



The sonic environment of Antarctica has inspired creative minds since the first humans began exploring the continent in the late nineteenth century. Numerous diary entries and published accounts dating from the so-called Heroic Age of Antarctic exploration (c.1897–1922) vividly describe experiences of soundscapes varying from the eerily quiet to the deafening. Douglas Mawson, leader of the Australasian Antarctic Expedition (AAE, 1911–1914), for example, wrote in his book *The Home of the Blizzard* (first published in 1915) about his encounters with an “intense” silence between hurricanes at Commonwealth Bay that would leave him “loth to sleep at night ‘for the hunger of a sound.’”¹ Other early explorers to the region wrote evocatively about the sounds of wildlife, such as the raucous chatter of penguin colonies, and the myriad sounds generated by ice in its various manifestations, from barely audible creaking effects to the loud cracking, booming and crashing produced by a glacier calving icebergs.

The earliest musical responses to Antarctica also emerged during this period, as the expeditioners found creative ways to record their experiences, entertain themselves and distract their minds from worrying about the precarity of

their circumstances. Original songs, or in some cases song lyrics set to existing tunes, survive from numerous expeditions. Examples include a collection of songs composed by Gerald S. Doorly and others on board the *Morning*, which was sent to resupply Robert Falcon Scott and his men aboard the *Discovery* in 1902; and a series of new lyrics for popular tunes penned by the AAE’s taxidermist and biological collector, Charles Laseron, and chief magnetician, Eric Webb.² Such songs typically record the men’s experiences and impressions of the expeditions, their fellow expeditioners, and the Antarctic environment. Some, known as “sledging songs,” were even performed out on the ice, during long and arduous sledging journeys across the continent.³ Most expeditions also hosted regular concerts or sing-alongs with gramophone accompaniment, with some groups even establishing instrumental ensembles and hosting larger musical events. Various members of the AAE, for example, formed a band known as the “Adélie Land Band” and established a musical society that staged an original “Grand Opera” titled *The Washerwoman’s Secret*, performed at their main base at Cape Denison, Commonwealth Bay, in October 1912.⁴ For many of the early Antarctic expeditioners, musical instruments, activities and events proved

essential, offering much-needed entertainment, promoting camaraderie, and providing, in Ernest Shackleton's words, "vital mental medicine."⁵ The records of their musical activities remind us that from this time forward, human sounds have also formed part of Antarctica's soundscape.

From the mid-twentieth century onwards, professional composers also began engaging with Antarctica through music, albeit from a distance. Ralph Vaughan Williams's imaginative evocations of the icescape and its wildlife (including penguins and whales) in his film score for *Scott of the Antarctic* (1948) and his *Sinfonia Antarctica* (1949–52) took inspiration from written accounts of Scott's last expedition, especially Apsley Cherry-Garrard's *The Worst Journey in the World* (1922), while Australian composer Nigel Westlake's immensely popular Antarctica suite for guitar and orchestra (1992) responded to imagery of the continent recorded for the IMAX documentary *Antarctica: An Adventure of a Different Nature* (1991), for which he also wrote the soundtrack.

Since the late twentieth century, composers and sound artists have had increased opportunities to experience Antarctica in person through artist residencies offered by

various national Antarctic programs and other organisations. Celebrated British composer Peter Maxwell Davies, for example, travelled to the Antarctic Peninsula with the British Antarctic Survey in 1997–98 to gain inspiration for the composition of his *Antarctic Symphony* (2000), envisaged as a sequel to Vaughan Williams's *Sinfonia Antarctica*. Most of the composers and sound artists who have travelled there in recent years have made field recordings for use within their creative works. Some of these individuals, such as Douglas Quin, Lawrence English and Cheryl Leonard have focused primarily on recording and showcasing sounds of the natural environment and its non-human inhabitants, especially those created by the wind, ice, penguins and seals. Quin's pioneering soundscape CD *Antarctica* (1998), with its recordings of Weddell seals underwater, as well as other sounds from below and above the ice, remains particularly influential in this regard.⁶ A more recent example, English's *Viento/ Antarctica* (2015), focuses on one element – wind – and enables listeners to witness the composer's aural experiences of the windiest continent on earth through raw sound recordings of blizzards at the two largest Argentine bases in Antarctica, Marambio and Esperanza.⁷ In contrast, Leonard's collection of ten pieces *Antarctica: Music from*

the Ice (2009–14) innovatively combines her Antarctic field recordings with sounds from instruments she created from penguin bones, rocks and shells to evoke sounds of the continent's natural environment.⁸ Other artists, such as Philip Samartzis, Andrea Polli and Craig Vear, have incorporated anthropogenic sounds recorded in Antarctica (including human voices and mechanical sounds) into their compositions, often alongside sounds of the natural environment. By capturing human sounds within the Antarctic environment, these pieces reflect the now continuous presence of people in parts of the region and acknowledge the role of human-made infrastructure and resources in supporting those who spend extended periods on the ice.

Polar Force builds on and extends the history and practices of Antarctic-related music and sound art in several important ways. It is phenomenological, in that it explores the raw materials of the continent through its incorporation of Samartzis's dynamic and clearly articulated field recordings from his two Australian Antarctic Arts Fellowships (2009 and 2015), which are heard in combination with sounds from purpose-built instruments. While this approach has parallels with Cheryl Leonard's practices, the instruments

utilized in *Polar Force* were not constructed from natural Antarctic materials, but rather were purposefully designed to resemble scientific research equipment, emulating the aesthetic of the built Antarctic environment. In line with post-instrumental practice, these instruments do not look or sound like traditional musical instruments, nor are they played using conventional techniques. Rather, they were created to allow the live manipulation of pressurised air, water and ice, as the performers respond to the raw materials captured in Samartzis's field recordings. In places within the work, the sounds from the instruments and the field recordings meld together so seamlessly that the listener is unable to distinguish the exact source/s of the sounds, leading one to question: are they natural or human made? Overall, the work enables listeners to encounter the wind, water and ice of Antarctica, as well as the built environment of a polar research station, through an entirely new sound world, one that moves beyond the natural and the human made.

Antarctic-related music and soundscape-based compositions such as *Polar Force* are heard in a wide range of contexts, from concerts and other live performances, to exhibits or installations at museums, art galleries and zoos;

to sound recordings available on CD, radio, online or in films. Through these diverse media, people from all over the globe, many of whom will never have the opportunity to visit Antarctica in person, are able to hear some of the region's unique soundscapes and engage with the place in new ways. This is particularly important at a time when Antarctica's icescape and soundscape are experiencing unprecedented changes as a result of anthropogenic influences. Innovative compositions such as *Polar Force* can not only help us to learn more about Antarctica and its unique ecosystems, but can also immerse us in a multisensory experience that enables us to imagine what it is actually like to be there and to feel a stronger sense of connection to the place, with minimal human impact on the icescape.

As we approach the centenary of the end of the Heroic Age, *Polar Force* seems particularly timely and significant. By featuring sounds from both the polar environment and human-made instruments, the work provides a link back to the earliest human encounters with sound and music on the continent during the Heroic Age. With its modern approach to sound art and performance, however, it simultaneously offers us insights into contemporary life and sonic experiences in Antarctica.

Context: Journal of Music Research 37 (2012): 3–35.

³ Carolyn Philpott and Elizabeth Leane, "Making Music on the March: Sledging Songs of the 'Heroic Age' of Antarctic Exploration," *Polar Record* 52, no. 6 (2016): 698–716.

⁴ Carolyn Philpott, "Composing Connections between Continents: Tracing the History of Australia's Engagement with Antarctica through Music," *Australian Historical Studies* 49:1 (2018): 72–74.

⁵ Ernest Shackleton, quoted in Leonard Hussey, *South with Shackleton* (London: Sampson Low, 1949), 65.

⁶ Carolyn Philpott, "Listening *At the Sea Ice Edge*: Compositions Based on Soundscape Recordings made in Antarctica," *Anthropocene Antarctica: Perspectives from the Humanities, Law and Social Sciences*, ed. Elizabeth Leane and Jeff McGee (London: Routledge, 2019), 101–16.

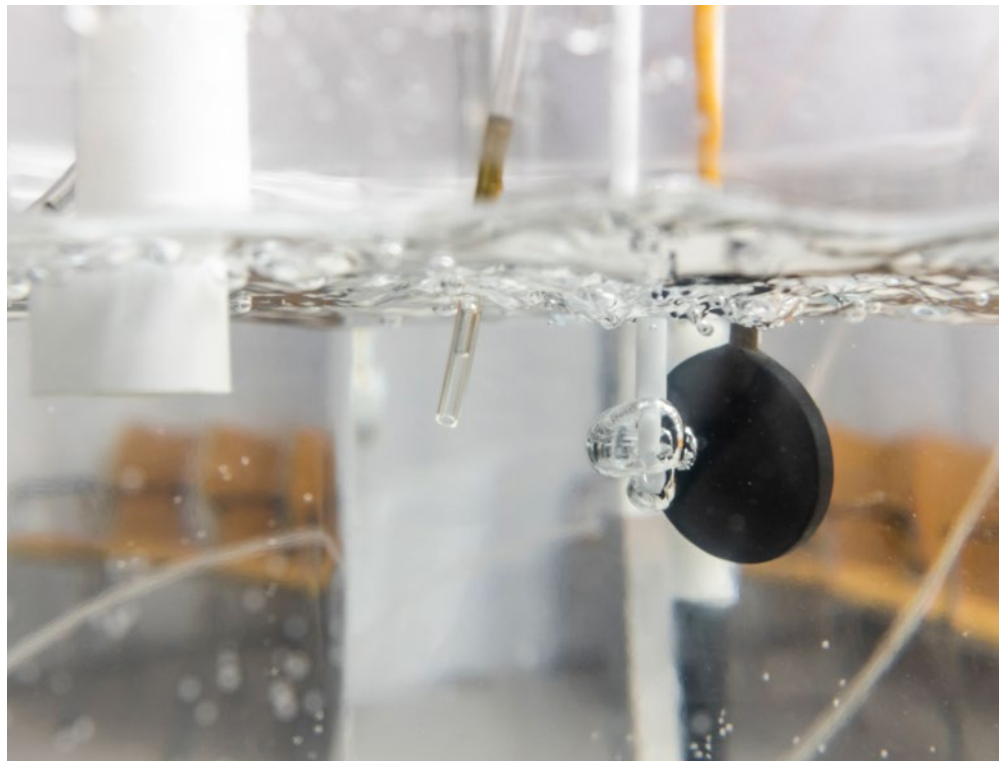
⁷ Carolyn Philpott, "Sonic Explorations of the Southernmost Continent: Four Composers' Responses to Antarctica and Climate Change in the Twenty-First Century," *Organised Sound* 21.1 (2016): 89.

⁸ Carolyn Philpott, "Promoting Environmental Awareness through Context-Based Composition," *Organised Sound* 23.1 (2018): 39–50.

¹ Douglas Mawson, *The Home of the Blizzard: The Story of the Australasian Antarctic Expedition, 1911–1914* (Adelaide: Wakefield Press, 1996), 77.

² Gerald S. Doorly, "The Songs of the 'Morning,'" transcribed by Edith Harrhy (Melbourne: Bread and Cheese Club, 1943); Charles Laseron, *Diaries*, 21 November 1911–24 February 1913, State Library of New South Wales, ML MSS 385; Eric Webb, *Sledging diary*, 10 November 1912–11 January 1913, State Library of New South Wales, ML MSS 2895/1. See also Carolyn Philpott, "Notes from the Heroic Age of Antarctic Exploration: Gerald S. Doorly's Songs of the 'Morning,'"





Located 3800 kilometres south of Perth overlooking the Windmill Islands is Casey Station, the biggest of three Australian Antarctic research stations situated in Eastern Antarctica. The sprawling station sited on a craggy outcrop accommodates up to 100 people during the busy summer season, which spans November to March. East of station is Law Dome rising ever so gently towards a peak of 1400 metres, while in the west is Shirley Island and its boisterous population of Adelie Penguins. Directly across from station is Newcomb Bay where the abandoned US station Wilkes is located, and just beyond it a horizon filled with icebergs of assorted shapes and sizes. Wilkins Runway is approximately 70 kilometres south-east of station and serves as a desolate terminal for the intercontinental air service. It takes four and a half hours to travel to Wilkins from Hobart by charter plane, and a further four hours to reach Casey by a Hägglund dual-cab snow vehicle. The terrain between Wilkins and Casey is flat with only rutted caterpillar tracks and sparse waypoint markers disrupting the pristine vista of white striae set against a deep blue sky.

I travelled to Casey to record the presence and effects of katabatic wind on the research station as well as the natural environment. Katabatic wind is

a low gravity wind that gains force as it flows down elevated slopes. It is particularly prevalent at Casey due to its location at the base of Law Dome where it oscillates between mild and strong. When the cooler temperature of a katabatic mixes with the warmer temperature of the onshore wind, a very unstable weather system emerges. No two days are ever alike which makes Casey a fascinating place when it comes to weather behaviour and observation.

My interest in katabatic wind grows out of a fascination with the photography of Herbert Ponting and Frank Hurley who combined subject, composition and climate to convey a deeply mysterious and alien place. I am particularly intrigued by Hurley's depictions of life on the ice through two iconic photographs, The Blizzard, and Leaning on the Wind both taken in 1912. The photographs convey the ferocity and atmospheric effects of the conditions using a mix of techniques including staged scenes and composite printing to viscerally express something that is close to impossible to articulate through conventional documentary photography. It is something Hurley was criticized for but something I deeply admire about his work. Inspired by these evocative depictions of abstract landscapes shaped by

volatile conditions I wondered how I could produce an equivalent account using sound recording to render an embodied experience of extreme climate.

The time I spent at Casey acutely sharpened my sense of audition. The stillness enveloping the station and its environs provides an immaculate framework for close listening, in which each and every sound is uttered in intoxicating detail. The protean conditions inevitably shape the way these sound events propagate throughout the built and natural environment leading to complex aural and spatial cues and interactions. The main powerhouse is the constant sound emitter on station. Its deep omnipresent thrum radiating all the way out to station limits and beyond. Within its radius assorted industrial sounds occur generated by heavy machinery used for construction, maintenance and transport. Staggered throughout the station are various buildings used as workshops and storage, or for operations, science and meteorology that are a source of localised sound events. The circulation of these concentrated sounds within a pristine soundscape provides a heightened experience of industrial and mechanical noise that is simply breathtaking.

With snowfall the industrial exuberance becomes muted, as does the pervasiveness of the diesel engines resounding throughout station. Eventually the snow becomes more audible, rhythmically triggering various metal surfaces with a gentle but persistent patter. As the wind exerts its influence the patter becomes strident with disused fuel drums, oxygen tanks, steel crates and landings filtering the sound into a syncopated series of resonant patterns. Depending on temperature and wind speed snow can quickly transform into hardened granules of ice that generate showers of oscillating noise as they collide into various objects. The effect is particularly notable on large sheets of heavy plastic used to cover various building materials. The sound of people moving around station is also quite distinct as they negotiate snow flurries, ice, and rock-strewn paths wearing heavily reinforced Baffin Boots.

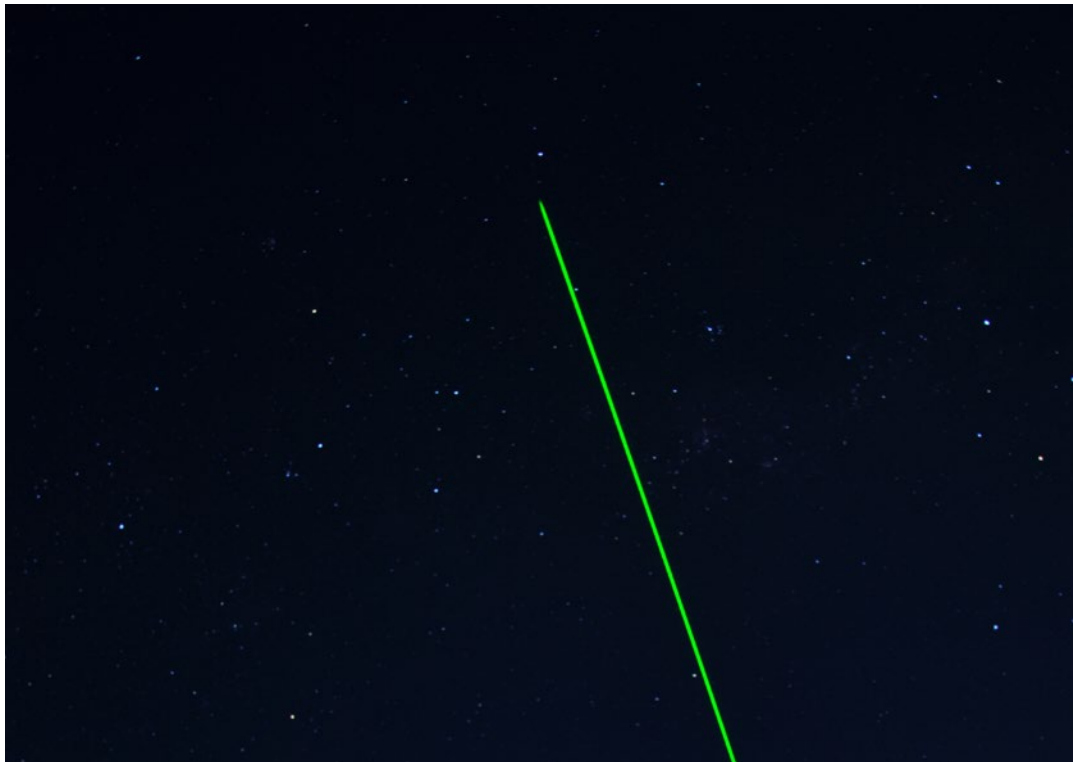
The presence of katabatic wind inevitably informs the way sound is heard and experienced on and off station. It can thrust sound away and it can draw it closer. Its intensity can mask sound and its absence can heighten it. At its most ferocious it simply obliterates everything within its path. A collision with the built environment transforms a katabatic into an intense series

of ascending and descending pitches - a supercharged aeolian harp. Inside station time and space is distilled into a series of discrete sonic gestures: a howling air vent, shuddering doorway, convulsing ceiling, or a disconsolate sounding hallway. Each event seemingly occurs in complete isolation as the station waits breathlessly for the blizzard to pass. While sheltering in an ice encrusted cold-porch I am told that wind gusts are exceeding 185 KPH. The piercing shrieks of a distant anemometer emerging from the white abyss are testimony to its ferocity.

Over four weeks I recorded an assortment of sound activated by wind and shaped by the cold. Ice granules dancing across sheet metal, agitated flags, murmuring cables, brittle plastic sheets billowing in the wind, indifferent buildings and infrastructure, wind gusting across desolate ice fields, and the transformative effects of warming and cooling upon the polar environment. I have not experienced a place so mutable, so confounding. A century has passed since Hurley documented the dramatic events at Cape Denison. The effects of katabatic wind are intriguing for their subtle qualities as much as their capacity to express nature in extremis. Wind and cold are elements not easily rendered but I am hopeful I

have captured the sonic ecology of this rarefied place that is new and evocative for those who have encountered the ice in actuality and in dreams.





For many of us, myself included, visiting Antarctica remains an elusive fantasy. But, with a little research, it becomes abundantly clear that Antarctica is more than just the coldest, driest and windiest continent on earth. Its pristine environment is a place that despite its extreme isolation and weather, is being transformed by human presence and human induced climate change.

If I had to experience Antarctica through one sense only, it would be sound. The prospect of hearing alien landscapes, uninhabitable locations, extreme weather events and sounds that eclipse those of our known world through their sheer power and scale excites me. But, I'd want a genuine experience, no cheap effects or unnecessary exaggerations, I'd want to hear the real Antarctica.

My point of departure with Polar Force was to harness the sonic elements at play; wind, ice and water. I sought to answer, why would a musician possibly seek to contaminate the already complete, complex and unique sound world of Antarctica? I embarked on a sonic dialogue with the continent, through the field recordings of Philip Samartzis, one where I learnt from its

timbral nuances and textural structures in order to sensitively rearticulate this language through live acoustic performance.

Over the course of two years I collaborated with the RMIT School of Design and a team of established and independent industrial designers and instrument builders to create the instrumentation for Polar Force. No off-the-shelf instrument was suitable for this project, building on my history in Post Instrumental Practice I was determined to avoid imitating conventional musical instruments in order to harness the volatile and natural sonorities of wind, ice and water. I also began to consider the instrumentation design for how it could visually and conceptually support the broader goals of the project.

The plausibility of staged outdoor concerts in Antarctica or even the prospect of embracing musical conventions such as equal tempered tuning seemed an impossible proposition in Polar Force. I needed to answer more questions; *why* performance and *what* was the performative context? A concert didn't make sense, but the notion of scientific research did. The performance needed to be a live presentation of sound research.

We soon refined the design build of a white inflatable performance space, one that was reminiscent of a Nissen hut or Polar research station. This space was designed to house the performance, including 80 audience members, lighting and stage area and would be interspersed with a 14.2-channel speaker system. This inflatable space then further informed the design aesthetics of the instrumentation as well as the performative language of the work.

In auditioning Philip's Antarctic field recordings I gained two fundamental insights that significantly impacted my creative focus. Firstly, that the sound of Antarctica depended on human presence on the continent, which today includes diverse activities across its territories. Secondly, that a unique frame of listening was key. Time and the relationship of sound structures in these field recordings was uninhibited by the tropes of compositional form and didn't seem to conform to aesthetic trends.

The presence of diesel engines, restraining cables, Hercules aircraft and generators are the necessary materials for human productivity in a polar environment. These sounds are inextricably linked to our experience of Antarctica, much like

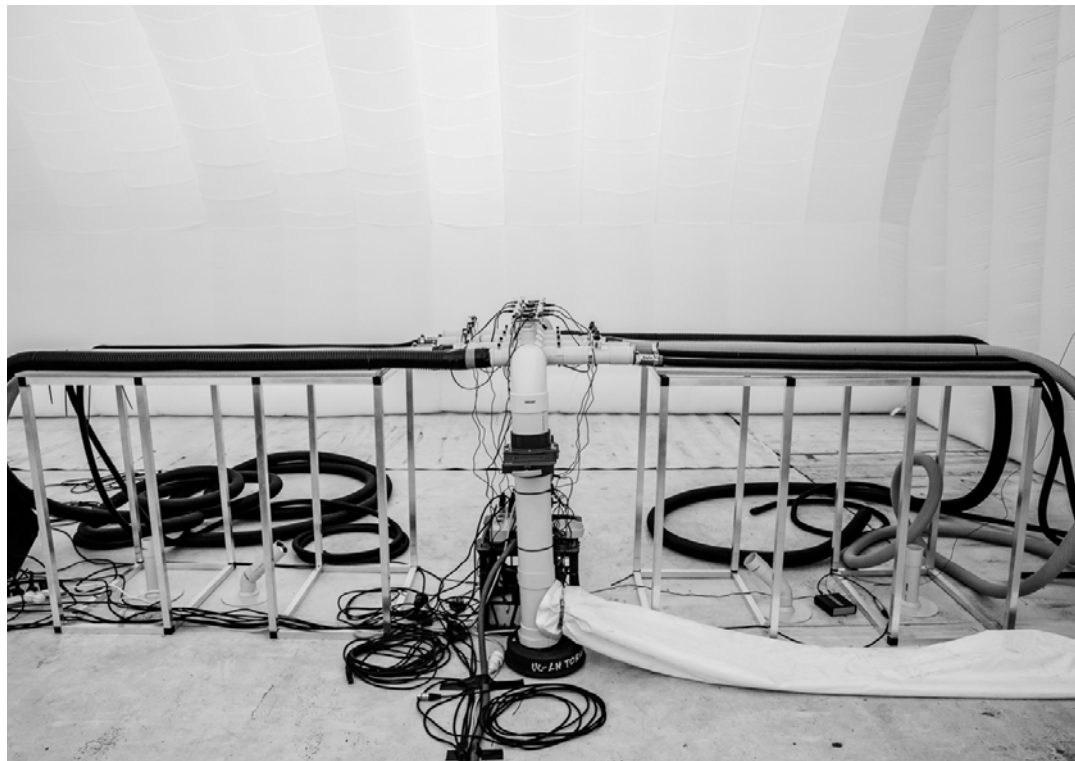
the presence of a microphone within a recording. Humanity's desire to understand and control Antarctica's natural resources ran in parallel to my creative goal of harnessing a sonic language using wind, ice and water. I needed equipment, intermediary structures to harness the energy and behaviour of wind, ice and water just as an Antarctic explorer requires their intermediary objects and equipment for survival and surveillance activity. Consequently, Polar Force fully embraced the by-products or paraphernalia present within human life in Antarctica, ironically the very things which are putting that ecosystem at risk.

Cracking ice and squeezing air through vessels such as whistles, tubes, enclosed chambers and water troughs also necessarily generate their own sonic by-products. A wall of noise from the air compressor and fans, spinning electric motors and metres of corrugated tubing strewn across the space. All of these sonic by-products were embraced into the composition, their presence mirrored by Philip's field recordings of diesel motors and power generators at Casey Base Station, the blizzard activated restraining cables and the Hercules aircraft taking off for more supplies.

The creative process was phenomenological, my encounter with the bespoke instrumentation and personal responses to the field recordings together elicited the musical path forward. The process of designing and refining new instruments eventually handed over to the process of musical composition and performance. The instruments pushed and pulled as much as my ears and mind did, and through this collaboration creative ideas were born.

Some of Philip's field recordings sounded distinctly like wildlife but they weren't, and in one such example (a recording of glaciers rubbing together underwater) I imitated them using coil microphones detecting the electrical energy emitted by variable speed motors. In the process of using an air compressor into a fipple and water, I similarly stumbled across accidental wildlife sounds. This time to be used in dialogue with the trucks and vehicles beeping while operating around Casey Base Station. In another example the pulsating generator and stress and fatigue of external metal provides the total textural and rhythmic palette for a 8-voice guiro duo, perhaps the musical climax of the work.

Together the field recordings and live performance in Polar Force create a kind of hyper-realistic Antarctica, at times more detailed and dynamic than can be heard on the ice and at others beyond our understanding of reality. Sometimes we are presented with recognisable structures and patterns and at other times we experience forms reminiscent of environmental stasis, always changing but not necessarily observable in the same way. The interplay between music performance, theatre and field recording carries us through the entire body of work and allows it to thrive in aural, visual and imagined spaces.







Concept, Composition,
and Instrument Design:
Eugene Ughetti

Direction:
Clare Britton & Eugene Ughetti

Field Recordings:
Philip Samartzis

Performance:
Matthias Schack-Arnott
& Eugene Ughetti

Lighting Design, Production
and Technical Management:
Keith Tucker

Sound, Audio, Instrument
Design and Construction:
Nick Roux

Producer:
Sheah Sutton

RMIT Industrial Design Atelier
Leader and Air Consultant:
Malte Wagenfield

Recording:
Tilman Robinson &
Philip Samartzis

Mixing:
Michael Hewes &
Eugene Ughetti

Mastering:
Lachlan Carrick

Polar Force would not have
been possible without the
support of the following
people and organisations:

APRA AMCOS Art Music Fund,
Arts Centre Melbourne,
Australia Council for the Arts,
Australian Antarctic Division,
Besen Family Foundation,
Bogong Centre for Sound
Culture, City of Melbourne,
Creative Victoria, Darebin
Arts, David Anderson,
Department of Education
and Training, Lawrence
English, Michaela Coventry,
Phonographic Performance
Company of Australia Ltd,
RMIT Design Hub Gallery, RMIT
School of Art, RMIT School of
Design, Stephen Whately.

SPEAK
PERCUS SION

