**Special issue introduction on the 60th Anniversary of the Antarctic Treaty**

**Online published *Polar Record*, 14 October 2019**

**Abstract**

This essay serves as an introduction to the special issue recognising the 60th anniversary of the Antarctic Treaty. It provides the geopolitical and scientific context informing the creation of the negotiations for a new treaty between October-December 1959. Thereafter it identifies some of the challenges facing the contemporary Antarctic Treaty System. While none are thought to be threatening to the collaborative spirit that informs the legal and political status quo, there is no room for complacency either. Finally, the contributors and their essays are introduced for the reader. Taken together, it showcases the diversity of work being undertaken by scholars in the humanities and social sciences.

**Reflecting on the 60th anniversary of the Antarctic Treaty**

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On 1 December 1959, the Antarctic Treaty, was signed by twelve signatories. Led by the United States, the negotiation of a new treaty for the Antarctic continent and surrounding ocean was a diplomatic triumph. Building on the collaborative spirit of the 1957-8 International Geophysical Year (IGY), it would be easy to assume that the treaty conference built on a well of collaborative cheer and nostalgia for ‘science on the ice’ (for a review, Collis and Dodds 2008).

The new treaty created a regional model of governance (with an area of application applying to land, sea and ice shelves 60 degrees South), which espoused the values of science, collaboration and trust underpinned by confidence building measures. The Antarctic would be henceforth secured from military activities, declared off bounds to nuclear testing, and inured to rival sovereignty claims. As the preamble noted:

Recognizing that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord (Antarctic Treaty 1959).

The treaty created a regional framework for keeping Antarctica peaceful while enabling the facilitation of scientific co-operation and the maintenance of the legal status quo via the well-appreciated Article 4 provisions of the Treaty. As Article 4 part 2 declares:

No acts or activities taking place while the present treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present treaty is in force (Antarctic Treaty 1959).

As polar scholars have observed, the origin story about the Antarctic Treaty is complicated (for example, Bulkeley 2010). The treaty conference was not a ‘miracle made on ice’. There was prevailing tension and the territorial politics of the Antarctic Peninsula was particularly messy (Howkins 2017). It required extensive preparatory meetings, tough negotiation at the conference itself and an anxious period of some 18 months, as the twelve parties sought public and political approval for the treaty in their host communities (Beck 1986). Claimant states such as Australia, France and Argentina were the most sceptical about the treaty and its provisions for the protection of their claims.

What the Antarctic Treaty did achieve was to inspire a form of ‘big space’ thinking which inspired the establishment of other regional governance projects, including nuclear-free zones in the South Pacific and Indian Ocean. It was common to think of the Antarctic as a ‘natural laboratory’, ideally placed for scientific co-operation to flourish. Journalists such as Walter Sullivan of the *New York Times* were telling his readers that there was an ‘assault on the unknown’ (Sullivan 1961). The Antarctic Treaty emerged as a time when there was intensifying interest in the fate of the world’s oceans, jungles, mountains and outer space (Naylor and Ryan 2009). While the IGY was integral to this enchantment with remote spaces, the 1950s were a decade of renewed human exploration including high profile expeditions involving the crossing of Antarctica, the summiting of Mount Everest and descent into the Marianas Trench. At the same time developments in earth system science encouraged further the framing of Antarctica as something that needed to be more systematically monitored, studied, and archived. Environmental knowledge was integral to Cold War geopolitics; as the superpowers and their allies wanted to better understand the earth’s heights, depths and earthly volumes (Turchetti and Roberts 2014).

The Antarctic Treaty was also an experiment in democratic governance. No party could exercise an absolute veto over other parties. Consensus and trust underpinned its modus operandi. The original signatories committed themselves to biennial meetings, and to developing agreed measures and recommendation. The treaty also contained measures to ensure that scientific information was exchanged and that parties agreed that they could inspect one another’s research stations and logistical programmes on the ice. Membership was controlled by references to ‘substantial scientific research activity’. The original signatories, despite references to humanity and the United Nations, did not want a mass membership organization.

A small group of like-minded nations was thought to be more likely to secure (ongoing) consensus over governance mechanisms and policies of operationalization. However, the parties recognised that no one wanted to sign up to a treaty incapable of change. As the treaty notes, there is scope for a treaty review conference (after 30 years of the treaty being in force), which could be used to propose a review of the treaty’s operation. As ‘1991’ approached, there was no shortage of media reports warning that the treaty was about to end. Thus far, no party has called for a review conference and no party has announced that it intended to withdraw.

Over the following decades of its existence, the treaty parties were able to develop further what was termed, the Antarctic Treaty System (Joyner 1998). New legal instruments were negotiated in the 1960s, 1970s and 1980s addressing environmental protection, resource management and biodiversity protection. One proposed convention on mining (the Convention on the Regulation of Antarctic Mineral Resource Activities) was famously rejected by Australia and France in 1989. This led to the Protocol on Environmental Protection (Protocol) in 1991 and coincided with a tough few years for the treaty parties as accusations abounded that the Antarctic club were secretly carving up the polar continent for their own sectional interests. Notwithstanding the criticism, the Antarctic Treaty parties grew in number with new members such as China and India joining in the 1980s and developed new mechanisms of information-sharing and engagement with non-governmental organizations and commercial stakeholders such as tour operators and fishing companies.

On the face of it, therefore, there should be plenty to celebrate as the treaty approaches its 60th anniversary. The Antarctic Treaty System (ATS) now has 54 members, with some 29 consultative parties ranging from Argentina to Uruguay who enjoy voting rights. The membership includes China, India, Brazil, Korea and multiple representatives from Europe and South America. With the exception of Africa (South Africa remains the sole representative), the membership is scattered around the world. There have been no wars fought over Antarctica. Mining remains banned by the Protocol. And the contested sovereignty of the Antarctica has not provoked either the seven claimant states (Argentina, Australia, Chile, France, New Zealand, Norway, and the UK) and/or semi-claimants (Russia and the US which have expressed in the past the right to make a claim in the future) and new players such as China from walking away from the treaty. In an era of rising populism and nativism, the Antarctic Treaty should be a source for celebration even relief (see the essays in Hemmings, Rothwell and Scott 2012). And yet.

**A continent and surrounding ocean in crisis?**

In retrospect, the 1980s seemed to be a tense decade for Antarctic governance and geopolitics (see the essays in Dodds, Hemmings and Roberts 2017). Arguments raged over the rights and wrongs of whaling, resource extraction and the relationship between the ATS and the wider world. Antarctica was ‘globalized’ in this decade, politically speaking. But in retrospect, what is striking is that the Antarctic was framed explicitly as something waiting to be exploited, managed, protected as well as studied. The metaphor of the ‘natural laboratory’ endured but not in splendid isolation. Fishing in the Southern Ocean was ongoing with fears that illegal, unregulated and unreported (IUU) fishing might intensify. The human footprint was mounting thanks to a growing treaty membership (establishing ever more research stations and associated infrastructures) and flourishing tourist industry. The ‘ozone hole’ was discovered in the mid-1980s, and that the Antarctic Peninsula appeared to be warming in rapid fashion. But at that stage there was less public discourse pertaining to climate change, and what we might now term an earthly crisis that appears to be exceeding our political imaginaries.

Fast forward a few decades. Antarctica is warming (Rintoul et al 2018). It is melting. It is experiencing alien species invasion (for example, Shaw et al 2014). It is undergoing ecological state-change as the Southern Ocean acidifies, diatom silica production dimishes and changing wind patterns bring warmer waters towards the ice shelves and glaciers of the polar continent (for instance, Petrou et al 2019). Ongoing research at Pine Island and Thwaites glaciers reveals how shifting wind and water currents are influencing the movement of a deeper layer of warm water. The intersection of ocean forcing and basal ice melting is recognised as a key variable in determining the fate of Antarctic glaciers (Christianson et al 2016). The fate of Antarctica’s ice matters to the wider world. Ice melt means ultimately sea level rise and further implications therein for the fate of low-lying communities around the world. Scientists warn the introduction of more fresh water into the Southern Ocean will alter water chemistry, heat budgets and ecological diversity (Merino et al 2018). Warmer waters are not favoured by krill, the linchpin of the Southern Ocean ecosystem, and recent work has begun to explore what is termed ‘krill futures’ (Nicol 2018). Whatever the consultative parties do or don’t do, climate change will continue with ramifications for Antarctic and Southern ecosystems.

Thus, it is not surprising that environmental groups such as the Antarctic and Southern Ocean Coalition (ASOC) have been vocal in their demands that the ATS must do more to protect Antarctica from things that lie within its managerial purview. In a recent ASOC statement entitled ‘ASOC calls on Antarctic Treaty parties to revive the spirit of the Antarctic Treaty and take action to preserve the world’s last great wilderness’. ASOC notes that, the 2019 ATCM in Prague failed to take decisive action on threats to the Antarctic environment, and actions on climate change, tourism, and protected areas were “blocked or watered down by a small minority of countries” (ASOC 2019). They don’t identify the offending countries per se. The executive director of ASOC appealed nonetheless to the consultative parties to recognise that they “cannot afford to let politics get in the way of the future of the world’s last great wilderness”.

While no doubt well intentioned, it seems desperately naïve to assume that politics can be divorced from the governance of Antarctica. The contested politics of Antarctica has, for the last 60 years, made the Antarctic Treaty possible. Did the prior existence of those seven sovereignty claims would the original signatories agreed upon Article 4 of the 1959 Antarctic Treaty? Would science have been a supplicant to treaty business without the political compromises informing the IGY such as the agreement to conduct science anywhere in Antarctica? Did the existence of sovereignty claims help the treaty parties avoid explicit discussion of Antarctica’s resources? While the resources of Antarctica were not an immediate concern to the signatories, there was plenty of speculation at the time that the continent possessed plenty of strategic minerals such as uranium. The contested politics of Antarctica meant that the parties were able to proceed cautiously with additional legal instruments, and the principle of consensus enabled dissent to be internalised and for a long-time kept secret from the wider world. For much of the 1960s and 1970s, the Antarctic would appear safely isolated from Cold War geopolitical machinations and global turbulence. Some parties such as apartheid South Africa benefited from the contested politics of Antarctica. A pariah state elsewhere, South Africa was welcomed in the confines of the treaty environment.

However, some of that confidence has been shaken in recent years. Living resource management is a divisive issue. The tortuous establishment of the Ross Sea marine protected area captured the world’s attention. CCAMLR parties struggled to reconcile the demands of fishing nations and their desire to enact the ‘rational use’ of fishing stocks with more conservation-minded nations. The distinction is not always so neat in practice. While it might be tempting to setup a distinction between countries such as Russia, China and Norway as fishing nations and conservationists such as the US, UK, Australia, New Zealand and European Union, it is more complicated than that. The fishing industry is global and New Zealand for example has a commercial interest in Ross Sea fisheries. Marine protected areas (MPAs) are not seen as politically innocent marine spatial planning tools. Depending on their size, scope and restrictive regime, they can elicit concerns that environmental stewardship is being used to manage and constrain third parties. The Ross Sea MPA will be in force for 35 years (entered into force in December 2017) but its future will be closely monitored by all CCAMLR parties given its size (Brooks 2013). At 1.5 million square kilometres, with 1.12 million square kilometres of that area being classified as ‘no-take’ in the general protection zone, it would be understood to be a large-scale MPA. The eventual size and scope of the MPA was deeply contested and convoluted (Liu and Brooks 2018).

While the Ross Sea MPA might be considered a success for the ATS, the pressure for further MPAs remains ongoing. The Convention for Biological Diversity (CBD 1992, entered into force 1993), as part of its Strategic Plan for Biodiversity and the Aichi Biodiversity Targets, calls for at least 10% of the world’s coastal and marine areas to be protected by 2020 (Aichi Target 11). There are plans for further MPAs in East Antarctica and Weddell Sea, and their progress will depend in part on how the CCAMLR parties secure agreement on the balance between ‘rational use’ and conservation measures. Current and future fishing interests will be a key driver as will be precedent setting. Some parties will worry that MPAs will be used by claimant states to bolster their strategic and sovereign interests. Others will be concerned that the Antarctic Treaty System is in danger of being overtaken by global developments regarding marine biodiversity in areas beyond national jurisdiction. Either way, the challenge for those concerned for the marine biodiversity of the Southern Ocean is profound; the comparative isolation of the world’s most southerly waters is under scrutiny as sea ice cover, water temperature, ocean and wind currents alter and potentially facilitate the presence of non-native species. Warming waters, coupled with trans-national shipping, has unwittingly created a global transplantation economy for non-native species.

Protecting Antarctica’s biodiversity is proving challenging. Scientists are in agreement that the environmental-geographical framework underpinning Antarctic Special Protected Areas (ASPAs) has developed in ad hoc manner. Parts of the Antarctic continent and coastal waters have no ASPAs. There is concern that the distribution of APSAs has tended to favour iconic species such as seabirds and is less concerned with biodiversity in other areas including the ice-free regions, which tend to support the most biodiversity. While we have identifiable Antarctic Conservation Biogeographic Regions, four of the sixteen regions have no APSAs. The underpinning rationale for ASPA can, under Annex 5 of the Protocol, be based on aesthetic, scientific, wildlife, historic and or scientific factors. Antarctic Special Protected Areas might be designed to protect some things in the region concerned but not others. Antarctic Special Protected Areas might have been forged by multiple value and objectives but they might not cohere with one another. The absence of conservation data might mean that the rationale for a particular APSA is no longer relevant. Other areas of Antarctic life such as the micro-biotic tend to be neglected. The 2019 SCAR/CEP report on the APSA per se was notable for bringing into sharper focus the need to think more consistently about what the environmental protection of the Antarctic is devised, planned and managed.

All of the above matters because environmental protection is not free from controversy. The Ross Sea MPA revealed well competing interests of CCAMLR parties. The Chinese proposal for an Antarctic Specially Managed Area (ASMA) around its scientific station at Dome A has proven particularly controversial (Liu 2019). Despite introducing the proposal several times, the Chinese have not been able to find anyone to support the proposal. ASMAs are a management device designed to help guide multiple stakeholders working in the same area. For the critics, the Dome A proposal was a ruse by the Chinese government to increase its control of a remote region which is only occupied by Chinese scientists. China wanted to introduce a code of conduct for Dome A but again this has not found support and indeed Australian commentators continue to be critical of China’s motivation. For one thing Australia would not wish its citizens to be bound by any such code of conduct and was not going to consent to anything that might apply to anyone else bar Chinese citizens. For some media sources, all of this was a harbinger of things to come; an Antarctic riven by old and new sovereignty disputes over territory and resources.

The Dome A code of conduct drama illustrates well that the narrative of potential crisis is not shared by all polar participants and observers. Tony Press, the former head of the Australian Antarctic Division, argued that conflating the Dome A proposal with Australian anxieties over the sovereignty of the AAT was mistaken (Press 2019). Press was at pains to stress that Australian researchers collaborate with their Chinese colleagues and have an excellent working relationship. He disputed the claims of others that China’s Dome A proposal was being framed by Australian officials as a sovereignty challenge. He noted that Australia recognised that multiple parties were present in the AAT such as India and Russia and had every right to be there given the provisions of the Antarctic Treaty. As he concluded, “Conflating unrelated areas of law and policy does not lead to building trust”. And yet, at the same time, there were reports of the Australian defence forces expressing concerns about Chinese activities in the AAT and there has been no shortage of counter-commentary warning that China and Russia’s reluctance to embrace the Ross Sea MPA was in part rooted in unhappiness about sanctions over the annexation of Crimea and rejection of the Dome A ASMA proposal.

For supporters of the Antarctic Treaty these kinds of reports make for uncomfortable reading. Eager to dismiss as sensationalism and/or mistaken on procedural grounds, the awkward truth might be that countries such as Australia and New Zealand worry that polar geopolitics are changing. Trump’s America might not be quite the strategic ally it once was. Russia is routinely framed as a revanchist power. China is widely understood as a global polar power eager to make its presence felt in the ATS (Brady 2017). No longer a ‘new power’, China has been involved with the Antarctic now for well over 35 years. The Australian analyst Elizabeth Buchanan reminded her readers that the strategic environment was very different to the late 1950s (Buchanan 2019). On the eve of the treaty conference, western powers were preoccupied by the Soviet Union. Australians worried about what the Soviets might be planning in their AAT. Sixty years later, the talk is more about Chinese expansionism and Australia and New Zealand hope that the ATS will endure because it is the cheapest and most cost-effective insurance policy they have.

What we don’t know as we look to the future is whether the rules, conventions and procedures that underpin the ATS will endure. Russia, Ukraine and China have all spoken about the mineral resources of the Antarctic in recent times. Russia and China are eager to protect their interests in the region as much as the United States and the seven claimant states. India and others are not passive observers either. Alan Hemmings (2017) has warned repeatedly about Antarctic governance being ‘hollowed out’ and the consultative parties not having the political appetite to negotiate new conventions on tourism and biological prospecting. In Australia and New Zealand, there are more explicit discussions about what to do in the event of a major power such as Russia, China, India or the US walking away from the treaty. And there is recognition that strategic competition could intensify if agreements fall apart over-fishing and, in future, minerals. The challenge for the claimant states is how to protect their long-term interests without alienating the other parties.

Antarctica is embedded in a technologically mediated environment that is far removed from the analogue era of the late 1950s. We now have guidelines for the use of drones. China, the US and Russia have Antarctic-based satellite navigation systems (Beidou and GLONASS in the Chinese and Russian case respectively) that have a dual-use capability. All of which might pose questions about how parties understand peaceful use in Antarctica. While environmentalists and scientists worry about long-term environmental monitoring, climate change and biodiversity protection, social scientists and other stakeholders contemplate how the Antarctic’s political, strategic and commercial environment will cope with further technological, geopolitical and resource drivers. For a long time, science was the premier expression of prestige and influence in the ATS. This has not disappeared in its entirety, but it is notable that we have far more analyses of technology, infrastructure and what might be thought of as power projection. Scholars such as Anne-Marie Brady warn of the ramifications of strategic competition for New Zealand and is concerned that China might be planning to make a territorial claim in the future.

Finally, the future regulation of tourism won’t lose saliency. Over 55,000 tourists are expected to have visited in the 2018/19 season and the industry is diversifying and diffusing. Supporting science and tourism generates invaluable revenue streams for gateway cities such as Hobart, Ushuaia and Christchurch. Tourism is not just a revenue earner it is also an invaluable opportunity for claimant states such as the UK via the Falkland Islands, Argentina, Chile, South Africa, New Zealand and Australia to remind visitors that they are Antarctic nations. Article 4 might preserve the legal status quo but it has never stopped claimant states from working hard in terms of investing in polar heritage, festivals, media and educational initiatives. Tourists visiting Hobart and Ushuaia would be left in little doubt about the importance of the Australian Antarctic Territory and Argentine Antarctic Territory respectively.

For a treaty that only has 14 articles, the endurance of the Antarctic Treaty is in itself noteworthy, especially as it avoided resources and environmental conservation. And yet in 2019 the key challenges facing Antarctica are resource-related (tourism is exploitative in terms of commodifying aesthetic and wilderness values and cumulative environmental impact) and the state of environmental protection of Antarctica has been amplified by climate change and the globalization of environmental matters. Trust may become an ever-precious commodity in the future. Don Rothwell (2019) reminds us that parties could withdraw from the treaty and/or call for a review conference, including a possible Protocol Review Conference in 2048 or thereafter. Rothwell concludes that for now we should not under-estimate the resilience of the Antarctic Treaty System. It may not be immune from criticism, but it continues to accommodate the diverse interests of 29 consultative parties in a world which has been described as less tied to the norms and values of the international liberal order. There is now no shortage of papers eager to contemplate future scenarios for Antarctica. In an uncanny way, it is reminiscent of the 1950s when civil servants and journalists speculated in private and public about the future of Antarctica.

**The Special Issue**

The short essays for this special issue showcase a diversity of social science and humanities scholarship on Antarctica. The contributors hail from different parts of the world and bring to bear different analytical approaches, methodological frameworks and source materials. We have historians, literary scholars, geographers, and political scientists. They offer us precious insights into the work of visual artists, poets, journalists and academics who have scrutinized, interrogated and experienced Antarctica, including the legal, political and scientific structures that enable access, research and inhabitation. The creative and visual arts loom large for a number of our contributors (Jean de Pomereu, Adele Jackson and Elizabeth Williams), and Jackson makes the case for an ‘International Year of Antarctic Arts’, which would address the very thing that the Protocol purports to protect; namely the aesthetic and wilderness values of Antarctica. The environmental historian, Alessandro Antonello, reminds us that our specific focus on the 60th anniversary of the Antarctic Treaty (1 December 2019) is an opportunity to think more critically about temporalities and the kind of cultural order that it empowers (Antonello 2019).

Without invoking Raymond Williams explicitly, Alessandro Antonello’s intervention asks us to think harder about what might be thought as ‘structures of feeling’. What is at stake when we use times and dates to generate meanings and feelings about human and more than human relations and futures in Antarctic and beyond? To talk about ‘crisis’ for example is to raise questions not just of causality but also temporality. How does the deep time of the earth co-exist with human time, with its preoccupations with anniversaries and milestones? There is a danger that the state of ice becomes an all too easy chronometer of human aspirations and conceits.

The historians amongst us take us back to the origins of the 1959 Antarctic Treaty and the prevailing experiences of those either on the ice or charged with negotiating about the future of the polar continent. While some remind us about the scientific and communal cultures informing Antarctic life (Anthony Avery), others probe the diplomatic and academic antecedents and precedents informing legal, historical and political understanding of Antarctica and the Antarctic Treaty (Ursula Rack, Ryan Musto). The Chilean scholar, Alejandra Mancilla, reminds us that much of this contemplation, machination and deliberation was being carried out and experienced by privileged white men (see also Collis 2009). This is not to claim, of course, that no one else was thinking about the fate of Antarctica. As other scholars remind us, India and Indian diplomats was active in raising the ‘Question of Antarctica’ in the mid to late 1950s (Howkins 2008). Elsewhere, women were involved in diplomatic and political activities pertaining to Antarctica. It was not entirely a man’s world but access to Antarctica in the 1950s and 1960s was highly gendered and racialised. A new generation of scholars are bringing these comparatively hidden histories and geographies to greater recognition and scrutiny. Peder Roberts and co-authors remind us that the construction of Antarctic and polar identities and strategies deserves careful scrutiny because the Antarctic Treaty helped to embolden investment in professional, popular and academic cultures.

Finally, we have some important reflections on the resilience of the Antarctic Treaty System and its future legitimacy via legal stewardship (Nils Vanstappen) and new imaginative connections (Charne Lavery). Antarctic futures are being re-imagined remade by law, reimagined by artists and writers and reconstituted by the dynamic intersection of living and non-living matter. Lavery and Mancilla remind us that this regime of imaginative work has been heavily skewed in favour of the relatively privileged in the human world. is Africa remains chronically under-represented in the ATS with South Africa as the only consultative party, and others such as Namibia that act as observers to CCAMLR. She reminds that in December 1959 it was not impossible to find observers noting that this apparent diplomatic triumph – the signing of the Antarctic Treaty – could be an opportunity for critical reflection. What if some of those same powers such as UK and France had approached the colonialization of Africa in the 19th century with a little more consideration for the indigenous human and non-human communities there? What if those same western powers committed themselves to not nuclear testing in other parts of the world. What if the spirit of consensus and restraint prevailed elsewhere in world politics?

This special issue offers, in short, a series of spirited and thoughtful appetizers to Antarctic social science and humanities scholarship (see the essays in Roberts et al 2016). There will be commentary aplenty on the actual 60th anniversary of the Antarctic Treaty. However, in these essays our authors interrogate to great effect the wider cultural politics, legal and political frameworks and imaginaries informing contemporary and historic engagements with Antarctica.

**References**

Antarctic Treaty (1959) URL available at: <https://www.nsf.gov/geo/opp/antarct/anttrty.jsp>

Antonello, A. (2019). *The Greening of Antarctica: Assembling an International Environment* Oxford: Oxford University Press.

ASOC (2019) ‘ASOC calls on Antarctic Treaty parties to revive spirit of the Antarctic Treaty and take action to preserve the world’s last great wilderness’ URL available at: <https://www.asoc.org/explore/latest-news/1882-atcm-2019>

Beck, P. (1986). *The International Politics of Antarctica* London: Croom Helm.

Brady, A-M. (2017). *China as Great Polar Power* Cambridge: Cambridge University Press.

Bulkeley, R. (2010). ‘The political origins of the Antarctic Treaty’ *Polar Record* 46: 9-11.

Brooks, C. (2013). ‘Competing values on the Antarctic high seas: CCAMLR and the challenge of marine-protected areas’ *Polar Journal* 3: 277-300.

Buchanan, E. (2019). ‘The (other) continent we can’t defend’ *Lowy Interpreter* 13th August

2019 URL available at: <https://www.lowyinstitute.org/the-interpreter/other-continent-we-can-t-defend>

Christianson, K., Bushuk, M., Dutrieux, P., Parizek, B., Joughin, I., Alley, R., Shean, D., Abrahamsen, E., Anandakrishnan, S., and Heywood, K. (2016). ‘Sensitivity of Pine Island Glacier to observed ocean forcing’ *Geophysical Research Letters* 43: 10817-10825.

Collis, C. (2009). ‘The Australian Antarctic Territory: A Man’s World?’ *Signs: Journal of Women in Culture and Society* 34: 514-519.

Collis, C. and Dodds, K. (2008). ‘Assault on the unknown: the historical and political geographies of the International Geophysical Year (1957–8)’ *Journal of Historical Geography* 34: 555-573.

Dodds, K., Hemmings, A., and Roberts. P. (2017). editors *The Handbook on the Politics of Antarctica* Cheltenham: Edward Elgar.

Hemmings, A. (2017). ‘The Hollowing of Antarctic Governance’ in P. Goel, R. Ravindra, S. Chattopadhyay editors *Science and Geopolitics of the White World: Arctic-Antarctic-Himalaya* Berlin: Springer.

Hemmings, A., Rothwell, D., and Scott., K. (2012). editors *Antarctic Security in the 21st Century* London: Routledge.

Howkins, A. (2008). ‘Defending polar empire: opposition to India's proposal to raise the ‘Antarctic Question’ at the United Nations in 1956’ *Polar Record* 44: 35-44.

Howkins, A. (2017). *Frozen Empires: An Environmental History of the Antarctic Peninsula* Oxford: Oxford University Press.

Joyner, C. (1998). *Governing the Frozen Commons* Columbia: University of South Carolina Press.

Liu, N. (2019). ‘The rise of China and the Antarctic Treaty System?’ *Australian Journal of Maritime and Ocean Affairs* 11: 120-131.

Liu, N. and Brooks, C. (2018). ‘China's changing position towards marine protected areas in the Southern Ocean: Implications for future Antarctic governance’ *Marine Policy* 94: 189-195.

Merino N., Jourdain N., Le Sommer, J., Goosse, H., Mathiot, P., and Durand, G. (2018). ‘Impact of increased Antarctic glacial freshwater release on regional sea-ice cover in the Southern Ocean’ *Ocean Modelling* 121: 76-89.

Naylor, S. and Ryan, J. (2008). editors *New Spaces of Exploration: Geographies of Discovery in the Twentieth Century* London: I B Tauris.

Nicol, S (2018). *The Curious Life of Krill* Washington DC: Island Press.

Petrou, K., Baker, K., Nielsen, D., Hancock, A., Schulz, K., and Davidson, A. (2019). ‘Acidification diminishes diatom silica production in the Southern Ocean’ *Nature Climate Change* published 26th August 2019.

Press, T. (2019). ‘The importance of trust in preserving Antarctica’s future’ *Lowy Interpreter*

26th July 2019 URL available at: <https://www.lowyinstitute.org/the-interpreter/importance-trust-preserving-antarctica-s-future>

Rintoul, S., Chown, S., DeConto, R., England, M., Fricker, H., Masson-Delmotte, V., Naish, T., Seigert, M., and Xavier, J. (2018). ‘Choosing the future for Antarctica’ *Nature* 558: 233-241.

Roberts, P., van der Watt, L-M., and Howkins, A. (2016). editors *Antarctica and the Humanities* London: Palgrave.

Rothwell, D. (2019). *The Antarctic Treaty at Sixty Years: Past, Present and Future* ANU College of Law: Legal Studies Research Paper Series.

Russian Federation (2019) The Antarctic Treaty in a Changing World Agenda Item ATCM 6 17th May 2019 for 42nd ATCM Prague

Shaw, J., Terauds, A., Riddle, M., Possingham, H. and Chown, S. (2014). ‘Antarctica’s protected areas are inadequate, unrepresentative and at risk’ *PLOS Biology* 12: e1001888.

Sullivan, W. (1961). *Assault on the Unknown* New York: McGraw-Hill.

Turchetti, S. and Roberts, P. (2014). *The Surveillance Imperative: Geosciences during the Cold War and Beyond* London: Palgrave.