Prologue: A Southern Perspective

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Russia's illegal invasion of Ukraine in early 2022 will focus the thoughts of Antarctic observers, policy-makers, and scholars on the short- and long-term fallout from the dramatic actions of one of the original signatories to the 1959 Antarctic Treaty. As I write this prologue, the annual Antarctic Treaty Consultative Meeting is coming to a close in Berlin. Both Russia and Ukraine, as Antarctic Treaty Consultative Parties, participated in the meeting. Russia's invasion prompted an unprecedented démarche and walkout by twenty-five countries during an address to the meeting by the representative of Russia.

I will return to the potential consequence of these events later but have highlighted them here to emphasize that the Russia-Ukraine conflict is the biggest perturbation to the Antarctic Treaty System since the Antarctic Treaty came into force in 1961.

Antarctica is simultaneously distinct from, yet similar to, the Arctic. While the Arctic is an ocean surrounded by continents and islands, Antarctica is a continent surrounded by ocean and islands. Governance of Antarctica is chiefly achieved through the Antarctic Treaty System (ATS), a regime of international agreements stemming from the Antarctic Treaty. The Arctic, on the other hand, has layered governance: the laws of Arctic states are made with respect to their own countries; and rights to territorial seas, exclusive economic zones, and extended continental shelves are derived from the 1982 United Nations Convention on the Law of the Sea.

Only a small part of the Arctic Ocean and its seabed falls outside of some form of national government control. In contrast, through the operation of the Antarctic Treaty, the seven claimant states set aside overt application of their national domestic laws in the Antarctic Treaty area and apply them only to their own nationals.

In this discussion, I define the Antarctic, ecologically, as the ocean, islands, and continent south of the Antarctic Polar Front (also called the Antarctic Convergence). Geopolitically, the Antarctic Treaty applies to all areas below 60 degrees south latitude, while the related 1980 Convention on Conservation of Antarctic Marine Living Resources (the CAMLR Convention) applies to the Antarctic Treaty area, plus the ecosystems bounded by the Antarctic Polar Front.

The ATS consists of the Antarctic Treaty, subsequent legal instruments agreed by the parties to that treaty, and other laws, regulations, institutions, and decisions made within the system. The first international agreement after the Antarctic Treaty was the 1972 Convention for the Conservation of Antarctic Seals—an agreement that is moribund, but which was negotiated to cover the possibility of recommencing commercial sealing in Antarctica. Concern over the potential impacts of krill harvesting on the conservation of the great whales led to the negotiation of the CAMLR Convention. In the 1980s, the Antarctic Treaty Parties negotiated a preemptive agreement to manage future environmental impacts of mining in Antarctica. The 1988 Convention on the Regulation of Antarctic Mineral Resource Activities (the Minerals Convention) never entered into force, even though it was agreed, because Australia and France, followed by other countries, decided to not ratify it. Following the collapse of the Minerals Convention, the Antarctic Treaty Parties negotiated the Protocol on Environmental Protection to the Antarctic Treaty (the Environmental Protocol), which was signed in 1991, and which came into force in 1998. Besides providing a comprehensive regime to consider the environmental impacts of activities in the Antarctic Treaty area, the Environmental Protocol imposes an indefinite ban on mining in Antarctica.

The decision-making bodies of the ATS are the Antarctic Treaty Consultative Meeting (ATCM), established through the Antarctic Treaty; and the Commission for the Conservation of Marine Living Resources (CCAMLR). The ATCM usually meets annually "for the purpose of

exchanging information, consulting together on matters pertaining Antarctica, and formulating and considering, and recommending to their governments, measures in furtherance of the principles and objectives of the Treaty" (Antarctic Treaty 1959). CCAMLR also meets annually and makes legally binding measures covering all aspects of the conservation of Antarctic marine living resources, including, but not limited to measures relating to harvesting.

The work of the ATCM is facilitated and supported by the Antarctic Treaty Secretariat, established in 2003 and based in Buenos Aires, Argentina. The CCAMLR Secretariat was established directly through the CAMLR Convention and is based in Hobart, Australia. The annual CCAMLR meetings are held in Hobart (except when held online in 2020 and 2021 due to the COVID-19 pandemic).

The Environmental Protocol established the Committee for Environmental Protection (CEP), which meets annually, usually in conjunction with the ATCM. The CEP's responsibilities are "to provide advice and formulate recommendations to the Parties in connection with the implementation of this Protocol . . . for consideration at Antarctic Treaty Consultative Meetings, and to perform such other functions as may be referred to it by the Antarctic Treaty Consultative Meetings" (Protocol on Environmental Protection to the Antarctic Treaty 1991). The ATCM receives the advice of the CEP and makes legally binding measures, and other decisions, based on that advice.

The CAMLR Convention established a Scientific Committee as a consultative body to the Commission. The Scientific Committee is "a forum for consultation and co-operation concerning the collection, study and exchange of information with respect to [Antarctic] marine living resources" (Convention on the Conservation of Antarctic Marine Living Resources 1980). The Scientific Committee provides advice to the Commission, which is then used in the formulation of legally binding conservation measures, among other decisions.

The Antarctic agreements and instruments, the ATCM, CCAMLR, CEP, Scientific Committee, all agreed measures, and the Secretariats constitute the ATS. The ATS also requests and receives advice from expert bodies such as the Scientific Committee on Antarctic Research.

The ATS falls outside of the United Nations system but is open to adherence by any of that body's member states. From the original 12 states that adopted the Antarctic Treaty in 1959, 43 additional countries have now joined. Of these, 29 are Antarctic Treaty Consultative Parties—that is, they have the right to participate in decision making in ATCMs. The Environmental Protocol has 42 state signatories. The CAMLR Convention has 25 states (plus the European Union) as signatories. As a product of the Cold War, the ATS has evolved from a response to potential conflict over territorial claims and the threats of 1950s superpower competition into a comprehensive regional governance regime, with participation of states across the globe. The emerging geopolitical challenges facing the ATS will be discussed below.

Antarctica, with its vast ice caps, holds about 90 per cent of the earth's ice and 70 per cent of its fresh water. The relentless impacts of climate change though atmospheric and oceanic warming will inevitably lead to the significant melting of the Antarctic ice cap and consequential global sea-level rise. Even though the Antarctic continent is surrounded by the cold Southern Ocean, the current extent and trajectory of greenhouse gas emissions ensures that the environmental changes now manifesting in the Antarctic will be locked in for many hundreds, if not thousands, of years to come. The global mean sea level is rising, and the contribution of Antarctica to this rise is accelerating.

Despite uncertainties surrounding future responses of the Antarctic ice cap to global climate change, global average sea-level rise of more than 0.8 metres above the 1950 average by the end of the century is projected. In the past decade Antarctica has been losing approximately 160 gigatons of its glacial ice per year due to the thinning of the ice sheet, and the loss of outlet glaciers in West Antarctica. This is the equivalent of about 0.5 millimetres per year of global sea-level rise (projected to a total contribution of 10 centimetres by 2100), a contribution that will continue well beyond the end of this century, and that will increase in rate annually. Sustained climate change will see significant irreversible instability of the ice sheet, and without mitigation of greenhouse gas emissions, Antarctica's future contribution to global sea-level rise will be measured in several metres, not fractions of a metre.

The Southern Ocean has warmed significantly, accounting for up to 50 per cent of heat gain in the upper two thousand metres of the global ocean in the past decade. The deep Southern Ocean is also warming.

While significant loss of sea ice is one of the clearest physical changes observed in the Arctic region, the behaviour of Antarctic sea ice has followed a different pattern. The annual changes in extent of Antarctic sea ice is one of the greatest natural events on earth. At its peak in the austral winter, Antarctic sea ice has an aerial extent of around nineteen million square kilometres, and at its nadir in summer this is reduced to around three million. Overall, Antarctic sea ice extent (as opposed to sea ice thickness) has not shown consistent significant trends, but there are distinct regional changes in sea ice extent in the Antarctic, with declines in the Amundsen Sea region and increased sea ice in the Ross Sea region.

Climate change has brought poleward shifts in the distribution of marine species in polar regions, as well as local changes to ecosystems in the Antarctic, including the appearance of invasive species from outside the Antarctic region. There is evidence of a southward shift in the distribution of Antarctic krill in the southern Atlantic Ocean, and changes in the distributions of some penguin species.

The Southern Ocean is a key global sink for the sequestration of atmospheric carbon dioxide, being responsible for 40 per cent of the global uptake by the oceans of carbon dioxide emissions. This in turn has led to the oceans becoming more acidic, with potentially great impacts on marine life and ecosystems. Current projections are that "business as usual" scenarios for global greenhouse gas emissions will see direct impacts of ocean acidification on some species of marine organisms by the end of this century.

Climate change is the greatest threat to the Antarctic, and the impact on the Antarctic climate will have major regional and global repercussions. Climate change may also have ramifications for Antarctic geopolitics, but these will most likely manifest differently than in the Arctic because of Antarctica's remoteness from human populations and international trade routes, and its unique international legal status.

The Antarctic does not have a permanent human population, although many of the Antarctic research stations are occupied year-round. The Antarctic Treaty designates Antarctica as a place for "peace and science,"

and the CAMLR Convention permits some regulated fisheries through its provision for "rational use." The largest "industry" in Antarctica is the combined input, support, and output of Antarctic science. Fisheries for toothfish, some other finfish, and krill are the major fisheries in the Antarctic. Biological prospecting for Antarctic genetic resources is also undertaken. Tourism is a growing industry, though recently it has been heavily impacted by the COVID-19 pandemic, and has the potential to grow well beyond the seventy thousand tourists who visited the Antarctic in 2019. The future trajectory of climate change *will* impact these human endeavours and related industries and put pressure on the stability of the ATS and its modes and norms.

The current Antarctic regime is deeply rooted in post–Second World War geopolitics. The twelve nations that participated in Antarctic research activities during the International Geophysical Year (1957–58) were invited to Washington by US president Dwight Eisenhower to negotiate an international agreement for Antarctic governance. Those countries were Argentina, Australia, Chile, Belgium, France, Japan, New Zealand, Norway, South Africa, the United Kingdom, the United States, and the Soviet Union. The claimant States—Argentina, Australia, Chile, France, New Zealand, Norway, and the United Kingdom—were then in the majority of the Treaty Parties. The United States and the Soviet Union each asserted historical rights to the basis of Antarctic claims. Japan, an original signatory to the treaty, was denied any right to an Antarctic territorial claim through the 1951 Treaty of Peace with Japan. The operation of the Antarctic Treaty's Article IV resolved the "problem" of Antarctic claims by neither confirming nor denying them, establishing that no new claims could be made, and that activities during the existence of the Treaty could not be used as the basis of future Antarctic claims.

The Treaty provides that military "manoeuvres" cannot be conducted in the Antarctic Treaty area, and that the testing of nuclear weapons and disposal of nuclear waste be prohibited. These prohibitions were further supported by the provision that allows any Antarctic Treaty Consultative Party to conduct unfettered inspections of facilities in Antarctica. Together, the non-militarization of Antarctica, and the setting aside of potential disputes over Antarctic claims, provided, and still provides, a stable regional governance arrangement that successfully diffuses active

international belligerence in the region. The Soviet Union and the United States continued to participate in constructive Antarctic discussions during the height of the Cold War, as did the United Kingdom and Argentina during the Falklands/Malvinas armed conflict.

That is not to say that Antarctica is immune from the shifting forces of global power. There are now twenty-nine Antarctic Treaty law-making countries, and the claimants and the original signatories are no longer in the majority. The emergence of China as a global power, as well as various geopolitical developments in the Arctic, have in recent years seen an increasingly "militarized" discourse and commentary about Antarctic affairs. This discourse portrays the ATS as a historic artifact that is not "fit for purpose" to deal with the future geopolitical reality. These discussions are often centred on portrayals of "grey zone" activities, or the emergence of dual-use technologies deployed in the Antarctic (for example, telescopes and satellite ground stations such as the Chinese BeiDou system or Russia's GLONASS). Often, this discourse is linked to an assertion that the Antarctic Treaty "comes to an end" or is "open for amendment" in 2048—assertions that, while far too common, stem from a misunderstanding of the various agreements in the ATS (and a specific subject too long to go into here).

This discourse needs to be balanced against current Antarctic reality and the global interests and power of the vast majority of Antarctic Treaty parties. The non-militarization provisions of the Antarctic Treaty do not prohibit the use of military personnel or equipment for the conduct of science or other peaceful purposes in the Antarctic. The loose description of "dual use" technologies as potential breaches of these non-militarization provisions is also potentially misleading and fails to account for the reality that many similar systems (e.g., GPS) have operated in the Antarctic, without criticism, for decades. Much of the critically important Antarctic data that will be collected in the future by remotely operated autonomous marine and airborne systems may have potential military applications, even if not specifically collected for that purpose.

The protection that Antarctic Treaty Parties have against military activities in the Antarctic is through the inspection and reporting provisions of the Antarctic Treaty. As said above, Antarctic facilities can be inspected by any Party without notice. The Treaty allows for these inspections to

be made by "aerial observation," and current and emerging technologies should also be used to verify compliance with non-militarization obligations. Just as Cold War tensions prompted the inclusion of an inspection regime in the Treaty, emerging global geopolitical tensions should stimulate the parties to the Antarctic Treaty to reinvigorate and modernize inspections—after all, mutual assurance can help to defuse tensions, thereby enhancing geopolitical stability.

Protection of the norms and modes of the ATS is also fundamental to the system's operation and to overall security in the region. Increasingly, Russia and China are using the consensus decision-making mechanisms of the ATS to stall or block progress on initiatives that are supported by the vast majority of Treaty Parties. This behaviour is most evident in the failure in recent years to declare additional Marine Protected Areas in the Antarctic. Both Russia and China have increasingly used novel interpretations of Antarctic law, or claimed that there is "not enough science," as reasons to not agree with the rest of the Antarctic community on these measures. More concerningly, Russia used its ability to block consensus to stop one of its fishing vessels being listed as in breach of a fisheries conservation measure; and it made the false claim of scientific uncertainty to depart from customary practice and to block a straightforward fisheries catch-limit measure.

The use of "failure of consensus" to pursue narrow national interests and to stall progress in decision-making in the ATS should be challenged by other Parties, not only within the confines of the decision-making forums themselves, but also individually and collectively outside these meetings through strong diplomatic engagement. Parties should use their collective efforts to promote and seek the consensus required to break these deadlocks.

The Treaty Parties have many "natural groupings," such as the claimants, original signatories, southern hemisphere states, South American states, Asian states, and so on. "External groupings" such as the Five Eyes, the Indo-Pacific Partnership, ANZUS, the Quad, and the newly formulated AUKUS also have some intersection with Antarctic affairs.

The consequences of Russia's illegal invasion of Ukraine—one Antarctic Treaty Party invading another—are yet to play out in the ATS. The earlier 1982 Falkland Islands/Islas Malvinas armed conflict occurred

in the period between significant ATS meetings and was managed with a high degree of diplomatic nuance inside the ATS. But the Russian invasion of Ukraine has already seen this conflict discussed in the 2022 Berlin meeting, and has resulted a diplomatic shunning of Russia by the other Antarctic Treaty Parties.

Russia also continues a path of consensus blocking on critical Antarctic decisions, and with China, continues to erode long-established decision-making norms inside the ATS. Russia's investments in Antarctic activities are likely to decline because of the economic impacts of its invasion of Ukraine—as was the case in the 1990s after the collapse of the Soviet Union. But Russia will still likely continue to be a destabilizing influence inside the formal meetings of the ATS.

These emerging Antarctic challenges should be met with concerted, coordinated action by those countries that see the future stability of the Antarctic region as globally important. The future of the earth is intrinsically bound to the protection of the Antarctic environment, which in turn depends on protecting the ATS—the only viable mechanism for governance of the region.

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