

Commentary

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Abstract

Reporting on scientific research from Antarctica faces familiar tensions between journalism and science. Among the particular obstacles are the mainstream media's focus on novelty and the constant need for new angles and new voices. While science journalism has been gaining recognition, many media organisations continue to view it as secondary to more traditional areas of reporting such as politics, business and sports. At a time when we face several environmental crises, that is arguably no longer representative of reality. Coverage of Antarctic issues, including science, could improve if editorial teams were more cross-disciplinary to extend beyond each individual's boundaries of expertise.

My journey to Antarctica during the International Polar Year (IPY) was my second visit to the ice. It was unexpected. Six years had passed since my first trip as part of Antarctica New Zealand's media programme, and like many journalists who had travelled south before me, I had thought of it – and experienced it – as a once in a lifetime opportunity. While scientists may return to Antarctica season after season to continue their work, journalists travelling as part of national polar outreach programmes usually only have one, often brief, chance to take it all in.

My first visit had left me feeling unresolved, unsettled. Unlike other field trips I had joined as a science writer, Antarctica never faded into memory. The opposite happened. A continent that had been no more than an idea in the back of my mind, almost a place of legend, had revealed itself as a physical – and changing – reality, with urgency.

A similar process seemed to be happening on a larger scale. The public view of Antarctica was undergoing a transition, shifting from a perception of the continent as a geographical oddity and frontier, precast by Heroic Era accounts of endurance and discovery, to a place apart, often painted as the last remaining pristine wilderness, and finally to a global player in a complex planetary process of upheaval and change.

Antarctica has provided a natural laboratory for scientists ever since the earliest 20th-century expeditions. But for decades, even beyond the International Geophysical Year (IGY) in 1957/1958, the framework for most research inquiries continued to be based on the continent's frontier qualities and extreme conditions, its perceived isolation from human influences. The launch of satellites during the 1970s gave us a bird's eye perspective, and the discovery of the Antarctic ozone hole during the 1980s confirmed the far reach and deep consequences of human activity. The focus of Antarctic science shifted to global change processes and the continent's role as one of our best repositories of information about planetary-scale changes in the past.

I got a glimpse of this during my first visit at the start of the Antarctic summer in 2001. I was there to produce a radio documentary about some of the major science programmes of that season, and I was heading to the McMurdo Dry Valleys to join glaciologists drilling into the ice at Victoria Lower Glacier.

Polar ice caps in Antarctica and Greenland provide our best record of atmospheric greenhouse gas concentrations in the past. As the ice accumulates, it enshrines tiny samples of ancient atmospheres, tracking changes for hundreds of thousands of years. While European countries were despatching their glaciologists to Antarctica's interior to go further back in time by drilling into the continent's deepest ice, New Zealand's focus was on shallower ice in coastal regions where the payback is much better resolution with clearly identifiable annual layers of ice accumulation. Watching the ice core emerge from the deep and seeing bubbles of air that had been trapped millennia earlier was my first glance of the geological past.

My second visit during the IPY was, in many ways, a time of consolidation. I revisited sites that had left me in a state of raw awe, unable to fully process the experience at the time. But above all, it opened my eyes to Antarctica's significance as a planetary force.

By that point, the European EPICA project had completed extracting ice cores at Dome C and published an 800,000-year history of greenhouse gas concentrations. It showed that changes in carbon dioxide move in synchrony with changes in temperature, and that during this period, there had been eight pronounced glacial cycles, each lasting about 100,000 years.

This time, my reporting focused on a project that took a much longer view of past climates. Like Antarctica's ice, the sediment layers on the ocean floor are collectors of information from the past, albeit on a timeframe of millions of years. ANDRILL, an ambitious international



Fig. 1. Veronika Meduna recording emperors at the edge of the summer sea ice. The image was taken by Rob McPhail during a visit in 2001.

collaboration to drill back into deep time, was using sediment layers to decipher the history of past climate changes and their effect on Antarctica's ice cover – and, in turn, to understand the impact that any future change to the continent's ice sheets would have on the rest of the world.

ANDRILL's drill rig was set up on top of the Ross Ice Shelf, which fills the bay between the Rockefeller Mountains and the Royal Society Range. This ice shelf is as far south in the world as one can travel by sea. It is a formidable obstacle – once simply called the Barrier by explorer James Clark Ross who began mapping it in 1841.

As the sediment cores emerged from the ocean floor underneath the world's largest ice shelf, they did not always show a world covered by ice. Instead, there were clear sequences of rocks made up mostly of algal ooze, providing solid evidence of flourishing algal blooms in the past. Holding a lump of three-million-year-old rock, made of diatom remains, brought home the magnitude of contemporary, anthropogenic climate change.

The project showed that even subtle and slow-moving past changes in carbon dioxide concentrations had dramatic consequences not only for Antarctica's ice, but for sea levels and patterns of global ocean currents elsewhere, all the way to the Northern Hemisphere. These changes in turn had repercussions for life's abundance, both in the oceans and on land.

During the Heroic Era, the only tools for reporting back from Antarctica were diaries and images. Scott, Shackleton and Mawson

were all exceptional diarists but expedition photographers – Herbert Ponting and Frank Hurley among them – were often as well known as their leaders. Their visuals provided the Edwardian equivalent of today's Mars rover images.

Among the first journalists to be despatched to Antarctica was *New York Times* writer Russell Owen who joined Admiral Byrd's first Antarctic expedition in 1928. Following the IGY and the signing of the Antarctic Treaty, as treaty founding nations and later other countries developed their polar programmes and built stations on ice, journalists became a regular part of the deployment during the height of the research season. But with such a short human history on the continent, it is not surprising that the narrative approach of the Heroic Era casts a long shadow. Antarctica remained a place of heroes conquering geographical limits for some time after its designation as a continent for peaceful activities and science. Themes of endurance, uncharted territory, adventure and competition persisted. Even today, coverage of Antarctica is often mediated by this shared cultural inheritance.

Apart from this broader context, reporting from Antarctica faces challenges that reflect familiar tensions between journalism and science.

Journalism tends to be parochial, and science journalism is no exception. Even when covering global topics, journalists will often choose interviewees with a local connection or hark back to events of local significance. This makes sense in terms of making coverage relevant to local audiences, but as Antarctica increasingly comes to embody global change, it can help break this mould, linking change in remote places with local repercussions.

During my IPY visit, Antarctica gave me a tangible sense of global climate change as well as its local impacts. While this inspired me to write a book about science in Antarctica, with a focus on climate change (Meduna, 2012), day-to-day coverage was more challenging for a number of reasons. I had started writing about climate change following my first Antarctic visit, not long after the Third Assessment Report by the Intergovernmental Panel on Climate Change (IPCC, 2001). But back then, many media organisations were yet to acknowledge issues around coverage of asymmetrical debates, in which a significant majority of experts agree on evidence but face challenges from a small number of sceptics. False balance continued to influence editorial decisions for at least another decade, and I often felt like a troublemaker for insisting on evidence-based journalism.

Among the particular obstacles were the mainstream media's focus on novelty and the constant need for new angles and new voices, rather than deeper understanding, and a general apathy and lack of willingness among news bosses to engage with climate change. The slow-burning progression of climate change didn't gain enough traction until it reached certain crisis points, such as the discovery that several West Antarctic glaciers had reached an irreversible state of decline, or evidence that warming oceans were hollowing out Antarctic ice from beneath.

Recent changes in editorial processes, partly aided by the digital disruption of mainstream media, are encouraging. They include more frequent first-voice analysis by experts (e.g. see Atanasova & Fløttum, 2019; McLachland, 2019) and, more significantly, clear policy statements about an evidence-based approach to climate change coverage, based on acceptance of the main IPCC findings (Crewdson, 2018; Hickman, 2018).

Another challenge I faced was particular to Antarctic logistics. My visit was part of an IPY collaboration between science journalists from public broadcasting media across the globe, including the BBC, ABC and Deutsche Welle. Some of us were reporting from

Antarctica; others were filing from the Arctic Circle. We shared and broadcast the work globally, on all participating media networks, in a series of on-air features and podcasts that spanned both polar research seasons. More than a decade later, I continue to collaborate with some people I met then and this project has shaped my approach to covering climate and environmental change since.

Given the nature of Antarctic operations, journalists are embedded in activities almost as tightly as they would when covering war zones. ANDRILL and many other international projects entrenched journalists and educators fully into the research programme (Pound et al., 2019). While this gives journalists unparalleled access to scientists and their work, it can lead to wariness among fellow news journalists back home who perceive this as being too close to sources and interviewees. I encountered another element of scepticism when I was interviewed about Antarctica on a current affairs programme soon after my visit. The questions soon turned from climate-related research to a discussion about how scientific activity in Antarctica could be a shield for geopolitical interests. This concern is partly justified.

Back in 1961, the Antarctic Treaty launched a new era of Antarctic governance and helped defuse tensions about territorial claims between the founding member nations. Antarctic science during the Cold War period has been described as a scientific arms race, with the US and Soviet governments driving each other's investments, even though at the time Antarctica was politically less significant than the Arctic region.

Since then, treaty membership has grown from 12 original signatories to more than 50 countries, and to gain consultative party status at Antarctic Treaty meetings, each new member country has to demonstrate substantial research activity on ice. There are clear political advantages to having a station near the South Pole, including better accuracy of global satellite navigation systems.

Science provided a bridge over political turbulences then and it continues to do so now. On the ice, scientists (and journalists) collaborate across disciplines and nationalities, and their work often spans both polar regions. This degree of collaboration has only been possible under a treaty system, and we may not have been able to gather information about global changes and environmental impacts to the same extent without it.

The most recent IPY continued in this manner, enabling several internationally collaborative research projects that would have been beyond reach for any individual nations' logistical support. In that sense, international collaboration and geopolitical interests will continue to shape research in Antarctica.

I care most about bridging science and public discussion. Climate change is an obvious but not the only topic that would benefit from a closer link. The gap between what scientists are currently talking about and what people outside of science and academia hear about has narrowed significantly, but it persists. In my view, it is one of the reasons for the growing distrust in science and expertise.

While science journalism has been gaining recognition, many media organisations continue to view it as secondary to more traditional areas of reporting such as politics, business and sports. At a time when we face several environmental crises, that is arguably no longer representative of reality. And beyond mere adjustments in focus, I believe coverage would improve in all of these areas if editorial teams were more cross-disciplinary rather than specialist. Just like in science, where new ideas emerge in collaborations that go beyond each individual's boundaries of expertise, journalism would benefit from people working across topics. For example, if a team of political journalists reporting on parliament included

science reporters, coverage of government policies on climate might gain depth and analysis.

Similarly, perhaps Antarctic outreach or community engagement programmes could expand opportunities to journalists to produce work on geopolitical tensions in polar regions, the Antarctic Treaty System and its history, and why it matters. Even though Antarctica has been set aside for scientific endeavours, science isn't without its own politics and the knowledge we are gaining from polar research feeds into highly politicised issues such as climate change or environmental degradation through our tourism activities. In a world that will have to find ways of managing global problems, the Antarctic Treaty System provides a model for governance and should be a focus of journalistic coverage as much as the science conducted on ice.

Media coverage is only one way through which we share information and learn. Education is experiencing its own digital disruption, and this provides new opportunities. During my last visit in January 2018, my job was to present and produce online lectures about Antarctic biology (Priestley 2018). Of course, I included stories from the earliest explorers and relied on the narrative of extreme survival in one of the harshest environments on earth. But I also had a sense that as the perception of Antarctica is shifting, teaching and learning about the frozen continent are changing in step.

About the Author. Veronika Meduna travelled to Antarctica in 2001 and 2007 as a science broadcaster to produce long form radio features for science and current affairs programmes on Radio New Zealand. She returned more than a decade later, in 2018, to film lectures for Victoria University of Wellington's online course about Antarctica (see Priestley et al. this issue).

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