DEFENCE AND THE ARCTIC – GO WITH THE FLOE?

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"There'll always be a North Pole, if some dangerous clown doesn't go and melt it."
Michael Flanders 1963

INTRODUCTION

In early 2007 the Intergovernmental Panel on Climate Change released its Fourth Assessment Report,[1] which projected that the Arctic region would suffer from significant impacts in the 21st century. However, the unprecedented melting of Arctic sea ice in the summers of 2007 and 2008,[2] and the announcement in September 2008 of increasing release of the powerful greenhouse gas (GHG) methane through sub-sea permafrost,[3] provided clear warnings that even the most pessimistic IPCC predictions may have underestimated the potential shocks ahead. Serendipitously, these events occurred during the fourth International Polar Year,[4] which ran for two years from March 2007 to ensure equal coverage of both the Arctic and Antarctic by covering two complete annual cycles. As a result, more than ever is now known about the impacts of climate change in the Polar Regions, and predictions are being made that the Arctic may see a complete loss of sea ice in summer within the next decade.[5]

Coinciding with the end of the International Polar Year at the end of March 2009, Russia announced plans to create a dedicated military force to ensure security in the region,[6] supporting a Russian policy document that declares that the Arctic must evolve into Russia's top strategic resource base by the year 2020. This announcement was a sharp reminder to NATO (which essentially faces Russia across the Arctic Ocean), the EU and other international organisations that the rapidly changing environment in the region will offer improved access to largely untapped resources that may be the focus of future competition. Such competition risks escalation that may draw in other nations, including the United Kingdom.

This paper examines the Arctic and the implications for UK Defence of climate change impacts in the region.

BACKGROUND

It would be easy to consider the Arctic to be the region to the North of the Arctic Circle, but that would exclude much terrain with Arctic characteristics and many of the indigenous people that live there. The working groups of the Arctic Council recognise more extensive boundaries that approach to within 100 miles of UK and extend deep into Canada, Siberia and through the Bering Strait into the Northern Pacific Ocean.[7] The area is considerably larger than that bounded by the Arctic Circle and has a population of about 4 million. When considering climate change, a useful definition of the Arctic is the area to the North of the July 10ºC isotherm, which corresponds roughly with the tree line. With global warming, this isotherm will move North, reducing the area of Arctic terrain, with corresponding impacts on the vegetation, wildlife, indigenous peoples and access to resources. And the globe is warming, in some regions more than others, with the Arctic seeing perhaps the most disproportionate rise in temperature – about double that of any other region in recent years – a trend that is

projected to continue, regardless of which IPCC scenario eventually develops.[8]

Warming will result in more rapid recession of glaciers in Greenland, assisted by lubrication from running water under the ice and the loss of supporting ice shelves. This will result in sea level rises that will add to that resulting from thermal expansion, with effects being felt thousands of miles away by vulnerable populations in deltas such as those in Bangladesh and Burma and low lying islands such as Diego Garcia, which has strategically important military infrastructure.

Effects will also be felt in the Arctic itself, where a larger than average sea level rise will compound the coastal erosion that is already a problem for communities like Kivalina in Northern Alaska, whose inhabitants sued major oil and power companies in 2008, claiming that their GHG emissions have contributed to global warming, threatening the community's existence.[9] Another sign of warming has been the installation of air conditioning units in office buildings in Kuujuaq, 2,500 kms North of Montreal, because of temperatures reaching over 30ºC.[10] And where it was once normal to melt snow for water, some Inuits now have to drill bore holes.[11]

The loss of reflective and insulating ice and snow will further increase warming as more heat is absorbed by the land and sea, amplified by the positive feedback associated with increased atmospheric concentrations of methane from melting permafrost.[12] The speed of change could be just too much for many of the wildlife species that have adapted over thousands of years to life in Arctic conditions. As there are relatively few, specialised creatures, loss of any element of the food chain is likely to result in population crashes and possible extinctions, with further severe impacts on the indigenous people, many of whom still rely on the plentiful supply of Arctic animals for food, clothing and a range of everyday articles.

Furthermore, increased fresh water content and warming make it very likely that the Atlantic Meridional Overturning Circulation will slow down over the course of the 21st century, although it probably won't stop altogether.[13] This may lead to weather in Northern Europe that looks more like that in Eastern Canada. Perhaps closer in timeframe are more local changes in weather resulting from alterations to the wind-driven circulation that could result from the different response of seawater where the ice has melted.

There is clearly still much uncertainty about the detail, but absolute certainty that things are changing, and they are changing fast. This means that what was once an inaccessible region for much of the year will start to become much more accessible, providing opportunities to exploit the natural resources thought to exist there and to transport goods along the North West Passage and Northern Sea Route, saving thousands of miles on voyages from the Far East and the West Coast of USA to Europe, and avoiding the constraints of the Suez and Panama canals and the international straits that are currently rich picking grounds for pirates.

RESOURCES

The resources in the Arctic range from fossil fuels to diamonds, metals such as Zinc, Nickel and Copper, to fish, where stocks are moving north as temperatures rise, and to scenery and wildlife sought after by tourists in the 100 or so ships that cruise the Arctic

each year – a statistic that can only grow and lead to more incidents like the sinking of the cruise ship 'Explorer' in the Antarctic in 2007.[14]

The total undiscovered conventional oil and gas resources of the Arctic are estimated to be approximately 90 billion barrels of oil, 1,669 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquid.[15] This equates to between 15% and 30% of the world's undiscovered oil and gas. Most is thought to lie in North West Russia and Northern Alaska, with some deposits around Greenland.

There is, of course, a fundamental problem in wanting to exploit more fossil fuels for energy, as this will result in yet more GHG emissions. So perhaps exploration and exploitation in the region shouldn't be encouraged, but with many supplies currently coming from nations with a history of recent conflict, it is hardly surprising that there is a great deal of interest in what the arguably more benign Arctic might have to offer, particularly as resources elsewhere diminish and prices rise.

But extracting any reserves will not be a trivial matter. Some 85% of reserves are thought to lie offshore, requiring exploration and production platforms that are sufficiently robust to withstand what is likely to remain a hostile environment. Ironically, whereas it might be possible now to establish the necessary infrastructure using some of the stable ice that exists, a future loss of ice would make that method impractical. If resources can be exploited, they will need to be transported to processing facilities, requiring an infrastructure on shore, with terminals, pipelines and roads, or at sea, utilising increasingly accessible shipping routes. However, because melting permafrost will make any onshore infrastructure vulnerable to damage, with the potential for significant environmental degradation, the preferred option for transport is likely to be the sea.

JURISDICTION AND GOVERNANCE

In 2009 Durham University published a map of all the known territories and disputes that shows an area of high seas in the vicinity of the North Pole itself,[16] under which lie a number of potentially competing claims based on continental shelf extensions. The planting of a flag on the seabed by the Russians in August 2007 was intended to stake a claim to resources associated with the Lomonosov Ridge,[17] which runs from Russia towards the North Pole. This high profile incident emphasised that agreement on territorial boundaries and exploitation rights in the Arctic will be fundamental to a peaceful future for the region, yet there are many claims and counter-claims that will first need to be resolved.

Although many regional boundaries are agreed, there remain a number of disputes such as those between Russia and Norway around Svalbard, and between USA and Canada in the North West Passage area, where Canada claims the waters as internal waters and USA, although not a signatory to the United Nations Convention on the Law of the Sea (UNCLOS), claims the passage is an international strait.[18] Signalling a bolstering of Canadian sovereignty in the region, the Canadian Prime Minister Stephen Harper announced in August 2007 that a Canadian Forces Arctic Training Centre will be established in Resolute Bay (Cornwallis Island), the Canadian Rangers will be expanded and re-equipped, and a deep water Arctic Docking and Refuelling Facility will be established at Nanisivik (Baffin Island).[19]

However, the North West Passage is not a single, easy route. It is subject to wide variations in ice conditions and is likely to remain so for some time. Indeed, as the pack ice breaks up, the prevailing currents are likely to make ice conditions in the channels between the islands even more unpredictable and dangerous. The Northern Sea Route along the Siberian coast may therefore be a more attractive route for trans-polar shipping in the first instance, notwithstanding the likelihood of Russia controlling the passage of shipping.

Even then, it is likely that specialist ships will be required for much of the year, with hulls and propulsion systems that can withstand the ice conditions. The most familiar type of ship is the icebreaker, but recently, in anticipation of greater use of Arctic shipping routes for trade, new designs have started to appear, including so-called 'double-action' vessels that use Azipods for propulsion and proceed astern in the ice.[20] The baseline capability is to be able to cope with first year ice, equating to a Polar Hull Classification of between 7 and 4 – for ice up to about two metres in thickness.[21]

All this increased activity, if and when it occurs, will put further pressure on an already stressed environment and increase the potential for life-threatening incidents at sea and ashore. Protection of the environment and marine safety are two of the main concerns of the Arctic Council,[22] a high level intergovernmental forum established by the Ottawa Declaration of 1996 as a means for promoting co-operation, co-ordination and interaction among the Arctic states, with the involvement of the thirty or so Arctic indigenous communities and other Arctic inhabitants on common issues, including sustainable development and environmental protection but explicitly excluding military security matters.[23] The eight member states are Canada, Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, the Russian Federation, Sweden and the USA. UK is one of an increasing number of national observers alongside several multinational organisations.

With the Arctic Ocean largely frozen throughout the year, there has historically been little interest in any resources that might lie beneath it, but since it has been acknowledged that climate change is likely to cause significant changes and improved access, there have been a number of calls in recent years for the adoption of an international governance regime for the Arctic Ocean similar to that in the Antarctic, where the Antarctic Treaty provides for freedom of scientific investigation and bans military activity.[24] However, in May 2008 the five Arctic Ocean coastal states, Canada, Denmark, Norway, Russia and USA, met in Ilulissat in Greenland and decided that existing provisions, such as the Law of the Sea, were sufficient to ensure the rights and obligations of nations, protection of the marine environment, freedom of navigation, scientific research and other uses of the sea. In the so-called Ilulissat Declaration,[25] the five states committed themselves to this legal framework and to the orderly settlement of any possible overlapping claims and stated that they saw no need to develop a new comprehensive international legal regime to govern the Arctic Ocean. Furthermore, they committed themselves to increased co-operation to protect the fragile marine environment and improve search and rescue capabilities.

As might be expected, the fact that three of the Arctic Council members without coastlines were excluded from this agreement, along with environmental groups and Inuits,[26] aroused some strong feelings that the coastal states were effectively using

existing legal frameworks to divide the resources between themselves. It was also noted that USA was a party to the agreement even though it still hasn't ratified UNCLOS. It might also be argued that it is not in the interests of either Russia or USA to allow the banning of military activity in the Arctic as it is, and is likely to remain for some time, a haven for strategic nuclear forces. The Arctic would also be an obvious choice for UK's independent strategic deterrent to patrol. It is likely then, that UK would not be unsupportive of maintaining freedom of military access to the Arctic Ocean.

Other organisations have interests in the Arctic, including the Barents Euro-Arctic Council, set up in 1993 to secure long-term stability in the region after the cold war, with an overall objective of sustainable development.[27] Its membership is the same as the Arctic Council, but excludes USA and Canada and includes the European Commission. Then there is the Arctic Military Environmental Co-operation Programme or AMEC, which is a programme of cooperation involving the Ministries of Defence of Norway, USA, Russia and the UK, which is aimed at addressing environmental issues affecting the Arctic region of Northwest Russia.[28] The UK joined AMEC in June 2003 as part of its commitment to spend $750m within the framework of the G8 Global Partnership to address Cold War legacy issues in Russia and the Former Soviet Union, and is leading a number of AMEC projects associated with the safe storage, transport and dismantling of decommissioned nuclear-powered submarines.

Other interested parties include the EU, which has three members sitting on the Arctic Council, and NATO, which has five members. In a communication in November 2008 the EU set out its interests in the Arctic and proposed action for EU members and institutions around three main policy objectives: protecting and preserving the Arctic in unison with its population, promoting sustainable use of resources, and contributing to enhanced Arctic multilateral governance.[29] However, irritation shown by some members of the Arctic Council at the EU's failure to consult them during studies prior to the communication,[30] compounded by Canada's reaction to the proposed EU ban on the trade in seal products,[31] has resulted in an application by the EU seeking permanent observer status on the Arctic Council being deferred until at least 2011.[32] Meanwhile, at the end of January 2009, the NATO Secretary General, Jaap de Hoop Scheffers, suggested that NATO would need a military presence in the region to defuse tensions.[33]

Recognising the complexity and security implications in the Arctic, efforts are underway to foster improved co-operation by using the international space around the North Pole as a lever for the international community to exert its influence on those bodies who may be seen to be acting in a more self-interested way. One such initiative is being led by Professor Paul Berkman, Head of the Arctic Ocean Geopolitics Programme at the Scott Polar Research Institute in Cambridge, who is trying to reinvigorate Mikhail Gorbachev's 1987 Murmansk Initiative that the Arctic should be a zone of peace, with a nuclear-weapons free area in Northern Europe and restrictions on naval activities.[34]

IMPLICATIONS FOR UK DEFENCE

The Arctic can therefore be seen to be a fragile environment that is changing rapidly as a result of climate change, in a region with large untapped and increasingly accessible resources over which there are conflicting claims, and which will look increasingly attractive for exploitation as more traditional sources decline or become less accessible because of future conflict. Shipping routes are opening up, with the possibility of new

trade routes that reduce delivery times (and incidentally fossil fuel usage and GHG emissions) but, added to increased tourism, increase the risk of accidents, damage to the environment and the need for search and rescue. The Arctic is also a region that arouses strong emotions amongst interested nations, some of which are not in agreement about future governance, and it has traditionally been a sensitive military area. Furthermore, with its combination of icebreakers and submarines, it has the highest concentration of nuclear powered vessels in the world, a factor that should be borne in mind when considering the environmental impacts of any accidents.

But what does all this mean for UK Defence, and do we need to be involved? Our geographical location, 100 nautical miles from the Arctic region, our historical and scientific involvement and obligations as a member of NATO (especially Article 5), the EU and AMEC, the close partnership with Norway for delivery of a large proportion of the nation's energy needs, the opening up of new sea lines of communications, fossil fuel production fields and fisheries that may need Naval protection, and a continuing need for safe patrol areas for the strategic deterrent probably argue that we should, either independently or as part of a wider NATO or EU initiative. If this is the case, then UK needs to determine whether current and planned capabilities will be sufficient to meet the likely Military Tasks in the region.

As the Arctic looks like a new theatre of operations, and assuming similar scales and concurrency of operations elsewhere as those of today, Arctic operations are likely to be a force driver, requiring additional capabilities, suitably designed for the conditions, with appropriate support. It is primarily a maritime region, so naval forces will be especially important. As far as the Royal Navy is concerned, there is only one programme in the next 25 years that could embody suitable capabilities, and this is the Future Surface Combatant (FSC), due in service in 2019. Of three concepts identified during the Sustained Surface Combatant Capability Pathfinder study in 2006/7, the C1 and C2 variants, replacements for Type 22 and Type 23 frigates, are the most clearly defined and are funded elements of the FSC project, with the smaller C3 (one option to fulfill, *inter alia*, the future 'Patrol' capability) currently unfunded.[35] If a true Arctic capability is thought to be necessary, at least some of these vessels should be designed with a Polar Hull Classification of between 7 and 5, noting that a new class of Canadian patrol vessels will be built to Polar Class 5 specification.[36] As specialised support would be required, it would be prudent to examine the Military Afloat Reach and Sustainability (MARS) programme to establish whether at least one of the vessels could be designed for Arctic operations.

UK does of course already have the Royal Marines as Arctic trained and equipped land forces, but other capabilities will be required in support of any Maritime operations, such as airborne surveillance. And more than just equipment will be needed. Therefore, all of the Defence Lines of Development should be examined closely to determine the impact of any decision to develop forces suitable for future Arctic operations.[37] For example, training would be required to develop Arctic navigation expertise, which has long been recognised to be a very specialised skill.[38]

However, as the new National Security Strategy doesn't mention the Arctic once,[39] and as the focus is on success in current operations and resolving the financial crisis in defence procurement, it is probable that the Navy will not have the opportunity to adapt FSC and MARS adequately for Arctic conditions, let alone train ship's companies for ice

operations. Furthermore, Royal Marine commitments elsewhere in the world are likely to limit training opportunities in the Arctic with a resulting loss of expertise. It is therefore difficult to be optimistic about the likelihood of having an effective Arctic capability in the foreseeable future.

But there is another way. UK could use its influence as a member and observer in the various international organisations with Arctic interests to promote the Murmansk Initiative and support the establishment of a demilitarised zone of peace in the Arctic Ocean so that Arctic military capabilities wouldn't be necessary. A parallel initiative to persuade the Arctic nations to constrain their exploitation of fossil fuels would help to limit GHG emissions, thus mitigating climate change, and prevent further damage to the fragile Arctic environment and its inhabitants that would inevitably be caused by the associated infrastructure and extraction operations.

Because of limitations on the timescales for resolution of territorial claims under UNCLOS, there is a narrowing window of opportunity when Arctic nations will seek to settle their claims and disputes, hopefully by peaceful means.[40] The proof of large resource reserves, or otherwise, will influence the vigour with which the claims are pursued. Key decision points for FSC and MARS (should that programme survive at all following recent postponement decisions)[41] are rapidly approaching. UK therefore needs to decide quickly whether to go with the flow and join Canada and Russia in developing new Arctic capabilities for the Armed Forces or whether to risk pursuing a purely political solution to secure a peaceful and sustainable future for the region.

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