



Australian Government

Australian Civil-Military Centre

# Antarctica 2050: Strategic Challenges and Responses

ACADEMIC OPINION PAPERS

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**Australian Government**  
**Australian Civil-Military Centre**

## About ACMC

The Australian Civil-Military Centre (ACMC) was established in November 2008, in recognition of the growing importance of civil-military-police interaction and is evidence of Australia’s commitment to sustainable peace and prosperity in the Asia-Pacific region and beyond.

ACMC’s mission is to support the development of national civil-military-police capabilities to prevent, prepare for and respond more effectively to conflicts and disasters overseas. At its core is a multi-agency approach, with staff from a number of Australian Government departments and agencies, the New Zealand Government and the non-government organisation (NGO) sector.

Applying this collaborative approach to working with other government agencies, the United Nations and other relevant stakeholders, ACMC seeks to improve civil-military-police learning and development, and develop civil-military-police doctrine and guiding principles.

Through its research program, ACMC seeks to identify best practice responses to key lessons learned—important for developing doctrine and facilitating training programs—to contribute directly to the ability of the Australian Government to develop a more effective civil-military-police capacity for conflict prevention and disaster management oversea.



## Foreword

New Zealand and Australia's national interests are commonly served by sustaining the peace and security of the Antarctic continent. Our shared national security interests are best met by an Antarctica that remains free of military competition.

The Antarctic Treaty System has long underpinned our two countries' joint commitment to a peaceful Antarctic continent. Changes in the international security environment and future global resource pressures potentially present challenges to this system. The next 30 years present critical challenges if Antarctica is to continue to remain free from the consequences of unrestrained international competition.

In August 2019, the Australian Civil-Military Centre, on behalf of the New Zealand Ministry of Foreign Affairs and Trade, facilitated the *Antarctica 2050: Strategic Challenges and Responses Workshop* in Wellington. Representatives from a broad range of government agencies in Australia and New Zealand came together for two days to discuss potential policy, strategic and operational challenges for Antarctica over the next 30 years.

Participants discussed four broad areas of domestic and international operations in Antarctica: science, resources, logistics and tourism. Challenges related to the international governance of the Antarctic region were a cross-cutting theme throughout the workshop.

To support this workshop, Australian Civil-Military Centre commissioned four discussion papers, in which we asked prominent academic experts to comment on the future challenges and solutions facing policymakers on Antarctica. These papers are as follows:

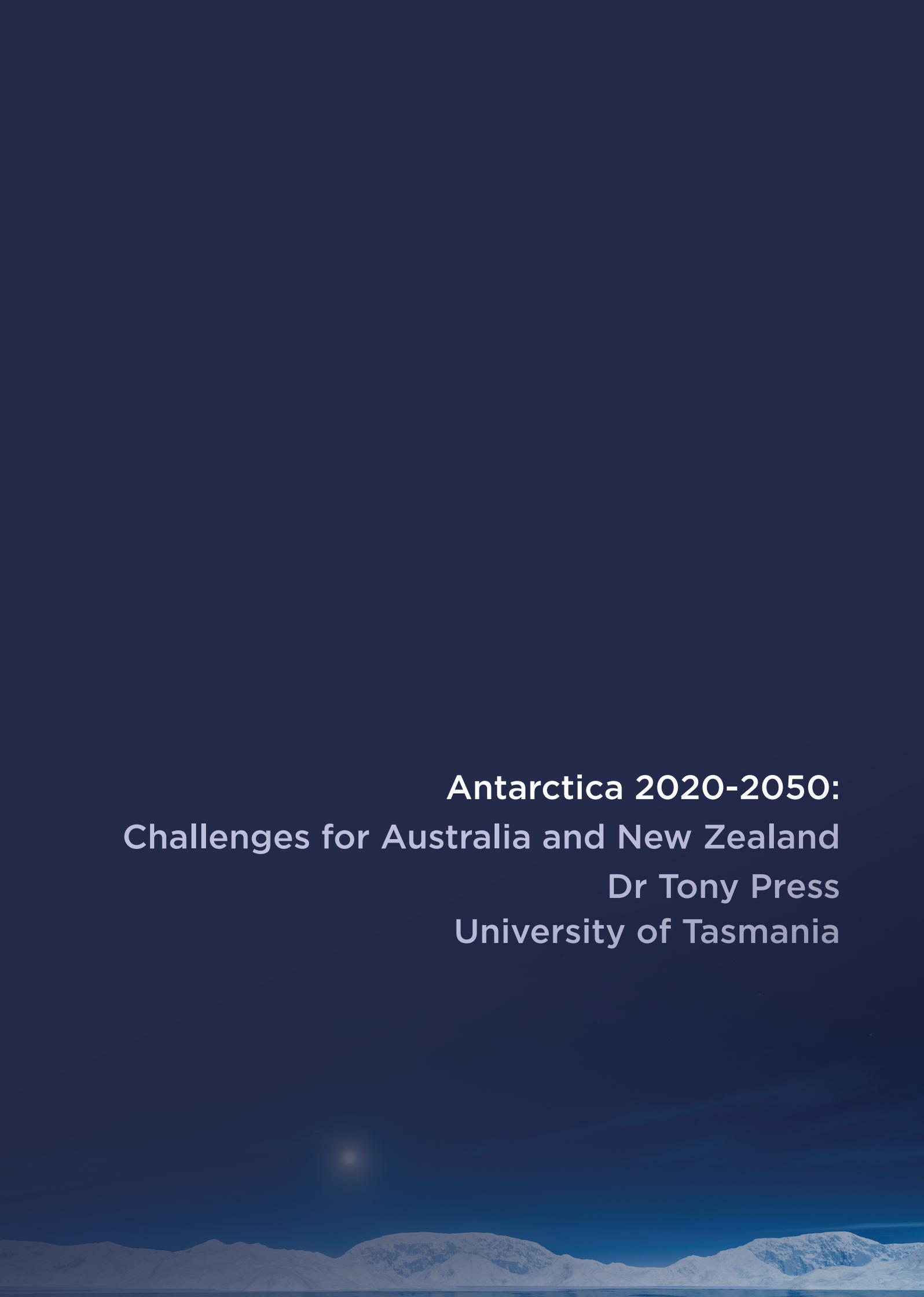
- **Antarctica 2020-2050: Challenges for Australia and New Zealand** by Dr Tony Press, University of Tasmania. Dr Press examines the Antarctica Treaty System and the future challenges to the Treaty, with attention paid to the role of science as a strategic activity in Antarctica.
- **Antarctica as a Site of Strategic Competition: Optimal Responses for Australia and New Zealand** by Professor Anne-Marie Brady, University of Canterbury. Dr Brady explores the new climate of strategic competition that Antarctica is entering and how New Zealand and Australia should respond to protect their interests.
- **Antarctic Resources in 2050: Regime Complexity and Regime Resilience** by Professor Karen Scott, University of Canterbury. Professor Scott notes that the Antarctica Treaty System makes no mention of resources and a key question is how states (and potentially other actors) will pursue their interests in Antarctic resources. She discusses whether the Antarctic Treaty is sufficiently resilient to manage these interests and explores other legal processes that states may use to pursue their interests in Antarctica natural resources.
- **Antarctic Resources and Tourism** by Dr Julia Jabour, University of Tasmania. Dr Jabour observes that keeping Antarctica peaceful relies on regulating the exploitation of its resources and should be a key strategic interest of New Zealand and Australia.

I am pleased to present these four papers, which offer a thought-provoking and nuanced look at the challenges ahead, and which prompt policy-makers to consider some pressing issues for Antarctica which will occupy the near future.

**Alan Ryan**

Executive Director  
Australian Civil-Military Centre  
December 2019



The background of the slide is a photograph of an Antarctic landscape. It shows a range of snow-capped mountains under a clear, bright blue sky. A bright, circular light source, possibly the sun or moon, is visible in the sky, creating a lens flare effect. The overall color palette is dominated by blues and whites.

**Antarctica 2020-2050:  
Challenges for Australia and New Zealand**  
Dr Tony Press  
University of Tasmania

## Antarctica 2020-2050: challenges for Australia and New Zealand

Dr Tony Press

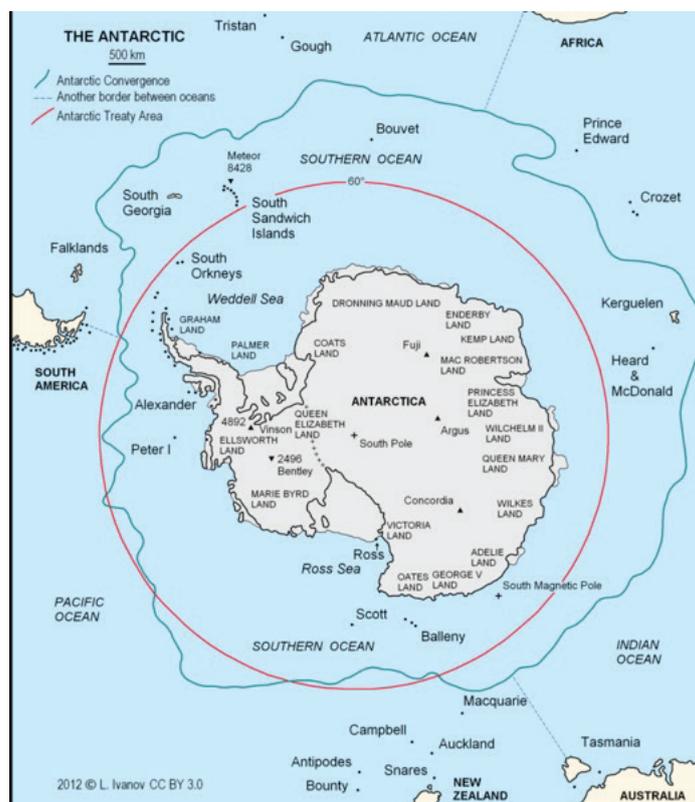
### Background

The Antarctic Treaty and its evolved Antarctic Treaty System is of great strategic importance to Australia and New Zealand. The Treaty,<sup>1</sup> which came into force in 1961, demilitarises all that part of the planet below 60°S, and establishes an international order based on peace, cooperation and science.

The subsequent international agreements negotiated under the auspices of the Antarctic Treaty provide additional benefits for Australian and New Zealand interests: the effective management of marine living resources in the Southern Ocean, and a regime for environmental management and protection. Taken together the Treaty and its subsequent instruments are known as the Antarctic Treaty System. The Antarctic Treaty System is not a UN system of governance, although the Treaty and its instruments are open to accession by all UN Parties.

Collectively, the governance arrangements for the Antarctic Treaty System establish the law-making framework over this significant portion of the planet.

Figure 1: the Antarctic Treaty Area



<sup>1</sup> Antarctic Treaty: <https://www.ats.aq/e/ats.htm>

The Antarctic Treaty is particularly important for the claimant states – those seven countries that had made sovereign claims to Antarctic territory before the Treaty was negotiated (Australia, Argentina, Chile, France, New Zealand, Norway, and the United Kingdom). Article 4 of the Treaty sets aside disputes over Antarctic territorial claims (see Box 1).

*Box 1*

**Some Important Provisions of the Antarctic Treaty**

*Article I* provides that the Antarctic Treaty area be set aside for peaceful purposes only, and prohibits military activities and the testing of weapons.

*Article II* provides for scientific freedom.

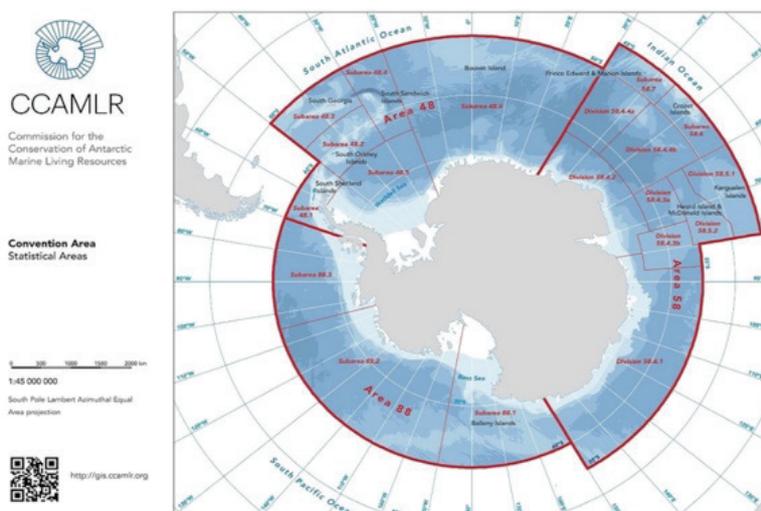
*Article IV* provides, among other things, that nothing in the Treaty amounts to a renunciation of the claims to territorial sovereignty that existed at the time the treaty was negotiated, and that no act or activities taken during the life of the Treaty can form the basis for a claim.

*Article V* prohibits nuclear explosions and the disposal of nuclear waste.

*Article VII* established the rights of all Treaty Parties to carry out inspections, unimpeded, on facilities and activities in the Antarctic Treaty area.

The second significant component of the Antarctic Treaty System that was negotiated was the *Convention on the Conservation of Antarctic Marine Living Resources* (the CAMLR Convention), that came into force in 1982.<sup>2</sup> The Convention establishes a conservation regime for the marine living resources of the Southern Ocean south of the Antarctic polar front. The Convention includes the Antarctic Treaty area and some areas to the north (Figure 2). The Convention also establishes the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) that is responsible for making international law to conserve the marine living resources in the Convention area and regulate the harvesting of those resources.

Figure 2: The CAMLR Convention Area



<sup>2</sup> The Convention of the Conservation of Antarctic Marine Living Resources: <https://www.ccamlr.org/en/organisation/camlr-convention-text>

The third important component of the Antarctic Treaty System is the *Protocol to the Antarctic Treaty on the Protection of the Antarctic Environment* (Madrid Protocol) agreed in 1991.<sup>3</sup> Negotiated after the abandonment of the process to establish a regime to regulate mining in Antarctica, the Madrid Protocol provides a comprehensive framework for environmental management in Antarctica. The Madrid Protocol, through its Article 7, establishes an indefinite ban on mining in Antarctica (see Box 2).

As Antarctic claimant states, and original signatories to the Antarctic Treaty, Australia and New Zealand have a common security interest in maintaining the strength of the Antarctic Treaty System and ensuring that the region is free of conflict.

*Box 2*

**Does the mining ban expire in 2048?**

*Short answer:* No.

*Long answer:*

Article 7 of the Madrid Protocol simply states “Any activity relating to mineral resources, other than scientific research, shall be prohibited”.

The popular confusion arises from Article 25 (2) that says “If, after the expiration of 50 years from the date of entry into force of this Protocol, any of the Antarctic Treaty Consultative Parties so requests by a communication addressed to the Depositary, a conference shall be held as soon as practicable to review the operation of this Protocol”. As the Protocol came into effect in 1998, the 50 year period falls in 2048.

But in order for the ban on any mining to be overturned the following must occur:

1. Any modification or amendment must be adopted by a majority of the Parties, including 3/4 of the States which are [were] Antarctic Treaty Consultative Parties at the time of adoption of this Protocol. [Note: these include Australia and New Zealand]. [Article 25 (3)].
2. Any such amendment will not enter into force unless it is approved by 3/4 of the Antarctic Treaty Consultative Parties, including ratification, acceptance, approval or accession by *all* States which are [were] Antarctic Treaty Consultative Parties at the time of adoption of the Protocol. [Article 25 (4)]
3. If ever the above conditions were met, the prohibition on Antarctic mineral resource activities would continue unless there was a binding legal regime on Antarctic mineral resource activities that includes an agreed means for determining whether, and, if so, under which conditions, any such activities would be acceptable.

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<sup>3</sup> Madrid Protocol: <https://www.ats.aq/e/ep.htm>

### Science

The Antarctic Treaty provides that Antarctica remain a place of peace and science. Science is a key Antarctic activity. In order to become a Consultative Party (that is, a Party to the Antarctic Treaty that is entitled to vote in Antarctic Treaty Consultative

Meetings), a Party must demonstrate that it has an active and viable Antarctic research program. Because of its centrality, “science” is often referred to as the “currency of influence” in the Antarctic Treaty System.

It is imperative that claimant states maintain their influence through active and focussed research programs. And while science *per se* can be influential in promoting the status and influence of Parties, there are other national interest reasons for Australia and New Zealand to be engaged in Antarctic research.

Antarctica is the engine room of the global climate system. The world’s oceans’ overturning circulation is driven by the ocean, ice and atmospheric events generated in the Antarctic (Figure 3). The Southern Ocean and its currents link Antarctica to the Pacific, Indian and Atlantic Oceans. These interactions are essential for the global health of the oceans.

Figure 3: Global overturning circulation

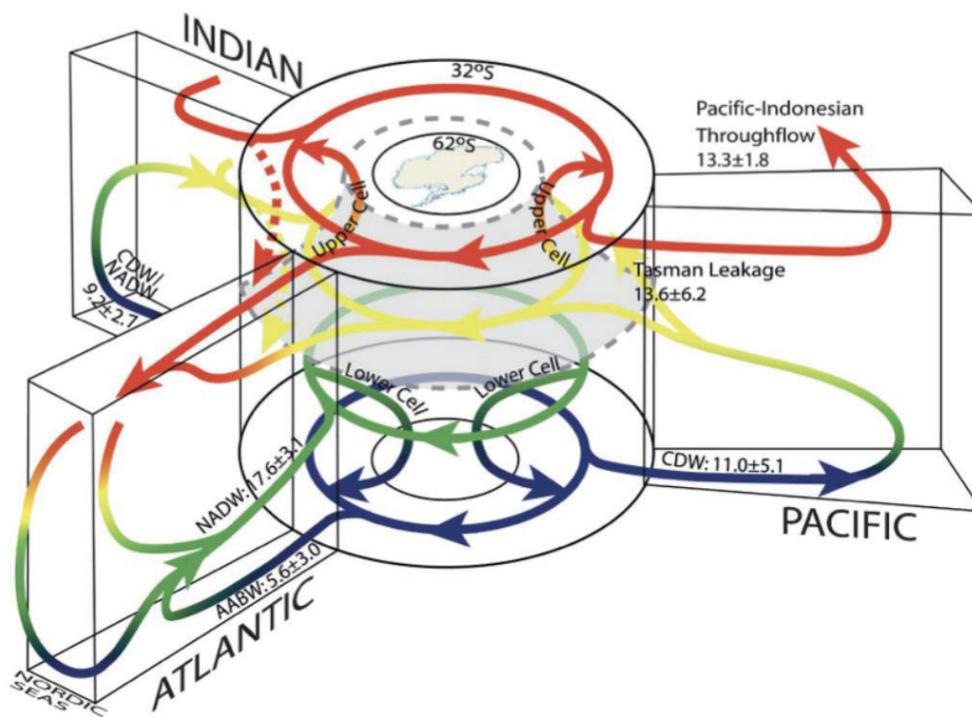


Figure 1.1: Schematic of global overturning circulation taken from Lumpkin and Speer (2007). Color indicates approximate density ranges. Red: upper,  $\gamma \sim 27.0$ ; yellow: intermediate,  $\gamma \sim 27.0-27.6$ ; green: deep,  $\gamma \sim 27.6-28.15$ ; blue: bottom,  $\gamma > 28.15$ . Gray surface with dashed edges is  $\gamma = 27.6$  at 32S, separating upper and lower cell transformation in the Southern Ocean.

Antarctica also has a profound influence on Australian and New Zealand weather and climate.

Climate change is affecting the Southern Ocean in many ways. The surface water are warming, and there are changes occurring deep below the surface as well. The warmer surface water is increasing the melt of the floating glacial ice, causing more freshwater to enter the oceans, and increasing the rate of sea level rise.

Changes in the structure of the Southern Ocean through climate change *will* have impacts globally, on weather, climate and fisheries (ie food security).

Antarctica is the holder of the world's most accurate record of past climate. The Antarctic ice sheet has trapped air from many hundreds of thousands of years in the past – probably well over a million years. The air trapped in the ice reveals past climate. Understanding past climate is essential to understanding what the future climate may look like under climate change. We already know, through ice core records, that the current rate of atmospheric greenhouse gas accumulation is unprecedented.

Climate science is not only a key scientific research priority for Antarctica, it is also key to understanding climate change and its consequences for the planet as a whole.

The Southern Ocean surrounding Antarctica is also vital for global food security – it retains the worlds most underexploited fishery, the krill fishery. The toothfish fishery in Antarctica is also one of Australia's most commercially viable fisheries, even given the difficulties of operating in the harsh Southern Ocean.

Science that underpins our understanding of the ecosystems in the Southern Ocean, and that inform conservation and management of the Southern Ocean should be high priority research activities for Australia and New Zealand.

### **Science as a strategic activity**

Antarctic science *is* a strategic activity. The development of science programs should have one eye on broader engagement in the Antarctic Treaty System and collaboration with other Antarctic Treaty Parties.

Antarctic science is expensive, and it is logistically difficult and complex. It relies on expensive logistical platforms and on “dual-use” platforms and technology.

Australia and New Zealand should each, and together, have clear-eyed strategies for engagement in collaborative Antarctic science programs that engage other Antarctic Treaty parties and promote collaboration.

### **Future challenges (with special reference to science)**

There is no doubt that the Antarctic Treaty System will be challenged by changing geopolitics. The three most likely challenges will be:

1. Emerging (or re-emerging) powers exerting influence over norms and modes of working (for example China and Russia);
2. New entrants bringing other geopolitical influences into the System (eg Belarus, Malaysia, Turkey); and
3. Existing influential Parties “falling behind” due to lack of resources, strategy or political whim (it could be any of the original 12 signatories, including the claimant states).

Central to influence will be the commitment of like-minded parties to invest in, and maintain, credible Antarctic science programs that build influence and collaboration in strategic areas of climate science and climate change, ecosystem studies and fisheries, and conservation and environmental protection. Through these programs like minded Parties can collaborate with existing and new players.

But scientific endeavours need to be matched with diplomatic efforts, too. The challenges to the Antarctic Treaty System need to be met at all levels – Government, research and society.

In facing the “Antarctic future”, more needs to be done to link other players: tourism operators and their clients, the fishing industry, and logistics and support-providers (whether they be military or civilian). A broad engagement of governments and their agencies with civil society will be an important factor meeting future challenges and building and maintaining a strong and robust Antarctic Treaty System.

## Reading List

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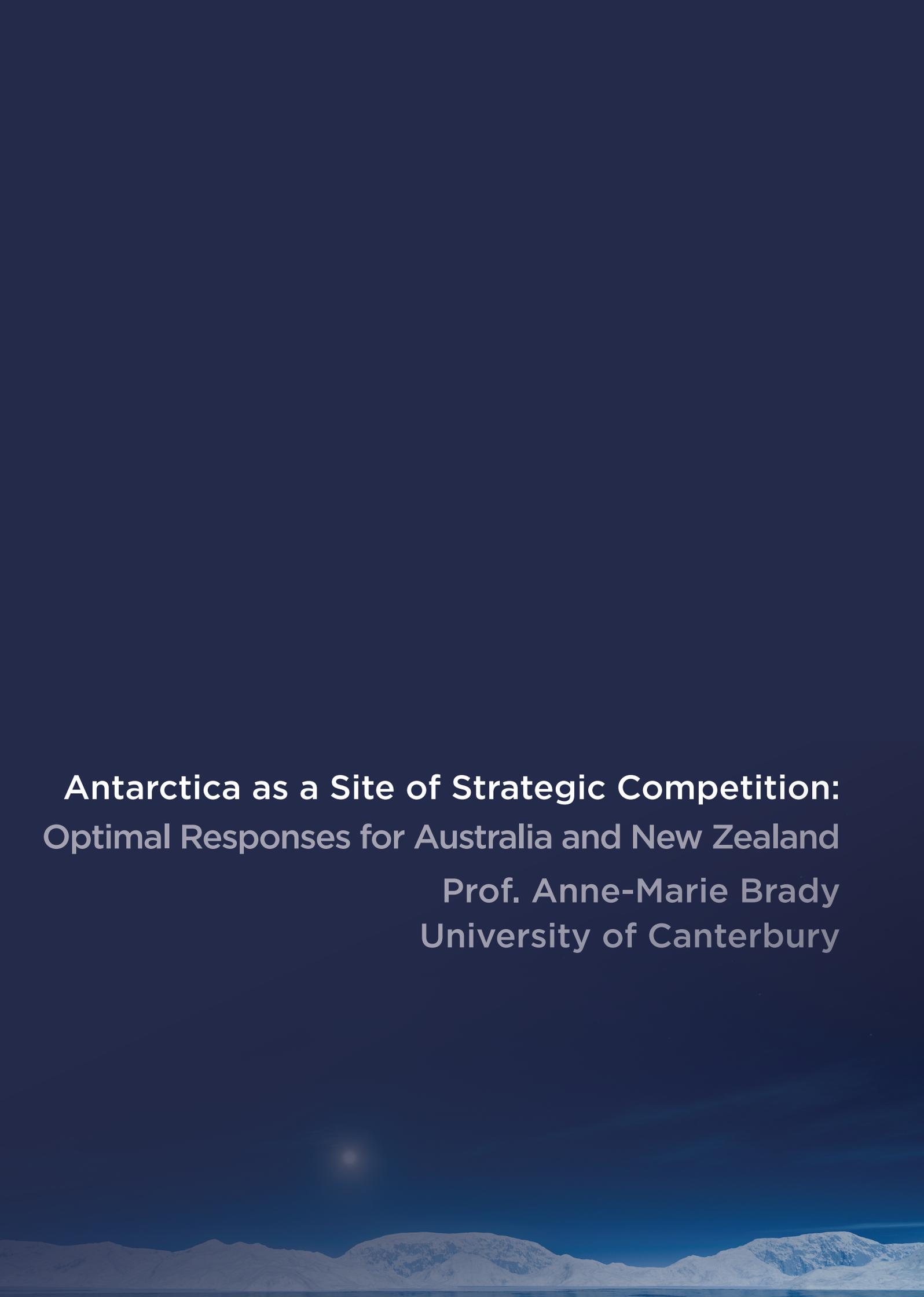
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**Antarctica as a Site of Strategic Competition:  
Optimal Responses for Australia and New Zealand**

**Prof. Anne-Marie Brady  
University of Canterbury**

## Antarctica as a Site of Strategic Competition: Optimal Responses for Australia and New Zealand

Prof. Anne-Marie Brady

### Executive Summary

The geostrategic importance of Antarctica is steadily growing, matching the new global security environment and the challenges posed by hybrid warfare. The location of global navigation satellite stations by the US, and now Russia and China, has been a game-changer in terms of the military significance of the Antarctic continent, and it highlights other questionable dual-use military activities there as well. In 2018, China announced it was incorporating Antarctica into the Belt and Road Initiative, a China-centered strategic bloc.

In the last thirty years, the focus of both Australia and New Zealand's Antarctic policies has been on environmental and political interests, as well as increasingly, economic. But what is often not well understood, is the extent to which both nations have strategic interests in Antarctica. Antarctica has an important place in Australian and New Zealand national security. Any conflict there would affect Australia and New Zealand.

In the light of the changing geopolitical environment, both Australia and New Zealand governments need to develop a comprehensive forward-looking Antarctic strategy. They should look for opportunities to partner with like-minded states and to build joint capacity. This paper examines a number of areas of strategic concern in Antarctic affairs looking out to 2050, and it assesses optimal policy responses.

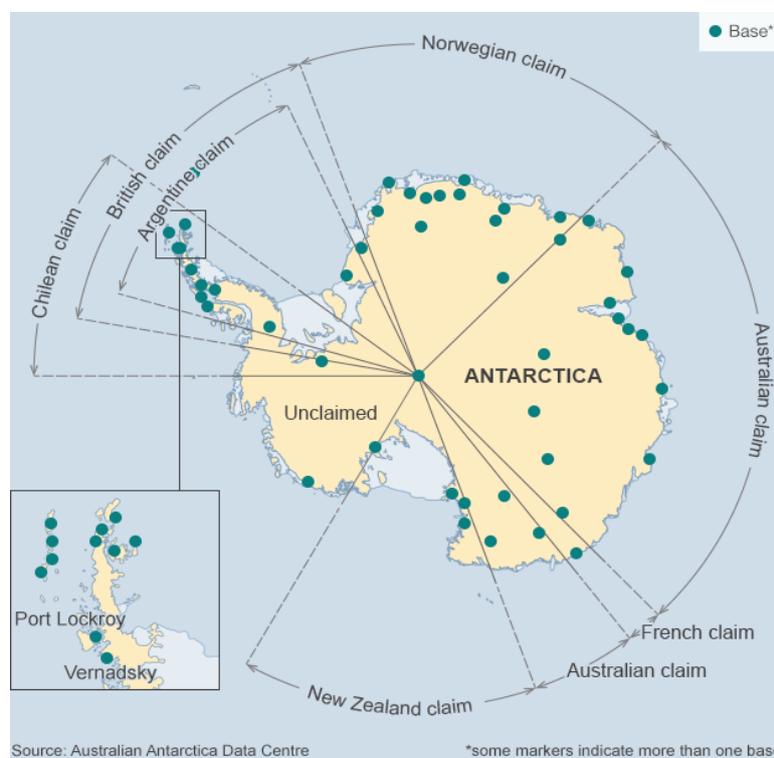


Figure 1: Antarctic map showing existing territorial claims and permanent base locations.

Antarctica is governed by the Antarctic Treaty (1959), a Cold War agreement that was designed to manage rivalry between the United States (US) and the Soviet Union and tensions over territorial

claims among the seven Antarctic claimant nations. 53 states have signed the Antarctic Treaty, though only the 28 Antarctic Treaty Consultative Parties have a say in how the continent is governed. New Zealand has a 15 percent territorial claim in Antarctica, the Ross Dependency, while Australia has a 42 percent claim, the Australian Antarctic Territory. Both countries rely on the Antarctic Treaty to protect their interests and to maintain peace and stability in Antarctic affairs.

The Antarctic Treaty system does not cope well with controversy or conflict, in fact it is designed to avoid it. The Treaty requires full consensus for all decision-making. This structure enables established Antarctic players to maintain the *status quo*, but it is not conducive to addressing new challenges. There is very little oversight of the various countries active there, and little enforcement through Antarctic Treaty System instruments when nations break governance rules. This paper examines a number of areas of strategic concern in Antarctic affairs looking out to 2050, and it assesses optimal policy responses.

### **Potential sovereignty challenges**

Each nation with a research station in Antarctica treats their bases as though they were registered vessels and applies national laws there, including the right to exclude others. This situation amounts to regional custom, independent of the Antarctic Treaty.<sup>1</sup> The more scientific bases and work sites a nation has in Antarctica, the more *de facto* control their government has over territory there. China is developing its fifth base in Antarctica and plans more;<sup>2</sup> Russia is re-opening its *Russkaya Base* in the Ross Sea area.<sup>3</sup>

Seven states claim territory in Antarctica, while Russia and the USA reserve the right to make a claim there. These rights are protected under Article IV of the Treaty.<sup>4</sup> Article IV(2) of the Treaty prohibits any party from making a new claim or enlarging an existing claim. Yet it does not expressly prohibit a state from reserving the right to make a claim. In internal documents, Chinese polar analysts recently stated that China would reserve the right to claim potential sovereign rights in Antarctica. This was based on Chinese exploration and occupation of sites since the 1980s as well as ongoing activity there.<sup>5</sup> Any claim while the Antarctic Treaty is operational would fail as it breaches Article IV(2). It is uncertain whether activities taking place while the Treaty was operational could be used as the basis of a new claim. But in the changing global order where great powers are increasingly operating under the basis of “might is right”, the rules established under the Antarctic Treaty cannot be taken for granted anymore.

### **Military activities in Antarctica**

Article I(2) of the Antarctic Treaty restricts military activities in Antarctica and the surrounding seas to “peaceful purposes” only, a wide definition whose meaning may be open to interpretation. Article I(1) says that states may not engage in any measure of a military nature, such as the establishment of military bases and fortifications, the carrying out of military manoeuvres, or the testing of any type of weapon. Argentina, Australia, Brazil, Chile, China, New Zealand, Russia, and the USA use their militaries in Antarctica, as permitted by the Treaty, for logistics and scientific support. For Antarctic claimant states, the use of militaries in this way is a subtle and politically-acceptable means to signify territorial rights. Utilising military forces in Antarctica also enables militaries to maintain familiarity with survival in extreme environments which, as a New Zealand Defence Force officer noted during an Antarctic training exercise in 2017, is useful “from Antarctic to Afghanistan”.<sup>6</sup>

Article VII(5) (c) of the Treaty requires countries to report details of any military personnel or equipment to be introduced into Antarctica and most states do so. However, over a number of years, one state, China, has frequently failed to report the extent of its military's activities in Antarctica and the military use of some of its scientific projects there. China is steadily expanding the level of involvement of the PLA in the Antarctic program. This will greatly enhance China's Antarctic operating capacity and enable PLA personnel to gain experience operating in extreme environments, both of which will be useful for China's long-term strategic interests. The Chinese navy is rapidly expanding its

capabilities and reach in the polar regions. China's significant global shipping interests are the official justification for this.<sup>7</sup> China is also looking for ways to reduce its dependence on maritime chokepoints such as the Malacca Strait. The Southern Ocean has three potential alternative shipping routes which link China with the Indian and Atlantic Ocean: (1) via South Africa's Cape of Good Hope, (2) via Chile's Cape Horn, and (3) via Australia's Southeast Cape in Tasmania.<sup>8</sup> Although the areas suffer from extreme weather conditions, all three are free of conflict.<sup>9</sup> In a time of war, China's polar scientific vessels and bases would fall under PLAN command. Since 2014 China's polar ice breaker has sailed annual voyages circumnavigating Antarctica and accessing these routes.

The Antarctic transpolar air route is less commercially significant than the Arctic transpolar route, but for great powers such as the USA and emerging powers like China, it is strategically significant. Any state that dominates the air space of Antarctica could potentially control air access to all Oceania, South America, and Africa. Currently, only the United States has this level of air capacity in Antarctica. But China is setting up an intercontinental Antarctic air route and permanent airfields. It can be expected to utilise PLA-Air Force planes in due course to expand capacity and build the PLA-AF's cross polar experience.

China, Russia and the US are researching high-frequency active auroras in Antarctica and investigating the defence-related potential uses of the ionosphere. Electromagnetic pulses can be used to upset, jam, or even destroy, enemy electronics. Polar auroras often interfere with radio and radar signals, and solar flares can interfere with military and civilian communication.

The activities of the major nuclear powers who use their Antarctic bases to control offensive weapons systems and relay signals intelligence has the potential to shift the strategic balance which has maintained peace in the Asia-Pacific for nearly seventy years. The satellite receiving stations and telescopes housed at Antarctic bases have dual civil-military capabilities. Infrared telescopes can be used to search for enemy satellites, drones, and missile launches, and identify if they have been shot when targeted. If a nation was to use this technology during a conflict it would greatly enhance its defensive capabilities in an air-sea battle. The unresolved territorial status of Antarctica enables military powers to place space tracking and ground receiving stations for polar satellites with global coverage that would be unwelcome on the sovereign territory of other states. Antarctic satellite receiving stations play a core role in helping militaries enhance Command, Control, Communications, Computers Intelligence Surveillance Reconnaissance (C<sup>4</sup>ISR) systems capabilities, missile timing, and missile positioning. C<sup>4</sup>ISR is a crucial capacity of the modern military: it enhances situational awareness in a tactical environment, improves interoperability, and provides surveillance and intelligence capacity.

The US established global positioning system (GPS) ground stations in Antarctica in 1995, the same year full operational facility for GPS was established. Antarctic GPS ground stations are hosted by a consortium of nations, all are allies or NATO partners of the US.<sup>10</sup> Both the Australian and New Zealand defence forces rely on the US GPS for defence purposes. They both have close interoperability with the US and other defence partners on space issues.<sup>11</sup> The US and its strategic partners benefited from the undetermined sovereignty of Antarctica to locate the GPS satellite receiving stations, and now China and Russia are following suit. China installed Beidou ground satellite receiving and processing stations at Changcheng and Zhongshan Stations in 2010,<sup>12</sup> at Kunlun Station in early 2013,<sup>13</sup> and completed further upgrades to the Zhongshan Station facilities in early 2015. Russia installed three GLONASS ground stations in Antarctica in 2009 and plans to expand to seven ground stations there by 2020.<sup>14</sup> In December 2018, Beidou-3 achieved full global coverage. Beidou has five open channels and five closed military channels, which makes jamming impossible.<sup>15</sup> Chinese polar analysts say the dual-use capacity of the Beidou satellite receiving station in Antarctica means that in a future US-China conflict, China's Antarctic bases could be targeted in order to disrupt the Beidou system (BDS).<sup>16</sup>

The Antarctic ground stations of GLONASS and Beidou were crucial in enabling these rival systems to now equal GPS for accuracy. Antarctic GPS, GLONASS and Beidou measurement stations have greatly increased the US, Russia and China's military preparedness across all theatres—as well as for their allies and strategic partners—and thereby changed the strategic significance of Antarctica to these states. The Antarctic Treaty and subsequent agreements are silent on the issue of how to deal with the military, non-peaceful, aspects of this technology.

The terms of the Antarctic Treaty meant that the claimant states had to relinquish the normal right to station military personnel to defend their Antarctic territorial claims. In return, the Treaty was set up so that Antarctica would be a “natural reserve, dedicated to peace and science” (Article 2). Modern military technological capabilities now challenge those Cold War era arrangements. Australia and New Zealand's military C<sup>4</sup>ISR (Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance) capacity rely on the US GPS systems and its Antarctic receiving stations. China and Russia's new Antarctic GNSS ground stations enhance their military capacities and directly affect Australia and New Zealand's security, at the same time that Australia and New Zealand benefit from the military aspects of the US GPS system. There is a conundrum as to how to deal with this new situation in Antarctica. The 2019 Antarctic Treaty Consultative Meeting passed a declaration stating all military activities in Antarctica will be peaceful. But such a declaration is dependent on thinking appropriate to traditional kinetic forms of warfare, not the new hybrid warfare environment.

### **Antarctica as a Treasure House of Resources**

For many Antarctic states, Antarctica is a “treasure house” of resources, just waiting to be exploited. Many oil-poor states regard Antarctica's potential mineral resources as part of the solution to their medium-term energy needs. The Treaty permits the orderly exploitation of certain Antarctic resources: free access to the continent for scientific research, free access to the continent for individual exploration and adventure, managed fishing, and unlimited tourism and bioprospecting. Since the 1991 Protocol on Environmental Protection entered into force in 1998, mineral exploitation and exploration have been banned, though scientific research into Antarctic minerals has not (Article 7). The definition of which mineral seeking activities are “scientific” and which are “exploration” is left to individual nations.

The Ross Sea is one of the most likely sites for hydro-carbons in the Southern Ocean. Researchers estimate that there are 500 billion tons of oil on the Antarctic continent and 300 to 500 billion tons of natural gas, plus a potential 135 billion tons of oil in the Southern Ocean. Coal, diamonds, gold and many other precious metals and minerals have also been found in Antarctica. Up to 72 percent of global freshwater is held in Antarctic ice. There is no restriction within the Antarctic Treaty to harvest it, other than the Environmental Protocol. Antarctica is also filled with unique biological organisms that have commercial potential. The Environmental Protocol is the only management system in place for Antarctic bioprospecting.

Antarctic waters are rich in krill and other fish. These are managed by a Treaty agency, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). In 2012 New Zealand and the US proposed a Marine Protected Area in the Ross Sea—one whose boundaries matched the straight lines of the Ross Dependency. CCAMLR agreed to the marine reserve in 2016, but the agreement will expire in 2051 unless it is expressly renewed. In 2018, a further series of Antarctic MPAs were rejected by China and Russia.

Antarctic tourism is also a “resource”, one that is managed by a few agencies. The numbers of tourists visiting Antarctica has increased fivefold in the last decade. The International Association for Antarctic Tourism Operators (IAATO) predicts that around 78,000 tourists will visit Antarctic in the 2019-2020 season, 20,000 more than the previous season. The US currently sends the largest number of tourists, with China a close second. China plans to open up mass tourism in Antarctica,<sup>17</sup> and at present, there are no regulations in place which could prevent this.

The Antarctic Protocol on Environmental Protection can be modified or amended at any time, but a majority is required to change it. 50 years after the coming into force of the Protocol (2048) if any of the ATCPs request it, a conference can be held to review its terms (Article 25) and it would then require a two thirds majority, including three-quarters of the original signatories, to make changes—that is the same parties who had previously signed the Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA) which preceded it. Judging from the behaviour of many Antarctic states, finding a government willing to put forward the motion mid-century should not be difficult, but the negotiations can be expected to be at least as drawn out as CRAMRA, which lasted eight years. Before the ban can be lifted, a comprehensive minerals treaty would need to be in place. But CRAMRA has already laid the groundwork for that. Countries that are interested in the potential of Antarctic minerals, are now engaging in the strategic planning and research that will help construct a new instrument of global governance that will protect their interests.

Free access to Antarctica and the Southern Ocean for scientific research is perhaps one of the least appreciated resources in Antarctic governance. The Antarctic Treaty privileges science as one of the main activities in Antarctica. In order to maintain credibility as leading Antarctic states it is essential that Australia and New Zealand engage in high quality science there, and good science requires good logistic support. Yet both states have skimmed on Antarctic infrastructure and scientific support costs for decades. Recent budgetary announcements for Antarctic infrastructure projects in both countries are the minimum required to maintain a footprint.

### *Current Policy Settings*

The New Zealand government's Antarctic policy is laid out in the 2002 New Zealand Statement of Strategic Interest in Antarctica:

New Zealand is committed to conservation of the intrinsic and wilderness values of Antarctica and the Southern Ocean, for the benefit of the world community and for present and future generations of New Zealanders. This will be reflected in active and responsible stewardship, under the Antarctic Treaty System, that promotes New Zealand's interest in: national and international peace and security through a commitment to keeping Antarctica peaceful, nuclear free and its environment protected; continued influence in Antarctic governance through maintaining an effective role in the Antarctic Treaty system, and maintaining its long-term interest, commitment to and credible presence in the Ross Dependency; supporting and where appropriate leading, high quality Antarctic and Southern Ocean science that benefits from the unique research opportunities provided by Antarctica; demonstrating and advocating for best practice in environmental stewardship and all other activities throughout Antarctica, and in particular the Ross Sea region; ensuring that all activity is undertaken in a manner consistent with Antarctica's status as a natural reserve devoted to peace and science.<sup>18</sup>

Australia's Antarctic agenda is laid out in the 2014 Australian Antarctic Strategy and Action Plan to:

- maintain Antarctica's freedom from strategic and/or political confrontation;
- preserve our sovereignty over the Australian Antarctic Territory, including our sovereign rights over adjacent offshore areas;
- support a strong and effective Antarctic Treaty system;
- conduct world-class scientific research consistent with national priorities;
- protect the Antarctic environment, having regard to its special qualities and effects on our region;
- be informed about and able to influence developments in a region geographically proximate to Australia; and
- foster economic opportunities arising from Antarctica and the Southern Ocean, consistent with our Antarctic Treaty system obligations, including the ban on mining and oil drilling.<sup>19</sup>

Ensuring Antarctica remains free from military competition is essential to Australia and New Zealand's national security. Both nations have issued official statements highlighting this in recent years. Australia's 2016 Defence White Paper noted that "It is in our interest to work with like-minded countries to prevent any militarisation of Antarctica which could threaten Australia's sovereignty over the Australian Antarctic Territory and its sovereign rights over its offshore waters. Australia is a strong supporter of the Antarctic Treaty System, which expressly prohibits any mining in Antarctica. Australia also strongly supports the Convention on the Conservation of Antarctic Marine Living Resources, which regulates fishing activity in Antarctic waters."<sup>20</sup> New Zealand's 2018 Strategic Defence Policy Statement highlights a more challenging and complex security environment than the previous assessment, both globally and in Antarctica:

Interest by both state and non-state actors in Antarctica and its surrounding waters will likely grow over the coming years. This will lead to increased congestion and crowding, as well as pressure on key elements of the Antarctic Treaty System, such as the prohibition on mineral extraction...While an evolved Treaty system is likely to remain the key framework for governing activities in Antarctica, *difficulty in distinguishing between allowed and prohibited activities under the Antarctic treaty system could be exploited by states seeking to carry out a range of military and other security-related activities.*<sup>21</sup>

This mild statement was the first time any of the ATCPs had ever called out the military activities in Antarctica that breach the terms of the Antarctic Treaty. The Australian and New Zealand governments, along with their Five Eyes partners Canada, UK, and the USA, are now in the process of reassessing the risk of the altered global political climate and the impact this has on Antarctic affairs. But so far, government statements seem to be stuck in the mode of business as usual.<sup>22</sup>

### ***Policy recommendations***

The Australian and New Zealand governments are taking steps to increase budgets, and expanding and deepening their Antarctic capacity and institutional expertise. But much more can be done. Both nations need to devote greater diplomatic resources to Antarctic affairs. They need to establish Antarctic ambassadors, who can be whole-of-government coordinators on Antarctic affairs, both domestically and internationally. Both states must increase the brief of government agencies with existing Antarctic capacity, for a whole-of-government response.

Australia and New Zealand can do more to coordinate policy and share logistics in Antarctica, which will greatly increase their respective capacity. They can also do more to partner with other like-minded states. Canada is looking for opportunities to expand its activities in Antarctica. Korea, Italy, and France have complimentary interests and activities with New Zealand and Australia in the East Antarctic area. Both Australia and New Zealand are in Antarctic logistics pools with the USA, and three-way cooperation should be enhanced. New Zealand and Australia both use their militaries for Antarctic logistics (New Zealand more so than Australia), both have invested in new vessels, plans and drones suitable for operating in the Antarctic environment. NZDF and their Australian defence force counterparts should be in dialogue to enhance Antarctic and Southern Ocean inter-operability. Pacific Quad cooperation should extend to the Southern Ocean. The two governments must assess the implications of China expanding BRI to Antarctica.

Australia and New Zealand must face up to the new challenges of the changed global order. With careful diplomacy, a clear-headed strategy and leadership, and strategic investments in capacity, the two nations can maintain their rights in Antarctica and the Southern Ocean, while protecting peace and security there.

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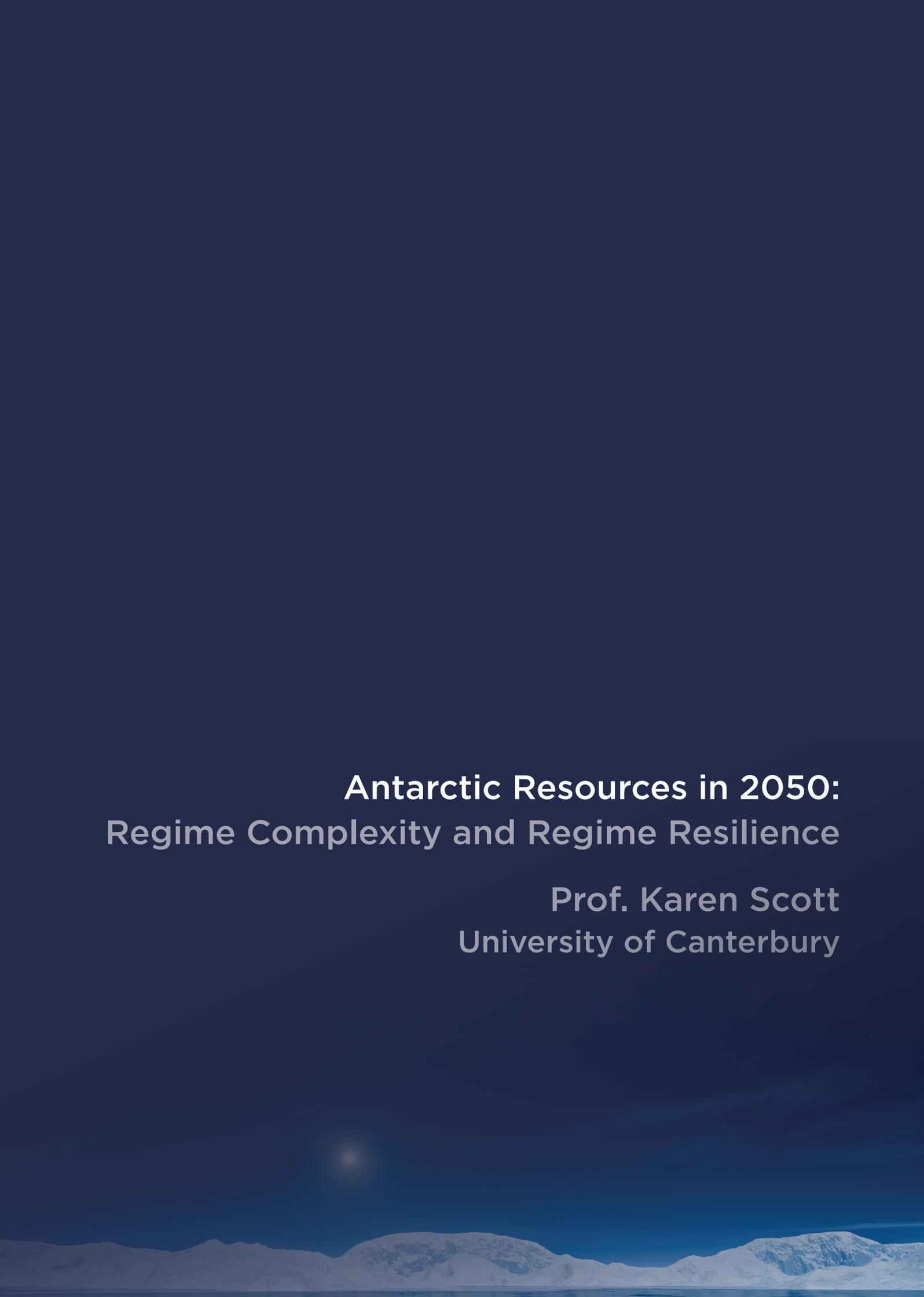
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The background of the slide is a photograph of an Antarctic landscape. It features a range of snow-capped mountains in the distance under a clear, bright blue sky. A small, bright light, possibly the sun or moon, is visible in the sky. The overall color palette is dominated by blues and whites.

**Antarctic Resources in 2050:  
Regime Complexity and Regime Resilience**

**Prof. Karen Scott  
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## Antarctic Resources in 2050: Regime Complexity and Regime Resilience

Prof. Karen Scott

The question of resources – ownership, access to, management of – is noticeably absent from the 1959 Antarctic Treaty. Dedicating the continent to peace and science (Articles I – III), the Treaty was motivated by a desire to manage and contain geopolitical tensions and Cold War hegemony in the far South, rather than resource use per se. But resources were far from irrelevant to those states operating in the region. In the Nineteenth Century, it was resources – seals and whales in particular – that drew sailors to the Southern Ocean, and attempts to control and regulate these industries by states demonstrated ‘administration’, a necessary component of any claim to sovereignty over territory under international law. The fact that seven states continue to maintain claims to Antarctica (Australia, Argentina, Chile, France, Norway, New Zealand and the UK), two states reserve a right to do so (USA and Russia), and the majority of states recognise no claim, is as much motivated by preserving access to actual and potential resources as it is about stewardship, political strategy and the technicalities of international law. Nevertheless, resource management has largely been dealt with somewhat at arm’s length from the Antarctic Treaty itself. Whereas a Protocol on Environmental Protection to the 1959 Antarctic Treaty was adopted in 1991, regimes for the management of seals (1972), fish (1980) and minerals (1988, not in force) were developed under separate conventions, closely affiliated with, but nevertheless legally distinct from, the Antarctic Treaty proper.

### Antarctic Resources

Today, much discussion focuses on biological resources in terms of their genetic properties and whether and to what extent the Antarctic Treaty principles relating to dissemination of scientific research and cooperation (Articles II and III) applies to what is commonly described as bioprospecting. The question of whether and how the benefits of such research should be divided among Treaty parties, or the international community more generally, has been assiduously avoided thus far. The issue of access to biological resources managed by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) is not necessarily less fraught, as environmental initiatives, such as the designation of marine protected areas (MPAs), meet resistance from states concerned that their current and future access to fish stocks will be limited. In a consensus-based decision-making process such resistance can stymie initiatives for years or prevent their adoption altogether. Although there is considerable debate as to whether minerals in commercial quantities are located on and offshore the Antarctic continent (Cook and Storey, 2015), and there is no debate as to the current technical and economic obstacles to the extraction of any such minerals, state and media interest in minerals remains high. In 2048, any Consultative Party to the Antarctic Treaty can request a Protocol review conference, and the Protocol can be amended by majority (including  $\frac{3}{4}$  of the states classified as Consultative Parties at the time the Protocol was adopted) rather than by consensus (Article 25(1) – (4) of the Protocol). This includes an amendment to the ban on minerals activities (other than scientific research) under Article 7 of the Protocol, although the ban cannot be lifted without the prior adoption of a legally binding regime on minerals (Article 25(5) of the Protocol). Interest in ice and Antarctic freshwater resources has not been seriously resurrected since the various feasibility studies undertaken in the 1970s, but as regions experience increasing drought owing to climate change, such interest may be revived. Other commercial opportunities in Antarctica largely comprise tourism, which is subject to basic control under the Treaty. The term ‘resources’ can also be expansively interpreted to include the fruits of scientific research that are vital for informing science and policy relating to climate change as well as many other matters.

## Antarctic Futures and the Role of Resources

Commentators, academic and otherwise, have long speculated that the future of Antarctica will be dominated by its potential for, and disputes over, natural resources: ‘the Cold War analogue of our time’ (Hemmings et al (2015) p. 554) (see Ferrada (2018) Liggett et al (2017), Tin et al (2016)). According to Hemmings (2009) we are on the cusp of a Fifth Antarctic Age, where governance is challenged by the impacts of globalism, resource exploitation and commercial interests. The key question for policy-makers is how states (and potentially other actors) will pursue their interests in Antarctic resources, and whether the Antarctic Treaty is sufficiently resilient to manage these interests. This note will briefly explore three legal regimes or processes through which states may choose to pursue their interests in Antarctic natural resources in the future: (1) the Antarctic Treaty System; (2) external legal regimes such as the law of the sea; (3) unilateral claims under (or possibly beyond) international law. This note will make some preliminary remarks as to the potential resilience of the Antarctic Treaty System to withstand global resource-related pressures in light of the three scenarios highlighted.

### *(1) Pursuing Resource Interests Through the Antarctic Treaty System*

The view of the parties to the Antarctic Treaty is that resource issues (whether biological, mineral or commercial) should be managed by the parties through Treaty processes. This strategy has proven both historically and currently successful in respect of fish and minerals and, to a lesser extent, tourism. Many state parties have publicly acknowledged a national interest in the resource potential of Antarctica; China (Brady 2012 and 2017), Russia (Carter et al, 2016) and Australia (*Australian Antarctic Strategy and 20 Year Action Plan*, 2016) being the most prominent but by no means the only states to do so. However, although there have been indications that some states, such as China (Brady, 2010 p. 773), are unhappy with the current legal order in the Antarctic, this has not manifested within the ATS itself (Saul and Stephens, 2015 p. 69), and these states appear content (at least for the time being) to pursue their interests through the framework of the Treaty System. Moreover, that states see the ATS as the means through which to mediate their resource interests in the Antarctic is demonstrated by the number of new states becoming parties to the Treaty (e.g. Malaysia, 2011, Pakistan, 2012, Mongolia, 2015) and seeking consultative status (e.g. Venezuela’s request in 2016 and 2018).

Nevertheless, a significant shift in geopolitical power both within and beyond the Antarctic Treaty System, combined with minimal institutional evolution of the Treaty over the last fifty years, means that it may be harder for Treaty parties to respond to resource issues than in the past. In 1959, the claimant states (as well as states reserving a right to make a claim) were in the majority both numerically and in terms of political and economic power. This dynamic was largely maintained during the negotiations for CCAMLR and for the Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA). Thus the delicate sovereignty compromise set out in Article IV of the Antarctic Treaty was maintained within both CCAMLR and CRAMRA and, in respect of the latter, states with a claim or reserving the right to make a claim were even granted a privileged position with respect to minerals management. Today, states with or reserving a right to make a claim are in the minority, and non-claimant states, notably China, and, to a lesser extent, India, are assuming leadership roles within the Treaty. The unusual two-tier membership status, which accords decision-making rights to Consultative Parties only – long challenged as being a relic of colonialism and privileging those states with the resources to exploit the Antarctic for research purposes – is likely to come under increasing pressure, as membership expands and new states demand to actively participate in the management of Antarctic resources (as well as other matters), in return for complying with the Protocol and other measures. Maintaining a consensus approach to decision-making is likely to become more challenging, as the changing political dynamics within the ATS impact on the extent to which traditional Antarctic Treaty values continue to underpin the approach of parties to resources and other matters. The disintegration of the International Whaling Commission

(IWC) provides a salutary lesson on the potential fate of an institution when the underlying values and motivations of member states begin to diverge. Consensus decision-making has already come under significant pressure within CCAMLR as demonstrated by the very slow progress of MPA designation, and the significant compromises needed in order to establish the Ross Sea MPA in 2016 (such as a substantial reduction in size of the MPA and the controversial sunset clause that requires the MPA to be confirmed after 35 years). It is notable that no significant legal instrument has been adopted within the ATS since 1991, and Annex VI to the Environmental Protocol (on liability), adopted in 2005, has yet to enter into force. The question of bioprospecting, which has been discussed by the Antarctic Treaty Consultative Meeting (ATCM) on a regular basis for the last 16 years, has failed to be addressed substantively, and the management of tourism has been largely delegated to private organisations. While predictions of the demise of the ATS are currently over-stated, there is reason to question whether the ATS has sufficient resilience and flexibility to address future resource pressures.

## *(2) Pursuing Resource Exploitation Through External Regimes*

An alternative path to pursuing national resource interests in Antarctica through the ATS is to mediate those interests through an external regime. During the 1980s, coinciding with the negotiations for CRAMRA, a very strong campaign was fought to transfer governance of the Antarctic to the United Nations (Hayashi, 1986), and interest in the proposition only really reduced after the ban on commercial minerals operations was adopted under the Protocol. The parties to the Antarctic Treaty successfully avoided the question of whether Part XI of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which established a regime for the seabed and its minerals as common heritage of mankind, applied to the Antarctic. No state has seriously attempted to argue the proposition that Part XI applies to the Antarctic, to the exclusion of the Antarctic Treaty, notwithstanding that early interpretations of the Antarctic Treaty were equivocal with respect to its application to the marine environment (Auburn, 1977 p. 159). Nevertheless, all seven claimant states have either submitted information on their potential continental shelf claims to the Commission on the Limits of the Continental Shelf established under UNCLOS, or formally reserved a right to do so; a clear example of mediating their interest in future Antarctic resources through an external regime.

In 2018, negotiations for a legally binding instrument under UNCLOS on the conservation and sustainable use of marine biodiversity beyond national jurisdiction, including access to and sharing the benefits of marine genetic resources (MGRs), were initiated (the BBNJ negotiations). 185 states would regard the seas surrounding Antarctica as 'beyond national jurisdiction', but the potential application of the BBNJ instrument to the Antarctic Treaty area, and activities taking place therein, including bioprospecting, is currently uncertain. Whilst it is likely that the BBNJ instrument will be required not to undermine existing regimes and rules, as noted above, the ATCM has yet to adopt substantive rules relating to bioprospecting. How the Antarctic Treaty parties choose to engage in the BBNJ process with respect to its implications for the Antarctic Treaty raises interesting questions of treaty law (with respect to both parties and non-parties) as well as questions of politics and diplomacy. ATCM inaction (deliberate or otherwise) could potentially create a lacuna that is filled by the BBNJ instrument on the basis of values that are consistent with or, possibly, inconsistent with Antarctic Treaty values, in particular, the sovereignty compromise under the Treaty. Action, on the other hand, such as developing a regime for Antarctic bioprospecting, risks precipitating a direct challenge to the Treaty's mandate to manage what many regard as global resources. The Treaty has never been under greater external challenge than when developing resource management regimes as its experience in the 1980s demonstrates. Either way, with respect to bioprospecting, both parties and non-parties will be watching (and influencing) developments under both regimes in order to determine how their national interests are best served.

### *(3) Pursuing Resource Interests Through Unilateral Claims*

The third pathway of pursuing resource interests is through unilateral claims outside of any international regime. Treaties cannot of course bind third parties, and despite arguments that the Antarctic Treaty constitutes customary international law or an objective regime (Simma, 1986) it is generally accepted that the reach of the Antarctic Treaty System extends only to its parties. Non-party states could, in theory, exploit Antarctic resources on the basis that resources are open to all (via the doctrines of *res communis* or *res nullius*), although parties to the 1995 UN Fish Stocks Agreement must comply with CCAMLR with respect to fishing activities by virtue of that Agreement.

An alternative scenario is the withdrawal of a state party from the Antarctic Treaty or the collapse of the Treaty in its entirety. Although the Treaty does not provide for an explicit provision permitting withdrawal (outside of the situation where a state does not ratify an amendment and is deemed to have automatically withdrawn from the Treaty two years after the amendment has entered into force, Article XII(1)(b)), it is unlikely that there is no right of withdrawal. Rather, the default provisions under Article 56 of the 1969 Vienna Convention on the Law of Treaties would apply. Although withdrawal from the Treaty seems unlikely, it is worth noting two recent precedents of states withdrawing from international agreements on the basis that their national interests are no longer served by those agreements: Japan and the IWC and the UK and the European Union.

In the event of withdrawal or the collapse of the Antarctic Treaty, it is clear (outside of arguments relating to customary international law), that Article IV of the Treaty would no longer apply. What is less clear however, is the status of activities from 1959 to the point at which the Treaty is no longer in force. Activities taking place whilst the Treaty is in force cannot be used as the basis of a new claim or to support or extend an existing claim. But can these activities be used as a basis of claim (or to support an existing claim) once the Treaty is no longer in force for one or more states? It is indisputable that all claimant states and a good number of non-claimant states, including China, Russia and the US, have built bases and undertaken activities designed to support claims to territory under international law after 1959 notwithstanding Article IV of the Treaty. The answer to this question of treaty interpretation is not straightforward. On the one hand, it would seem to be contrary to the consensual approach of international law for the impact of a treaty obligation to outlive the treaty itself without the explicit consent of the parties to this effect. On the other hand, over fifty states have cooperated for more than fifty years on the express basis that ostensibly their actions were neutral with respect to making, recognising or disputing claims. Furthermore, Article IV has been crucial to limiting demands for broader international governance of the Antarctic. The approach taken by states either individually or collectively will likely be determined by the extent to which withdrawal from, or even abandonment of the Treaty in its entirety, is a managed exercise.

### **Concluding Remarks**

In conclusion, pressure over whether and how to exploit Antarctic resources is only likely to grow over the next fifty years. Whilst mineral resources continue to receive media attention, as states move away from fossil fuels in order to address climate change, it is more likely that biological (including genetic) resources as well as freshwater and other commercial opportunities in Antarctica will give rise to disputes in the future. A key question for policy makers is how states will pursue their Antarctic resource interests: through the Antarctic Treaty System; through external regimes; through unilateral claims and other activities under international law. These options are not of course, mutually exclusive. The extent to which the ATS can maintain its current primacy as the regime for managing Antarctic resources depends on its resilience and adaptability with respect to internal governance and external engagement. Its undoubted success in the past has arguably led to a somewhat complacent attitude to both internal and external criticism. The sovereignty compromise is no less important now than it was in 1959, with no sign that any claimant state is prepared to relinquish their claim. But changing political dynamics within and beyond the Treaty will make it

increasingly difficult to maintain that compromise. Moreover, the interest of third states in Antarctic biological resources is as likely to be as high if not higher than it was in mineral resources given their relative accessibility. These states will be asking why these resources should be managed by the Antarctic Treaty rather than by a global regime. In fact, it is this question – why *should* the ATS manage Antarctic resources in 2050 – that Treaty parties need to focus on. Only by providing a cogent and convincing answer that satisfies not only Treaty parties, but also the international community more generally, will the ATS maintain its status as the primary resource management regime for the Antarctic in the future.

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# Antarctic Resources and Tourism

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## Antarctic Resources and Tourism

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### Background

Antarctic resources are few and valuable, and access is highly regulated. Biological resources that are harvested include fish and krill, whereas Antarctica's amenity – rendered primarily through tourism – is non-extractable. Then there are mineral resources, both known and speculative, that are currently untouchable.<sup>1</sup>

Over their 60-year history, the Antarctic Treaty Consultative Parties have constructed a finely gimballed legal system to help them balance or avoid negative global influences as they make good legal decisions for the peaceful use of Antarctica. Access to resources is regulated through law made in two annual forums: the Antarctic Treaty Consultative Meeting (ATCM) and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) meeting.<sup>2</sup>

Each year the ATCM – a closed meeting – makes new laws, called *Measures*, that are implemented through the domestic legislation of the parties to the Antarctic Treaty. Measures are adopted by consensus (ie. either full agreement or no formal objection) and no opt-out or reservation is permitted.

Each year CCAMLR Members meet to consider Southern Ocean conservation, including the regulation of fishing. New laws are adopted by consensus as *Conservation Measures* and are brought into effect through Members' domestic arrangements, such as fishing license conditions. Opt-out is available but rarely used.

New Zealand and Australia are Pacific and Antarctic neighbours and have common interests in protecting their Antarctic estates and upholding broader global interests in a peaceful Antarctica. They are both claimants to Antarctic territory, original signatories to the *Antarctic Treaty* and signatories to the *Convention on the Conservation of Antarctic Marine Living Resources* who also fish. They are supporters of consensus decision-making and their interests can, therefore, be considered complementary.

### Challenges and Strategic Concerns: Biological Resources

The only resources considered here are fin-fish and crustaceans as other biological material sourced through bioprospecting comes under the rules of conduct of scientific research rather than resource extraction.

Fishing is regulated through CCAMLR but sealing and whaling are not.<sup>3</sup> CCAMLR Members agree on catch limits and conservation strategies at their annual meetings in Hobart. The agenda at these meetings has changed over the last decade or so, with a decreased focus on illegal, unreported and

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<sup>1</sup> Another resource is Antarctica itself – a critical source of scientific information that is also non-extractable – but this is not covered here.

<sup>2</sup> The ATCM was established by the *Antarctic Treaty* (1959); for further information go to the Secretariat website <http://www.ats.aq>. CCAMLR was established by the *Convention on the Conservation of Antarctic Marine Living Resources* (1980); see <http://www.ccamlr.org>. Both websites have lists of member states (accessed 25.07.19)

<sup>3</sup> Should sealing ever resume, it would be regulated by the *Convention for the Conservation of Antarctic Seals* (1972). Note that at the Prague ATCM in July 2019, Ukraine (which fishes in the Southern Ocean) signaled its intention to accede to the Seals Convention (final report not yet public). Whaling in all the world's oceans is regulated by the *International Convention for the Regulation of Whaling* (1946).

unregulated (IUU) fishing, thanks in part to the involvement of INTERPOL,<sup>4</sup> and increased attention to the designation of marine protected areas and other conservation strategies. This has caused a rift between harvesting- and conservation-focused Members, resulting in difficulties reaching consensus.

Patagonian and Antarctic toothfish are harvested from all areas under CCAMLR jurisdiction and are the most likely targets for IUU fishers. The licensed catch levels are small but the value is high and the cost of access even higher, making the fishery viable only while consensus can be reached on ecologically and economically sustainable catch limits and conservation strategies. In 2018, the pelagic take of Patagonian toothfish by 13 Member states was 12,565 tonnes, and of Antarctic toothfish (found closer to the continent), 4,353 tonnes.<sup>5</sup> The concern is that if catch limits are reduced and fishing becomes unprofitable, licensed fishers might quit the Southern Ocean, resulting in there being fewer to monitor for IUU vessels. It is a scenario that will continue to complicate decision-making in CCAMLR and one that deserves watching since both New Zealand and Australia fish for toothfish. Both, however, have limited individual capacity to monitor their interests in the Southern Ocean and must rely on joint cooperative agreements.<sup>6</sup>

CCAMLR also regulates the harvest of krill. There is currently no known IUU take due to the expense and the method of fishing (eg. large, easily-detectable vessels). In 2018 the reported legal catch was over 550,000 tonnes by five Members (Chile, Japan, Korea, Norway, Ukraine) using 12 vessels in Area 48 (the South Atlantic) and for the first time, by one Chinese-flagged vessel in Area 58 (Southern Indian Ocean off the Australian Antarctic Territory). Since the majority of krill fishing occurs outside the Search and Rescue (SAR) jurisdiction or areas of strategic interest to New Zealand and Australia, this is not a current cause for concern for either country, though it could develop in the future if China expands its East Antarctic krill fishing interests.<sup>7</sup>

### Challenges and Strategic Concerns: Antarctic Amenity

In the 2018–2019 summer, more than 56,000 tourists visited Antarctica, 8.6% up on the previous year and a record high. Statistics are collected by the International Association of Antarctica Tour Operators (IAATO) from its members and reported each year to the ATCM.<sup>8</sup> Almost all travel is ship-borne, departing from Ushuaia (Argentina) but with some air–cruise operations departing from Punta

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<sup>4</sup> Acknowledging IUU as an insidious organised criminal activity, INTERPOL established its Fisheries Crime Working Group in February 2013 and has subsequently been an observer at CCAMLR meetings, working closely with CCAMLR’s Standing Committee on Implementation and Compliance. See report ‘Support to CAMLR to identify and deter illegal, unreported and unregulated (IUU) fishing activities that undermine the objective of the CCAMLR Convention – Interim Report Submitted by INTERPOL’, CCAMLR-XXXVII/BG/42 Rev. 1, 2018, available on request from CCAMLR Secretariat.

<sup>5</sup> CCAMLR, Report of the Thirty-Seventh Meeting of the Commission, 2018, para 5.19, available at <https://www.ccamlr.org/en/meetings/26> (accessed 25.07.19).

<sup>6</sup> One is the *Treaty between the Government of Australia and the Government of the French Republic on cooperation in the maritime areas adjacent to the French Southern and Antarctic Territories (TAAF), Heard Island and the McDonald Islands* (2003) that enhances cooperative surveillance of fishing vessels, and encourages scientific research on marine living resources in the Kerguelen Plateau region.

<sup>7</sup> CCAMLR, note 5 above, para 5.6. For a map of the CCAMLR Convention area see <https://www.ccamlr.org/en/document/organisation/map-ccamlr-convention-area> (accessed 25.07.19). For information on New Zealand and Australia areas of SAR responsibility, see Jabour J (2017) Search and Rescue in Antarctica, in Hemmings A, Roberts P and Dodds K (eds) *Handbook on the Politics of Antarctica*, Edward Elgar, 392–407.

<sup>8</sup> IAATO (2019) Report of the International Association of Antarctica Tour Operators 2018–19, Information Paper IP39, and Overview of Antarctic Tourism 2018–19 Season and Preliminary Estimates for 2019–20 season, Information Paper IP140 rev.1, both to ATCM XLII, Prague, 2019, available at <https://iaato.org/current-iaato-information-papers> (accessed 16.07.19).

Arenas (Chile).<sup>9</sup> The sailing distance across Drake Passage to the Antarctic Peninsula is just less than 450 nautical miles and the route is within the joint SAR region of Argentina and Chile.<sup>10</sup>

Australia contributes 11.5% of tourists, but, along with New Zealand, only a small proportion of operators. The important point is that all our operators charter vessels flagged to third parties, for example Panama, Marshall Islands and Malta. In the latest reporting season only one vessel, the *Spirit of Enderby* (NZ), visited the Ross Sea region – most likely wholly within New Zealand’s SAR zone; one vessel, two voyages, a total of 98 people onboard. However, four vessels are predicted to operate there next season.<sup>11</sup> Seasonal fluctuations in Antarctic tourism are common and statistics can be misleading; however, the Ross Sea region of interest to New Zealand and Australia is infrequently visited. It is also poorly serviced in terms of SAR capability, and this is a concern as it is the area most likely to require civil, bilateral and multilateral cooperation.<sup>12</sup>

Tourism is primarily self-managed by IAATO through their member by-laws. The Treaty Parties have *Tourism and Non-Governmental Activity* as a standing agenda item, but they almost never make mandatory regulations. To date only two *Measures* concern tourism, and neither has yet entered into force.<sup>13</sup> One, regarding emergency insurance, is almost impossible for tour operators to comply with.<sup>14</sup> Most tourism vessels, except yachts, are subject to the International Maritime Organization’s *International Code for Ships Operating in Polar Waters* (2014, in force 2017). New IMO rules banning the use and carriage of intermediate and heavy fuel oils into Antarctic waters (in force in 2011) and the Polar Code’s enhanced safety and environmental measures, and crew qualifications, are all seen as positive progress in not only preventing accidents but also minimizing the effects if accidents/incidents do occur.<sup>15</sup>

Tourism is also constrained by domestic legislation. Tour operators must submit itineraries and environmental evaluations to a competent authority in the state in which they are registered. The competent authority will evaluate and authorize – or deny – tourism activities before they commence. But even when there are clear lines of communication between competent authorities and tour operators, there is still unauthorized activity being reported.<sup>16</sup> These reports come from

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<sup>9</sup> The operations of fixed- and rotary-wing aircraft have their own problems in Antarctica, and at the latest ATCM in Prague, the Parties agreed to re-evaluate whether existing safety procedures are fit for purpose, particularly as “government operated aircraft could not be subjected to the mandatory use of certain technologies such as positioning reporting systems”. ATCMXLII Final Report (provisional) paras 250–270 refer (report not yet public).

<sup>10</sup> Jabour, note 7 above.

<sup>11</sup> IAATO, note 8 above, IP39, p 19, 30.

<sup>12</sup> For example, the International Hydrographic Organisation, which is an invited observer to ATCMs, has a Hydrographic Commission on Antarctica specifically to, among other things, improve the quality, coverage and availability of Antarctic charts that are currently still sparse (especially for East Antarctica). Hydrographic data collection for charts is the responsibility of states and in the Antarctic context, this requires collaboration.

<sup>13</sup> Measure 4 (2004) *Insurance and Contingency Planning for Tourism and Non-Governmental activities in the Antarctic Treaty Area* has achieved only 18 of the requisite 27 ratifications in 15 years. Measure 15 (2009) *Landing of Persons from Passenger Vessels in the Antarctic Treaty Area* has only 13 of the requisite 29 ratifications, despite this measure having already been an industry-imposed standard when it was adopted 10 years ago.

<sup>14</sup> For more information about the difficulties of implementing Measure 4 (2004) see Jabour J (2007) Underneath the Radar: Emergency search and rescue insurance for East Antarctic tourism, *Tourism in Marine Environments* 4:2.

<sup>15</sup> Jabour J (2014a) Strategic Management and Regulation of Antarctic Tourism. In Tin T, Liggett D, Maher P and Lamers M (eds) *Antarctic Futures: Human engagement with the Antarctic Environment*, Dordrecht: Springer 273–286; Jabour J (2014b) Progress towards the mandatory code for polar shipping, *Australian Journal of Maritime and Ocean Affairs*: 6:1, 64–67; Jabour J (2017) Up against the ice barrier: Antarctic tourism operators prepare for the polar code, in Jones A and Phillips M (eds) *Global Climate Change and Coastal Tourism*, Wallingford: CABI, 273–287.

<sup>16</sup> IAATO, note 8 above. ATCMXLI, 2018, Information Papers 14 and 41 have more information.

civilian operators in the vicinity of where an unauthorized activity took place. IAATO has a ship-scheduling system into which its members file their proposed itineraries. This allows for coordination to ensure the required interval of recovery at popular sites, and also to ensure that there is another ship in the vicinity for safety reasons.

The Antarctic Treaty Secretariat hosts an Electronic Information Exchange System to archive information from each Consultative Party operating in Antarctica, as required (in advance) by the *Antarctic Treaty*. From this database reports can be generated on SAR information, lists of national expedition vessels, and non-governmental vessels approved and – more importantly, denied – authorizations.<sup>17</sup>

Until now there has been little real concern that Antarctica will become a mainstream destination because of natural limits such as distance, lack of on-shore facilities, weather, potential mishaps and expense. However, tourism numbers are trending upwards<sup>18</sup> and IAATO anticipates a significant increase in the number of polar ships. Although the new vessels, many of which will replace older vessels, must be Polar Code-compliant, there is the occasional very large cruise liner (3,000+ passengers and crew) that, should it require SAR assistance in Antarctic waters, would be a considerable impost on any states and their Antarctic programs tasked to respond. Current thinking is that the existing arrangements for the regulation of tourism will not be sufficient to cope with future expansion.

### Emerging Resource Concerns

Mining receives little or no attention in the ATCM because there is a ban on ‘mineral resource activities’ (but not including scientific research) that means no mining is permitted, for the time being. The ban is found in Article 7 of the Madrid Protocol<sup>19</sup> and it does not expire.

There has been constant rhetoric and speculation (particularly in the media) about mining and ‘prospecting’ by some state parties. However, the freedom to conduct scientific research anywhere in the Antarctic, especially since there’s no definition of what ‘scientific research’ means, is immutable.<sup>20</sup> All countries actively engaged in Antarctic research have projects that either intentionally or coincidentally provide information about minerals potential which, at some point in the future, they might try to realise. But overturning the permanent mining ban will not be a simple matter.<sup>21</sup> Consensus on this topic is unlikely in the foreseeable future, therefore Antarctic minerals are resources of a last resort and not of current concern.

The same is true for the harvesting of ice or fresh water from melting glaciers, which is not prohibited under Antarctic law. Access to ice/fresh water and its transport to countries that need it (including, potentially, Australia) is still so futuristic as to not be of current concern. The trouble that will arise in the future concerns who owns the resource *in situ*. Answering this question would necessitate a court, such as the International Court of Justice, resolving the seven claims to Antarctic territory, which would then resolve the ownership of icebergs found inside a claimant’s 200 nm exclusive economic zone, for example. For the ICJ to accept a case like this, any claimant (say New Zealand or

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<sup>17</sup> Antarctic Treaty Secretariat, EIES [http://www.ats.aq/devAS/ie\\_reports.aspx?lang=e](http://www.ats.aq/devAS/ie_reports.aspx?lang=e) (accessed 16.07.19)

<sup>18</sup> IAATO report that according to preliminary estimates for the 2019–20 season, the tourist number will rise by more than 30% – an extraordinary increase on previous years. IAATO, note 8 above and ATCM XLII Final Report (provisional) 2019, para 420 (not yet publicly available).

<sup>19</sup> *Protocol on Environmental Protection to the Antarctic Treaty* (1991), known as the Madrid Protocol.

<sup>20</sup> Jabour J (2018) What countries can and can’t do in Antarctica in the name of science. *The Conversation*, 10 November 2018, <https://theconversation.com/explainer-what-any-country-can-and-cant-do-in-antarctica-in-the-name-of-science-105858>

<sup>21</sup> Madrid Protocol note 19 above, 25.5(a).

Australia) must agree to the court's jurisdiction. This would be a huge gamble to take – and an unlikely one in the foreseeable future. Nevertheless, water is rapidly becoming the world's most precious resource, and the technology to harvest ice/water from Antarctica will develop in tandem with the increasing need for water.

### **Possible Futures**

The expense of accessing Antarctic resources is high, thereby insulating the continent somewhat from gross exploitation, subsidized mining and other non-profitable but strategic ventures. But a time will come when expense is not the limiting factor. This can be seen in relation to the harvesting of seals (a new source of protein from seals that are not endangered), fresh water (the dry parts of the world will get drier under the worst climate change scenarios), and krill (the biomass is unknown, but is most likely in the hundreds of millions of tonnes, which might encourage a large increase in catch limits). Keeping Antarctica peaceful relies on the continuing resilience of the Antarctic Treaty and CCAMLR and their uncontroversial law-making.



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