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## HMCS *Margaret Brooke* heads to the Other Pole: Ten Things to Know About Antarctica and Canada's Interests and Activities in the South Polar Region

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*There is growing global interest in Antarctica, due to the region's economic, environmental and strategic importance. As in the Arctic, emerging geopolitical pressures may make cooperation more challenging, with potential implications for Canadian prosperity and security. Decision-making through the Antarctic Treaty – the key multilateral forum for Antarctic governance – is increasingly important and interconnected to other global interests.*

Minister of Foreign Affairs - Briefing Book (2021)<sup>1</sup>

On 10 January 2025, His Majesty's Canadian Ship (HMCS) *Margaret Brooke*, a Harry DeWolf-class Arctic Offshore Patrol Vessel (AOPV), departed Halifax for a historic mission as part of Operation PROJECTION – South America. This voyage seeks to conduct the first circumnavigation of South America and the maiden voyage to Antarctic waters by a Royal Canadian Navy (RCN) vessel. During this deployment, the crew will visit ports across South America to strengthen international relationships in collaboration with Global Affairs Canada, and while in Antarctic waters for 3-4 weeks the ship will support Canadian scientific research by a team of 15 scientists from government and the federally-funded Marine Environmental Observation, Prediction and Response Network (MEOPAR) network on board. Described by the RCN as a "once in a career" mission for the crew, the voyage seeks to "highlight the unique capabilities of the Harry DeWolf-class, showcasing its proven Arctic operational expertise in the Antarctic maritime environment."<sup>2</sup> "The scientists will be doing some core sampling (of the ocean floor), some oceanography and some marine geology," Commodore Jacob French, Commander of the Canadian Atlantic Fleet, explained. "HMCS *Margaret Brooke* was deployed north of the Arctic circle this past summer. With this deployment south of the Antarctic circle, it will be the first Canadian warship to reach the northernmost and southernmost points of the Earth within the same year."<sup>3</sup>

Antarctica's profound effect on global climate and ocean systems make it an important scientific frontier and example of international peace and cooperation. Antarctica is home to about 70% of the Earth's fresh water and 90% of its freshwater ice.<sup>4</sup> "Locked in its four kilometre-thick ice sheet is a unique record of what our planet's climate was like over the past one million years," the British Antarctic Survey (BAS) notes, with the scientists from that organization discovering in 1985 the hole in the ozone layer above Antarctica that showed how human-made chemicals were damaging the atmosphere. The BAS continues to describe it as "the world's most important natural laboratory," with its "frozen wastes hav[ing] fired the

public imagination for generations,” and with “around 30,000 tourists now visit[ing] the Antarctic each year to experience what life is like in the Earth’s last great wilderness.”<sup>5</sup>

In 1997, eminent scientist Fred Roots, the head of the Canadian delegation at the twenty-first ATCM, expressed how:

Canada continues its modest but, we hope, constructive involvement in Antarctic affairs, through the participation of Canadian scientists in subject areas where our north polar scientific expertise can be particularly useful, and in the policy and international relations area where the Antarctic Treaty System and its evolution is not only an example of international cooperation and environmental protection important to Canadian principles and objectives but also of value in ensuring the growth of knowledge about the polar regions that has particular importance to Canada.<sup>6</sup>

This remains true today – but is not the sum total of Canada’s interests, which also include tourism services and providing logistical support and supplies to Antarctic research programs led by other states. This policy primer provides an overview of Canada’s Antarctic activities and aspirations, as well as a short overview of some of the geopolitical challenges currently facing regional stakeholders.

Canada recognizes the Antarctic Treaty System as the key multilateral mechanism for decisions on the regulation and management of Antarctica, and the active participation of various federal organizations in the Committee for the Environmental Protocol (CEP), Scientific Committee on Arctic Research (SCAR), Council of Managers of National Antarctic Programs (COMNAP), and Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) shows Ottawa’s commitment to the Antarctic Treaty.<sup>7</sup> Canada acceded to the Treaty in 1988 as a non-Consultative Party, and ratified the Protocol on Environmental Protection in 2003. Canada has applied for Consultative Party status in the Antarctic Treaty System, highlighting its credentials as “as an international leader on polar issues, with extensive connections to the region’s research, tourism, governance, and history.”<sup>8</sup> Thus far, its application has been blocked by Russia and China for reasons that will be speculated upon.

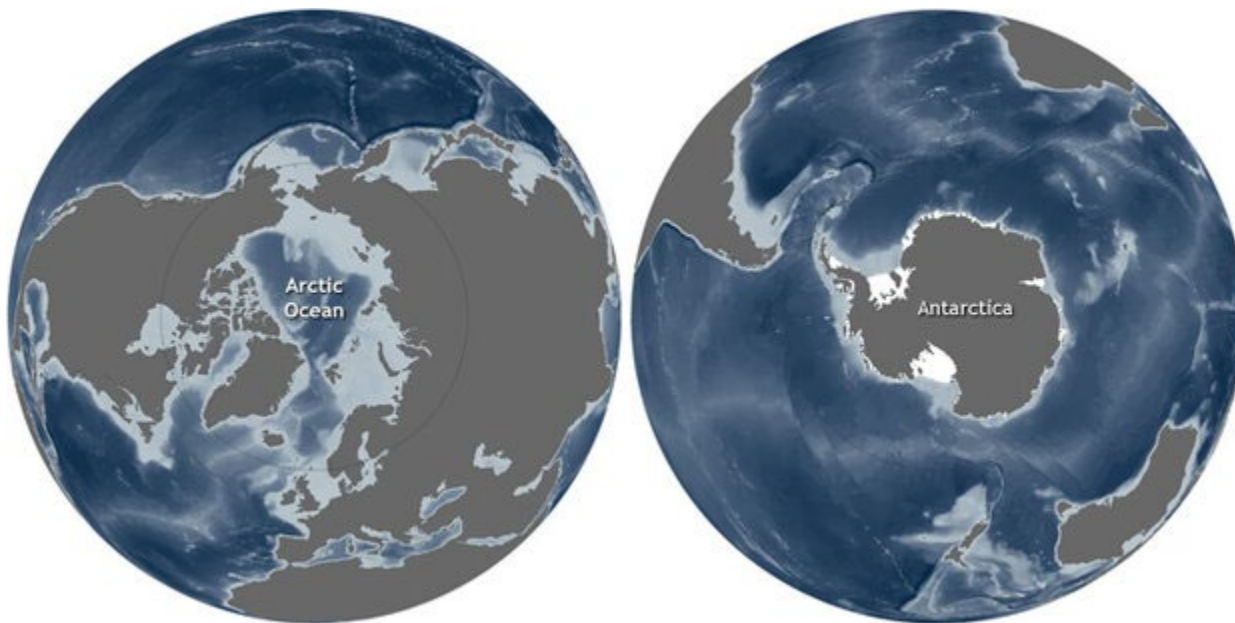
## 1. The Antarctic and Arctic are different

*“Antarctica is the common heritage of all of humanity: a continent that belongs to us all.”*

Antarctic and Southern Ocean Coalition website (2025)<sup>9</sup>

The Antarctica is an uninhabited, ice-covered landmass without a permanent population or a government. As such, it is different than the Arctic in several core respects. First, it is a continent surrounded by ocean, while the Arctic is an ocean surrounded by land – the “polar opposite” land-sea arrangement.<sup>10</sup> Second, while approximately four million people are resident in the Circumpolar Arctic (about 10% of whom are Indigenous Peoples),<sup>11</sup> Antarctica has no permanent inhabitants apart from research stations staffed by scientists and support staff, and no peoples are indigenous to that continent. Third, there is considerably more diversity in vegetation in the Arctic than in the Antarctic, with the latter much colder on average because it is a landmass. Fourth, sovereignty over Arctic lands are internationally recognized as belonging to specific states: Alaska belongs to the United States, Canada’s Arctic regions are part of Canada, Greenland is part of the Kingdom of Denmark, and so on. While parts of the Arctic Ocean beyond coastal state jurisdiction fall within the “common heritage of humankind” as defined by the United Nations Convention on the Law of the Sea (UNCLOS), this regime does not apply to the Antarctic continent (although some commentators continue to push for Antarctica to be

considered “the common heritage of humankind”<sup>12</sup>). In Antarctica, seven countries have made territorial claims but these have been “frozen” since the introduction of the Antarctic Treaty System in 1961.



Canada’s [Antarctic Environmental Protection Act](#) defines the Antarctic as:

- a) the continent of Antarctica, including its iceshelves;
- b) all islands south of 60° south latitude, including their iceshelves;
- c) all areas of the continental shelf that are adjacent to that continent or to those islands and that are south of 60° south latitude; and
- d) all sea and airspace south of 60° south latitude.<sup>13</sup>

## 2. The Antarctic Treaty: Canada is a Non-Consultative Party

The Antarctic Treaty was signed in Washington on 1 December 1959 by the twelve nations that had been active during the IGY (Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, United Kingdom, United States and USSR) and entered into force on 23 June 1961. Covering the area south of 60°S latitude, the treaty has produced an effective and resilient regime in international relations.<sup>14</sup> Its main purpose is to:

- to demilitarize Antarctica, to establish it as a nuclear-free zone and the disposal of radioactive waste, and to ensure that it is used only for peaceful purposes;
- to promote international scientific cooperation; and
- to set aside disputes over territorial sovereignty in Antarctica.<sup>15</sup>

Through this agreement, the countries active in Antarctica consult on the uses of the entire continent, rooted in a shared commitment that it should not become the scene or object of international discord. In its fourteen articles, the Treaty:

- promotes international scientific cooperation including the exchange of research plans and personnel, and requires that results of research be made freely available;
- guarantees continued freedom to conduct scientific research, as enjoyed during the International Geophysical Year (IGY) in 1957-58;
- sets aside the potential for sovereignty disputes between Treaty parties by providing that no activities will enhance or diminish previously asserted positions with respect to territorial claims, provides that no new or enlarged claims can be made, and makes rules relating to jurisdiction;
- stipulates that Antarctica should be used exclusively for peaceful purposes, military activities, such as the establishment of military bases or weapons testing, are specifically prohibited;
- prohibits nuclear explosions and the disposal of radioactive waste;
- provides for inspection by observers, designated by any party, of ships, stations and equipment in Antarctica to ensure the observance of, and compliance with, the Treaty;
- requires parties to give advance notice of their expeditions; provides for the parties to meet periodically to discuss measures to further the objectives of the Treaty; and
- puts in place a dispute settlement procedure and a mechanism by which the Treaty can be modified.<sup>16</sup>

Currently, the Treaty has 56 signatories, with 29 Consultative Parties (ATCPs) on the basis of being original signatories (12) or subsequently by conducting substantial research there (17).

The Treaty also provides that any state that is a member of the United Nations can accede to it with the stipulation in Article IX(2) that ATCP status is available only “during such time as that Contracting Party demonstrates its interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the despatch of a scientific expedition.” The existing ATCPs must unanimously consent to a state gaining ATCP status at an Antarctic Treaty Consultative Party Meeting (ATCM) described below.<sup>17</sup>

Legal scholar Erik Molenaar lays out various reasons why states seek to participate in the Antarctic Treaty (and other key instruments of the Antarctic Treaty System discussed below):

- a. the fundamental issue of Antarctic territorial sovereignty;
- b. the international prestige and stature often associated with participation in the Antarctic Treaty;
- c. the ability to engage in activities such as scientific research, tourism, exploitation of resources, and associated activities (e.g., fishing-related activities such as provisioning of fuel and transshipment of catch); and
- d. the ability to participate in decision-making and thereby influence the adoption and substance of individual decisions as well as the wider evolution of the ATS. As regards the latter, the interests of some participants could be mainly conservation-oriented and aimed at safeguarding the designation of Antarctica as ‘a natural reserve,

devoted to peace and science’, while other participants may mainly have utilisation-oriented interests. Such diverging interests can in certain scenarios be seen as a conflict between so-called user States and non-user States.<sup>18</sup>

Canada acceded to the Antarctic Treaty in 1998 as a non-Consultative Party. It is the only G-7 nation to not have full Membership status, meaning that Canada does not have full participation rights and cannot vote at the Antarctic Treaty Consultative Party Meetings. Accordingly, Canada is bound by decisions made at the ATCMs but does not have the ability to influence the decision-making process.<sup>19</sup> Canada introduced its bid for Consultative Party (decision-making) status in 2021 but has been unsuccessful owing to Russian and Chinese opposition (which is discussed in detail later).

### 3. The Antarctic Treaty System (ATS)

The Antarctic Treaty System (ATS) comprises the Treaty itself and related agreements, such as the [Convention for the Conservation of Antarctic Seals \(CCAS\)](#) signed in 1972 (to which Canada is a party and reports annually under the requirements of this agreement), the [Convention on the Conservation of Antarctic Marine Living Resources](#) which came into force in 1982, and the [Protocol on Environmental Protection to the Antarctic Treaty](#) which came into force in 1998. It also includes organizations that contribute to the work of the decision-making forums. In addition to related agreements, the Treaty System includes the [recommendations, measures, decisions, and resolutions](#) of the [Antarctic Treaty Consultative Meetings](#) (ATCMs) relating to matters such as:

- scientific cooperation;
- protection of the Antarctic environment;
- conservation of plants and animals;
- preservation of historic sites;
- designation and management of protected areas;
- management of tourism;
- information exchange;
- collection of meteorological data;
- hydrographic charting;
- logistic cooperation; and
- communications and safety.<sup>20</sup>

The [Secretariat of the Antarctic Treaty](#) located in Buenos Aires convenes the annual ATCM, which Consultative Bodies and Non-Consultative Parties, as well as observers (including SCAR, CAMLR, COMMAP ) and invited experts (including ASOC, IAATO) discussed below.

Various specialized bodies also assist the Treaty parties in the conduct of their work, as well as providing observers or experts to participate in ATCMs:

- [Scientific Committee on Antarctic Research \(SCAR\)](#), created in 1958 as a thematic organisation of the [International Science Council \(ISC\)](#), is a non-governmental organization (NGO) that initiates, develops, and coordinates Antarctic research programs and encourages scientific cooperation. SCAR provides objective and independent scientific advice to the ATCMs and other organizations such as the [United Nations Framework](#)

[Convention on Climate Change \(UNFCCC\)](#) and the [Intergovernmental Panel on Climate Change \(IPCC\)](#) on issues of science and conservation affecting the management of Antarctica and the Southern Ocean and on the role of the Antarctic region in the Earth system. Canada is represented by [Polar Knowledge Canada \(POLAR\)](#).

- The [Council of Managers of National Antarctic Programs \(COMNAP\)](#), formed in 1988, is comprised of the heads of each of the national Antarctic operating agencies to facilitate scientific research in the Antarctic Treaty Area on behalf of their respective governments and in the spirit of the Antarctic Treaty. Its membership covers thirty-three country programs and four observers, representing almost 100% of the science and science support activity in Antarctica. COMNAP meets annually to exchange logistic information, encourage cooperation, offer practical, non-political advice for the Treaty parties, and ensure data from Antarctica is available to the world. Canada was approved as a full member of COMNAP on 27 July 2022, after having been an observer since 2006. Represented by [Polar Knowledge Canada \(POLAR\)](#), Canada has joined some COMNAP Expert Groups and seeks to promote and share its expertise of polar research infrastructure, technology, and practices.<sup>21</sup>
- The [International Association of Antarctic Tour Operators \(IAATO\)](#) is an industry body founded in 1991 to represent the interests of the international private-sector tourist trade in Antarctica. While advocating for and promoting safe and environmentally-responsible travel within the parameters of the Antarctic Treaty System, it also seeks to foster cooperation between private-sector travel and the international science community in the region.<sup>22</sup> Canadian tour operators affiliated with IAATO include One Ocean Expeditions and G. Adventures.

The Antarctic Treaty parties have also developed a close relationship with environmental inter-governmental and non-government organisations that represent the broader community interests in conservation. Organisations such as the International Union for the Conservation of Nature, the United Nations Environment Program and the Antarctic and Southern Ocean Coalition are also invited as experts to ATCMs. Bodies with technical expertise (such as the International Hydrographic Organisation, the World Meteorological Organisation and the Intergovernmental Oceanographic Commission) also participate. Key players include:

- The [Commission for the Conservation of Antarctic Marine Living Resources \(CCAMLR\)](#), established by [international convention](#) on 7 April 1982 with the objective of conserving Antarctic marine life. The CAMLR Convention applies to all Antarctic marine living resources (i.e. all marine living organisms), but the marine resources whose exploitation is managed by CCAMLR specifically exclude whales and seals, which are the subject of other conventions (the [International Convention for the Regulation of Whaling](#) and the [Convention for the Conservation of Antarctic Seals](#)). There are 27 Members and 10 Acceding States (including Canada). CCAMLR meets annually and decisions are agreed in the form of adopted conservation measures or resolutions, informed by its [Scientific Committee](#) (which provides advice on scientific information on harvesting levels and other management issues).
- The [Antarctic and Southern Ocean Coalition \(ASOC\)](#), founded in 1978, has the mission to protect Antarctic and Southern Ocean ecosystems by providing a unified voice for Antarctic conservation. ASOC seeks to raise awareness about human impacts on the southern polar environment and promotes Marine Protected Areas (MPAs), the continued implementation of the Polar Code, and an ecosystem approach to the management of Antarctic fisheries.

## 4. Protecting the Antarctic environment

Canada emphasizes that it “is committed to the conservation and protection of Antarctica in recognition of its significance in sustaining unique and irreplaceable biodiversity and supporting essential scientific research.”<sup>23</sup> The [Protocol on Environmental Protection to the Antarctic Treaty](#) (the Madrid Protocol), signed in 1991, commits Treaty parties to the “comprehensive protection of the Antarctic environment and dependent and associated ecosystems and hereby designate Antarctica as a natural reserve, devoted to peace and science.” Canada ratified the Protocol in 2003 and implements its environmental protection obligations under the Antarctic Treaty and the Protocol on Environmental Protection through the [Antarctic Environmental Protection Act](#) (S.C. 2003, c. 20) (AEPA) and the associated [Antarctic Environmental Protection Regulations](#) (SOR/2003-363). Environment and Climate Change Canada (ECCC) is the department responsible for administration and enforcement of the AEPA and acts as Canada’s Competent Authority. Each year Canada issues permits for activities in the Antarctic organized by Canadians or Canadian companies, most of which are for marine-based tourism.<sup>24</sup>

ECCC is addressing issues raised by the Standing Joint Committee on the Scrutiny of Regulations (SJCSR) on the *Antarctic Environmental Protection Regulations* and has committed to propose administrative amendments will minor effects on applicants for *Antarctic Environmental Protection Act* permits. These relate to permit holders including more information in their waste management plans, as well as harmonizing the requirements of the Act and regulations respecting environmental evaluations with those of the Madrid Protocol.<sup>25</sup>

The *Arctic Environmental Protection Act* “does not apply to a member of the Canadian Forces acting in that capacity or in respect of a vessel, facility or aircraft of the Canadian Forces or a foreign military force or in respect of any other vessel, facility or aircraft that is under the command, control or direction of the Canadian Forces.”<sup>26</sup> Accordingly, it does not apply to HMCS *Margaret Brooke* or her crew.

## 5. Canada is not a “new” Antarctic actor

Canadian scientists have a long and proud tradition in Antarctica extending back more than a century. Hugh Blackwall Evans, a Canadian living in Saskatchewan, served as a zoologist and meteorologist on the Southern Cross expedition of 1899-1900, the first party to over-winter on the Antarctic continent. This was Evans' second expedition to the region and, undeterred by the over-wintering, in 1900 he led the first party to travel on skis inland from the Bay of Whales, reaching farther south than any human had attained to that time.<sup>27</sup> Ontarian Rupert Mitchell served as ship’s surgeon on Ernest Shackleton’s *Nimrod* voyage of 1908–09. Physicist and glaciologist Charles Seymour Wright, one of Canada’s pioneering scientists, and was a member of Britain’s Terra Nova Expedition from 1910 to 1913.<sup>28</sup> George Douglas, from Montreal, was geologist on the Shackleton-Rowett expedition of 1921–22. Frank Davies, a physicist by training, study terrestrial magnetism and aurora at the “Little America” base on the Ross Ice Shelf during Richard Evelyn Byrd’s 1928–30 expedition, with Newfoundlander Jack Bursey and former RCMP officer Alan Innes-Taylor participating as dog-drivers. New Brunswicker Al Cheesman flew his Lockheed Vega in support of Sir Hubert Wilkins’ 1929 expedition, and British Columbian Herbert Hollick-Kenyon served as Lincoln Ellsworth’s pilot on the first transcontinental flight in 1935. Ontarian James ‘Red’ Lymburner and Quebec aviator James Trerice were pilots on Ellsworth’s 1938-39 expedition.<sup>29</sup>

Perhaps most notably, Manitoban Andrew Taylor ended up commanding Operation Tabarin, a secret two-year British expedition to strengthen Britain's claims in Antarctica during and after the Second World War. The stations that the members of the operation built at Hope Bay and Port Lockroy laid the foundation for the network of British bases after the war, and Taylor's work as a professional surveyor was instrumental to mapping the region. Because Taylor wrote about these activities without the "heroic" tone of similar expeditions, his work was never published in his lifetime and he lacked recognition for his leadership role.<sup>30</sup> It is telling that the British Antarctic Survey's website on Operation Tabarin never identifies Taylor as a Canadian. Nevertheless, it highlights how scientific observations and surveys initiated during this operation continued after the war as the Falkland Islands Dependencies Survey (FIDS), which was re-named the British Antarctic Survey (BAS) in 1962.<sup>31</sup>

Canadian contributions continued postwar with the geologist Fred Roots, a key member of the Norwegian–British–Swedish expedition of 1949–52 who went on to a distinguished career as the head of Canada's Polar Continental Shelf Project and chief science adviser for the Canadian government's Department of the Environment. Dean Beeby, who chartered the contributions of Canadians in Antarctica in his 1994 book *In a Crystal Land*, concludes his volume with Pat Morrow, a founder of the Vancouver-based company Adventure Network International which setup the first Antarctic commercial airline in 1985. He also noted Canadians who have worked with the United States Antarctic Program, Canadian companies that have supplied tractors and buildings for expeditions, and De Havilland Canada's Otter, Beaver, and later Twin Otter aircraft that represented key components of Antarctic logistics.<sup>32</sup>

Canada never established a permanent station in the region, instead focusing on partnering with other countries' scientific programs and offering reciprocal access and support to scientific research in Canada's Arctic. In 1998, the Government of Canada established a formal Canadian Committee for Antarctic Research (CCAR) and became a full member of Scientific Committee for Antarctic Research, thereafter appointing Canadian representatives to most of the SCAR Working Groups and to COMNAP.<sup>33</sup> Beginning in 2007, a new federal agency, Polar Knowledge Canada (POLAR) was mandated to provide opportunities for collaboration in the Arctic and Antarctic.<sup>34</sup>

## 6. Canadians are engaged in Antarctic science

Both academic and Government of Canada polar research activities drive significant elements of Canada's scientific interests in the region. Antarctic and Southern Ocean research is carried out in at least fifteen Canadian universities, with government funding to support this research aligned with research questions of national and international interest. Canadians have expertise in a broad range of Antarctic research disciplines spanning physical, life sciences, and geosciences research, and have also been involved in technology development, data management, and geographic information activities. This research addresses a broad swath of relevant issues for Canada and provides knowledge-sharing opportunities for the Arctic, including sea-level rise, marine protected areas, bioremediation of contaminated soils in cold regions, and cold climate technology. Much of this work has been undertaken in partnership with other countries, with Canadians having collaborated with researchers from most Antarctic Treaty nations.<sup>35</sup>

Canada's 2021 application for Consultative Party status in the ATS provided an overview of its research contributions that span the three science groups of SCAR, including:



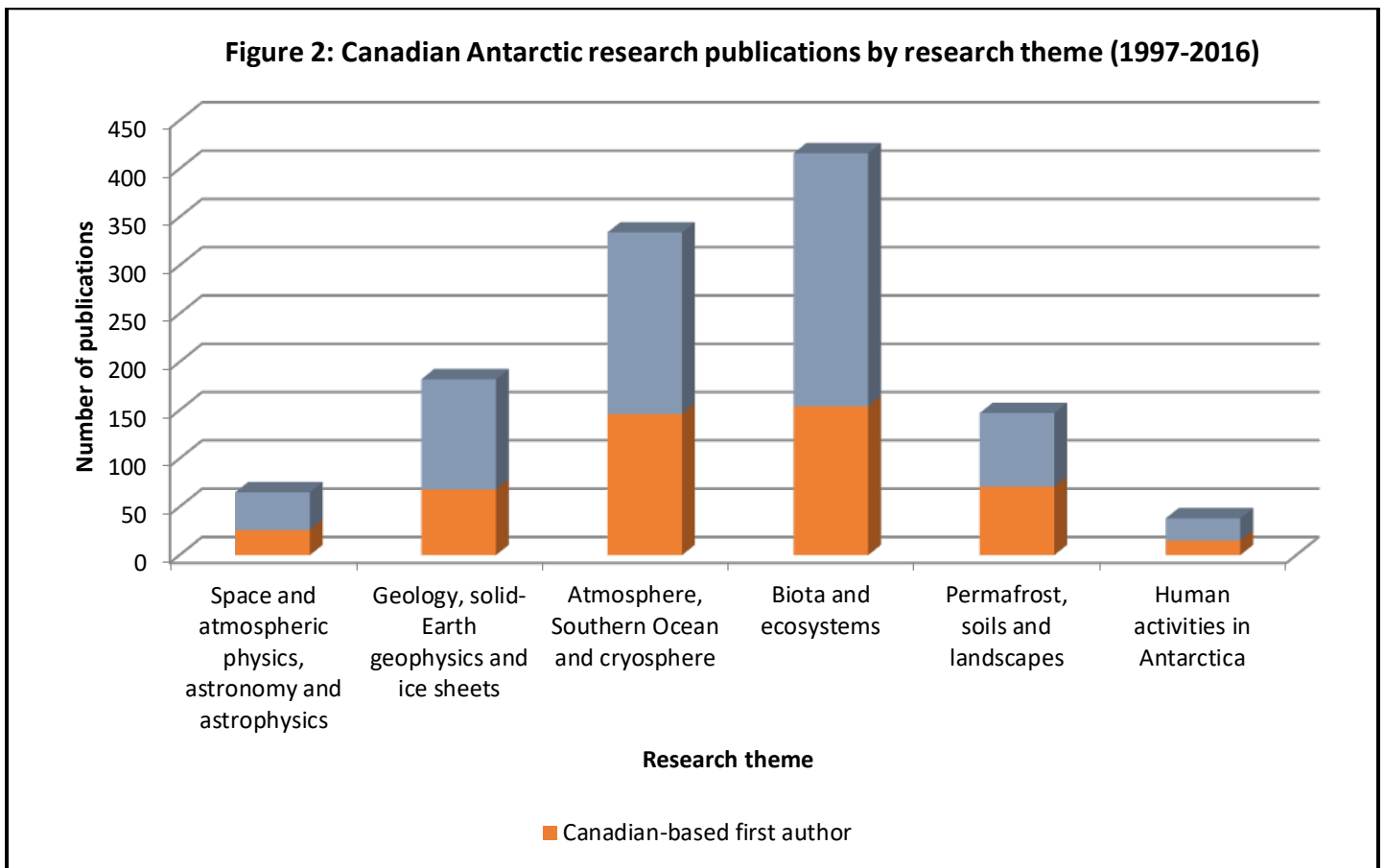
- **Canada’s research on ground ice (permafrost)** in the Antarctic and its role in shaping landscapes have contributed to the understanding of the distribution and origin of permafrost in Antarctica.
- **Antarctica in the global climate system:** Canada’s seasonal predictions of Antarctic sea ice are world-leading and Canada is co-leading a SCAR climate model intercomparison initiative to understand the profound impacts of Antarctic ice sheet melting on the Southern Ocean and Southern Hemisphere climate.
- **Canada’s RADARSAT I and II:** Earth observation satellites supported mapping Antarctic ice and its surface motion, including ice streams, while Canada’s RADARSAT Constellation Mission (RCM) continues to provide Earth Observation coverage for sea ice and glacier monitoring.
- **Monitoring and modelling ozone depletion from Canadian space assets in the Antarctic:** Canada’s atmospheric space missions are instrumental in informing evidence-based decision-making and contributing to global assessment reports.<sup>36</sup>

As the last two bullets indicate, the Canadian space program enables Antarctic research across a wide swath of priority science research areas. Since the creation of the Canadian Space Agency (CSA) in 1989, Canadian satellites have provided the international scientific community with a rich source of atmospheric and geophysical information, expertise and knowledge that has documented environmental changes, enabled space science, and advanced the understanding of Antarctic research. Open and accessible data collected from Canada’s RADARSAT satellites has contributed to consistent monitoring and mapping of Antarctica and support Antarctic science and research for over 28 years, contributing to a “revolution in the understanding of Antarctic ice-sheet dynamics.”<sup>37</sup> The CSA has collected a large archive of images over the Polar Regions, providing imaging of the Arctic Ocean, Greenland ice sheet and Antarctic ice sheet, which has provided unique comparative datasets for environmental monitoring and assessing climatic conditions around both poles. Canada’s atmospheric missions (which monitors more atmospheric gases than any other nation) offer more than two decades of datasets that are free and openly available, which contributes to accurate global monitoring efforts, improved climate and air quality models, ozone recovery, and Antarctic studies from researchers around the world.<sup>38</sup>

Canada has placed a heavy emphasis on science collaboration with international partners. By way of illustration, twenty-nine countries were affiliated with Canadian Antarctic research from 2016-2018.<sup>39</sup> In the 2023/24 field season, Canadian researchers participated in the Antarctic POLENET (Polar Earth Observing Network) team with American counterparts to conduct GPS and seismic studies to better understand geodynamic processes and their influence on the West Antarctic Ice Sheet; jointed Australian counterparts to carry out glaciological investigations in East Antarctica, and continued research on biogeochemical processes in Lake Untersee, , the largest freshwater coastal lake in central Queen Maud Land.<sup>40</sup> In 2024, Canadian and European experts in polar observation forged a partnership that has Ocean Networks Canada (ONC), a University of Victoria initiative, and the Spanish National Research Council (CSIC) operating a subsea observatory at the Spanish Antarctic Station (BAE) Juan Carlos I, located on Livingston Island in the South Shetlands Archipelago north of the Antarctic Peninsula. This subsea system provides year-round, near real-time data on ocean conditions, thus meeting a current data gap in the Southern Ocean. The observatory, which is modelled on one of ONC’s Arctic observatories at Gascoyne Inlet on Devon Island in Nunavut, consists of a CTD scientific instrument that measures conductivity, temperature and depth, as well as additional sensors and two autonomous deep Argo floats, that monitor the changing biogeochemical and physical ocean processes where freshwater glacier melt and ocean water meet. The

observatory then uses the Iridium satellite network to transmit data every 30 minutes to ONC for processing, archival and distribution.<sup>41</sup>

Canada’s 2023 official report to the ATCM on its engagement in the Arctic notes that Canadian researchers have written approximately 1500 science journal articles related to Antarctic and Southern Ocean science.<sup>42</sup> In the period from 2011-2015, British Antarctic Survey (BAS) analysts Andrew Gray and Kevin Hughes documented that Canadian researchers collectively published more scientific papers on Antarctica than all of the other non-Consultative and non-Treaty states combined, and more than authors from nearly two-thirds of the ATCPs. Citation indices also indicate that this work is influential, leading them to conclude that, “even without land-based infrastructure” Canada demonstrates “substantial research activity” on par with many existing ATCPs.<sup>43</sup>



Source: *Preliminary overview of Canadian Antarctic research contributions (1997-2016)* (2017)<sup>44</sup>

## 7. Canada has framed a more ambitious Antarctic research program

Canada has extensive polar research experience and expertise which can inform on Antarctic issues, such as ice sheet stability and sea-level rise, and circumpolar issues, such as high-latitude landscape evolution, sea-ice dynamics, and space

weather. In November-December 2022, Canada hosted a Canadian Antarctic Research Program workshop at the Canadian High Arctic Research Station in Cambridge Bay, Nunavut. The workshop involved Canadian Antarctic scientists and researchers from academia and the Government of Canada, Canadian government officials, and representatives from the SCAR and COMNAP. They articulated four high-level themes and sub-themes as a framework for Canada to pursue in its future Antarctic research:

**a) State and fate of the Antarctic Ice Sheet and global sea-level rise**

*Ice-sheet/ocean interactions:* Parts of the Antarctic ice sheet may be subject to a marine ice sheet instability. Understanding the processes acting at the ice/ocean interface, and upstream, contribute to robust projections of global sea-level rise.

*Ice-sheet/solid-Earth interactions:* Ice sheet evolution depends on the nature and response of the underlying solid Earth. Geological and geophysical investigations are required to understand conditions beneath the ice sheet, to contribute to robust projections of global sea-level rise.

**b) Antarctica in the global climate system**

*Atmosphere:* Atmospheric composition and processes over Antarctica and the Southern Ocean, such as feedbacks in atmospheric chemistry (e.g., ozone), aerosols, and cloud formation, and evolution of the Southern Annular Mode, affect the global climate system.

*Oceans and ecosystems:* The Southern Ocean is a key sink for atmospheric carbon and is a key player in the global climate system, while Southern Ocean biology is strongly affected by climate change.

*Landscapes and ecosystems:* The Antarctic landscape, and the ecosystems it hosts, are experiencing rapid change due to climate change, similar to Arctic Canada. The extreme environment of Antarctica gives rise to organisms adapted to these environments (extremophiles) and give insights to the potential for life on other planets (exobiology).

**c) Antarctica as a platform for observing space weather and the universe**

Space weather affects airplane and satellite communications and electrical transmission lines in high-latitude regions. Antarctic observations and modelling contribute to improved monitoring and understanding of this global phenomenon. Antarctica, owing to its southern polar location, and dry atmosphere, hosts unique astronomical and astrophysical investigations.

**d) Cross-cutting theme: Anthropogenic effects on the Antarctic environment and mitigation by conservation, cold-regions technology, and green infrastructure solutions**

Local and long-range anthropogenic influences on the environment, such as pollution, micro-plastics, and climate change, affect Antarctic and Southern Ocean biology, including fisheries. Conservation efforts, combined with cold-regions technology and green infrastructure solutions, have the potential to mitigate these influences.<sup>45</sup>

A 2023 Canadian report on *Advancing Antarctic Research with Canadian Space Science and Technology* suggests that “Canada’s advancements in space science and technology significantly contribute to Antarctic research, benefitting researchers, industry and the global community. Through Canadian observations and space assets, Canada will continue to support international collaboration and coordination to monitor, and enhance the understanding of Antarctica’s unique and challenging environment.”<sup>46</sup> The question remains, however, how much Canada’s leadership in space-based data

collection is weighted by the ATCPs when this important research is not conducted physically on the Antarctic continent or in its waters.

## 8. Canada is a Key Player in Antarctic Tourism

In December 1992, Canada entered the Antarctic tourism industry with a joint venture between government-owned Marine Atlantic and Blyth and Company Travel, using the Newfoundland-based MV *Northern Ranger* (a 100-passenger icebreaking ferry that operated along the Labrador coast in summer but usually remained docked during the Northern winter).<sup>47</sup> Today, Canadian operators carry a significant share of total Antarctic tourist passengers per year. In 2015/16, for example, Canadian travellers accounted for 4.8% of Antarctic tourists.<sup>48</sup>

Canada is committed to promoting responsible tourism that protects the natural heritage of the Antarctic. As noted earlier, Canadian operators are part of the International Association of Antarctic Tour Operators (IAATO), an “industry alliance dedicated to safe and responsible private-sector travel to the White Continent.”<sup>49</sup> They share a commitment to minimize the negative human impacts of tourism in the region and to uphold the tenets of the Madrid Protocol, including rigorous training of guides and staff as well as supporting scientific work.<sup>50</sup>

Canada also is a leader in Antarctic education through the work of [Students on Ice \(SOI\)](#), an award-winning Canadian not-for-profit foundation with a mandate to educate the world’s youth about the importance of the Antarctic and Arctic. As of 2021, SOI had taken more than 3500 students and staff from 52 countries on educational expeditions to the polar regions, enhancing their awareness and inspiring many to become ambassadors for the two poles.<sup>51</sup>

## 9. Canada does not have an Antarctic base, but Canadian companies are significant players in Antarctic logistics

Canada’s polar expertise is extensively employed in Antarctica. For example, Canadian companies provide crucial Antarctic operational support for many national programs and tour operators, including research, logistics, and medical evacuations.

The Arctic-Antarctic Exchange mechanism of Canada’s Polar Continental Shelf Program provides logistical support to international researchers in Canada’s Arctic regions, in exchange for Canadian researchers receiving logistical support in Antarctica from other countries’ Antarctic programs. “We recognize the world-class resources that already exist in Antarctica, and the environmental impact of creating new research stations,” the Government of Canada explained in 2021. Instead of building its own station, Ottawa’s vision is to continue its collaboration with international partners “to foster Antarctic research, including exchanges with research facilities in the Canadian Arctic, upholding the spirit of scientific cooperation enshrined in the Treaty.”<sup>52</sup>

Canadian private sector companies also provide important air chartering services in Antarctica. Kenn Borek Air (KBA), started by its namesake in 1971, was a family-owned business until 2019 when it was acquired by a long-time aviation operator. As an owner/operator of twin-engine turboprop (fixed-wing) aircraft and specializing in polar operations, it is best known for its fleet of de Havilland Twin Otter aircraft, capable of operating on wheels, skis and floats. Headquartered in Calgary, Alberta, KBA has been the largest private charter aircraft operator in Antarctica, supporting research at stations and remote field sites, and planning and carrying out medical evacuations for nearly four decades. Each year KBA has a

fleet of aircraft on the Antarctic continent to support national research program activities as well as long time private tour operators.<sup>53</sup>

Notably, Ken Borek flight crews were awarded the 2017 Smithsonian National Air and Space Museum Trophy in the Current Achievement category for their successful efforts in medically evacuating two sick workers from the South Pole in an “audacious” rescue operation the year before. In June 2016, the Canadian crew flew two Twin Otter aircraft from Calgary to Chile (12,500 km) in 45 hours, then the dangerous 1,600-km journey to Rothera, Antarctica, and one plane subsequently flew another 2,400 km to the U.S. National Science Foundation's Amundsen-Scott Research station at the South Pole. Deteriorating weather conditions meant that they had a limited window in which to fly, during a season when flights are not planned owing to extreme cold and darkness. This marked only the third time that a plane had flown to and from the South Pole in the middle of winter.<sup>54</sup>

In 2011 Canadian Helicopters purchased Helicopters New Zealand (later known as HNZ) Antarctic operations business, which provided helicopters and specialist crew to various Antarctic expeditions on an annual basis since 1985. The Antarctic program completed Canadian Helicopters’ operations in the Canadian Arctic since the early 1960s and provides year-round day/night arctic support service. No other operator has comparable cold-weather operating experience. Antarctic activities include: ground penetrating radar survey; LIDAR Survey; aeromagnetic survey; VIP transport; ship to shore operations; meteorite hunting; tourist ship operations; ice reconnaissance; station building including long-lining; filming and vertical photography; and camp deployments and support. Past and present clients include the following Antarctic programmes: Italian ENEA, Korean KOPRI, German GANOVEX, French IPEV, Antarctica New Zealand, Australian ANARE, Indian NCAOR, and Japanese NIPR.<sup>55</sup>

## 10. Challenges to the Antarctic Treaty System: An Increasingly “Contested Space”<sup>56</sup>

While the ATS is often cited as “one of the most successful sets of international agreements, setting an example of peaceful cooperation for the rest of the world,”<sup>57</sup> the regime also faces several stressors or challenges related to environmental governance and conservation, resources, territorial claims, geopolitical competition, and dual-use research or infrastructure. The following outlines ten challenges that Canadians should be tracking in the region:

- **International environmental governance:** “This is an area where Moscow and Beijing are already actively challenging existing norms and seeking to impose their ‘free-for- all,’ ‘first come, first served’ vision of resource prospection and exploitation in the Antarctic region,” polar expert Mathieu Boulegue summarizes. “Upholding a just balance between protecting and using Antarctica and the Southern Ocean is now the main challenge to the ATS.”<sup>58</sup>
- **Mineral Resources:** Although article 7 of the 1991 Madrid Protocol declares that there should be a permanent ban on mining in Antarctica, it does not prohibit scientific research. Russia and China conduct hydrographic and terrestrial surveys for potential minerals (notably uranium and rare earths), indicating their strong interest in extraction possibilities. Proponents of the general moratorium on Antarctic mineral resource activity warn that any erosion of the prohibition on mining would open a Pandora’s box of environmental, unresolved territorial-sovereignty issues, and economic issues. Many commentators point to 2048, when article 7 becomes subject to review, as a potential flashpoint,<sup>59</sup> while others suggest that the threat already exists.<sup>60</sup> RAND has warned that

Chinese Antarctic mining activities could open “the floodgates for similar activity ..., especially because there are no means to enforce the Madrid Protocol in real terms.”<sup>61</sup> Whatever the case, Klaus Dodds and Mark Nuttall observe that “growing awareness of the impacts of climate change and suspicions that states are interested in the resource potential of the continent mean that scientific activities and political motives for being involved in Antarctic research are increasingly coming under global scrutiny.”<sup>62</sup>

- **Oil and gas:** Evidence submitted to the evidence submitted to the U.K. House of Commons Environment Audit Committee in May 2024 indicated that Russia had “discovered” approximately 510 billion barrels of oil in the Weddell Sea, which falls within the British Antarctic Territory. Geopolitics professor Klaus Dodds warned the committee that Russia’s actions could “signal a potential threat to the permanent ban on mining” and “Russia’s activities need to be understood as a decision to undermine the norms associated with seismic survey research, and ultimately a precursor for forthcoming resource extraction.” Despite reassurances from the Foreign, Commonwealth and Development Office that “Russia has repeatedly assured the Antarctic Treaty Consultative Meeting that these activities are for scientific purposes,” the scenario heightened concerns that strategic competition was becoming more apparent in Antarctic affairs.<sup>63</sup>
- **Illegal, unreported and unregulated fishing (IUU):** CCAMLR monitors compliance with conservation measures to ensure that fishing is conducted in a sustainable manner, thus seeking to prevent, deter and eliminate IUU fishing in Antarctica and striving to maintain strong market controls to prevent trade in fish caught illegally.<sup>64</sup> Given the demand for fish protein globally, stocks in the Southern Ocean are certainly of interest to a wide range of global actors and are subjected to IUU fishing.<sup>65</sup> In January 2020, the Russian fishing vessel *Palmer* was caught illegally fishing in the Southern Ocean and then falsified its GPS data. When various ATCPs pushed to blacklist the vessel following a CCAMLR meeting, Russia dissented and threatened to veto any action at the ATCM, prompting the other ATCPs to simply drop the issue. This serves as “an important reminder that the consensus norm can be weaponised against the majority of parties and is an illustration of how Russia can make its presence felt in the ATS,” Dodds and Boulegue explained.<sup>66</sup> Russia’s refusal to adhere to catch limits for heavily-poached Patagonian Toothfish (Chilean Sea Bass, *dissostichus eleginoides*) recommended by CCAMLR<sup>67</sup> is another example of disrespect for management controls. CCAMLR has become a platform for various parties to articulate competing positions with respect to fishery conservation that cannot be extricated from broader polar geopolitics. For their parts, China and Russia are interested in increasing their krill fishery in the Southern Ocean (even though recent scientific studies suggest that current krill biomass cannot support both an expanding krill fishery and the recovery of whale populations to pre-whaling sizes<sup>68</sup>) and have worked together at annual CCAMLR meetings to block the designation of three new Marine Protected Areas.
- **Disagreement over Marine Protected Areas (MPAs) and the Need for Marine Spatial Planning (MSP):** Since 2016, Russia and the PRC have voiced ongoing opposition to MPA proposals, which seek to manage fish stocks and marine biodiversity, in parts of the Southern Ocean. “Out of self-interest, Moscow wants to ensure fishing activities are strictly regulated to avoid a ‘free for all’ as well as to avoid MPAs from being used as a springboard for territorial claims over the continent,” Dodds and Boulegue note. “There is intense suspicion on the part of Russia that historic claimant states such as Australia, New Zealand and the UK promote MPAs as a proxy for advancing their territorial and resource interests.”<sup>69</sup> Although marine spatial planning (MSP – an approach seeking to balance social,

economic, and political objectives while ensuring a healthy ocean) has gained global momentum, the Antarctic and Southern Ocean remains the only sea basin worldwide where MSP is not being developed.<sup>70</sup> Although CCAMLR has adopted spatial management tools directly applicable to fisheries regulation, it has proven less successful in delivering on its broader conservation goals (including MPAs).<sup>71</sup>

- **Dual-use research:** Under the ATS, Antarctica is a demilitarized continent where military activity is limited to “peaceful purposes.” This is undefined and open to interpretation. While various countries’ armed forces provide logistics support to scientific expeditions and support the construction and resupply of stations which fall within the “peaceful” category, various analysts suggest that Russia and China are conducting military intelligence operations and other activities under the guise of ground-based space research or “ocean science” that cannot be considered “peaceful.”<sup>72</sup> Aerial drones, remotely controlled underwater vehicles, military equipment, and remote sensing technologies can all be considered dual (civilian and military) use.<sup>73</sup> Boulegue notes that the main concerns about Russia’s potential military activity relate to State Corporation for Space Activities Roscosmos’s deployment of remote-sensing capabilities, satellite relays, and ground-based Global Navigation Satellite System (GLONASS) installations at the country’s Antarctic stations. “As GLONASS is a dual-use system,” he explains, “there are suspicions that Russia is using it for military and intelligence purposes – mostly to track missiles and to increase command and control (C2) capabilities.”<sup>74</sup> When the PRC announced plans in 2023 to construct new satellite ground stations around its Zongshan Antarctic research facility, ostensibly to support remote sensing and data collection capabilities around the pole, analysts with the Washington-based Center for Strategic & International Studies (CSIS) noted that “the stations add to a growing network of Chinese space research bases now stretching from Antarctica up through South America—stations which could quickly be turned to a variety of military applications.” They highlighted that this “demonstrates Antarctica’s rising potential to become a theater for great power competition”<sup>75</sup> which would undermine the peaceful ethos of the ATS.
- **Inspections and Enforcement:** “Antarctica is a nonconventionally administered area, and its governing instruments are remarkably slender in their provisions,” RAND analysts noted in a 2023 report. “This lean approach to Antarctic governance was once a strength, but the growth in the number of bases and countries with bases creates significant and ongoing challenges in knowing what activities are occurring and whether they are legitimate.” The absence of an enforceable mechanism to counter illegitimate activities renders the ATS inspection regime inadequate, requiring closer attention to potential nefarious behaviour through either “surreptitious monitoring (e.g. submarines, satellites) or through ATS inspections.”<sup>76</sup>
- **Is China Positioning for a Territorial Claim?** Anne-Marie Brady, a specialist in Chinese and polar politics, argues that securing “access to all the opportunities available in the Arctic and Antarctic are essential for China to achieve its goal of restoring its international status and becoming a ‘rich country with a strong army’ (*fu guo qiang bing*).”<sup>77</sup> The US Congressional Research Service (CRS) highlights how China built its most recent Antarctic research base on Antarctica without completing a required environmental impact assessment and has proposed establishing a “Chinese management district” of approximately 20,000 km<sup>2</sup> wherein it would restrict foreign access (a proposal rejected by other ATCPs). The CRS report raised the question of “whether this reported progression of actions could be aimed at supporting Chinese territorial claims in Antarctica”?<sup>78</sup>

- **A BRICS+ Coalition?** BRICS+ (Brazil, Russia, India, China, and South Africa, plus five new members as of 2024) is an informal grouping of emerging economies established in 2009 to challenge the Western powers' dominance of international institutions by coordinating its members' economic and diplomatic policies. While this partnership should not be misconstrued as an alliance, it does seek to establish a united front and push for reform of multilateral institutions.<sup>79</sup> "For many polar parties, including the US and UK, a potential BRICS+ coalition in the Antarctic is an unsettling prospect," Mathieu Boulegue and Klaus Dodds suggest. "BRICS+ countries could potentially shift the consensus-based decision-making process towards a more transactional, opportunistic, and case-by-case model. For instance, a BRICS+ coalition might very well start introducing bargains and trade-offs concerning the creation of future Marine Protected Areas (MPAs) or wildlife protection measures in exchange for concessions in Antarctic resource governance or elsewhere. Such a situation would essentially take good regional governance hostage and dim the spirit of consensus."<sup>80</sup>
- **The Antarctic Ice Sheet and Global Sea Level Rise:** Disconcerting projections of future ice-sheet melting in Antarctica beyond 2100—including the potential for irreversible ice loss—bring tremendous uncertainty with global implications. Accordingly, there is a danger of allowing geopolitical discussion to distract from what could be construed as an existential threat to humanity posed by environmental change in the polar regions. As the US Congressional Research Service explains:

Measuring and projecting the contribution to global sea-level rise from regions such as Antarctica is key to understanding how sea-level rise may affect coastal societies and raise national security concerns. Sea-level rise causes increased flooding (i.e., overall and due to storm events), coastal erosion for erodible coastlines, and increased salinity of groundwater resources in low-lying coastal areas. Approximately 600 million people live in coastal areas that are less than 10 meters above sea level, leading some scientists to claim that any level of sea-level rise could displace millions of people. Some policymakers assert that these effects could displace communities, alter infrastructure (e.g., ports), and be costly. ... Some experts contend the effects of sea-level rise are diverse and could range from altering the territorial integrity of nations to the exacerbating the effects of disasters for economies, cultures, and societies. Further, reports state that critical infrastructure, major military installations, and hurricane evacuation routes are increasingly vulnerable to impacts, such as higher sea levels, storm surges, and flooding exacerbated by climate change.<sup>81</sup>

Given Canada's commitment to promoting and upholding a rules-based international system in which it can advance its interests, it is important for Canadians to monitor not only what is happening in the Circumpolar North but also developments in the Circumpolar South. Concerns about climate change and polar environments, as well as science as an area to promote international collaboration and assert "soft power," makes Canada's application for Antarctic Treaty Consultative Party status both logical and relevant.

## Canada and the Quest for Consultative Status in the Antarctic Treaty

On 22 October 2021, Canada submitted its application for Consultative Party status pursuant to the "Guidelines on the procedure to be followed with respect to Consultative Party status" adopted in 2017, requesting that it be considered at the May 2023 ATCM. "We are committed to the key principles of the Antarctic Treaty, in particular maintaining peace and



cooperation, the freedom of scientific investigation, and the protection of the continent’s fragile environment,” its notification of intent emphasized alongside the idea that “it is time for Canada to join our international partners and take a more active role as a steward of the Antarctic.”<sup>82</sup>

The final decision on Canada’s application was postponed to the May 2023 ATCM after Russia and China raised technical and substantive issues about it. It is noteworthy that all of the other Consultative Parties agreed that Canada had met the necessary requirements. British experts Kevin Hughes, Andrew Gray, and Beverley Ager summarize that:

China and the Russian Federation raised concerns regarding Canada’s request, stating ‘*procedural as well as substantive*’ grounds, and the consideration of the request was postponed to the following meeting. It has been suggested that this was an attempt to synchronise the requests by Belarus and Canada in 2023, therefore, ‘tying’ the fates of these two consultative status bids together. Canada did resubmit its bid in 2023, but when the bid of Belarus failed and it understood that there had not been any change beyond the positions expressed in 2022, Canada postponed its bid until ATCM 46 in 2024. At ATCM 46, Canada was again unsuccessful in attaining consultative status. While most Parties supported Canada’s bid, China and the Russian Federation did not consider that it had met the requirement to have conducted substantial scientific research activity in Antarctica, with few scientific and national operational activities provided in the Electronic Information Exchange System or detailed in Information Papers presented to the ATCM. As is the case for Belarus, the bid by Canada will be reconsidered at ATCM 47.<sup>83</sup>

It is highly unlikely that this came as a surprise to Canada, given our fractious relationships with these two countries.

In a January 2025 article, Huw Paige offered a simple reason why Canada and Belarus have not become Consultative Parties: Russia’s war in Ukraine. “Canada’s lack of direct involvement in Antarctica, and the quality of the science Belarus has produced” are excuses. Ukraine and 17 other parties blocked Belarus’ application at the 2024 Antarctic Treaty Consultative Meeting because that country “continues to support Russia’s military aggression against Ukraine<sup>84</sup> and cooperates with scientific institutions of the occupied Crimea, in particular on Antarctic research.” For its part, Paige suggests that “Canada knows this, and hence was reluctant to even submit a request for consultative party status in 2023 knowing that Russia (and China) would likely reject it in retaliation for the decision on Belarus.”<sup>85</sup> Indeed, Canada requested that the ATCM postpone considering its candidacy until the 2024 meeting when Belarus’ application was rejected and its own would not receive consensus support.

When Canada resubmitted its application for consideration at the May 2024 ATCM in Kochi, India, failed to secure the requisite consensus. Paige notes that both Canada’s and Belarus’ “applications are now seemingly inextricably linked, with neither side” – China and Russia on the one hand, and those aligned with Ukraine – “willing to budge.”<sup>86</sup> In Canada’s case, it again enjoyed the support of all CPs except China and Russia, including the meeting chair India. Accordingly, this scenario cannot be misconstrued as a divide between the BRICS countries and the other CPs. Given that Canada’s and Belarus’ applications were not rejected outright, reports suggest that both will reappear on the agenda at the 2025 ATCM in Italy. Canada’s strong criticisms of Belarus’s Lukashenka regime,<sup>87</sup> including what Canada and several key allies have referred to as “Belarus’ sham presidential elections” in January 2025,<sup>88</sup> make it unrealistic for these two applicants to coordinate their campaigns for CP status.

Although the support for Canada’s application for ATCM status by everyone except Russia and China shows the scientific merits of Canada’s case, there are indications that Canada intends to increase the profile of its Antarctic research agenda

within a broader comparative polar framework. In a 2021 transition binder, Polar Knowledge Canada (POLAR) noted that it “has prepared an awareness campaign to use social media to promote Canadian Antarctic research” as part of its efforts to secure full membership status in the ATCM. POLAR is mandated to promote the development and dissemination of knowledge of circumpolar regions including the Antarctic, as established in the *Canadian High Arctic Research Station Act*,<sup>89</sup> and thus manages Canada’s scientific contributions and commitments to the Antarctic Treaty. POLAR also conceded that it is “not currently resourced to fund and manage a National Antarctic Research Program.”<sup>90</sup> Since announced its intention to apply for CP status at the 2021 ATCM, however, Canada became a full member of the COMNAP and has launched new knowledge mobilization and youth engagement opportunities,<sup>91</sup> planned new Antarctic research activities led by Canadian researchers, and identified potential international partners.<sup>92</sup> The latter offers fresh possibilities for Canada to enhance its overall leadership in polar science and stewardship, particularly when it can leverage its Arctic expertise through new collaborative partnerships with Antarctic stakeholders who bring complementary expertise.

## Final Reflections

In its 2023 update on Canada’s engagement in the Antarctic, the Government of Canada noted that:

Canada recognizes the need to increase scientific collaboration to address shared challenges in the Antarctic and will continue to increase its engagement with international partners and stakeholders.

With the strong linkage between North and South Polar regions, Canadian researchers have the necessary knowledge and tools to continue to make substantial contributions to polar science in both the Arctic and Antarctic. Canada will share the Canadian High Arctic Research Station with partners in its continued development of Antarctic partnerships and collaborations. Indigenous rights, values, and knowledge of cold-climate environments, Antarctic gateway nations, and Arctic-Antarctic exchanges are other elements that will be considered throughout Canada’s engagement in the Antarctic.

Building on its strength as an Arctic nation, the advancement of the Canadian Antarctic Research Program will provide strategic direction and new funding for collaborative research activities of Canadian university researchers with international partners and complement the Antarctic research activities and technological developments of the Government of Canada.<sup>93</sup>

While some of these points resonate with established Antarctic stakeholders, others may prove a more difficult sell. It is hard to envisage how countries such as China and Russia will respond to Canada’s desire to articulate Indigenous rights and values in a South Polar region context, given that there are no human populations indigenous to the southern continent. What Swedish professor Carina Keskitalo observed as Canada’s success in imprinting its vision of the Arctic on the entire Circumpolar North<sup>94</sup> will not be replicated in the Circumpolar South. Furthermore, Canadians see themselves as an Arctic nation, but efforts to raise awareness about the importance of Antarctic research with the federal government, parliamentarians, and the Canadian public at large have proven largely unsuccessful to date. With urgency around “Arctic sovereignty” dominating Canada’s April 2024 defence policy update,<sup>95</sup> as well as forming the first pillar of its December 2024 Arctic Foreign Policy,<sup>96</sup> it is unlikely that Canada’s polar vision will extend far beyond the Canadian or North American Arctic. In this light, we can expect proponents of increased Canadian engagement in Antarctica to continue to emphasize “activities and events that promote greater awareness of, and opportunities for knowledge sharing on polar regions.”<sup>97</sup> Even if the community of interested Canadian experts in Antarctic remains small, “Canadian experience, information, and

technologies, including data and derived data products, [can help] to advance research, operational programs, environmental monitoring and intelligence, critical services and emergency response serving both polar regions.”<sup>98</sup>

## Appendix: Canadian Departmental Responsibilities

From *Canada’s Support for Polar Science and Research (2024)*<sup>99</sup>

On the federal side, the Canadian scientific research environment spans several departments and agencies. Here, scientific research is undertaken and/or supported to address government of Canada priorities, including in the polar regions.

**Environment and Climate Change Canada (ECCC)** carries out significant southern polar climate modelling research. This research includes modelling and analysis of Southern Ocean through a Scientific Committee on Antarctic Research (SCAR) initiative on the response of the Southern Ocean to freshwater input; simulation and analysis of changes in Antarctic ozone, which support regular World Meteorological Organization assessments; seasonal predictions of Antarctic sea ice; and, simulations of global climate change, including Southern Ocean and Antarctica, to the World Climate Research Programme Coupled Model Intercomparison Project.

**Department of Fisheries and Oceans (DFO)** conducts Arctic scientific research and monitoring, including projects related to Arctic marine species and ecosystem and geared towards understanding the impacts of a changing climate. DFO cooperates with international partners on science projects focused on sea ice and sea ice interactions with the ocean and atmosphere. Knowledge and best practices garnered from work on polar matters in an Arctic marine context stand to be dually of value in an Antarctic context to support marine conservation measures at Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

**Transport Canada (TC)** provides funding to support the World Maritime University Canadian chair in marine environmental protection. The Canadian chair works in several subject areas, including International Maritime Organization (IMO) treaty instruments, marine resource management, sustainability, and economics, and safety and security aspects of marine environmental protection. The Polar Code implementation is a priority for Canada and, through an agreement between Canada and the IMO in November 2017, TC provided funding to support the Integrated Technical Cooperation Programme to deliver training programmes for seafarers operating in polar waters.

**Natural Resources Canada (NRCan)** carries out research in global sea-level change, including from Antarctica. Further, NRCan is responsible for the Polar Continental Shelf Program (PCSP), which is mandated to provide logistics and related support for the purposes of advancing scientific knowledge of the Arctic region and contributing to the exercise of Canada’s sovereignty in that region and its adjacent waters. The PCSP includes the Canadian Arctic-Antarctic Exchange Program, which was established to foster international collaboration among Canadian researchers working in the Arctic and international researchers working primarily in the Antarctic. For approved projects, the international researchers are eligible for the same type of logistics support that Canadian scientists receive in the Canadian Arctic. In return, logistics support is provided for the Canadian partners when they undertake Antarctic field work.

**POLAR** operates and manages the Canadian High Arctic Research Station, in Cambridge Bay Nunavut, facilitating north-south polar research connections and exchanges with international partners. As such, POLAR staff undertake research

that investigates Antarctic ecosystems with international partners like New Zealand and the USA. As Canada's adhering body to SCAR and the Council of Managers of National Antarctic Programs (COMNAP), POLAR supports the participation of Canadian delegates to annual meetings organized by these forums.

Concerning Antarctica, POLAR convenes a senior-level interdepartmental committee whose objectives are to advance Canada's scientific interests and build Canada's national Antarctic program.

**The Canadian Space Agency (CSA)** designs, builds, and operates satellites and space-borne instruments for remote sensing and atmospheric monitoring of polar regions, including Antarctica. Canadian satellites, such as the Radarsat Constellation Mission and SCISAT, have provided the international scientific community with a rich source of atmospheric and glaciological expertise and knowledge that has documented environmental changes, enabled space science, and advanced the understanding of Antarctica.

**Global Affairs Canada (GAC)** supports polar research through its commitment to strengthening the rules-based international order in the circumpolar Arctic and Antarctic, and the enduring value of circumpolar cooperation to advance common social, environmental, and economic priorities with the shared leadership of Arctic, Northern, and Indigenous peoples. As such, the Global Arctic Leadership Initiative (GALI) supports Northern and Arctic Canadians in enhancing their engagement globally, which may include issues of relevance to Antarctica. GAC will advance and coordinate longer-term Antarctic foreign policy objectives for Canada.

## Appendix: Antarctic-Related Resources for Canadian Researchers

From the Polar Knowledge Canada website (2025)<sup>100</sup>

<a href="#">The Antarctic Treaty</a>	Establishes Antarctica as a place for peaceful and scientific purposes.
<a href="#">The Protocol on Environmental Protection to the Antarctic Treaty</a>	Designates Antarctica as a natural reserve, devoted to peace and science.
<a href="#">Antarctic Environmental Protection Act</a>	Canada's Act to protect the Antarctic environment, which serves as the legislative basis the Canada requires to oversee Canadian activities in the Antarctic and fulfill the obligations of the Protocol on Environmental Protection to the Antarctic Treaty.
<a href="#">Antarctic Environmental Protection Act Permits</a>	Provides information on how to apply for a permit from Environment and Climate Change Canada to undertake activities in the Antarctic.
<a href="#">Council of Managers of National Antarctic Programs (COMNAP)</a>	The international association that brings together national Antarctic programs to develop and promote best practices in managing the support of scientific research in Antarctica.

<a href="#">The Scientific Committee on Antarctic Research (SCAR)</a>	Initiates, promotes and coordinates scientific research in Antarctica and the Southern Ocean and provides international, independent scientific advice to the Antarctic Treaty system and other bodies
<a href="#">Antarctic Environments Portal</a>	Makes science-based information available to the Antarctic Treaty System and all Antarctic Treaty nations.
<a href="#">Quantarctica</a>	A free geographic information system package for Antarctica.
<a href="#">Southern Ocean Observing System (SOOS)</a>	An international initiative that aims to facilitate the collection and delivery of essential observations on dynamics and change of Southern Ocean systems to all international stakeholders through design, advocacy and implementation of cost-effective observing and data delivery systems.
<a href="#">Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)</a>	Established by international convention with the objective of conserving Antarctic marine life.
<a href="#">International Association of Antarctica Tour Operators (IAATO)</a>	Advocates and promotes the practice of safe and environmentally responsible private-sector travel to the Antarctic
<a href="#">Association of Polar Early Career Scientists (APECS)</a>	Creates opportunities for the development of innovative, international, and interdisciplinary collaborations among current early career polar researchers.
<a href="#">Polar Data Catalogue (PDC)</a>	A database of metadata and data that describes, indexes, and provides access to diverse data sets generated by Arctic and Antarctic researchers.

## References

<sup>1</sup> Minister of Foreign Affairs - Briefing book, 2021-10, [https://www.international.gc.ca/transparency-transparence/briefing-documents-information/briefing-books-cahiers-breffage/2021-10-fa-ae.aspx?lang=eng#a5\\_21](https://www.international.gc.ca/transparency-transparence/briefing-documents-information/briefing-books-cahiers-breffage/2021-10-fa-ae.aspx?lang=eng#a5_21).

<sup>2</sup> Royal Canadian Navy (RCN), "HMCS *Margaret Brooke* departs for Op PROJECTION," 14 January 2025, <https://www.canada.ca/en/department-national-defence/maple-leaf/rcn/2025/01/hmcs-margaret-brooke-departs-for-op-projection.html> and Department of National Defence (DND), "HMCS *Margaret Brooke* departs for Operation PROJECTION 2025," 10 January 2025, <https://www.canada.ca/en/department-national-defence/news/2025/01/hmcs-margaret-brooke-departs-for-operation-projection-2025.html>.

<sup>3</sup> "Canada Makes First Naval Deployment to Antarctica," *The Maritime Executive*, 12 January 2025, <https://maritime-executive.com/article/canada-makes-first-naval-deployment-to-antarctica>. Canada's 2024-25 report to the Secretariat of the Antarctic Treaty notes that "The Science Plan has two main components: an 'at sea' component focused on oceanography and contaminants, and a coastal component focused on 3 major embayments of the South Shetlands Islands – Admiralty Bay and

Maxwell Bay (King George Island) and Espanola Cove and surrounding waters (Livingston Island) where marine and terrestrial geology, coastal oceanography, and contaminants work is planned.”

<https://eies.ats.aq/Report/GenRpt?idParty=7&period=1&idYear=2024&lang=e>.

<sup>4</sup> UN Environmental Program, “CAMLR Convention,” <https://www.unep.org/camlr-convention>.

<sup>5</sup> British Antarctic Survey (BAS), “Why Antarctica matters,” <https://www.bas.ac.uk/about/antarctica/why-antarctica-matters/>.

<sup>6</sup> *Opening address by the representative of Canada*, ATCM XXI Christchurch (1997), [https://documents.ats.aq/ATCM21/ip/ATCM21\\_ip030\\_e.pdf](https://documents.ats.aq/ATCM21/ip/ATCM21_ip030_e.pdf).

<sup>7</sup> *Canada’s Support for Polar Science and Research*, ATCM 46 - CEP 26 Kochi (2024), [https://documents.ats.aq/ATCM46/ip/ATCM46\\_ip007\\_e.docx](https://documents.ats.aq/ATCM46/ip/ATCM46_ip007_e.docx)

<sup>8</sup> *Notification of the Intention of Canada to request recognition of Consultative Party status*, ATCM XLIII - CEP XXIII Paris (2021), [https://documents.ats.aq/ATCM43/ip/ATCM43\\_ip105\\_e.docx](https://documents.ats.aq/ATCM43/ip/ATCM43_ip105_e.docx)

<sup>9</sup> ASOC, “Protecting Antarctica,” <https://www.asoc.org/>.

<sup>10</sup> Michon Scott and Rebecca Lindsey, “Polar Opposites: the Arctic and Antarctic,” NOAA, 10 July 2011, <https://www.climate.gov/news-features/understanding-climate/polar-opposites-arctic-and-antarctic>.

<sup>11</sup> Arctic Council, “Arctic Peoples,” <https://arctic-council.org/explore/topics/arctic-peoples/>.

<sup>12</sup> See, for example, Ellen Tenenbaum, “A world park in Antarctica: the common heritage of mankind,” *Virginia Environmental Law Journal* 10 (1990), <http://www.velj.org/a-world-park-in-antarctica.html>; Bernard Herber, “The common heritage principle: Antarctica and the developing nations,” *American Journal of Economics and Sociology* 50, no. 4 (1991): 391-406; Zou Keyuan, “The common heritage of mankind and the Antarctic Treaty System,” *Netherlands International Law Review* 38, no. 2 (1991): 173-198; Jennifer Frakes, “The common heritage of mankind principle and deep seabed, outer space, and Antarctica: Will developed and developing nations reach a compromise,” *Wisconsin International Law Journal* 21 (2003): 409-434; Oleksandr Cherniaev and Oleksandr Kovtun, “Antarctic as Object of the General Heritage of Humanity and Territorial Claims on it,” *Східноєвропейський історичний вісник* 13 (2020): 192–199; and Jinfang Pu and Jinming Yan, “Economic Valuation of Nature’s Contributions in the Antarctic: Extension of the Nature’s Contributions to People Conceptual Framework,” *Land* 13, no. 9 (2024): 1367, <https://doi.org/10.3390/>.

<sup>13</sup> *Antarctic Environmental Protection Act* (S.C. 2003, c. 20), <https://laws-lois.justice.gc.ca/eng/acts/A-11.44/page-1.html>.

<sup>14</sup> Marcus Haward and Andrew Jackson, “Antarctica: geopolitical challenges and institutional resilience,” *Polar Journal* 13, no.1 (2023): 31–48.

<sup>15</sup> BAS, “The Antarctic Treaty,” <https://www.bas.ac.uk/about/antarctica/the-antarctic-treaty/>.

<sup>16</sup> BAS, “The Antarctic Treaty Explained,” <https://www.bas.ac.uk/about/antarctica/the-antarctic-treaty/the-antarctic-treaty-explained/>.

<sup>17</sup> *Guidelines on the procedure to be followed with respect to Consultative Party Status*, adopted 1 June 2017, Decision 2 (2017) - ATCM XL - CEP XX, Beijing, a <https://www.ats.aq/devAS/Meetings/Measure/653>.

<sup>18</sup> Erik Molenaar, “Participation in the Antarctic Treaty,” *Polar Journal*, 11, no.2 (2021): 360–380.

<sup>19</sup> Minister of Foreign Affairs - Briefing book, 2021-10, [https://www.international.gc.ca/transparency-transparence/briefing-documents-information/briefing-books-cahiers-breffage/2021-10-fa-ae.aspx?lang=eng#a5\\_21](https://www.international.gc.ca/transparency-transparence/briefing-documents-information/briefing-books-cahiers-breffage/2021-10-fa-ae.aspx?lang=eng#a5_21) and Polar Knowledge Canada (POLAR), President’s transition binder (December 2020), <https://www.canada.ca/en/polar-knowledge/presidents-transition-binder.html>.

<sup>20</sup> BAS, “The Antarctic Treaty Explained,” <https://www.bas.ac.uk/about/antarctica/the-antarctic-treaty/the-antarctic-treaty-explained/>.

<sup>21</sup> *Update on Canada’s Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx).

- <sup>22</sup> International Association of Antarctic Tour Operators (IAATO), “Our Mission,” <https://iaato.org/about-iaato/our-mission/>.
- <sup>23</sup> *Notification of the Intention of Canada to request recognition of Consultative Party status*, ATCM XLIII - CEP XXIII Paris (2021), [https://documents.ats.aq/ATCM43/ip/ATCM43\\_ip105\\_e.docx](https://documents.ats.aq/ATCM43/ip/ATCM43_ip105_e.docx).
- <sup>24</sup> *Special WG on Competent Authorities Issues - Recent Canadian Permitting Issues*, ATCM XXXVIII - CEP XVIII Sofia (2015), [https://documents.ats.aq/ATCM38/ip/ATCM38\\_ip107\\_e.doc](https://documents.ats.aq/ATCM38/ip/ATCM38_ip107_e.doc); *Special WG on Competent Authorities Issues - Summary of Canada’s Antarctic Permitting System*, ATCM XXXVIII - CEP XVIII Sofia (2015), [https://documents.ats.aq/ATCM38/ip/ATCM38\\_ip108\\_e.doc](https://documents.ats.aq/ATCM38/ip/ATCM38_ip108_e.doc).
- <sup>25</sup> Environment and Climate Change Canada, “Forward Regulatory Plan 2021 to 2023, Environment and Climate Change Canada, chapter 5,” 26 April 2022, <https://www.canada.ca/en/environment-climate-change/corporate/archive/forward-regulatory-plans/2021-2023/others.html>.
- <sup>26</sup> *Antarctic Environmental Protection Act* (S.C. 2003, c. 20), <https://laws-lois.justice.gc.ca/eng/acts/A-11.44/page-1.html>.
- <sup>27</sup> *Opening Statement by the Representative of Canada*, ATCM XXIII - CEP II Lima (1999), [https://documents.ats.aq/ATCM23/ip/ATCM23\\_ip054\\_e.pdf](https://documents.ats.aq/ATCM23/ip/ATCM23_ip054_e.pdf).
- <sup>28</sup> *Preliminary overview of Canadian Antarctic research contributions (1997 – 2016)*, ATCM XL - CEP XX Beijing (2017), [https://documents.ats.aq/ATCM40/ip/ATCM40\\_ip029\\_e.doc](https://documents.ats.aq/ATCM40/ip/ATCM40_ip029_e.doc).
- <sup>29</sup> Dean Beeby, *In a Crystal Land: Canadian Explorers in Antarctica* (Toronto: University of Toronto Press, 1994).
- <sup>30</sup> Andrew Taylor, *Two Years Below the Horn: Operation Tabarin, Field Science, and Antarctic Sovereignty, 1944–1946*, edited by Daniel Heidt and P. Whitney Lackenbauer (Winnipeg: University of Manitoba Press, 2017).
- <sup>31</sup> BAS, “Operation Tabarin,” <https://www.bas.ac.uk/about/about-bas/history/operation-tabarin/>.
- <sup>32</sup> Beeby, *In a Crystal Land*; Peter J. Beck, “Through Arctic Eyes: Canada and Antarctica, 1945–62,” *Arctic* (1995): 136–146.
- <sup>33</sup> *Opening Statement by the Representative of Canada*, ATCM XXIII - CEP II Lima (1999), [https://documents.ats.aq/ATCM23/ip/ATCM23\\_ip054\\_e.pdf](https://documents.ats.aq/ATCM23/ip/ATCM23_ip054_e.pdf).
- <sup>34</sup> *Update on the Canadian Polar Commission and Canadian High Arctic Research Station (CHARS) Project*, ATCM XXXVIII - CEP XVIII Sofia (2015), [https://documents.ats.aq/ATCM38/ip/ATCM38\\_ip134\\_e.doc](https://documents.ats.aq/ATCM38/ip/ATCM38_ip134_e.doc).
- <sup>35</sup> For a more detailed overview, see *Preliminary overview of Canadian Antarctic research contributions (1997 – 2016)*, ATCM XL - CEP XX Beijing (2017), [https://documents.ats.aq/ATCM40/ip/ATCM40\\_ip029\\_e.doc](https://documents.ats.aq/ATCM40/ip/ATCM40_ip029_e.doc).
- <sup>36</sup> *Update on Canada’s Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx).
- <sup>37</sup> *Notification of the Intention of Canada to request recognition of Consultative Party status*, ATCM XLIII - CEP XXIII Paris (2021), [https://documents.ats.aq/ATCM43/ip/ATCM43\\_ip105\\_e.docx](https://documents.ats.aq/ATCM43/ip/ATCM43_ip105_e.docx).
- <sup>38</sup> *Advancing Antarctic Research with Canadian Space Science and Technology*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip112\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip112_e.docx).
- <sup>39</sup> *Notification of the Intention of Canada to request recognition of Consultative Party status*, ATCM XLIII - CEP XXIII Paris (2021), [https://documents.ats.aq/ATCM43/ip/ATCM43\\_ip105\\_e.docx](https://documents.ats.aq/ATCM43/ip/ATCM43_ip105_e.docx).
- <sup>40</sup> *Update on Canada’s Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx).
- <sup>41</sup> Ocean Networks Canada (ONC), “Canada and Spain scientists establish new Antarctic Ocean observatory,” 16 January 2024, <https://www.oceannetworks.ca/news-and-stories/stories/canada-and-spain-scientists-establish-new-antarctic-ocean-observatory/>. ONC is an ocean observing facility hosted and owned by the University of Victoria, and managed and operated by the ONC Society, a not-for-profit established in 2007 that delivers ocean data from its cabled, mobile, and community-based observing networks and operates with funding provided by the Canadian Foundation for Innovation (CFI), Fisheries and Oceans Canada (DFO), and other

Canadian funding sources. *Canada's Support for Polar Science and Research*, ATCM 46 - CEP 26 Kochi (2024), [https://documents.ats.aq/ATCM46/ip/ATCM46\\_ip007\\_e.docx](https://documents.ats.aq/ATCM46/ip/ATCM46_ip007_e.docx).

<sup>42</sup> *Update on Canada's Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx).

<sup>43</sup> Andrew Gray and Kevin Hughes, "Demonstration of 'substantial research activity' to acquire consultative status under the Antarctic Treaty," *Polar Research* 35, no. 1 (2016): 1-12.

<sup>44</sup> *Preliminary overview of Canadian Antarctic research contributions (1997 – 2016)*, ATCM XL - CEP XX Beijing (2017), [https://documents.ats.aq/ATCM40/ip/ATCM40\\_ip029\\_e.doc](https://documents.ats.aq/ATCM40/ip/ATCM40_ip029_e.doc).

<sup>45</sup> *Update on Canada's Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx).

<sup>46</sup> *Advancing Antarctic Research with Canadian Space Science and Technology*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip112\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip112_e.docx).

<sup>47</sup> Kenneth White, "Tourism and the Antarctic economy," *Annals of Tourism Research* 21, no. 2 (1994): 261. White notes that the initial positioning voyage to South America was a near-disaster, with storms and delays forcing it to arrive late for eight Antarctic voyages. Famous Canadians who guest lectured during the initial season included popular historian Pierre Berton, scientist David Suzuki, and former Prime Minister Pierre Trudeau.

<sup>48</sup> Government of Canada source.

<sup>49</sup> IAATO, "History of IAATO," <https://iaato.org/about-iaato/our-mission/history-of-iaato/>.

<sup>50</sup> Antarctica Cruises, "Antarctica Tourism, The Role Of IAATO & Responsible Travel," 23 August 2024, <https://www.antarcticacruises.com/guide/antarctica-tourism-iaato-and-responsible-travel>.

<sup>51</sup> *Notification of the Intention of Canada to request recognition of Consultative Party status*, ATCM XLIII - CEP XXIII Paris (2021), [https://documents.ats.aq/ATCM43/ip/ATCM43\\_ip105\\_e.docx](https://documents.ats.aq/ATCM43/ip/ATCM43_ip105_e.docx).

<sup>52</sup> *Notification of the Intention of Canada to request recognition of Consultative Party status*, ATCM XLIII - CEP XXIII Paris (2021), [https://documents.ats.aq/ATCM43/ip/ATCM43\\_ip105\\_e.docx](https://documents.ats.aq/ATCM43/ip/ATCM43_ip105_e.docx).

<sup>53</sup> Ken Borek Air, "Remote Services," <https://borekair.com/services/flight-operations/remote-services/>.

<sup>54</sup> David Bell, "A mighty bit of flying': Kenn Borek air crews who pulled off daring Antarctic rescue honoured by Smithsonian," CBC News, 29 March 2017, <https://www.cbc.ca/news/canada/calgary/kenn-borek-smithsonian-award-1.4046501>.

<sup>55</sup> Canadian Helicopters, "Antarctic Operations," <https://www.canadianhelicopters.com/helicopter-operations/antarctic-operations/>.

<sup>56</sup> Mathieu Boulègue, "Five Eyes strategic interests in Antarctica: implications of contemporary Russian and Chinese strategy," *Polar Journal* 13, no. 1 (2023): 71–85.

<sup>57</sup> BAS, "The Antarctic Treaty Explained," <https://www.bas.ac.uk/about/antarctica/the-antarctic-treaty/the-antarctic-treaty-explained/>.

<sup>58</sup> Mathieu Boulègue, "While Russia Spoils, China Contests: Fragmented Antarctic Geopolitics and the Future of the Antarctic Treaty System," Jordan Center for the Advanced Study of Russia, 9 October 2024, <https://jordanrussiacycenter.org/blog/while-russia-spoils-china-contests-fragmented-antarctic-geopolitics-and-the-future-of-the-antarctic-treaty-system>.

<sup>59</sup> Article 25 provides an opportunity for parties to review the Madrid Protocol 50 years from the date of its entry into force. According to the PRC, as an ATCP, is entitled to raise a review conference that could end the mining ban in 2048 if supported by more than three-fourths of all ATCPs. Nengye Liu, "What Are China's Intentions in Antarctica?," *The Diplomat*, 14 June 2019, <https://thediplomat.com/2019/06/what-are-chinas-intentions-in-antarctica/>.

<sup>60</sup> See, for example, Anne Marie Brady, *China as a Polar Great Power* (Cambridge: Cambridge University Press, 2017).



- <sup>61</sup> Marigold Black, Peter Dortmans, Jade Yeung, Scott Savitz, Abbie Tingstad, Stéphanie Pezard, Nicolas Jouan, and James Black, *Antarctica at Risk: Geostrategic Manoeuvring and the Future of the Antarctic Treaty System* (Santa Monica: RAND, 2023), [https://www.rand.org/content/dam/rand/pubs/research\\_reports/RRA2400/RRA2465-1/RAND\\_RRA2465-1.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RRA2400/RRA2465-1/RAND_RRA2465-1.pdf).
- <sup>62</sup> Klaus Dodds and Mark Nuttall, *The Scramble for the Poles: Geopolitics of the Arctic and Antarctica* (Malden: Polity Publishers, 2016).
- <sup>63</sup> Martha McHardy, "Russia Just Found Huge Oil Reserves in Antarctica," *Newsweek*, 14 May 2024, <https://www.newsweek.com/russia-ukraine-oil-antarctica-putin-1900233>. See also <https://www.dailymaverick.co.za/article/2024-02-28-us-sanctions-target-russian-ship-surveying-for-antarctic-oil-and-gas-via-cape-town/>.
- <sup>64</sup> UN Environmental Program, "CAMLR Convention," <https://www.unep.org/camlr-convention>.
- <sup>65</sup> Andrew Costable, "Conserving Southern Ocean ecosystems: chequered past, difficult future," *Australian Antarctic Magazine* 4 (2022), <https://www.antarctica.gov.au/magazine/issue-4-spring-2002/feature2/conserving-southern-ocean-ecosystems-chequered-past-difficult-future/>.
- <sup>66</sup> Klaus Dodds and Mathieu Boulegue, "Ukraine: The impact on international collaboration in the Antarctic," *Britain's World*, 6 July 2022, <https://www.geostrategy.org.uk/britains-world/ukraine-the-impact-on-russias-posture-and-international-collaboration-in-the-antarctic/>.
- <sup>67</sup> "How Russia has sparked row between UK and US over fish," *Sky News*, 22 June 2022, <https://news.sky.com/story/how-russia-has-sparked-row-between-uk-and-us-over-fish-12638661>.
- <sup>68</sup> Matthew Savoca, Mehr Kumar, Zephyr Sylvester, et al., "Whale recovery and the emerging human-wildlife conflict over Antarctic krill," *Nature Communications* 15, no. 1 (10 September 2024):7708, doi: [10.1038/s41467-024-51954-x](https://doi.org/10.1038/s41467-024-51954-x).
- <sup>69</sup> Klaus Dodds and Mathieu Boulegue, "Ukraine: The impact on international collaboration in the Antarctic," *Britain's World*, 6 July 2022, <https://www.geostrategy.org.uk/britains-world/ukraine-the-impact-on-russias-posture-and-international-collaboration-in-the-antarctic/>.
- <sup>70</sup> AIR Centre, "Marine Spatial Planning in the Antarctic Region," <https://www.aircentre.org/Scholarship/polars/marine-spatial-planning-in-the-antarctic-region/>; Arno Rosemarin, Guoyi Han, et al., *Opportunities for Applying Spatial Management Approaches in the Antarctic Marine Space* (Stockholm: Stockholm Environment Institute, 2023), <https://www.sei.org/wp-content/uploads/2023/06/spatial-management-antarctic-sei2023.039.pdf>.
- <sup>71</sup> Lynda Goldworthy, "CCAMLR Current Challenges: Implementation of Marine Spatial Planning for Marine Biodiversity Conservation," in *Geopolitical Change and the Antarctic Treaty System: Historical Lessons, Current Challenges*, ed. Shirley Scott, Tim Stephens, and Jeffrey McGee, 89-109 (Cham: Springer, 2024).
- <sup>72</sup> Mathieu Boulègue, "While Russia Spoils, China Contests: Fragmented Antarctic Geopolitics and the Future of the Antarctic Treaty System," Jordan Center for the Advanced Study of Russia, 9 October 2024, <https://jordandrussiacenter.org/blog/while-russia-spoils-china-contests-fragmented-antarctic-geopolitics-and-the-future-of-the-antarctic-treaty-system>.
- <sup>73</sup> Anthony Press and Anthony Bergin, "Coming into the Cold: China's interests in the Antarctic," *Australian Journal of International Affairs* 76, no.3 (2022): 340–358.
- <sup>74</sup> Mathieu Boulegue, "The militarization of Russian polar politics," Chatham House, 9 October 2023, <https://www.chathamhouse.org/2022/06/militarization-russian-polar-politics/05-antarctica-southern-ocean-and-south-pole>.
- <sup>75</sup> Daniel Runde and Henry Ziemer, "Great Power Competition Comes for the South Pole," CSIS Commentary, 16 February 2023, <https://www.csis.org/analysis/great-power-competition-comes-south-pole>.
- <sup>76</sup> Marigold Black, Peter Dortmans, Jade Yeung, Scott Savitz, Abbie Tingstad, Stéphanie Pezard, Nicolas Jouan, and James Black, *Antarctica at Risk: Geostrategic Manoeuvring and the Future of the Antarctic Treaty System* (Santa Monica: RAND, 2023), [https://www.rand.org/content/dam/rand/pubs/research\\_reports/RRA2400/RRA2465-1/RAND\\_RRA2465-1.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RRA2400/RRA2465-1/RAND_RRA2465-1.pdf).
- <sup>77</sup> Anne Marie Brady, *China as a Polar Great Power* (Cambridge: Cambridge University Press, 2017).

<sup>78</sup> Congressional Research Service, *Antarctica: Overview of Geopolitical and Environmental Issues* (10 March 2021), 23, <https://crsreports.congress.gov/product/pdf/R/R46708/3>.

<sup>79</sup> For an overview, see Mariel Ferragamo, “What Is the BRICS Group and Why Is It Expanding?,” Council on Foreign Relations *Backgrounder*, 12 December 2024, <https://www.cfr.org/backgrounder/what-brics-group-and-why-it-expanding>.

<sup>80</sup> Mathieu Boulegue and Klaus Dodds, “Antarctic Diplomacy in a BRICS+ World,” Wilson Center *Polar Points*, 3 July 2024, <https://www.wilsoncenter.org/blog-post/no-32-antarctic-diplomacy-brics-world>. In the Arctic, Russia is actively trying to engage other partners from BRICS and G-20 platforms – such as India, Brazil, South Korea, and Singapore – who, in addition to foreign direct investment, could contribute expertise and unique competences to regional development. See Sergey Sukhankin and P. Whitney Lackenbauer, “Looking Beyond China: Non-Western Actors in the Russian Arctic after February 2022,” *Arctic Yearbook 2024* (2024): 1-28, [https://arcticyearbook.com/images/yearbook/2024/Scholarly\\_Papers/SP5\\_Sukhankin\\_and\\_Lackenbauer.pdf](https://arcticyearbook.com/images/yearbook/2024/Scholarly_Papers/SP5_Sukhankin_and_Lackenbauer.pdf).

<sup>81</sup> Congressional Research Service, *Antarctica: Overview of Geopolitical and Environmental Issues* (10 March 2021), 15, <https://crsreports.congress.gov/product/pdf/R/R46708/3>.

<sup>82</sup> *Notification of the Intention of Canada to request recognition of Consultative Party status*, ATCM XLIII - CEP XXIII Paris (2021), [https://documents.ats.aq/ATCM43/ip/ATCM43\\_ip105\\_e.docx](https://documents.ats.aq/ATCM43/ip/ATCM43_ip105_e.docx).

<sup>83</sup> K.A. Hughes, A.D. Gray, and B.J. Ager, “Attainment of consultative status by parties to the Antarctic Treaty: past, present and future,” *Polar Journal* 14, no. 2 (2024): 560–591, <https://doi.org/10.1080/2154896X.2024.2414642>.

<sup>84</sup> In October 2022, a Russian missile strike destroyed Ukraine’s Antarctic offices in Kiev, provoked a partial CP walkout at the 2023 ATCM. Mathieu Boulegue and Klaus Dodds, “Antarctic Diplomacy in a BRICS+ World,” Wilson Center *Polar Points*, 3 July 2024, <https://www.wilsoncenter.org/blog-post/no-32-antarctic-diplomacy-brics-world>.

<sup>85</sup> Huw Paige, “In Antarctica, Belarus and Canada Reveal a Diplomatic Divide,” *Diplomatic Courier*, 27 January 2025, <https://www.diplomaticcourier.com/posts/antarctica-belarus-canada-diplomatic-divide>. Paige notes that “since the Czech Republic became the last new Consultative Party in 2014, Venezuela has tried several times to join the club, rejected consistently in no small part due to South American concerns about its domestic politics. It seems now to have effectively given up, but Canada and Belarus are still trying, although so far equally unsuccessfully.”

<sup>86</sup> Huw Paige, “In Antarctica, Belarus and Canada Reveal a Diplomatic Divide,” *Diplomatic Courier*, 27 January 2025, <https://www.diplomaticcourier.com/posts/antarctica-belarus-canada-diplomatic-divide>.

<sup>87</sup> Global Affairs Canada (GAC), “Joint statement between Canada and the Democratic Forces of Belarus,” 28 November 2024, <https://www.canada.ca/en/global-affairs/news/2024/11/joint-statement-between-canada-and-the-democratic-forces-of-belarus.html>.

<sup>88</sup> GAC, “Joint statement following Belarus’ sham presidential elections,” 27 January 2025, <https://www.canada.ca/en/global-affairs/news/2025/01/joint-statement-following-belarus-sham-presidential-elections.html>.

<sup>89</sup> *Canadian High Arctic Research Station Act* (S.C. 2014, c. 39, s. 145), <https://laws-lois.justice.gc.ca/eng/acts/C-17.8/page-1.html#docCont>.

<sup>90</sup> POLAR, President’s transition binder (December 2020), <https://www.canada.ca/en/polar-knowledge/presidents-transition-binder.html#h2-3>.

<sup>91</sup> Canada supported students to attend a 2023 SCAR training school on glacial isostatic adjustment, as well as supporting the Students on Ice Foundation’s Antarctic expedition that December. *Update on Canada’s Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx).

<sup>92</sup> *Update on Canada’s Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx).

<sup>93</sup> *Update on Canada’s Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx).

<sup>94</sup> Corinna Röver interview with Carina Keskitalo, “The notion of the “Arctic” is based on Canadian ideas, according to discourse analysis study,” SciencePoles, 23 October 2014, <http://www.sciencepoles.org/interview/discourse-on-the-arctic-is-based-on-canadian-ideas>.

<sup>95</sup> P. Whitney Lackenbauer, “‘The most urgent and important task we face’: Framing the Arctic focus in Canada’s April 2024 defence policy update,” *Arctic Yearbook 2024*, eds. Lassi Heininen, Heather Exner-Pirot, and Justin Barnes (2024), [https://arcticyearbook.com/images/yearbook/2024/Briefing\\_Notes/BN5\\_Lackenbauer.pdf](https://arcticyearbook.com/images/yearbook/2024/Briefing_Notes/BN5_Lackenbauer.pdf).

<sup>96</sup> Minister of Foreign Affairs, *Canada’s Arctic Foreign Policy* (December 2024), <https://www.international.gc.ca/gac-amc/publications/transparency-transparence/arctic-arctique/arctic-policy-politique-arctique.aspx?lang=eng>; and “Canada’s Arctic Foreign Policy: Key Takeaways for Arctic Security Practitioners and Scholars,” NAADSN *Policy Primer*, 16 December 2024. 21 pp. <https://www.naadsn.ca/wp-content/uploads/2025/01/24dec-CAFP-Lackenbauer-NAADSN-Policy-Primer.pdf>.

<sup>97</sup> *Update on Canada’s Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx)

<sup>98</sup> *Update on Canada’s Engagement in the Antarctic*, ATCM XLV - CEP XXV Helsinki (2023), [https://documents.ats.aq/ATCM45/ip/ATCM45\\_ip012\\_e.docx](https://documents.ats.aq/ATCM45/ip/ATCM45_ip012_e.docx)

<sup>99</sup> *Canada’s Support for Polar Science and Research*, ATCM 46 - CEP 26 Kochi (2024), [https://documents.ats.aq/ATCM46/ip/ATCM46\\_ip007\\_e.docx](https://documents.ats.aq/ATCM46/ip/ATCM46_ip007_e.docx)

<sup>100</sup> POLAR, “POLAR research and projects,” <https://www.canada.ca/en/polar-knowledge/advancingpolarknowledge.html#h2-resources>.