate on the security policy dimension, the directive, as indicated, specifically addresses national and homeland security issues in the region. In addition, it deals with issues of governance, continental shelf and boundary issues, scientific cooperation, maritime

transportation, economic issues (including energy), as well as environmental protection and conservation, which all have security implications to a greater or lesser degree. But what exactly are the security priorities of the United States in the Arctic?

Some priorities represent continuous interests that are not directly related to the physical changes taking place in the region. These include the fundamental interest of the United States in the freedom of the seas, navigation and overflight, as well as other priorities such as missile defense and early warning and regional deployments of sea and air systems. Another element of continuity in the Arctic is the uncertainty related to relations with Russia. We will return to Russian Arctic policy below, but it suffices to say here that a fundamental and continuous security priority of the United States is of course also to secure a stable and peaceful international environment in the north.

While these security priorities are more traditional or continuous in nature, others are linked to the climatic changes in the Arctic. Homeland security represents one element in this. Considering increased activity in the region as the Arctic is warming, US policy will have to aim at preventing criminal activity, if not terrorist attacks, also in this region. Having improved search and rescue capabilities to ensure the safety of activity in the region is one central dimension of this process, especially keeping in mind the limited infrastructure available to handle both potential accidents or crimes.

Furthermore, energy security has been an important factor to the increased American interest in the Arctic. According to the most recent energy statistics of the US government, the Arctic holds an estimated 22 percent of the world's undiscovered oil and natural gas, and the retreating Arctic ice cap means that these resources are getting more accessible. Here, the United States has as its priority to define the Arctic areas in which the United States may exercise sovereign rights over natural resources. In line with this priority, both the Bush and Obama administrations have favored US accession to the UN Convention on the Law of the Sea as the most effective way to achieve international recognition and legal certainty for US rights in the exclusive economic zones and on the extended continental shelf.

Lastly, while energy has attracted a lot of attention, the environmental challenges related to climate change and more human activity in the north are also increasingly being recognized within the United States, as elsewhere. The balance between seeing the region in terms of prospects for increased energy security, and in terms of securing the Arctic environment, is gradually becoming a more central part of US priorities in the north.

US Regional Relations: Russia and the Nordic Countries

To turn to the Arctic regional relations of the United States, we need to look at the policies of some of the actors that the United States has to deal with in the north. First, we will look at Russia, which has gained the most attention of the Arctic states in the last few years. Next, we will briefly discuss the regional approaches of the Nordic countries.

Some structural factors underpin the importance of Russia in Arctic regional affairs. The Russians have a substantial military presence in the north, primarily located in the Kola Peninsula, in Northwest Russia. With its geography, Russia is also the largest Arctic nation, with an Arctic shore line stretching from Europe to the Bering Strait. Within the Russian continental shelf, we also find the largest share of Arctic petroleum resources.

Most importantly, though, in terms of generating attention, Russian statements on the Arctic have had a somewhat confrontational nature, as part of a broader Russian self-assertiveness within the last decade. Symbolic actions, such as the restart of strategic bomber flights close to the territory of other Arctic states, and the planting of the Russian flag on the sea bed of the North Pole in summer 2007, have contributed to media controversy as well as uncertainty in terms of Russian intentions in the north.

However, the Russians have at the same time shown a more pragmatic and cooperative attitude. It participates in Arctic cooperation in the Arctic Council, and it refers its territorial claims within the framework put forward by the Law of the Sea. Russia also signed the Ilulissat declaration of 2008, where the five Arctic coastal states underlined cooperation as the way to deal with recent and future challenges in the region, and stated that they did not see the need for any new specific comprehensive legal regime to govern the Arctic.

Of the Nordic countries, it is Norway that to the greatest extent has been occupied with Arctic issues in recent years. The Norwegian government has stated that what it calls the High North, usually referring to the European component of the Arctic, is Norway's strategically most important region. Norway has consequently tried to raise international awareness of Arctic affairs, especially through dialogues with central actors such as the United States, and it has emphasized cooperation in the north, particularly with respect to neighboring Russia. Within NATO it has also argued in favor of putting more emphasis on alliance core functions. Trying to rebalance NATO's missions at home and abroad, the Norwegian initiative aimed to ensure that while the organization since the end of the Cold War has performed "out of area,"

► Both the Bush and Obama administrations have favored US accession to the UN Convention on the Law of the Sea.

► Some structural factors underpin the importance of Russia in Arctic regional affairs: its substantial military presence, long Arctic shore line, and continental shelf with the largest share of Arctic petroleum resources.

NATO continues to plan for more traditional tasks in providing stability and security within the Euro-Atlantic region. By putting emphasis on maintaining the security responsibilities in and close to the member countries' territories, the European, and also the North American, component of the Arctic might experience increased allied attention. At the same time, more southern members of the alliance may emphasize security needs within areas close to their territories, not to mention that the "out of area" missions—most importantly the NATO engagement in Afghanistan—remain a most central focus of the alliance.

► Of the five Nordic countries, it is Norway, and to some extent Iceland, that really emphasize Arctic issues in their foreign policy outlooks.

► At present, modest US interest in the Arctic indicates that the state of Arctic regional relations is largely uncontroversial.

► The Arctic is one region in which the United States may form a functioning cooperative relationship with Russia.

Denmark is the second Nordic country that is among the five Arctic coastal states, through Greenland as a self-governing part of the Kingdom of Denmark. In light of a warming and more accessible Arctic, the Danes have also proposed their own Arctic strategy, dealing with the broader circumpolar issues as well as cooperation between mainland Denmark and Greenland. Sweden, Finland and Iceland are also Arctic states, although they do not have shore lines in the Arctic. Together with the Arctic coastal states, they participate in the Arctic Council, and have experienced increased attention towards the north in recent years. However, of the five Nordic countries, it is Norway, and to some extent Iceland, that really emphasize Arctic issues in their foreign policy outlooks. To Iceland, the US 2006 withdrawal from the Keflavik base was a noteworthy shift. As Russian bomber flights have performed regular Arctic patrols since then, other NATO allies, among them the United Kingdom, France and Norway, have stepped up their activity to support Icelandic display of sovereignty in the north.

US Arctic Policy and Regional Relations into the Future

The United States has signaled a renewed interest in the Arctic in the last few years. It emphasizes the need for a more active and influential presence than what has been the case since the end of the Cold War. At the same time, the US is dealing with a global agenda, in which the Arctic is not perceived as acutely important. This means that the US interest in the region still is somewhat limited, but that the region is part of the multifaceted agenda of the world's only superpower.

However, at present, modest US interest in the Arctic also indicates that the state of Arctic regional relations is largely uncontroversial. While the increased attention given the Arctic in the last few years has brought with it considerable alarmism as regards the potential for confrontation in the region, there is good reason to believe that Arctic relations

will remain largely cooperative. There are areas of dispute, but at the same time, the Arctic states, including Russia, do participate in Arctic cooperation. The United States and the other Arctic states have little to gain from upsetting a stable environment in the north. Rather, Arctic challenges are most likely to appear in the "soft" security field, where accidents or transnational crimes may represent central challenges, as the region is being exposed to increased human activity. These challenges, however, are best handled through cooperation between the Arctic, and also non-Arctic, states.

Lastly, the Obama administration has signaled that it may combine broader, and perhaps even global, foreign policy goals with its Arctic policy. In this respect, the administration's intention to "reset" relations with Russia has led administration officials to state that the Arctic is one region in which the United States may form a functioning cooperative relationship with Russia. This may be indicative of the future of both the US approach to and regional relations in the north. Such an initiative also brings about a US interest in Arctic affairs in which the region has relevance beyond local or regional affairs. In the Cold War, Arctic issues became strategically important to the United States in a broader sense as they were perceived as part of the global American objective of containing the Soviet Union. While there is currently little reason to believe that a generic framework such as that of the Cold War will manifest to tightly link the region's importance to US global relations, there are elements contributing to the continued interest in Arctic affairs in the future that also transcend the local or regional level. A more substantial interest in American-Russian cooperation represents a central element in this, but also the increasing attention given to cooperation to limit and deal with the consequences of climate change may contribute to maintain an American, as well as international, focus on the north.

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Conflict or Cooperation: What Future for the Arctic?

by MICHAEL BYERS

The Arctic, located directly between the United States and Soviet Union, was on the front lines of the Cold War. Nuclear submarines prowled the Arctic Ocean while bombers circled on standby overhead. Runways and radar stations were built, along with underwater acoustic sensors.

A more cooperative approach has emerged since 1990, when the United States and Soviet Union agreed on the location of their maritime boundary in the Bering Strait and Chukchi Sea. In 1996, the creation of the Arctic Council institutionalized cooperation on non-military matters among the eight Arctic countries: Russia, the United States (Alaska), Canada, Denmark (Greenland), Norway, Iceland, Sweden and Finland.

In the past decade, the cooperation has intensified because of climate change, which is melting the Arctic sea-ice, opening shipping routes, and facilitating access to oil and gas. As a result, unresolved maritime boundary disputes have acquired new relevance. In May 2008, the five countries that border on the Arctic Ocean (Russia, the United States, Canada, Denmark and Norway) adopted the Ilulissat Declaration in which they reaffirmed their commitment to working within an existing framework of international law to delimit their respective areas of sea-bed jurisdiction.

The Cold War divide has not been as easy to bridge on security matters. NATO has been expanded to include several countries bordering on Russia, while the North American Aerospace Defense Command (NORAD) has been extended to include the sharing of maritime surveillance between Canada and the United States. That said, the terrorist attacks of September 11, 2001 provided an impetus for some forms of security cooperation between NATO countries and Russia, notably the Proliferation Security Initiative, which applies to oceans everywhere. Recent improvements in U.S.-Russia relations, especially with respect to missile defense, nuclear non-proliferation and disarmament, could have major implications for circumpolar politics.

Climate Change

Climate change is more apparent in the Arctic than anywhere else. Change is being driven by rising temperatures as well as Arctic-specific “feedback loops” arising out of the precarious balance between water and ice. An increase in average annual temperature of just a fraction of one degree can transform highly

reflective sea-ice into dark, heat-absorbing open water. The same increase can turn rock-hard, chemically stable permafrost into a decomposing, methane-emitting morass of ancient plant material. In recent decades, average annual temperatures in Alaska and the western Canadian Arctic have increased by more than 3° Celsius.

In 2004, the Arctic Climate Impact Assessment reported that the average extent of sea-ice cover in summer had declined by 15 to 20 percent over the previous three decades. The rate of ice-melt has accelerated since then, with a loss of one million square kilometers in 2007 alone. A complete, late summer melt-out of Arctic sea-ice could occur as early as 2013. When that happens, Arctic waters will become navigable twelve months a year, since a complete melt will spell the end of the “multi-year” ice that, after surviving the summer, becomes thicker and harder as a result of the accretion of new ice and the leaching out of sea-salt during the warming-and-cooling cycle. From that point onward, the Arctic Ocean will resemble the Baltic Sea, where ice-strengthened ships and icebreaker-escorted convoys can safely operate in winter.

Economic Activity

The Arctic is rich in hydrocarbons, with the U.S. Geological Survey estimating that the region contains 83 billion barrels of oil and 44 trillion cubic meters of natural gas. Most of the projected reserves are located in waters less than 500 meters deep and will likely fall within the uncontested jurisdiction of one or another Arctic Ocean coastal state.

As the ice melts, ships will increasingly be used to transport oil and gas from and through the Arctic. Ice-strengthened tankers are already moving liquified natural gas from northern Norway to the United States. Oil tankers entail particular risks, since Arctic ecosystems are exceedingly fragile, oil degrades and dissipates very slowly at cold temperatures, and long distances would render cleanup efforts expensive and time-consuming.

Other forms of shipping will also be attracted by the open water and thinner, softer ice. The Northwest Passage offers a 7000 kilometer shortcut between East Asia and the Atlantic Seaboard of the United States, as compared with the usual route through the Panama Canal. The Northern Sea Route along the coast of Russia offers a similar shortcut between East Asia and Europe, while a third option—sailing straight across the middle of the Arctic Ocean—would cut the distance from East Asia to Europe in half.

Each summer now, hundreds of cruise ships visit Greenland. Dozens enter the Canadian Arctic while a few travel to the geographic North Pole. Adventurers

► In the past decade, cooperation in the Arctic has intensified because of climate change, and unresolved maritime boundary disputes have acquired new relevance.

► Recent improvements in U.S.-Russia relations, especially with respect to missile defense, nuclear non-proliferation and disarmament, could have major implications for circumpolar politics.

are also heading north in growing numbers, some of them sailing small boats through the Northwest Passage. Search-and-rescue officials in Denmark, Canada and the United States are concerned because these are remote, incompletely charted and sometimes stormy waters.

The International Maritime Organization (IMO) spent years negotiating an Arctic Code for shipping, but the document was downgraded to a set of guidelines before it was adopted in 2002. In 2009, the Arctic Council released the Arctic Marine Shipping Assessment which highlighted the environmental risks, especially from oil spills, but also from “ship strikes on marine mammals, the introduction of alien species, disruption of migratory patterns of marine mammals and anthropogenic noise produced from marine shipping activity.” The Assessment urged Arctic countries to liaise with international organizations, promote the development and mandatory application of the IMO guidelines, and harmonize domestic safety regimes. It also, importantly, recommended the development of “a comprehensive, multi-national Arctic Search and Rescue (SAR) instrument, including aeronautical and maritime SAR, among the eight Arctic nations.”

Security

Despite the Arctic’s Cold War history, the most significant security threats are found along its southern fringes, in the Northwest Passage and Northern Sea Route. They involve non-state actors such as drug smugglers, gunrunners, illegal immigrants and even terrorists who might take advantage of ice-free Arctic waters to move contraband or people between the Pacific and Atlantic Oceans or into North America or Europe.

The non-state threats have attracted the attention of Arctic countries, not all of which are equipped to address the challenge. Canada, which has a small fleet of old and relatively small icebreakers, plans to construct six ice-strengthened patrol ships for its navy and a new icebreaker for its coastguard. Denmark and Norway already possess a few ice-strengthened frigates. The U.S. Coastguard has three icebreakers, two of which are quite old, and has recently deployed smaller, non-ice-strengthened vessels to northern Alaska in summer. Russia is by far the best equipped of the Arctic countries, with several dozen icebreakers, some of which are nuclear-powered.

The United States and Russia continue to deploy nuclear submarines in northern waters. Two U.S. submarines conducted communications tests off the north coast of Alaska in early 2009, while Russia’s Northern fleet is based in the Arctic Ocean port of Murmansk which, thanks to the Gulf Stream, is ice-free throughout the year. Both countries also deploy military aircraft over that ocean, with one

exercise—by two Russian bombers in February 2009—prompting a public expression of concern from Canada’s defense minister.

American and Russian responses to the Canadian minister were, however, even more telling. The four-star U.S. general in charge of NORAD assured journalists that the Russians had “conducted themselves professionally” and not entered Canadian or U.S. airspace, while a Russian diplomat explained that NORAD had been notified of the flights in advance, in accordance with a long-standing agreement between Washington and Moscow.

The public rebuke was indicative of the importance placed on improved U.S.-Russian relations by the Obama Administration. President Obama has taken risks to promote that relationship, unilaterally revoking plans for U.S. missile defense installations in Europe and becoming the first American president to chair a meeting of the UN Security Council. The gamble has paid off, so far, with a unanimous resolution recommitting all five “declared nuclear weapon states” to negotiate towards the elimination of their nuclear arsenals. The table is now set for the 2010 Review Conference of the Nuclear Non-Proliferation Treaty, with Obama’s expressed goal being complete nuclear disarmament. With so much at stake, Canadian interference will not be tolerated. One can hope that Ottawa heard the message, and will now contribute positively to Washington’s efforts, most obviously by engaging Moscow cooperatively on Arctic issues.

International Law

The U.S.-Russian notification agreement is one thread in a web of international law that is pulling the Arctic towards greater cooperation. A particularly important role is played by the 1982 United Nations Convention on the Law of the Sea (UNCLOS). For unlike the Antarctic, a continent surrounded by oceans, the Arctic is an ocean surrounded by continents. UNCLOS has been ratified by four of the five countries that border the Arctic Ocean, while the United States accepts the relevant provisions as customary international law.

With the exception of Hans Island, a tiny outcrop between Greenland and Canada, there are no disputes over land territory in the Arctic. No country will ever “own” the geographic North Pole, which is located roughly 400 nautical miles to the north of Greenland, Canada’s Ellesmere Island, and the Russian archipelago of Franz Josef Land. Coastal states do not possess full sovereignty beyond the 12 mile territorial sea.

However, coastal states do have certain sovereign rights out to 200 miles and sometimes farther. Under Article 76 of UNCLOS, they may claim rights over an “extended continental shelf” if the depth and shape of the seabed and the thickness of underlying

► If late summer melt-out of Arctic sea ice occurs—perhaps as early as 2013—the Arctic Ocean will resemble the Baltic Sea, where ice-strengthened ships and icebreaker-escorted convoys can safely operate in winter.

► Oil tankers entail particular risks, since Arctic ecosystems are exceedingly fragile, oil degrades and dissipates very slowly at cold temperatures, and long distances would render cleanup efforts expensive and time-consuming.

sediments indicate a “natural prolongation” of the shelf closer inshore. On the basis of what little we know about the Arctic Ocean so far, it is possible that either Russia, Denmark or Canada will be able to scientifically demonstrate that the seabed at the North Pole is a natural prolongation of its continental shelf. If so, the country in question will have the exclusive right to exploit the resources of that area of seabed and nothing more. The water and sea-ice will remain part of the high seas.

Regardless of what happens at the North Pole, the sheer size of the Arctic Ocean and the lengths of uncontested coastlines mean that Russia will likely have sovereign rights over an expanse of seabed larger than Western Europe. Canada, with the world’s longest coastline, will also have a sizable extended continental shelf, as will the United States. Countries that do not border on the Arctic Ocean might feel left out, but because UNCLOS applies globally, many have the opportunity to assert similar rights along their coastlines.

Apart from the technical exercise of collecting and assessing the scientific evidence, the only significant issue concerns overlaps between claims. Overlaps can occur where there are disputed maritime boundaries closer inshore, since the dividing line beyond 200 miles is usually simply an extension from the starting point. Disputes of this kind exist between Canada and the United States in the Beaufort Sea and Norway and Russia in the Barents Sea. Depending on the scientific evidence, an overlap is also conceivable between Russian, Canadian, and Danish claims in the central Arctic Ocean.

Article 76 requires that scientific evidence of a natural prolongation be submitted to the UN Commission on the Limits of the Continental Shelf for review and recommendations. But the Commission will not issue recommendations with respect to overlapping claims. It is up to the countries involved to negotiate a solution, refer the matter to an international court or tribunal, or simply agree to disagree and not issue exploration licenses for the contested area.

In response to widespread misreporting about the possibility of conflict over seabed resources, Denmark hosted a summit of the Arctic Ocean coastal states at Ilulissat, Greenland, in May 2008. The summit culminated with all five countries reaffirming their commitment to resolving disputes peacefully within the existing framework of international law. Cooperation on seabed mapping has accelerated since then, with Canadian and U.S. icebreakers working together in the Beaufort Sea, and diplomats from the five countries discussing the possibility of coordinated claims in the central Arctic Ocean. This approach, which would essentially create a negotiated set of boundaries, deserves the strongest possible support.

► **Cruise ships and adventurers in small boats are traveling in the Arctic in growing numbers, raising concerns of search-and-rescue officials in Denmark, Canada and the United States.**

► **Smugglers, gunrunners, illegal immigrants and even terrorists might take advantage of ice-free Arctic waters to move contraband or people.**

► **With the exception of Hans Island, a tiny outcrop between Greenland and Canada, there are no disputes over land territory in the Arctic.**

International law is also central to the U.S.-Canada dispute over the status of the Northwest Passage. Ottawa regards the channels between its 19,000 Arctic islands as “internal waters” which foreign vessels require permission to enter and where the full force of Canadian domestic law applies. Washington considers the waterway an “international strait” open to ships from any country almost without constraint. The two countries agreed-to-disagree in 1988, concluding a treaty on coastguard icebreaker transits that was explicitly without prejudice to their respective legal positions. Today, with the sea-ice melting and the prospect of numerous foreign vessels sailing through, the environmental protection and security interests of both Canada and the United States point in the direction of further negotiations.

In 2005, then U.S. Ambassador Paul Cellucci asked the State Department to re-examine the United States’ legal position concerning the Northwest Passage. After his term in Ottawa was over, Cellucci made his personal views clear, stating: “It is in the security interests of the United States that it [the Passage] be under the control of Canada.”

Official policy, however, remains stuck in the pre-climate change, pre-9/11 era, when thick, hard sea-ice could be relied upon to keep foreign vessels away, and concerns about a precedent that might negatively affect U.S. navigation interests elsewhere, such as in the Strait of Malacca, weighed heavier than threats from non-state actors and WMD. The concerns about a negative precedent were always exaggerated, because the presence of multi-year ice and paucity of foreign transits enable the Northwest Passage to be legally distinguished from other potential or existing international straits. However, the ability of the United States to change its policy and rely upon the Canadian position could soon disappear. As the ice melts, every summer brings a heightened risk of a challenge to Canada’s legal claim: most likely by a cargo ship owned by a rogue shipping company flying a flag of convenience and seeking to take a 7000 kilometer short-cut, without consideration for the opinions—and future interests—of Canada and the United States.

International Institutions

Established in 1996, the Arctic Council is an inter-governmental forum for promoting cooperation among the Arctic countries on non-military matters. It also includes several transnational indigenous groups as “permanent participants.” The Arctic Council should be the principal focus for northern diplomacy, but some of its own members seem opposed to this. In May 2008, Denmark invited the Arctic Ocean coastal states to Ilulissat without also inviting Finland, Iceland and Sweden. In April 2009, Canada moved to deny “observer” status to China

and the European Union, in retaliation for an EU ban on the importation of seal products.

The International Maritime Organization should be leading efforts to regulate Arctic shipping, but the divergent interests of coastal and shipping states have slowed its progress. The 2002 Arctic Code is useful as a guideline for domestic legislators and a possible template for an eventual treaty. Other IMO treaties that are not specific to the Arctic, such as the 1988 Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation, also apply there, and ensure that the Arctic Ocean is no less regulated than the other, ice-free oceans.

Fortunately, a great deal of work has already been done by the United Nations. When UNCLOS was negotiated during the early 1980s, the Arctic was a focus of attention, as is evidenced by Article 234 which enables coastal states to adopt stringent pollution prevention measures in ice-covered regions. Article 76 on the extended continental shelf was also drafted with the Arctic in mind and is now, along with the UN Commission on the Limits of the Continental Shelf, providing an invaluable basis for dispute resolution and avoidance.

Indigenous Peoples

The inclusion of indigenous groups as permanent participants at the Arctic Council is a reflection of the important role played by northern peoples in diplomacy and international law-making. In Canada and Denmark, the traditional use and occupancy of land and ice by indigenous peoples constitutes an element of nation-state sovereignty claims. Some Arctic indigenous groups are transnational in character, with the Inuit Circumpolar Council representing the Inuit of Greenland, Canada, Alaska and Russia. The Inuit have been particularly influential on international environmental issues, providing an essential moral impetus during the negotiation of the 2001 Stockholm Convention on Persistent Organic Pollutants and helping to bring the Arctic dimension of climate change into the global public consciousness. In 2009, the Inuit Circumpolar Council issued "A Circumpolar Inuit Declaration on Sovereignty in the Arctic." The document does not claim Inuit sovereignty; rather, it asserts the right to be involved in any interstate negotiations concerning sovereignty disputes.

Future Prospects

One occasionally hears talk of the need for an environmentally-oriented Arctic treaty modeled on the 1959 Antarctic Treaty, or for an Arctic-wide

nuclear weapons free zone. Achieving multilateral agreement on such matters would be difficult, given the continued strategic importance of the Arctic for the United States and Russia; the significant populations that live there, especially in Alaska and Russia; and the considerable jurisdiction already vested in the Arctic Ocean coastal states under the law of the sea. Fortunately, a great deal of cooperation already exists in the Arctic, as manifest in UNCLOS and a wide range of other treaties. The few remaining boundary disputes are relatively minor and susceptible to negotiated solutions.

Much of the cooperation is based on the sovereign rights that Arctic countries hold over their territory, adjoining waters, and continental shelf. This should come as no surprise, for the international legal system is the result of centuries of cooperation between sovereigns, as countries defined the boundaries between their respective jurisdictions and worked together in pursuit of common goals. In the Arctic, sovereign rights can facilitate cooperation by providing clear jurisdiction for regulating shipping and the extraction of natural resources, and for guarding against non-state security threats.

That said, the dominant challenge in the Arctic is climate change, which requires concerted and urgent cooperation elsewhere. Any excitement about Arctic oil and gas must be tempered by the realization that these prospects have arisen only because we have consumed so much oil and gas already. Exploiting Arctic hydrocarbons could exacerbate a global crisis that already imperils much of what we hold dear.

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