



# Cold logic: getting intelligent about Antarctica

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## Key points

- Antarctica is key to understanding global climate drivers. However, more research is required to improve climatology and climate model projections.
- Investing in Antarctic climate science could encourage international cooperation in Antarctic affairs and climate change, but also improve Australia's preparedness for conflicts, disasters, and humanitarian interventions.
- The potential insights from increased Antarctic research offer a compelling value proposition. Current funding levels represent less than 0.1 per cent of Australia's losses to natural disasters and the value of these losses is expected to at least double by 2060.

## Key recommendations

- The Commonwealth government should establish a climate intelligence working group, comprised of scientific and intelligence agencies. The working group should be tasked with improving climate projection capabilities and determining priority areas for investment.
- The Commonwealth government should increase funding for Antarctic and scientific research, thereby reinforcing Australia's commitment to the Antarctic Treaty System and contributing to disaster mitigation efforts.

The Australian Government has recognised Antarctica's importance for improving climate modelling, forecasting, and projections. This is epitomised by the Antarctic weather and climate research being undertaken by the Australian Antarctic Science Program (AASP).<sup>1</sup> However, the focus of Australia's security community remains restricted to upholding the diplomatic goals of the Antarctic Treaty System (ATS), which aims to hedge against the possibility of conflict on, or over, the frozen continent. This narrow focus overlooks the opportunity to leverage the benefits of Antarctic research for improved strategic forecasting about how our future climate is likely to affect Australia's region and interests in Antarctica.<sup>2</sup>

## Integrating approaches

Diplomacy and scientific outcomes have been twin goals of the ATS since its inception. However, recognition of the role of climate in both national and global security brings diplomacy and science into a new and more complex relationship. Antarctica is a pivotal regulator of the earth's climate system. However, due to high levels of complexity and non-linearity, any changes in Antarctica associated with a warming climate are currently difficult to predict.<sup>3</sup> Hence, current understandings of how Antarctica could impact the projections of global climate models remains uncertain. As such, a better understanding of the continent would help improve the accuracy and precision of global climate models and our understanding of the earth's climate system.<sup>4</sup>

Collaborative science – as facilitated by the terms of the ATS – could well eclipse the diplomatic benefits of the Antarctic status quo. Climate modelling is increasingly important to strategic planning and security forecasting, and the benefits Antarctic research can bring to such forecasting will make investment in the scientific stream increasingly important.

Currently, Australian Antarctic science receives around \$35 million in funding annually. \$15 million of this funding is recurrent, with the rest tied to a variety of fixed term research programs.<sup>5</sup>

The most recent Australian Antarctic Strategy, delivered in 2022 under the Morrison Government, provided a funding boost of over \$800 million over five years, and highlighted the value of Antarctic science to climate research and weather forecasting. This update announced that ‘major science’ would be conducted to “study the vital role of Antarctica and the Southern Ocean in our climate and weather to improve our understanding and inform management responses (including to support Pacific Islands Forum partners).”<sup>6</sup>

However, of the approximately \$800 million pledged, only \$7.4 million has been earmarked for climate science.<sup>7</sup> Much of the remainder focusses on logistics and traverse capabilities, as well as aerial surveillance, including the deployment of drones. While such capabilities have the potential to assist scientists with their research, there are also concerns that development of dual-use technology such as drones may heighten tensions on the continent.

## Current policy approaches

The Australian Antarctic Division (AAD) coordinates, delivers, and leads Australia’s Antarctic Program and is currently administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW).<sup>8</sup> The AAD is not only responsible for facilitating Antarctic logistics and operations but also leads the AASP – the Australian Government’s scientific program in Antarctica.<sup>9</sup> Climate change is one of the key issues researched via the AASP, including investigating the influence Antarctica and the Southern Ocean have on the global climate system.

This ‘strategic science’ capability follows an established trend in Antarctic policy and perceived intelligence needs, in which military and intelligence capabilities are leveraged to assist scientific research.<sup>10</sup> Examples include Geoscience Australia’s future implementation and management of ‘Digital Earth Australia’, which is to be a world-leading satellite imagery, aerial photography, radar, and hyperspectral data detection platform. Digital Earth Australia possesses the ability to monitor changes in ice cover and the movement of biology and nutrients, as well as observe other Antarctic activity.<sup>11</sup> Another example is the Department of Defence’s involvement in Antarctic affairs via its ‘Operation Southern Discovery’, which provides logistical support to the AAD.<sup>12</sup>

## Treaty first, science second

These initiatives notwithstanding, Australia’s Antarctic policy is primarily driven by the Department of Foreign Affairs and Trade (DFAT) and DCCEEW. Historically, Australia’s approach to Antarctica has been pursued on the basis of upholding, maintaining, and strengthening the ATS as a hedge for territorial conflict. Despite the 2022 update to the Australian Antarctic Strategy acknowledging the benefits of Antarctic research to climate responses and weather modelling – both to Australia and its partners – the substantive funding delivered has focussed on mobility and monitoring, rather than scientific research itself. While the hedging of conflict is important, the current approach does little to realise the positive security dividends Antarctic research offers – and will increasingly offer – as climate risks compound.

Australia’s focus on upholding, maintaining, and strengthening the ATS has largely been reinforced by the analysis undertaken by think tanks and academic researchers. Analysts have mostly interpreted Australia’s historic approach as a means to uphold the status quo and avoid potential Antarctic conflict. Anthony Bergin and Tony Press, for example, advocate that Australia take a bilateral and transactional approach to Antarctic affairs in order to bolster the ATS by building trust, cooperation, and credibility.<sup>13</sup> Through this engagement, it is suggested that Australia may have a greater ability to shape and influence countries’ approaches to the continent, in a fashion that adheres to the ATS.<sup>14</sup> Elizabeth Buchanan, by comparison, argues that the ATS can be strengthened through cooperation and science to safeguard territorial claims.<sup>15</sup>

## Domestic benefits to research

Improved Antarctic climate projections have the potential to save the Australian economy billions of dollars a year. Even under a low emissions scenario, costs from natural disasters are projected to almost double by 2060.<sup>16</sup> While improved climate modelling cannot stop disasters from occurring, more accurate projections will facilitate better planning and mitigation, lowering the financial and social burden of such events.

Beyond the economic benefits, enhanced projection capacity will alleviate pressure on Defence. With greater awareness of, and accuracy in, the projected influences of climate change – especially regarding the increased frequency and severity of disaster events – the Australian Defence Force (ADF) could better adapt to and plan its ever-increasing humanitarian assistance and disaster relief (HADR) commitments. This alone would account for a significant security benefit, given the current strain placed on ADF capacity by increased HADR and domestic assistance tasks. Aiding the ADF in planning its HADR commitments has the inverse benefit of helping prioritise its warfighting capabilities by minimising disruptions to training and maximising readiness in times of strategic unrest.

Finally, enhanced climate projection capacity benefits Australia as a whole. Employing this information to better identify potential environmental tipping points could play a significant role in the prevention of ecosystem collapse. This in turn could engender social and cultural benefits that minimise the potential for political instability.<sup>17</sup>

## Having ice-cream, eating it too

As previously outlined, current strategic considerations regarding Antarctica are centred on the avoidance of conflict over territorial claims. This is reflected in the 1961 Antarctic Treaty which 'demilitarises' the latitudes below 60°S, establishing a 'rules-based order' built on peace, international cooperation, and science.<sup>18</sup>

While minimising global conflict is a good thing, it is essentially the avoidance of a negative security outcome, rather than the realisation of a positive one. If done correctly, there is an opportunity to reframe and recalibrate the ATS to this end. That is, instead of simply avoiding the negative outcome of global competition, the maintenance of Antarctica as a global scientific commons can become a positive security proposition.

What's more, collective security benefits are a stronger basis upon which to uphold the ATS than a focus on territorial claims, from which only individual benefits are realisable.

To that end, given Antarctica's pivotal role in regulating the earth's climate system, Australia and other treaty nations – and ultimately the global commons – can benefit from the improved climate modelling Antarctic research is likely to deliver.

As the world moves into a climate-insecure future, this data will be of immense benefit to many. Australia is the largest territorial claimant and has been an important force in maintaining the ATS. By investing in Antarctic research, and then incorporating that science into its foreign policy, Australia would simultaneously be demonstrating and affirming its commitment to, and respect for, Antarctic science and cooperation.

By developing a more robust Antarctic program and better integrating climate science into intelligence assessments, Australia would practically demonstrate the value of science and cooperation to national and global security, legitimising Australia's leadership position in the Antarctic community.<sup>19</sup> This offers an opportunity for building on shared interests among the Antarctic community to further promote and deepen cooperation on the continent, giving a positive proposition for the maintenance of the ATS.

This approach would also address the threat of negative security outcomes. Enhancing intelligence's ability to understand when and to what degree climate impacts might materialise would aid treaty members' ability to pre-empt, plan for, respond to, and influence revisionist treaty members who may seek to take advantage of Antarctic resources. Without such an increased capacity to

model the Antarctic climate, any response to unfolding events and challenges in Antarctica will be reactive and short-sighted.

## A new climate of intelligence

More effective projections hold the capacity to greatly benefit Australia's intelligence community, however any gains that are to be realised must be considered against what the scientific community may reasonably deliver, and in what terms and timeframes. For this reason, it is recommended that the Commonwealth establish a climate intelligence working group, drawing on expertise across the Bureau of Meteorology, Commonwealth Scientific and Industrial Research Organisation, and AAD, as well as the Office of National Intelligence, the Defence Intelligence Organisation, and the Australian Geospatial-Intelligence Organisation. This working group would be tasked with reporting their findings to the National Security Committee of Cabinet or the Secretaries Committee on National Security and recommending priority areas of scientific study which would deliver the best balance of maximal intelligence gains and scientific outcomes.

Once identified, these priority areas should be supported by increased funding and capability. The amount and delivery of this funding would be determined by the working group. Given the relatively small sums involved, this funding could be drawn from existing department allocations, identified by the cost of conducting the research, calculated against the possible utility of the gains to each department if realised.

Current annual funding for Antarctic climate research is less than *one thousandth* of Australia's losses to natural disasters. While scientific discovery is not guaranteed with increased funding, the economies of scale involved with current funding levels ensure that the cost of failure is minimal, and the opportunities for success are great.

Significantly increasing scientific research in Antarctica serves Australia's national security in more ways than one. As climate events increasingly impact security planning and capability, the improvements that may be realised by Antarctic research will become more compelling. Improved modelling has the potential to refine defence planning, improve disaster mitigation and response, and ultimately, to save the nation's bottom line.

Increased Antarctic research also galvanises Australia's more 'traditional' view of Antarctic security. It strengthens the utility and validity of the ATS, and encourages other actors to cooperate, rather than compete. Australia is the biggest claimant to Antarctic territory, and is in a prime position to encourage and guide an international effort to increase Antarctic understanding. By being a primary mover on climate intelligence, Australia will not only encourage investment into the scientific commons of Antarctica, but it will also assist other nations to realise similar security gains in climate projections, and help the global community better plan, adapt and monitor the effects of climate change.

## Notes

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