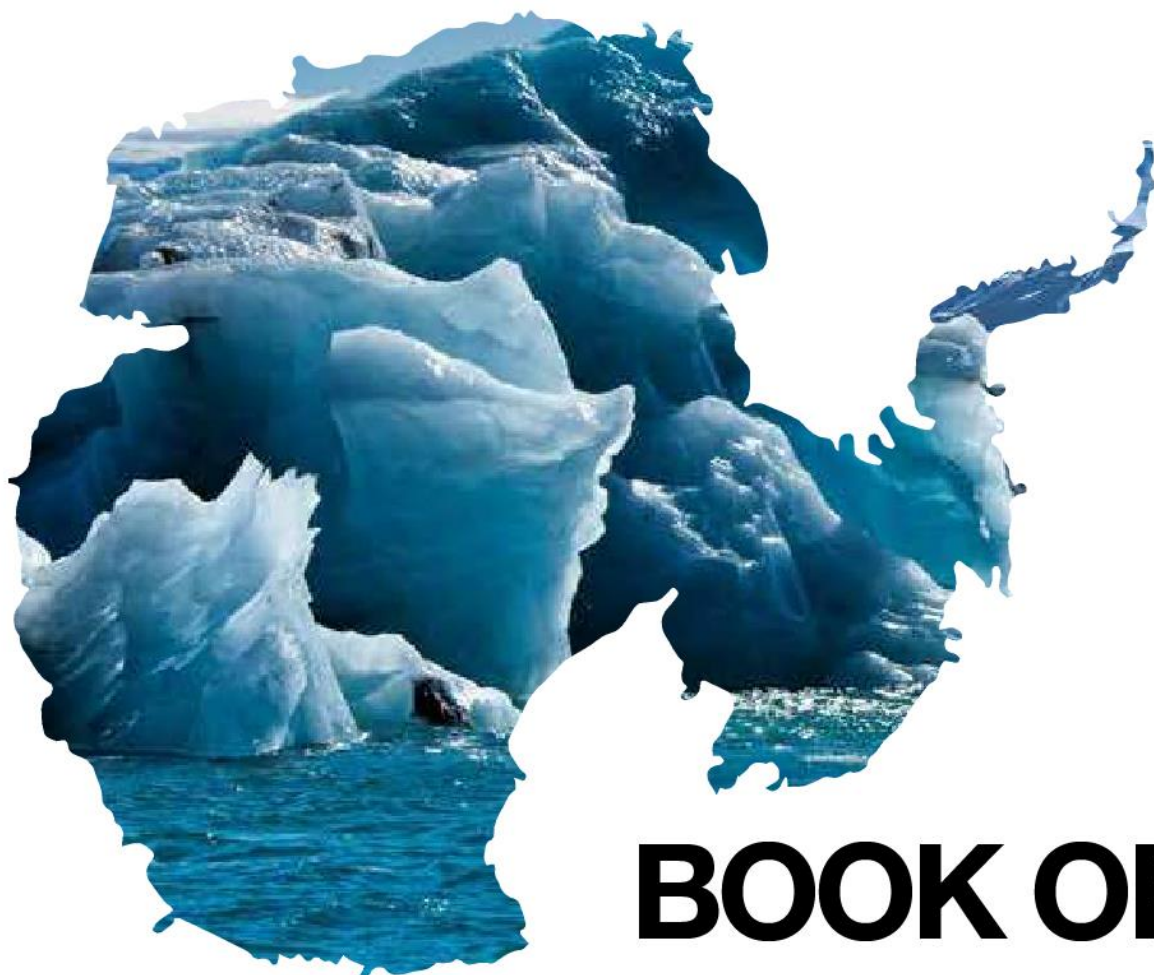


2023 SCAR SC-HASS BIENNIAL CONFERENCE



BOOK OF ABSTRACTS



“THE ANTARCTIC FOR A BETTER WORLD”



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Note from the SCAR president

SCAR President's Welcoming Note for the SCAR SC-HASS Biennial Conference, "the Antarctic for a Better World", 22-24 June 2023, Lisbon, Portugal.



Dear colleagues,

It is with great pleasure and anticipation that I extend my warmest welcome to you for the SCAR SC-HASS Biennial Conference. This conference, themed "The Antarctic for a Better World," marks a significant milestone in our collective pursuit of knowledge and understanding in the realm of social science and humanities in Antarctica.

The SCAR SC-HASS Biennial Conference aims to provide a platform for the exchange of information, fostering a vibrant atmosphere for researchers already working in Antarctic Humanities and Social Sciences and others who may have just begun to gain interest in the White Continent. Moreover, the conference intends to facilitate the organization of research ideas and encourage the development of future collaborations.

In recent years, we have seen a shifting trend that better recognizes and places more importance on social science and humanities in the Antarctic research community. Following the merger of the International Council for Science (ICSU) and the International Social Science Council (ISSC) in 2017, a new era of interdisciplinary collaboration emerged under the International Science Council (ISC). This merger enabled a much deeper understanding of the intricate connections between natural sciences and social sciences and allowed a more holistic approach to our understanding of the complexities of Antarctica and its impact on the global community.

Furthermore, in 2018, the SCAR Delegates approved the establishment of the Standing Committee on the Humanities and Social Sciences (SC-HASS). Since its formation, the SC-HASS has been a platform for researchers from diverse disciplines to come together, exchange ideas, and collectively contribute to the pursuit of knowledge within the social sciences and humanities.

As the importance of Antarctica is ever-growing in climate change research, there is a growing interest in understanding how these changes affect human society. When considering the important role Antarctica plays in global environmental shifts, the role and importance of SCAR's SC-HASS will only expand further. Also, Antarctica remains a place of wonder, curiosity, and ingenuity, where humans from all corners of the world team up with one shared purpose despite geopolitical struggles in other parts of the world: The Antarctic for a better world.



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After three years of pandemic, we are now returning to normalcy, and the time has finally come for an in-person SC-HASS conference. In Lisbon, preparations are well underway to host a dynamic and intriguing scientific and social agenda for this remarkable event. To that end, I would like to extend my deepest appreciation to the Academic Planning Committee members, the Local Organizing Committee and staff, volunteers, and many others who have played a pivotal role in bringing this conference to fruition as well as the strong support of the numerous researchers in Antarctic social sciences and humanities community. Your unwavering dedication and commitment are truly commendable, and I am sincerely grateful for your invaluable contributions to this endeavor.

I hope that the conference will be a facilitator for new ideas, meaningful connections, and profound insights that opens up discussions to explore the multifaceted ways in which social science and humanities contribute to our comprehension of the Antarctic. Let us come together to explore Antarctica's untold stories, celebrate its richness, and collectively strive for a better world. Thank you, and I wish you all a productive and inspiring SCAR SC-HASS Biennial Conference.

Dr. Yeadong Kim, SCAR President



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Note from the SC-HASS Leads



When SC-HASS last held an in-person conference in April 2019, none of us could have foreseen how long it would be before we all had the opportunity meet again. Over the years we had built momentum and numbers, from the very first gathering of the SCAR History Action Group in Munich in 2005, to the tremendous success of the 2019 conference in Ushuaia. Under the leadership of first Cornelia (Conny) Lüdecke and later Elizabeth (Elle) Leane and Daniela Liggett, a group who could meet around a single conference table has grown to a thriving community capable of sustaining a conference with multiple parallel sessions and a wonderful array of perspectives.

The journey has been remarkable, and we are delighted that it continues in Lisbon. Pedro Marques-Quintero, Catarina Gomes, and the local organizing committee have done a tremendous job of organizing the event. Our thanks also to Cristian Lorenzo for his sterling work chairing the conference's Academic Planning Committee.

The 2023 conference is also the first in which the Lüdecke Bursary has been awarded. Conny's service to the SC-HASS community stretches much further than her formal positions of trust. She has been a tireless advocate for involving early career researchers and scholars from around the world, and for building a supportive and welcoming environment.



It is highly appropriate that the first recipient of the Lüdecke Bursary – one of which will be awarded for every in-person SC-HASS meeting in the future – is Paola Barros Delben, who is currently completing a PhD at the Federal University of Santa Catarina in Brazil focused on health and safety issues in Antarctic research. As SC-HASS continues to evolve, it must remain attentive to issues of diversity and inclusivity.

The stimulation that comes from an in-person conference is a special thing that must nevertheless be balanced against the reality that travel is increasingly expensive and complicated. We made a decision to award a far higher number of bursaries this year than for previous conferences – made possible by accumulated surpluses during the pandemic – and are aware that without this, even a city with such good transport connections as Lisbon would have been difficult to reach for many who are here in person. Even if we could wave a magic wand and reduce airfares to the price of bus tickets, the carbon costs of intercontinental travel demand that we as a community rethink our practices.

Moreover, gender, economic status, and citizenship-based structural barriers to full participation remain significant. Our hope as Chief Officers is that SC-HASS continues to strive for the greatest possible involvement of researchers from around the world, across disciplines, and from all career stages. As diverse disciplines come together for this event, we also wish to take the time to celebrate this Antarctic community – and all



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of you who are members. Please enjoy the wonderful opportunity we have here in Lisbon to share, to learn, to rekindle old friendships, and to make new ones too. We could not be happier to welcome you.

Peder Roberts and Hanne Nielsen, SC-HASS Chief Officers



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Note from the Academic Planning Committee Lead

Dear colleagues,

The Standing Committee on Humanities and Social Sciences (SC-HASS) under the Scientific Committee on Antarctic Research (SCAR) is a community of researchers working on the Humanities and Social Sciences about Antarctica. Its regular conferences are excellent opportunities to challenge and expand our ideas. Now, it is time to meet each other again with an exciting scientific agenda at the Universidade Lusófona in Lisbon, Portugal. Welcome!



Social Sciences and Humanities play a relevant role in shaping the perceptions of "the Antarctic for a better world". One possible interpretation is that this idea makes sense when we face challenges in the Antarctic region, and we - as scholars - can provide new ways of thinking or tools to think again about the assumptions taken for granted and their consequences. Throughout history, different perspectives have been at stake on what entails a better world for the Antarctic region. And in the coming years, new difficulties will arise within the Antarctic Treaty System, demanding critical and creative thinking. The conference topic provides an appropriate opportunity to stimulate our conversations.

We have three full days of the conference, with exciting presentations from different continents, disciplinary backgrounds and ways of thinking about Antarctica. I firmly believe that different approaches enrich our understanding, and therefore, I encourage all participants to engage in the discussions and make the most of this conference.

Once again, a warm welcome to all the Humanities and Social Science scholars to the 2023 SC-HASS in Lisbon.

I look forward to seeing all of you at the Universidade Lusófona.

Cristian Lorenzo

Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) – CADIC.

Universidad Nacional de Tierra del Fuego, Antártida e Islas del Atlántico Sur (UNTDF)

Ushuaia, Argentina



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Note from the Local Organizing Committee Lead

Olá!

It is my great pleasure to welcome each one of you to the 2023 SCAR SC-HASS Conference to engage in exciting conversations between the Antarctic social sciences and humanities, in Lisbon, Portugal.



It has been almost two years of preparation, with many changes happening along the way. Hence, I can tell that organizing a conference has its resemblances to an Antarctic expedition. Fortunately, I was blessed with the support of incredible human beings, who have helped me making this conference possible. A special word of appreciation to the SC-HASS Leads, Hanne Nielsen and Peder Roberts, the Academic Planning Committee, especially Cristian Lorenzo who went far beyond his duties to help in every way possible, the Local Organizing Committee team, with the spotlight on Catarina Gomes and Fátima Yausuf, and the conference Secretariat, Aléxis Marote and Eliana Mendes. My greatest appreciation to the Administration, Rectorship, and Support Departments of Universidade Lusófona, and the students STAFF team whose dedication was undying.

Finally, Antarctica has always been a land of wonder and probation, a symbol of wilderness, and a place where modern tales of bravery of many sorts are still told by those traveling for work or leisure to the frozen continent. Today, Antarctica goes beyond all that. It is our greatest hope for the future. A symbol of cooperation between all nations, the proof that peaceful coexistence and collaboration is the way forward! The 2023 SCAR SC-HASS Conference has an exciting program, where speakers will discuss this and much more. It is my greatest hope that the discussions, research, friendships, and collaborations that will come from this conference will help making the Antarctic for a better world.

Pedro Marques-Quinteiro,
Lead of the Local Organizing Committee



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Oral Communications



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Out of sight and in mind: climate and cultural stories from Antarctica's subglacial Gamburtsev Mountains

Carol Devine

Carol Devine (carol@caroldevine.org) is a social scientist, writer, researcher, and conceptual artist. Her work converges in science, activism and art. Carol led a cleanup expedition at Bellingshausen research station on the Antarctic peninsula, told in the cultural history book *The Antarctic Book of Cooking and Cleaning*. She documented a Cleanup Svalbard expedition she joined in the exhibit *Aquamess: Portraits of Garbage at the Top of the Earth*, shown in the New York Hall of Science and the Canada Science and Technology Museum. Carol's TEDxMontrealWomen talk "Ocean Love: Cleaning Up our Plastic Mess" also featured a marine plastic sampling survey she did circumnavigating Scotland with eXXpedition. Carol currently leads Médecins Sans Frontières/Doctors Without Borders Humanitarian Action on Climate and Environment (HACE) Initiative. She is a community scholar at the Dahdaleh Institute of Global Health Research, a Fellow of the Explorer's Club and member of SCAR's Humanities and Social Sciences Expert Group.

Abstract

Theoretical background / Goals / Motivation: Research into Antarctica's unexplored regions has revealed bellwethers to the world. The "ghost" Gamburtsev mountains, submerged under the East Antarctic Ice Sheet, were only discovered in 1957-1958 and mapped in 2007-2008¹. Inquiry into these subglacial mountains contributes to our understanding of global climate change. The "unseen" Gamburtsev Mountain's stories, both scientific and cultural, unveil its value.

Methods: This study surveyed scientific research and interviews on the Gamburtsev mountains. It also collected related data visualizations, maps, and cultural references.

Results: Seismic followed by radar and other research revealed these subglacial mountain's existence, early formation and glaciation² and how carbon travels within and escapes from the Southern Ocean³.

Data visualizations and descriptions of the Gamburtsev mountains are artful and portent.

The language about the mountain's revelations and mysteries includes many superlatives and metaphors, suggesting its significance in discoveries yet to happen.

Implications: Research planned for the Gamburtsev mountains includes understanding long-term ice sheet evolution to develop models of variations of the ice sheet to climate

¹ British Antarctic Survey, 16 November 2002 <https://www.bas.ac.uk/media-post/gamburtsev-mountains-enigma-unraveled-in-interior-east-antarctica/>

² Sun Bo et al, 2009 <https://pubmed.ncbi.nlm.nih.gov/19494912/>

³ Riley X. Brady et al, 27 September 2021 <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2021GL095088>



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change and how the ice-entombed mountains contribute to stability of the ice sheet.⁴ Scientists will samplerock samples and ice cores.⁵

Conclusion: Future scientific exploration, including in the social sciences, of these “Antarctic Alps” can help us prevent impacts and adapt to the climate crisis. Global research on the Gamburtsev mountains during the International Geophysical Year and Polar Year, and ongoing joint research increases our knowledge and is a part of the growing narrative of Antarctica’s contribution to humankind.

⁴ Fausto Ferraccioli, 16 November 2011 <https://www.reuters.com/article/us-climate-gamburtsev-idUSTRE7AF20O20111116> name date, <https://www.nature.com/articles/nature10566>

⁵ Antarctica’s Gamburtsev Province Project (AGAP), 2019 <https://www.ldeo.columbia.edu/res/pi/gambit/ProjectOverview.html>



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Stakeholder perspectives on science-policy knowledge exchange practices in the Antarctic context

Natasha Gardiner, Daniela Liggett, Neil Gilbert

Natasha Gardiner (Natasha.gardiner@pg.canterbury.ac.nz) is an early-career social scientist with a background in psychology and sociology. Her research interests include Antarctic governance, Antarctic science-policy knowledge exchange practices, and marine conservation in the Southern Ocean. She is currently undertaking her PhD at Gateway Antarctica, University of Canterbury, New Zealand. Her research explores the Antarctic science-policy interface in the context of New Zealand and the Antarctic Treaty System. Natasha is an advocate for transdisciplinary research approaches and seeks to engage with a broad range of experts, stakeholders, and knowledge systems through her work. Alongside her research, she works as an Environmental Advisor for Antarctica New Zealand and in this role, she contributes to New Zealand's engagement with the Committee for Environmental Protection. She is also a steering committee member of Ant-ICON.

Abstract

Theoretical background / Goals / Motivation: The states that actively participate in Antarctic governance are primarily responsible for ensuring that Antarctic research informs relevant policy and decision-making forums. Delivering this mandate requires research and policy actors to engage in multi-directional knowledge exchange (KE) practices that mobilize the use of scientific evidence and other types of knowledge in decision-making processes.

Methods: To date, minimal scholarship has investigated the efficacy of Antarctic science-policy interactions, particularly in domestic settings. Consequently, opportunities to share empirical lessons across contexts remain limited. We contribute to this knowledge gap by undertaking a critical qualitative analysis that explores Antarctic stakeholder perspectives regarding the success of science-policy KE practices in New Zealand and in the context of Antarctic Treaty decision-making. Our central research question is: 'how does the Antarctic science-policy interface(s) function at national and international levels and what are the drivers and barriers for success?'

Results: We report on the findings from two workshops (convened in New Zealand) and 30 semi-structured interviews (convened online), involving the participation of over 100 Antarctic policymakers, environmental managers, researchers, and other stakeholders. Our analysis identifies opportunities to improve Antarctic KE practices, such as increasing the diversity of KE, shifting from a linear KE arrangement towards co-production and strengthening strategic leadership.

Implications: Furthermore, we highlight several epistemological, institutional and systemic barriers that currently hinder KE and importantly, we demonstrate that 'success' conjures diverse imaginaries.



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Conclusion: By providing further clarity on complex KE practices this study equips the Antarctic community with new knowledge that may help to enrich Antarctic KE practices in the future.



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Antarctic tourism: who are the main user States and how well can they regulate tourism?

Elena-Laura Álvarez Ortega, Solène Guggisberg

Elena-Laura Álvarez Ortega (e.l.alvarez.ortega@rug.nl), is a Ph.D. candidate at the Arctic Centre, University of Groningen. Her research concerns jurisdictional aspects in relation to Antarctic tourism and is part of an overarching NWO⁶ -financed research project entitled 'Proactive Management of Antarctic Tourism: Exploring the Role of ATS Principles and Values and Best Practices Beyond the ATS' (ProAct). Elena obtained a Bachelor's Degree in Law (*Grado en Derecho*) at Universitat Pompeu Fabra. She pursued an Official Master's Degree in Legal Practice at IDEC/Universitat Pompeu Fabra. She also holds a Master of Laws in Advanced Studies in Public International Law (cum laude) from Leiden University.

Dr Solène Guggisberg is a postdoctoral researcher at the Netherlands Institute for the Law of the Sea and the Utrecht Centre for Water, Oceans and Sustainability Law, Utrecht University. Her research focuses on the regulation of Antarctic tourism from the angle of non-use and falls within the framework of the NWO-financed ProAct project. She has previously undertaken postdoctoral research on international fisheries law, worked for international governmental and nongovernmental organizations involved in fisheries and maritime affairs as well as for international courts and tribunals. She holds a *Doctor juris* degree (Ph.D. in law) from the Bucerius Law School in Hamburg, an LL.M (with distinction) in Public International Law from the University of Edinburgh and a Licence in International Relations from the Graduate Institute of International and Development Studies in Geneva.

Abstract

Theoretical background / Goals / Motivation: States are involved in Antarctic tourism to different degrees. In light of the continuous growth of tourism in Antarctica, understanding which States are the main players, in which capacity, and whether they have adopted the required (or desirable) bases of jurisdiction is crucial to properly regulating this activity.

Methods: First, the results of a quantitative research on who the States most involved in Antarctic tourism are presented. The last ten years' worth of data made available by the International Association of Antarctic Tour Operators has been used to determine which States can be considered "user States".⁷ Second, the presentation examines the domestic legislation of these "user States" to obtain an overview of their jurisdictional framework and determine whether they are in a position to regulate tourism towards entities with which they share a jurisdictional link.

⁶ Dutch Research Council (Nederlandse Organisatie voor Wetenschappelijk Onderzoek)

⁷ User States are defined here as States in which vessels or planes going to Antarctica for tourism are registered; States authorizing such activities; States of departure of the vessels/planes; States where the Antarctic tour operators are registered; as well as the States of nationality of the largest contingents of tourists.



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Results: Research is on-going and some of the results are consequently still upcoming.

Implications: Identifying the major “user States” is a stepping stone to improving the international regulation of Antarctic tourism. Furthermore, the results of this research will provide a clearer picture of jurisdictional coverage of Antarctic tourism, in particular its extent by major user States.

Conclusion: Results are still upcoming and firm conclusions cannot be drawn at present.



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Antarctica's Tourism Futures? Using scenario planning as a tool to explore futures, impacts, and policy pathways

Jasper Heslinga; Miranda Cornelisse; Albert Postma; Stefan Hartman

Jasper Heslinga (jasper.heslinga@nhlstenden.com), works as senior-lecturer and program manager at the European Tourism Futures Institute (ETFI), which is based at NHL Stenden University of Applied Sciences in Leeuwarden, the Netherlands. He obtained his PhD degree at the department of Cultural Geography from the University of Groningen, the Netherlands. His PhD thesis, entitled 'Synergetic tourism-landscape interactions: Policy, public discourse and partnerships' was about finding balance and synergy between tourism development and nature protection. Jasper has been publishing over 16 journal articles in several internationally renowned and highly ranked journals, such as *Tourism Management*, *Journal of Sustainable Tourism*, but also several book chapters and professional publications (e.g., commissioned by the European Parliament, European Travel Commission, etc).

Miranda Cornelisse is a fulltime researcher Business Innovation, Tourism and Philosophy at Rotterdam University of Applied Sciences, and mentor of SME entrepreneurs in the field of sustainable tourism. The research of Cornelisse has been published in national and international journals about tourism and tourism studies, and were presented at several international conferences, such as the International Conference on Tourism Research, European Business Ethics Network and RC50 International Tourism International Sociological Association. Her paper on understanding memorable tourist was awarded with the 'Certificate of Merit for PhD Paper and Presentation'. She graduated from the Bachelor of Tourism Management at Breda University of Applied Sciences in 2003, and subsequently from the Master of Science in Culture, Organisation and Management at Vrije Universiteit Amsterdam in 2006. In April 2021 she successfully defended her PhD dissertation at Erasmus University in the Netherlands, which focused on how authenticity and sustainability interfere in tourism and tourism studies.

Albert Postma is professor in strategic foresight and scenario planning at the European Tourism Futures Institute in 2010, his main other research line concerns the future of tourism. Since 2010 he has been able to develop and apply his knowledge and experience in strategic foresight and scenario planning in commissioned national and international projects, for example for businesses, trade organizations, governments and destination management organizations. Postma obtained his PhD degree from the University of Groningen and was focused on identifying the tipping points in the attitude of residents toward tourism in their living environment. Albert has worked with several important (tourism) players such as OECD, World Tourism and Travel Council, European Travel Council, and European Cities Marketing. Visitor pressure, or overtourism as it is most often referred to nowadays, is still one of Albert's key research lines. Albert is co-editor of the *Journal of Tourism Futures*.

Stefan Hartman holds the position of head of department of the European Tourism Futures Institute (ETFI – www.etfi.eu) at NHL Stenden University of Applied Science, Leeuwarden, The Netherlands. Stefan obtained his PhD in 2016 at the University of



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Groningen, The Netherlands. He is lecturer in the Master of Arts in International Leisure, Tourism & Events Management at NHL Stenden University of Applied Sciences and lecturer in the Master of Science program Cultural Geography teaching in tourism planning, politics, policymaking and the governance of tourism destination development. His research focuses on the development, strategic (spatial) planning and governance issues related to spaces and places that are in the process of becoming tourism destinations. Stefan aims to contribute to the academic debate by exploring insights from complexity theory, theories on complex adaptive systems, resilience and adaptive capacity building and bringing these insights into the field of tourism and the governance of tourism destination development.

Abstract

Theoretical background / Goals / Motivation: Tourism in Antarctica has been growing rapidly in numbers and is diversifying in its scope. How tourism will develop in the future (and how to manage and govern these developments) remains uncertain. The aim of this research is to introduce scenario planning as an effective tool to explore possible futures, impacts, and policy pathways for Antarctica.

Methods: Scenario planning is introduced as a key method for engaging in strategic foresight. This contribution reveals the idea of 'the futures cone' as a way to explore an interrelated set of probable, possible, plausible and preferred future scenarios that help envision future directions for tourism in Antarctica.

Results: The stepwise process of scenario planning is explained using Antarctica as the research context and, moreover, the first results are presented as outcomes of this scenario planning process.

Implications: These outcomes will be used as input for the further identification and development of response strategies and so-called adaptation pathways, which outline robust series of actions and enable robust decision making, to anticipate the impacts of Antarctica's uncertain tourism futures in order to contribute to sustainable/responsible tourism in Antarctica.

Conclusion: The conclusion is that the scenarios and the adaptation pathways that follow from it, offer tools that help public and private stakeholders to make informed and robust decisions regarding Antarctica's tourism future, in which values and qualities are protected and there is a social license for tourism in Antarctica.



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Seeing through ice: a photographic investigation

Jean Brundrit

Jean Brundrit (jean.brundrit@uct.ac.za) teaches photography, researches and makes art in the Fine Art Department at the University of Cape Town, South Africa. Her areas of enquiry are primarily concerned with exploring the environment and identity in relation to visual representation. Her work pertaining to the environment is focused on the impact of rapid climate change and how this is represented in art; as well as the interconnectedness of humans and their relationship to the natural world.

Jean is interested in the advances of visualizing technology including photography – in its broadest definition – and the opportunity that this presents in making things never observed before visible. Following these interests, in December 2019 she travelled to Antarctica aboard a research ship to photograph with a lens made of ice. The resulting images are an interpretation, rather than a description, of the surrounding environment. These have been exhibited in Cape Town as *Over the horizon* and published in a photo book with the Antarctic Legacy Project of South Africa.

Abstract

Theoretical background / Goals / Motivation: The project was motivated by a question – could a lens made out of ice form an image, and if it could how ice ‘see’ the world. This led to developing a visual investigation to explore this area.

Photography is often tied to describing the world in front of the lens, making it challenging to photograph a subject that is elusive or abstract. By focusing on the materiality of the image making technology (the ice lens), and making it unstable and vulnerable, I introduce notions of precariousness into the very act of recording.

Methods: In December 2019/January 2020 I made a body of photographs in Antarctica with a lens made of ice, as opposed to a conventional glass lens.

Results: In this paper I explore the meanings, interpretations and ideas that have been generated from this body of work. These include grappling with questions of clarity, peripheral vision and how photographs of Antarctica influence knowing and understanding.

Implications: Speaking from my disciplinary home in Fine Art practice, the resulting artworks engage a poetic, interpretive lens reflecting on this contemporary moment - that of global warming and climate change, specifically pointing to the impact in the polar regions.

Conclusion: The issue of rapid climate change is one that needs to be addressed in all spheres of life. This visual art response contributes to the many voices and discourses that urge everyone to engage.

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Exchanging Communications Knowledge Between the Poles

E Horovcakova, R Badhe

E Horovcakova (e.horovcakova@nwo.nl) works as a Communications Officer at the European Polar Board based in the Netherlands. She is a graduate from Aalborg University in Denmark with a master's degree in International Politics & Migrations, specialised in the Arctic (Culture, Communication and Globalisation programme). Eva has previously engaged with polar science as a trainee at the International Polar Foundation and as a volunteer at APECS Belgium.

Dr. Renuka Badhe currently serves as the Executive Secretary of the European Polar Board, and is based in the Netherlands. She has previously worked with SCAR, University of Cambridge and international organisations like the IUCN. Her background is in economics and public policy, and she holds a PhD on southern ocean phytoplankton physiology. Renuka has worked with a range of international organisations on various aspects of polar science, policy and/or strategy development. She is particularly interested in promoting polar research to a wide audience using a variety of traditional and non-traditional communication tools, and projects looking at the interface between governance, science, and policy in the polar regions.

Abstract

Theoretical background / Goals / Motivation: Polar research communication is crucial both in Arctic and Antarctic science. In order to make a lasting impact, it is necessary to communicate polar research to a variety of stakeholders beyond researchers, including policy makers, press and the general public. The EU Polar Cluster is a network of EU funded polar research projects and organisations that aims to substantially increase their combined impact as a single and strong voice. Communication is an essential part of the work of both the EU Polar Cluster, and also of its Members.

Methods: In February 2023, The EU Polar Cluster brought together communication specialists of Arctic or Polar research projects at the Arctic Science Summit Week in Vienna. The meeting included both plenary and breakout sessions to discuss individual topics of importance.

Results: The participants shared their knowledge, expertise, and best practices on how best to promote, coordinate and advance European polar research.

Implications: The outcome of this meeting produced recommendations that may also be relevant in Antarctic research communications and engagement.

Conclusion: This presentation at SC-HASS will present outcomes of this meeting focusing on the impact that polar research communication has, its challenges and best practices concerning communication with different stakeholders and variety communication tools, Catalyst platform included.



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I am your past/Yo soy tu pasado: an international science/art collaboration connecting the ecosystems of Antarctica and Amazonia

Elizabeth Lewis Williams, Angela Posada Swafford, Diana Restrepo, Nina Bendzco

Elizabeth Lewis Williams (e.lewis-williams@uea.ac.uk / elw0168@gmail.com) is a poet and teacher currently working as a Post-Doctoral Research Assistant at the University of East Anglia on a project related to climate change narratives. Her doctorate, *The Magnetic Observatory: An exploration of Scientific and Poetic Measure in Antarctic Poetry*, dealt with the interplay between scientific and poetic language in representations of the continent, and she has published two books of Antarctic poetry, *Deception Island* and *Erebus*. She co-created an immersive installation in a replica Antarctic hut [<https://storymachines.co.uk/portfolio/deception-island/>] and is working on other arts and climate-based Antarctic projects.

Abstract

Theoretical background / Goals / Motivation: Response to the reality of climate change needs to be global and collaborative, drawing together practitioners from a range of disciplines. We are working on the basis that you cannot protect what you do not know, or change a future you cannot imagine - imagination here understood as “a way of seeing, sensing, thinking, and dreaming the formation of knowledge, which creates the material interventions *in* and political sensibilities *of* the world. It is our hope that the proposed multi-lingual, international collaboration, *I am your past/Yo soy tu pasado* will raise awareness of the central importance of scientific and cultural understanding of the ecosystems of Amazonia and Antarctica through multi-media publication, performance, and exhibition.

Methods: Four artists – a science writer, a sound artist, a documentary filmmaker and a poet – will collaborate with scientists, anthropologists, historians and other experts working with both regions. The backbone of the project will be a series of letters between the Thwaites Glacier and snow from the high Colombian Andes, accompanied by poems, sound art and film which allow the human and non-human voices and characters of these two ecosystems to engage in conversation with one another and the audience.

Results / Implications / Conclusion: As this project is in its developmental stages, we do not have any final results. We would like to present an early sample from the project, with a short commentary, and invite comment from the audience.



Indigenising local memories of the 1910-1912 Japanese Antarctic Expedition in Wakkanai, northern Hokkaido

Seira Duncan

Seira Duncan (s.duncan@hotmail.com) is an indigenous Eurasian doctoral researcher in the Social and Cultural Encounters programme at the University of Eastern Finland and was a fellow at the Arctic Institute and the East-West Center. More recently, she started her fellowships at the International Arctic Science Committee and the European Centre for Minority Issues and completed her stays as a Visiting PhD student at the Universities of Tromsø and Greenland. Her research traverses the arts and psychological well-being in minority communities in the polar regions and Asia.

Abstract

Theoretical background / Goals / Motivation: The research investigates the main ways local Wakkanai society remembers the 1910-1912 Japanese Antarctic Expedition. These memories are analysed via heritage studies and psychology vis-à-vis a growing interest in indigenising historical and contemporary accounts of polar exploration.

Methods: As types of social remembering, philosopher Siegfried Schmidt (2008) highlights 'commemoration days, monuments, special places, or museums'. The research looks at four consistent cultural references (physical or held annually) to the first Japanese Antarctic Expedition in Wakkanai, northern Hokkaido, Japan: 1) the city's science museum; 2) Wakkanai Park⁸; 3) the Antarctic Festival, and; 4) a memorial service⁹. Data are collected through grey/academic literature reviews, local interviews and site visits.

Results: The main forms of cultural memories regarding the first Japanese Antarctic Expedition in Wakkanai are the infrastructure (ship and dog-sleighs) and the 22 Sakhalin dogs that accompanied the crew, particularly Taro and Jiro.

Implications: In an increasingly volatile world, we are reminded of the importance of heritage and collective memories for local psyches. "One of heritage's strongest emotional components is the suggestion of continuities standing against an era of continuous change ... this employment of the past stems from the present feeling itself imperiled" (Trimm 2017).

Conclusion: The contribution of the two Ainu men who participated in the Japanese Antarctic Expedition are not primary components in local cultural memories. In addition to indigenising local memories in the Japanese context, the research contributes to ongoing discussions on indigenising polar exploration and psychosocial well-being on the international level.

⁸ The Ainu trained the 22 Sakhalin dogs for 8 months in Wakkanai Park to prepare for the 1910-1912 expedition.

⁹ Every year, Wakkanai residents (including children) and Antarctic researchers remember the Sakhalin dogs.



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First Dives in Antarctic (1902) –Not for Science but for Repair

Cornelia Lüdecke

Cornelia Lüdecke is a retired professor for History of Natural Sciences at the University of Hamburg. She is focusing on history of polar research, meteorology, and oceanography. She leads the German History of Polar Research Working Group since 1991. 1995-2018: she was chair of the German History of Meteorology Specialist Group, 2001-2006 Vice President and 2006-2009 President of the International Commission on History of Meteorology. In 2004 she founded the SCAR Action Group, later Expert Group on History of Antarctic Research. 2012-2021 she was Vice President of the International Commission on History of Oceanography. Since 2016 she is board member of the Geographical Society in Munich. 2012 she became corresponding member of the International Academy of the History of Science in Paris. She received the Reinhard Süring Medal in 2010 and the Paulus-Preis award in 2019 both from the German Meteorological Society. She published 195 articles and 22 books.

Abstract

Theoretical background / Goals / Motivation: Carpenter Willy Heinrich (1879-1952) of the first German South Polar Expedition (1901-1903) came from the active naval service, where he had a training as diver. Recently his expedition diary became accessible.

Methods: Already during the outward journey of the “Gauss” to Antarctica, Heinrich had to take on his Siebe diving helmet and his diving suit to do some underwater repairs at the ship’s hull (caulking a leakage, work at the ship’s rudder) resp. to free the anchor chain from seaweed. On April 22, 1902, Heinrich performed the first dive under the sea ice in Antarctica to search for the leakage again.

Results: During the next dive he nearly froze his hands which took some time to recover. Nevertheless he liked to dive and to take a look at the underside of the sea ice, which sometimes kept him in the water longer than necessary. However the reports of his underwater sightings were ignored at that time and not evaluated in respect to further sea ice investigations.

Implications: Dives at air temperatures of -35°C in a leaking diving suit or with a frozen diving pump led to his complete exhaustion. Finally he also was able to lift the problem with the rudder, but then his diving suit was finally broken.

Conclusion: Without Heinrich’s tireless work in icy waters, the expedition would certainly faced severe problems with the ship. Unfortunately Heinrich’s observations of the sea ice from below did not lead to any scientific evaluation.

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Operation Deep Freeze I: American Antarctic Art

Ursula Rack

Dr. Ursula Rack (PhD) (Ursula.rack@canterbury.ac.nz) is a polar historian and an Adjunct Fellow at Gateway Antarctica, Te Kura Aronukurangi – School of Earth and Environment. She is a Fellow of the Royal Geographical Society in London, and in 2018 was appointed a New Zealand Winston Churchill Memorial Fellow. Ursula was the first humanities researcher who was awarded a COMNAP Fellowship in 2012. She collaborates with scientists on historic weather data and environmental history. Ursula publishes extensively in English and German and presents Antarctic related topics to the wider public and in schools.

As tutor, lecturer for Antarctic history and expedition staff, Ursula have spent five seasons in the Antarctic. In 2022, she became an IAATO Antarctic Ambassador and in the same year Ursula became a member of the SC-HASS committee.

Abstract

Theoretical background / Goals / Motivation: The role of the United Navy's Operation Deep Freeze (OPDF I) was to support the United States of America's International Geophysical Year activities in Antarctica. However, the commander, Rear-Admiral George Dufek, was adamant that art would be an integral aspect of the expedition, as it had been on other Antarctic expeditions, such as those of Admiral Byrd USN and Captain Cook, RN.

Methods: Initially, Dufek selected one official artist Commander Standish Backus U.S.N. Reserve. He had graduated from Princeton as an architect, studied art in Munich, and established a studio in Santa Barbara, California. Artistically, he was well-informed on French Impressionism, German Expressionism and Japanese art. Backus had served as a combat artist during WWII, and willingly returned to duty.

Results: Robert Charles Haun had trained at the Massachusetts School of Art and specialised in murals for homes, hotels, and public buildings. He volunteered to go south but was informed that an artist had already been appointed. Undeterred, he painted murals at the nearby U.S. Navy Seabees Construction Battalion base and, having demonstrated his artistic ability and agreeable personality, was also taken to Antarctica.

Implications: The paper will present an insight in how that art provided the US with rich visual resources for scientific and cultural diplomacy, and to share with the broader public, along with images in National Geographic and short documentaries by Disney.

Conclusion: The art conveys an expedition narrative imbued with ideological, geopolitical and technological themes through a range of artistic expressions.



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Sustaining Antarctic Funding by Increasing Public Interest and Engagement through General Education Channels

Edythe E. Weeks

Edythe E. Weeks (eweeks@wustl.edu) PhD, JD is an author, adjunct professor, Fulbright Specialist alumnus, and subject matter expert on the politics of international space law, as a global commons territory. She teaches political science, international relations, ethnic relations, sustainability and climate change courses at Washington University, and Webster University, in the United States. Her niche area within the International Astronautical Federation Congresses have involved promoting increased awareness-participation through knowledge of space law, and outer space development, for a wider range of people and nations throughout the world. Recently, Weeks has been exploring parallels between the power politics of space law, and the policies, law and legal arrangements governing the polar regions.

Abstract

Theoretical background / Goals / Motivation: Consistent with the goals of the 2023 SCAR SC-HASS Biennial Conference, this paper presentation will discuss strategies for building an international, multidisciplinary and interdisciplinary strategic partnership alliance with various groups. These include: the International Astronautical Federation Congress, the Arctic Circle Assembly, Polar Law Symposium, The Scientific Committee on Antarctic Research Standing Committee on the Humanities and Social Sciences (SC-HASS), the Public Engagement with Antarctic Research (PEAR) Action Group, the Hague and the United Nations.

Methods: It will propose establishing a virtual location within ResearchGate to organize research ideas; promote the development of future collaborations and to implement ways to increase public awareness, interest and engagement about humanity's next steps for Antarctica. This includes exchanging information, knowledge resources, ideas and research in the multidisciplinary and interdisciplinary fields, in the social sciences, humanities and arts concerning the Antarctic and Sub-Antarctic regions. Increasing awareness can enable positive change.

Results: The United Nations Universal Declaration of Human Rights states all people have the right to education. Without knowledge of emerging activities in the polar regions, general education curricula cannot enable most people to prepare for future paradigms.

Implications: This paper is a call to action for building a network to operationalize curricular opportunities to shift the education paradigm for the 21st Century and beyond. The ideas presented will be used to cultivate research and publishing partnerships aimed at heightening public interest and engagement in Antarctica.

Conclusion: Sustaining publicly funded Antarctica research can be fortified by increased broad public interest and engagement, facilitated through general education structures.



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East-West Scientific Cooperation in Antarctica and the Collapse of Cold War Détente, 1978-85

Roman Khandozhko

Roman Khandozhko (rhandozhko@hse.ru) is a historian of Soviet science and technology. From September 2021 he is working as a research fellow at the Laboratory for Environmental and Technological History, Higher School of Economics in Saint Petersburg. He has previously worked as a researcher at the Division of History of Science, Technology and Environment, Royal Institute of Technology (Stockholm, 2020-21), Institute for Eastern European History and Area Studies, University of Tübingen, (2017-19), Research Centre for East European Studies, University of Bremen (2013-14). He holds a PhD degree in history from South Federal University (Rostov-on-Don, Russia, 2010). His current research is focused on the history of Soviet polar research in the Cold War period.

Abstract

Theoretical background / Goals / Motivation: In the late 1970s and early 1980s, the medium-range missile crisis in Europe, the Soviet invasion of Afghanistan, the imposition of martial law in Poland, and the increasing repression of dissidents in the USSR caused one of the darkest periods of East-West relations in the 20th century. The deterioration of relations between the USSR and the West affected pre-existing scientific relations, scientific exchange programs, long-standing joint experiments and expeditions, and activities of international scientific organizations. This paper seeks to explore, how and to what extent the global politics of peace and war posed a challenge to the Soviet position as one of the leading Antarctic powers. There is an opinion that there was no Cold War in Antarctica, because in the framework of ATS cooperation in science was supposed to transcend political divides.

Methods: The Soviets not only addressed cutting-edge scientific problems jointly with the Western countries, but also made a significant share of resources for large-scale field research. For example, BIOMASS, an international program to study the living resources of the Southern Ocean, was launched in 1976 for a period of 15 years. The first experiment of the program, which represented oceanographic research on 13 vessels from 11 countries in Antarctic waters, took place with the participation of the USSR at the height of international tensions – 1980-81.

Results / Implications: This paper tries to answer the question of how far Antarctica was in reality outside the influence of Cold War political tensions.

Conclusion: It also investigates the role of infrastructures, territories, and natural objects as nodes of scientific communication that were important for the continuation or interruption of the East-West collaboration in the area.



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The enemy within: Discussing mental health in Antarctica in the early 1950s

Pablo Wainschenker

Pablo Wainschenker (Pablo.Wainschenker@pg.canterbury.ac.nz) PhD Candidate, Gateway Antarctica, University of Canterbury, New Zealand. Pablo's research interests include the representations of Antarctica in South American narratives (including their links to narratives written in the English language), Antarctic tourism, and the interface between science and policy. In 2019, he co-authored the article "The 'alien' next door: Antarctica in South American fiction" (The Polar Journal; with Prof. Elizabeth Leane). Pablo studied social communication at the University of Buenos Aires, Argentina. His dissertation topic was "Antarctica and the Imagination. Representations of Antarctica in Film and Literature". He produced *Trapped at the End of the World*, a documentary film about the Nordenskjöld Expedition to Antarctica (1901-1903) (Hiperkinesis Films; with Eduardo Sánchez and Fernando Moyano) and penned several articles published in Argentine and international media. Pablo is the editor at the Secretariat of the Antarctic Treaty and has worked for the Antarctic Treaty Consultative Meeting since 2005.

Abstract

Theoretical background / Goals / Motivation: This presentation is about a lost narrative of mental well-being on an Argentine Antarctic station in 1952 and its implications for current research on non-fiction masculine narratives. It complements earlier work on the role of narrative during the Cold War and finds contrasts with the conclusions of earlier studies of personal narratives in English. In this narrative, intimacy, vulnerability and self-doubt come to the fore at a time so far regarded as characterized by patriotic and heroic discourse.

Methods: By the early 1950s, Argentina had organized many expeditions to Antarctica. In 1904, it established a permanent base in the South Orkney Islands and later built three more stations. During this period, writers and journalists described life on these bases in detail, including Sobral's account (1904) and Moneta's best-selling book on life in the South Orkneys in the 1920s. However, a key element of Antarctic life was missing from these accounts.

Results: In 1951, Navy doctor Alberto Soria realized that none of these narratives and reports contained any substantial information about the mental health of the wintering crews. **Implications:** How did people feel after months of forced confinement with strangers in the cramped quarters of an Antarctic base? What were the effects of the harsh Antarctic environment on mental well-being? Frustrated by the lack of data, Soria decided to spend a year on the icy continent to find out.

Conclusion: He published the results in *Life in Antarctica*, a forgotten book whose study helps us rethink the role of masculine non-fiction Antarctic narratives in Spanish.



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Towards 'Antarctification'? Tourism and place-making in Antarctica

Alix Varnajot, Yousra Makanse, Edward Huijbens, Machiel Lamers

Alix Varnajot (alix.varnajot@oulu.fi) is a Postdoctoral Researcher at the University of Oulu, Finland. He received a PhD from the University of Oulu in 2020 in Human Geography. His most recent work includes tourism developments in the Polar regions, tourism adaptation strategies to climate change, and conceptual developments on Arctic and Antarctic tourism. His research interests also include place-making, borders and bordering processes in tourism, as well as extreme citizen science in contemporary Polar exploration.

Yousra Makanse is a Ph.D. candidate at Wageningen University & Research within the Cultural Geography Research Group (GEO). Her current research aims to explore and map tourism diversification in the Antarctic, further considering the magnitude of integration of the ATS fundamental principles and values in the development of new, novel, and particularly concerning activities as part of ProAct, an NWO project funded by the Netherlands Polar Programme. Yousra holds a European Master in Tourism Management (EMTM) joint degree from the University of Southern Denmark, University of Ljubljana, and Universitat de Girona, and a bachelor's degree in Leisure and Tourism from the University of São Paulo.

Abstract

Theoretical background / Goals / Motivation: This paper is grounded in recent conceptual developments on Arctic tourism, specifically in the Arctification phenomenon. We propose the concept of "Antarctification" in order to frame the biased and reductionist place-making process produced by the tourism industry.

Methods: We collected data relative to narratives describing Antarctica from the websites of tour companies operating in and around the continent.

Results: Four types of narratives were identified: (a) Antarctica as a place of exploration; (b) Antarctica as an empty and wild place; (c) Antarctica dedicated to stewardship and ambassadorship; and (d) Antarctica as a place of superlatives.

Implications: The use of these specific narratives locks Antarctica in particular imaginaries that are not representative of reality. Designed to attract visitors, these narratives are biased and reductionist. Further, dominant narratives may have significant impacts on conservation agendas, human experiences mediation with the Antarctic wildlife, icescapes, and heritage.

Conclusion: This paper proposes new theoretical developments on Antarctic tourism. It is therefore concluded that more research is also needed in investigating the practical implications of the phenomenon of Antarcticification as a place-making process.



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A theory of value in Antarctica: an anthropological approach to work and cooperation in a research station

Susie Pottier

Susie Pottier (susiepottier@gmail.com) completed her PhD in social and cultural anthropology at the University of Strasbourg (France) in 2022. Her research examines the components that lead humans to produce complex social structures, cultural norms and collective behaviours in challenging social and environmental contexts. Her main focus, through ethnographic descriptions and comparative studies, is to explore the concept of “Antarctic community” and to understand how this community identity is shaped despite the cultural variables. Since 2017, Susie also works as a wildlife biologist and has been involved in the development of various studies, conservation and rehabilitation projects.

Abstract

Theoretical background / Goals / Motivation: This paper explores the connections between the various expressions of the legitimacy feeling in polar environments and anthropological theories of the concept of “value”. While previous authors have demonstrated that physical connections and on-site experience, or the absence of them, have an impact on researchers working on Antarctica (Howkins 2010; Nielsen and Philpott 2018), we focus here on the manifestations of experience value among over winterers.

Methods: Our methodology is based on an ethnographic fieldwork from November 2019 to January 2021 on the French Antarctic station Dumont d'Urville and on participant observation among the members of the 70th mission to Adélie Land, our main study population.

Results: The results of this article indicate that seniority, experience of difficulty, hard work and merit are very present values in Antarctica. It influences not only the relationships that over winterers have with other categories of population on the station (and beyond), but also hierarchical relationships, professional kinship or economic exchanges within it.

Implications: The work and cooperation between Dumont d'Urville's personnel are particularly impacted, the value of volunteering, for example, is unequal depending on the workload of the giver and receiver. An over winterer's credibility and perceived legitimacy within the crew depends partly on his/her ability to apprehend this value system.

Conclusion: This paper does not aim to draw a complete ethnographic portrait of an Antarctic station, but to approach this object of study from a certain angle to put into perspective the values present in Antarctica and to analyze the social facts behind them.

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Orienting South: Looking to Antarctica and the Southern Ocean in South African Literature

Charne Lavery

Charne Lavery, is a Senior Lecturer in the Department of English at the University of Pretoria, South Africa, and Co-director of the Oceanic Humanities for the Global South project (www.oceanichumanities.com) with Isabel Hofmeyr. She explores ocean cultures of the global South, focused on the Indian Ocean world, the deep sea and seabed, and the Antarctic region. Her first monograph, *Writing Ocean Worlds: Indian Ocean Fiction in English*, appeared in 2021. Other recent publications include co-edited special issues on 'Water' (*Wasafiri*), 'Thinking Oceanically' (*Eastern African Literary and Cultural Studies*) and 'Reading for Water' (*Interventions*); and two co-edited books, *Maritime Mobilities in Anglophone Literature and Culture* (Palgrave, OA) and *Reading from the South* (Wits Press). She is a South African Humanities and Social Sciences delegate to the international Scientific Committee on Antarctic Research (SCAR) and PI on a South African National Antarctic Programme (SANAP) project: 'Antarctica, Africa and the Arts'.

Abstract

Theoretical background / Goals / Motivation: South African literature—by Antjie Krog, Finuala Dowling, Gabeba Baderoon, Peter Wilhelm, Joan de la Raye and Alistair Mackay among others—includes references to Antarctica and the Southern Ocean that evoke a South-facing perspective from the African continent's southernmost coastlines. If discussions of Antarctic representation are often focused on writers and artists from the Northern Hemisphere, in which Antarctica is portrayed as faraway and opposite, in some Southern Hemispheric literature—South American literature for instance—the southern continent appears closer and more connected. This paper draws on the substantial work on Antarctic representation in literature and culture, by Elizabeth Leane, Pablo Wainschenker, Elena Glasberg, Lisa Bloom and others, adding a perspective from South Africa.

Methods: The paper surveys a small sample of Antarctic or Southern-oriented representation by South African writers, and conducts a closer reading of selected texts.

Results: Antarctica and the Southern Ocean appear in both major and minor ways in South African literature, whether as destination for the plot in popular fiction or as a spacious, often future-oriented outlook in more literary fiction and poetry; predominantly in literature by white authors, with informative exceptions.

Implications: South African literature portrays Antarctica partly as alien and faraway, and partly as neighboring and significant, reflecting its complex geographic and political positions. Southern orientations also perform a variety of other imaginative roles in the text, including orienting to the future.

Conclusion: Selected South African texts reveal a geographic imaginary somewhere between northern and southern perspectives on the Antarctic regions.



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Citizen Science and the Antarctic Tourism Experience

Hanne Nielsen, Elizabeth Leane, Can Seng Ooi, Carolyn Philpott, Anne Hardy, and Katie Marx

Hanne Nielsen (Hanne.Nielsen@utas.edu.au) is a Senior Lecturer in Antarctic Law and Governance at the University of Tasmania's Institute for Marine and Antarctic Studies. She specializes in representations of Antarctica and has a particular interest in the commercial history of the continent. This includes through media and advertising, which form the topic of her forthcoming book *Brand Antarctica*. Dr Nielsen's current work focusses on the interactions between imagined versions of Antarctica and embodied encounters with the place in the context of Antarctic tourism. She is a Chief Officer of the SCAR *Standing Committee on Humanities and Social Sciences*; a co-lead of the SCAR Tourism Action Group (Ant-TAG); a member of SCAR's *Capacity Building, Education and Training Committee*; and led Theme 7 (An Inspiring and Engaging Ocean) of the Southern Ocean Decade Action Plan.

Professor Elizabeth Leane (Elizabeth.Lean@utas.edu.au) is based in the School of Humanities, College of Arts, Law and Education at the University of Tasmania. Her work examines cultural responses to Antarctica past and present, with a recent focus on polar travel and tourism cultures. She is the author or editor of seven books, including *Antarctica in Fiction*, *South Pole: Nature and Culture*, *Performing Ice* and *Anthropocene Antarctica*. She is currently lead investigator of the Australian Research Council funded project 'Transforming Tourists' Antarctic Experience.'

Abstract

Theoretical background / Goals / Motivation: This project examines how citizen science activities impact visitors' attitudes towards Antarctica, and how these activities could be designed to maximize positive change. The paper outlines the history of Citizen Science in the Antarctic, then presents findings from a recent field season.

Methods: Two researchers travelled to the Antarctic Peninsula in the 2022/23 season on two back-to-back voyages aboard the *MS Fridtjof Nansen*, interviewing 41 guests in situ on the way south and again during the return. Questions related to perceptions of Antarctica, motivations for travel, participation in science activities, and what guests had learnt during the expedition.

Results: This presentation outlines key findings related to guest perceptions of citizen science in Antarctica. Science played a key role in motivating travel choices and mediating the Antarctic environment for our interviewees, but greater scientific understanding of the region gained during the trip also led some to the paradox of questioning their travel choices.

Implications: Citizen science can augment the Antarctic experience, but also elicits questions about human impacts on the environment more broadly.

Conclusion: Experiential learning opportunities can lead to impactful experiences for Antarctic tourists and enhance attachment to place, but for those with an interest in



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science, connections back to everyday life, including actions that can be undertaken back home, are also key.



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Loving the Alien: a new model for Antarctic place attachment

Katie Marx

Katie Marx (katie.marx@utas.edu.au) is a PhD candidate and research fellow at the University of Tasmania in nipaluna/Hobart. Her research focuses on Antarctic public engagement, gateway cities, and polar tourism. Katie has a professional background in human rights policy and community development and has recently spent a season working as an Antarctic tour guide. She aims to use her research to enable members of the public to connect with and care for the world's remote and inaccessible places.

Abstract

Theoretical background / Goals / Motivation: Antarctic public engagement faces some unique challenges. Chief among these challenges are the twin issues of experience and access; with its immense scale and otherworldly qualities, Antarctica can be difficult to imagine for people who cannot experience it directly, and due to the continent's remoteness, this direct experience will remain out of reach for most people. Place attachment, the bond between people and environments, offers a theoretical framework for this engagement challenge. While most research into Antarctic place attachment has focused on people who have visited Antarctica, there is also a need to understand whether someone can develop a sense of "indirect place attachment" without visiting.

Methods: This paper presents the results of a doctoral research project that has used in-depth interviews and a community survey to examine Antarctic place attachment in residents of Hobart, Australia.

Results: Participants displayed four distinct types of Antarctic place attachment: direct, indirect, oblique, and none. Participants' attachment was influenced by local activities, which act as "mediators", as well by their perceived sense of belonging in the local Antarctic community. **Implications:** It is possible for people to feel an attachment to Antarctica without having visited. This attachment is, however, undermined by the social and structural dynamics within Hobart's Antarctic sector, which reward people who have travelled south and marginalize those who have not.

Conclusion: With further refinement, this model of Antarctic place attachment could be employed within the sector to develop a strategic approach to public engagement.



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South Africa's Antarctic Gateway

Ephaphrus Mamabolo

Ephaphrus Mamabolo is a project coordinator of Antarctic gateway projects at the Department of Forestry, Fisheries and Environment, South Africa. His responsibilities include: facilitating building of the Antarctic Centre at the Port of Cape Town, organising the annual Antarctic Season Launch Seminar every year in December, and organising Antarctic community networking events of the High Commissioners from five gateway nations: Argentina, Australia, Chile, New Zealand, and South Africa.

Abstract

Holding celebrations to commemorate the beginning of the Antarctic season is one way the nations that serve as gateways to Antarctica raise awareness of the continent. Few initiatives were initiated by the high commissioners of Antarctic gateway countries: Argentina, Australia, Chile, New Zealand, and South Africa. Since 2016, the Department of Forestry, Fisheries and Environment in South Africa has been conducting bilateral and multilateral Antarctic season launch seminars with some of the nations that depart for Antarctica from Cape Town. Major players in the Antarctic, including researchers, businesses, and governmental organisations, can discuss prospects that come with being an Antarctic gateway country thanks to the establishment of cooperative initiatives by the high commissioners of Antarctic gateway nations. This will be achieved by taking advantage of every chance where five gateway countries are represented to organise specifically created sessions at important events like Antarctic Treaty Consultative, Consultative Meetings (ATCM), Convention on the Conservation of Antarctic Marine Living Resources (CCMLAR), and Council of Managers of National Antarctic Programs (COMNAP). South Africa is used in this as a case study.



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Thinking about the cosmopolitical colonization of Antarctica a decade later

Luís Guilherme Resende de Assis

Dr. Luís Guilherme Resende de Assis (Ph.D. in Social Anthropology) (luisguilhermera@yahoo.com.br) researches the scientific cosmopolitical colonization of the Antarctic and its social segments ('metropolises colonizers' and 'autochthonous colonizers') since 2009. He was supported by the Brazilian Antarctic Program in 2010 and 2011 expeditions, when he performed fieldwork research on Social Anthropology together with military staff, mountaineers, archaeologists, glaciologists, cell biologists, and oceanographers. He delivered his Ph.D. thesis on the Antarctic in 2019, at the 'Federal University of Santa Catarina – UFSC', Brazil. He was 'visiting Ph.D. student' at 'Scott Polar Research Institute, University of Cambridge – SPRI/UC'. He was part of the border of the APECS International, and an expert member of HASS/SCAR. He is a member of the Laboratory of Antarctic Studies in Human Sciences, University of Minas Gerais, Brazil.

Abstract

In 2009 I began my investigations on the annexation of Antarctica by the 'World-System', linking decolonial/postcolonial studies to the emerging field of 'anthropology of science and technology,' in which Isabelle Stengers' concept of cosmopolitics was emerging. The two fields were seen as mutually exclusive in the social anthropology practiced in Brazil, and my challenge was to demonstrate the opposite since Antarctica demanded it. Antarctica was at the same time a political arena for the dispute over meanings between distinct and unequally arranged cosmovisions and a conjunction of scientific magnitudes that imposed themselves over all human cultures as Anthropocene. On the one hand, the cosmopolitanism of the ATS principles (peace, cooperation, and science) functioned as an imperial-epistemic imposition for anyone who ventured to participate in the colonial consortium in international diplomacy and geopolitics. On the other hand, the exercise of scientific colonization resulted in the discovery of elements of the Earth System's revolt against the World-System via climate change. The ongoing paradigm shift over the colonization of Antarctica impacts this game of cosmopolitical meanings and phenomena. The Antarctic is no longer a vortex of remote human activities on natural systems. Its threats are now produced domestically. The ATS was thought of and celebrated as a Cold War mode of hesitation, today unsustainable. The need for action linked to the original inaction institutional trait marks the new anthropological curiosities about the cosmopolitical colonization of Antarctica.



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Connecting the South African society with research of global interest – Polar Research

Anche Louw

Anche Louw (anchemuller@sun.ac.za) is a Digital Marketing and Communications Manager of the South African Polar Research Infrastructure (SAPRI), within the first established node: Data, Products and Society (DPS) which is hosted by Stellenbosch University, South Africa. My passion for the Polar regions is due to my overwinter experience as a Master's student and field biologist on South Africa's sub-Antarctic Marion Island. Not only do I have a passion for the Polar regions, but also for the communication of science conducted in these regions. I recently completed a Post Graduate Certificate in Education (senior phase), to assist me in understanding the education system of South Africa and ways to incorporate polar related topics in the classroom. For the past 7 years I've been communicating South Africa's involvement in Polar Research on various platforms, within my role as Co-investigator and Assistant Project Manager of the Antarctic Legacy of South Africa (ALSA) project. This work will be continued within the SAPRI, ensuring Polar science is for society.

Abstract

Theoretical background / Goals / Motivation: The South African government has identified the research done within the South African National Antarctic Programme (SANAP) as a national Big Science Programme (a research programme with global interest) and identified the need for a South African Polar Research Infrastructure (SAPRI) to further support Antarctic, sub-Antarctic and Southern Ocean research and the various aspects involved including education and outreach. One of the aims of SAPRI is to “improve the relationship between polar science and society, by showing the relevance of scientific and operational activities” (Morris, Vichi, Hermes, Pauw, & Treasure, 2021). The Antarctic Legacy of South Africa (ALSA) project will be integrated into this new infrastructure and communication efforts will lead from the work that has been done towards communication within SANAP through the ALSA project.

Methods: Various communication media are utilised that will assist SAPRI in the facilitation of knowledge building about the scientific work and life at the three stations of South Africa on Antarctica, Marion Island and Gough Island, as well as within the Southern Ocean onboard South Africa's research and supply vessel, the *S.A. Agulhas II* (Morris, Vichi, Hermes, Pauw, & Treasure, 2021). Specific attention will be given to knowledge building at school level.

Results: This is a practice-based paper.

Implications: SAPRI's goal within capacity development is to encourage and enlighten the next generation through outreach and engagement to follow STEM pathways.

Conclusion: The communication done through SAPRI by means of traditional methods and digital media will play a crucial role in connecting research that is of global interest to the South African community.

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Protecting Antarctica's intrinsic values: getting inspirations from other international environmental agreements?

Antje Neumann

Dr. Antje Neumann is Associate Professor of Law at the University of Akureyri, Iceland, where she has been teaching and conducting research in the field of Polar Law since September 2019. Previously she accomplished her doctoral studies on wilderness protection in Antarctica with taking into account case studies in the Arctic. Her background lies in international environmental law specifically related to the Polar regions. In this context, she has been engaged in geopolitical studies towards the High North and worked as a legal adviser for the German government concerning the implementation of the Environmental Protocol to the Antarctic Treaty into domestic legislation. Her current research activities cover ethical perspectives of environmental law in relation to the Arctic and the Antarctic as well as studies on pro-active management of tourism in Iceland and Antarctica.

Abstract

The significance of the Environmental Protocol to the Antarctic Treaty (the Protocol)¹⁰ has been widely recognized and highlighted, among others, in the Santiago Declaration adopted at the 39th Antarctic Treaty Consultative Meeting (ATCM) in 2016, when the Antarctic Treaty Consultative Parties (ATCPs) reaffirmed their strong and unwavering commitment to the Protocol as the international framework for comprehensively protecting the Antarctic environment.¹¹ Remarkably this comprehensive regime does not only focus on the protection of traditional anthropocentric values, serving primarily human centred purposes, but includes also intrinsic values by stating that “the intrinsic value of Antarctica, including its wilderness and aesthetic values” shall be a fundamental consideration in the planning and conduct of all activities in the Antarctic Treaty area.¹² Despite the explicit recognition, however, the nature of intrinsic value and its locus become hardly clear, neither through the Protocol's provisions themselves nor by those of its Annexes. Also, the inclusion of wilderness and aesthetic values (in the intrinsic value of Antarctica), values that may also qualify as instrumental and inherent values, rather contributes to confusion than to any clarification. Against this background, the presentation will elaborate on other international nature conservation agreements ascribing intrinsic values to their subjects of consideration. In doing so, it seeks to identify whether from these other conventional contexts inspirations can be obtained for the meaning, interpretation and operationalization of Antarctica's intrinsic value.

¹⁰ Protocol on Environmental Protection to the Antarctic Treaty (Protocol), adopted in 1991, entered into force in 1998, <https://www.ats.aq/e/protocol.html>.

¹¹ Declaration on the Twenty Fifth Anniversary of the signing of the Protocol on Environmental Protection to the Antarctic Treaty (Santiago Declaration), adopted at the XXXIX Antarctic Treaty Consultative Meeting in Chile 2016, https://documents.ats.aq/ATCM39/ad/atcm39_ad003_e.pdf

¹² Article 3 (1) of the Environmental Protocol.



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Theoretical background / Goals / Motivation: The study is embedded in the work of the *Action Group on Intrinsic Value in Antarctica* (AGIVA), a special working group under the auspice of the Scientific Committee on Antarctic Research (SCAR), which seeks to develop a broad cross-cultural understanding of the intrinsic value of Antarctica in order that the intention of the Protocol to provide protection to this value can be better understood. Coming from a western legal scientific background, the author has been engaged in international research activities towards the protection of Polar environments since more than 20 years. With the expansion of her research to the Arctic, a region that is populated by roughly 4 million inhabitants, including many indigenous peoples, her research approaches became increasingly interdisciplinary and comparative in nature, and in doing so acknowledging the human dimension and various interlinkages of environmental studies in Polar regions. Against this background, she is especially interested in studying the role of law and to what extent law and legal regulation can contribute to the protection of Polar environments while taking into account human-nature relations and the values on which these relations are based, including those of non-western societies and cultures.

Methods: Although most of my research, as stated previously, follows an inter- and multidisciplinary approach, this presentation will primarily be based on doctrinal legal research, implying the study of international public law and policy, predominately in the field of nature conservation law.

Results / Implications / Conclusion: The study described reflects research in progress. Thus, no final results and/or conclusions can be drawn yet.



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The Connotation, Characteristics and Development Path of China's Antarctic Culture

Xiaoyu Gui

Xiaoyu Gui (quixiaoyu1207@gmail.com) research associate of National Marine Data and Information Service under the Ministry of Natural Resources of China, has been long engaged in the research on Antarctic issues, and has participated in the formulation of China's national polar policy. Her main research fields include Antarctic governance system, China's Polar Policy, Antarctic culture, etc. Her publications have focused on Antarctic activities, policy evolution and management mechanism of emerging countries in Antarctica.

Abstract

Antarctic culture is the total of material and spiritual wealth, behaviours, institutions that have Antarctic characteristics, which are created by human beings in course of understanding and practice of the Antarctic region. The development of China's Antarctic culture along with its Antarctic activities started late but developed rapidly. Since 1979, China has achieved fruitful scientific research results and shaped the "Antarctic spirit" of patriotism, truth-seeking, innovation, and hard work. Chinese people's awareness of Antarctica has also gradually improved, and China has become the second largest tourist market source for Antarctica. To develop its own Antarctic culture, China has promoted its national polar affairs, cultivated polar talents and constructed polar related disciplines, continued to inherit and protect its "Antarctic spirit", promoted the integration of Antarctic cultural industry and marine economy, and actively carried out international cooperation around the Antarctic culture, which has greatly enriched the connotation of the world's Antarctic culture.]

Theoretical background / Goals / Motivation: The Antarctic culture was formed late but has developed rapidly with the continuous exploration of mankind. The particularity of the geographical location of the Antarctica determines the uniqueness and value of the Antarctic culture. The cultural characteristics contained therein, such as enterprising spirit, inclusiveness, and creativity, are the most valuable spiritual heritage for understanding human activities. As an integral part of the world's Antarctic culture, China's Antarctic culture has achieved rapid development in recent years.¹³ Its connotation, characteristics and development path are worth studying.

Methods: Literature study, Case study.

Results: Since the establishment of the Chinese Antarctic Exploration Commission in 1979, China has achieved fruitful scientific research results and shaped the "Antarctic spirit" of patriotism, truth-seeking, innovation, and hard work. Chinese people's awareness of Antarctica has gradually improved, and China has become the second

¹³ China's Antarctic Activities, released 22 May 2017 by State Oceanic Administration of China.



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largest tourist market source for Antarctica. Its Antarctic cultural industry also shows a trend of diversification.¹⁴

Implications: Studying the development path of China's Antarctic culture has certain reference significance for other countries to develop their Antarctic culture and can enrich the connotation of the world's Antarctic culture.

Conclusion: China attaches great importance to the development of its own Antarctic culture and has formed its unique Antarctic culture through various means, which has greatly enriched the connotation of the world's Antarctic culture.

¹⁴ The Blue Paper on Marine Culture: The Report on the Development of China's Marine Culture, released 2022 by the Ministry of Natural Resources of China.



Taking women's sexual and reproductive health seriously in National Antarctic Programs

Meredith Nash

Professor Meredith Nash (Meredith.Nash@anu.edu.au) is Associate Dean – Diversity, Belonging, Inclusion and Equity in the College of Engineering, Computing and Cybernetics at the Australian National University in Canberra, Australia. She was formerly Senior Advisor – Inclusion, Diversity, and Equity at the Australian Antarctic Division and a cultural sociologist at the University of Tasmania. Meredith is well-known for her research that applies the insights of social sciences to building inclusive Antarctic workplaces and for a broad body of scholarship exploring the lived experiences of people from historically excluded groups in STEMM fields.

Abstract

Theoretical background / Goals / Motivation: Antarctic workforces have been traditionally male dominated. However, women are working in Antarctica in a variety of scientific and support roles in greater numbers in recent decades. To support this change, pre-departure medical screening procedures now cater for specific gendered sexual and reproductive health differences in the expeditioner population in many National Antarctic Programs (NAPs). For instance, mammography, pap smears, and pregnancy tests are included in pre-departure screening for wintering expeditioners in the Australian Antarctic Program. Yet to date, there has been little investment in research focused on women's physiology in Antarctica broadly or women's sexual and reproductive health specifically. The bulk of existing research focuses on male physiology.

Methods: This paper draws on a variety of data sources (relevant scholarly literature, scientific and policy reports, and media sources) to understand and interpret key themes regarding women's sexual and reproductive health in Antarctica.

Results: Male physiology is the template upon which all bodies in Antarctica are evaluated. This has wide-ranging consequences for women working in NAPs – in terms of the health care they receive – and in terms of the extent to which Antarctic working environments and infrastructure are sensitized to their gendered health needs. There are various cultural, social, and biological/medical challenges that may be preventing serious investment in women's sexual/reproductive health research in Antarctica (e.g., small sample sizes; lack of women practicing remote and extreme medicine; male-dominated organizational cultures in NAPs).

Implications: Broader implications relate to space and long-term plans for the human colonisation of Mars. Without the immediate capacity to send astronauts to Mars, a primary way to explore human reproduction in space is through modelling and research conducted in highfidelity analogue environments. (e.g., Antarctic overwintering). Many more women go to Antarctica each year than will ever go to space. Investment in



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women's sexual and reproductive health research in Antarctica is also an investment in building understandings of what sex and reproduction may look like on another planet.

Conclusion: Renewed and serious investment in research focused on women's sexual and reproductive health in Antarctica will improve the individual experiences of women working in NAPs and have wide-ranging impacts in other extreme environments such as space.



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Do current tourism regulations avoid introduction of non-native species to Antarctica?

Gabriela Mataloni

Gabriela Mataloni (gmataloni@unsam.edu.ar; mgmatal@yahoo.com) is a biologist trained in phycology and limnology from the University of Buenos Aires. For over 30 years she has been involved in Patagonian and Antarctic research, first studying microalgal communities from freshwater ecosystems and wetlands, and then expanding her interest to other communities from different non-marine environments. She spent 11 Antarctic summers in Esperanza, Decepción and Primavera stations (Argentina). Location of the latter in Punta Cierva, near ASPA No. 134, arose her concern for environmental protection and conservation issues. Parallely, her long-term studies on the ecology of Patagonian peat bogs resulted in a growing interest for inter- and transdisciplinary approaches to pressing socio-environmental issues around water in Patagonia. A former associate professor and present senior researcher at the University of San Martín (Argentina), she continues her work within the Ant-ICON Programme through national and international collaborations and the direction of two early career colleagues.

Abstract

Theoretical background / Goals / Motivation: Introduction of non-native species to Antarctica is a growing concern for the Committee for Environmental Protection (CEP), as they can dramatically change structure and functioning of Antarctic ecosystems. While increasing human presence facilitates transport to and between Antarctic regions, climate change fosters survival and spreading of potentially invasive species (Newman et al. 2014), amongst which microorganisms have been largely overlooked (Hughes et al. 2015). Deception Island, an active volcano, is a widely recognized hotspot for such potential introductions.

Methods: Cross-referencing of different sources (academic journals, Antarctic Environments Portal, IAATO statistics, public online journals)

Results: Deception Island is a Antarctic Specially Managed Area (ASMA) encompassing two specially protected areas (ASPAs) and two historic sites. Among the latter, Whalers Bay is one of the most visited places in Antarctica, with 7050 landings during post-pandemic season 2021-2022 (IAATO 2023). While ATCM39 addressed the need to preserve unique terrestrial geothermal environments, the Code of Conduct for Visitors of the ASMA Management Plan does not contemplate measures to avoid accidental introduction of microorganisms and genetic material. Research comparing soil environmental DNA from a site within ASPA 140 and Whalers Bay attributed sequences of exotic green microalgae and flowering plants found in the latter to human activity (Carvalho-Silva et al. 2021).

Implications / Conclusion: Expected escalation of tourism (Hannam 2023) will enhance the risk of non-native species invasions to unique, sensitive environments. While



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interdisciplinary, targeted research is clearly needed, cross-referencing of existing information can detect crucial demands for rethinking tourism operation.

Complete presentation available at <https://iiaa.conicet.gov.ar/mataloni-gabriela/>

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Antarctica as Aviary, or a Bird's Ice View

Ellen Cressman Frye

Dr. Ellen Cressman Frye (fryee@wpunj.edu) majored in Spanish at the University of North Carolina at Chapel Hill, and then she completed her Ph.D. in Spanish Language, Literature, and Culture at the University of Pennsylvania, in Philadelphia. She is a tenured professor at the William Paterson University of New Jersey, and her field of specialization is Early Modern European literature and culture. Ellen's sub-specialty is theatre and performance studies, specifically the actor-spectator relationship as established, maintained, and enhanced by dramatic devices, including the aside, soliloquy, monologue, and metatheater. For the past decade, she has also been researching and publishing on the literature and culture of Antarctica, most recently on religion and spirituality in and of Antarctica.

Abstract

Theoretical background / Goals / Motivation: When SC-HASS announced Lisboa, Portugal, as the location for our 2023 Conference, I thought of the *andorinha*, or swallow! In Portugal, the swallow is a symbol of family, love, and fidelity. This led me to think about the role that Portugal has played in Antarctica, particularly in terms of voyages. In honor of that history, I seek to link the *andorinha* and its beautiful symbolism to the birds of Antarctica. First, an aviary is a large cage, building, or enclosure for keeping birds in, often for exhibition. Unlike small birdcages, aviaries allow birds a larger living space where they can fly, and thus, a positive use is to display these magnificent feathered friends, in all their glory! I will describe the birds found on and near Antarctica – the albatross, petrel, skua, and penguin – connecting them to the beloved *andorinha* and Portugal. Through the *andorinha*, we see the connection to the “nest,” or homeland: this concept is so important to Portuguese culture that there is a special word for it, *saudade*. Difficult to explain in other languages, *saudade* is the feeling of melancholy connection you sometimes get, when you taste your Mother's cooking or whiff a scent from your childhood. The symbol of the *andorinha* is the embodiment of that feeling, and I will also apply this idea to people who spend time living on Antarctica. Essentially, we will take our birds' “ice” view of Antarctica and Portugal, and display it proudly for all the world to see! Among the great things about researching Antarctica is the way that scholars from all the other continents, and from all academic disciplines, gather as one! When we meet in different countries, I like to learn as much about that country's culture (and language!), as well as its Antarctic work and heritage as possible.

Methods: I have been reading about Portugal's connection to and presence on Antarctica. Also, I am also studying the birds of Antarctica and drawing their correlations to the *andorinha*.

Results: This paper links Portugal to Antarctica, and at the same time, honors the Portuguese culture and thanks our colleagues for their hard work in organizing the conference this year!



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Implications: I do think that the concept of *saudade*, as embodied and symbolized through the *andorinha*, will be useful to researchers and staff living on Antarctica, to understand their feelings.

Conclusion: I wish that I had thought to honor Japan and Argentina, and our colleagues who worked so hard on organizing those conferences, in the same way. This is a nice way to thank our host country and the committees, and also, for people to learn more about other cultures!



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Memories matter! How do memories of Antarctic tourists influence their future behavior?

Daniela Cajiao, Lincoln Larson, Yu-Fai Leung, Julianne Reas

Dr. Daniela Cajiao (danicajiao@gmail.com) is a former post-doctoral researcher at North Carolina State University and a current post-doc researcher at Wageningen University. Her research focuses on Antarctic tourism, especially analyzing the environmental and social dimensions of this activity. Complementary research interests include governance and decision-making processes within the Antarctic Treaty System. In 2019, she became the joint-first recipient of the IAATO-COMNAP Fellowship. Currently, she is a member of the Scientific Committee on Antarctic Research (SCAR), the Standing Committee on the Humanities and Social Sciences (SC-HASS), and a co-lead of the Antarctic Tourism Action Group (Ant-TAG).

Abstract

Theoretical background / Goals / Motivation: Nature-based tourism is recognized for creating memorable experiences that can be transformative in fostering pro-environmental outcomes. Such experiences may be especially powerful in polar settings. While the Antarctic journey is considered a once-in-a-lifetime experience, little empirical research exists to understand tourists' memories and how they influence long-term experiential outcomes.

Methods: To explore these relationships, we analyzed $n=453$ surveys collected during 2019-2020. We measured memories, emotions, satisfaction, and experiential outcomes. We performed Principal Factor Analysis and determined memory groups to compare associations between memory groups and experiential outcomes.

Results: We identified two dimensions of memories (reflective and transformative) and three distinct memory groups: the *snapshot* group recalling specific components of the trip, the *reflective* group who were likely to reflect on their experience, and the *transformative* group who indicated their experience impacted them personally and altered their view of the world. We suggest that the formation of transformative memories moves through sequential phases that are significantly influenced by the uniqueness of a destination.

Implications: We suggest actions that tour operators, guides, and travelers might consider for maximizing the memory-making experience, inspiring more transformative memories, and solidifying long-term and tangible outcomes and impacts concerning Antarctic conservation.

Conclusion: While IAATO tour operators have been effective in enhancing public awareness and conservation concerns, there is still room for enhancing transformative memories. By leveraging the power of memory-making in Antarctic tourism, practitioners would be better positioned to cultivate memorable and transformative memories to produce lasting pro-environmental outcomes needed in a post-pandemic world with an anticipated increase in Antarctic tourism.



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Tent as Tomb and Crevasse as Coffin: Resting Places on Antarctica

Ellen Cressman Frye

Dr. Ellen Cressman Frye (fryee@wpunj.edu) majored in Spanish at the University of North Carolina at Chapel Hill, and then she completed her Ph.D. in Spanish Language, Literature, and Culture at the University of Pennsylvania, in Philadelphia. She is a tenured professor at the William Paterson University of New Jersey, and her field of specialization is Early Modern European literature and culture. Ellen's sub-specialty is theatre and performance studies, specifically the actor-spectator relationship as established, maintained, and enhanced by dramatic devices, including the aside, soliloquy, monologue, and metatheatrical. For the past decade, she has also been researching and publishing on the literature and culture of Antarctica, most recently on religion and spirituality in and of Antarctica.

Abstract

Religion and spirituality play a more prominent role in people's lives than they realize, particularly in critical moments, such as death. In "normal" places and situations, death is already a difficult event to deal with, but on Antarctica, it is most exceptional, and sadly, not surprising. Death is always nearby, lapping at your heels, in the crevasse of a glacier, swirling in a whiteout, or drowning into the sea. Death is intricately and explicitly linked to religion and spirituality. Although most corpses lay buried where the person died, there are remarkably several tiny cemeteries on Antarctica. There are also crosses, shrines, and other markers of bodies, which leads to the idea of tents as tombs, such as Scott's and others, and countless crevasses serving as coffins. The remarkable range of resting places on Antarctica will be examined, as well as inimitable memorials and incomparable relics. Additionally, the unique situation of grieving on Antarctica will be addressed, supported by research on this topic. To shine a more positive light on a dark scene, I also examine the notions of graving and taphophilia on Antarctica, to demonstrate how the idea of "tombstone tourism" is an educational and enriching experience, where the deceased are honored, which in the case of Antarctica, is even more significant. I hope to illustrate that in fact, there is peace in these resting places, as they tell their people's stories, as Robert F. Scott's written words beg: "These rough notes and our dead bodies must tell the tale."

Theoretical background / Goals / Motivation: For the past several years, I have been working on religion and spirituality of Antarctica, and in this paper, I interlace the themes of death, cemeteries, and corpses, to enhance our understanding of resting places on Antarctica. **Methods:** I have been researching these themes, and I am also investigating more about grief and the grieving process. What I learn I am applying to the unique situation in Antarctica.

Results: It is truly remarkable, and quite a privilege, to examine in profundity the different aspects of death on Antarctica, and what I am finding is rather breathtaking.

Implications: Although the overarching theme of death is present in countless written texts about Antarctica, there is no solid piece of research encompassing the intense



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variety of aspects, and thus, this is an initial attempt to them bring together and will serve as a springboard.

Conclusion: This paper is a start, in terms of analyzing resting places on Antarctica, and it is a springboard for further research, by me and hopefully others, too!



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Southern geologies and Gondwanaland cultures in Antarctica

Alessandro Antonello

Alessandro Antonello (alessandro.antonello@flinders.edu.au) is a senior research fellow in history at Flinders University, Adelaide, Australia. His research investigates the environmental, cultural, and geopolitical histories of Antarctica, oceans, the cryosphere, and the global environment more generally. His major work on Antarctic history is *The Greening of Antarctica: Assembling an International Environment* (Oxford University Press, 2019).

Abstract

Theoretical background / Goals / Motivation: This paper aims to explore how geological and related expeditionary work in Antarctica has expressed ideas about the relationship of humans, earth, and nature, especially from a 'southern' perspective—that is, from the perspective of Southern Hemisphere nations as well as colonial and post-colonial communities.

Methods: Expedition reports, published materials, and other sources will be read, especially those from Shackleton's *Nimrod* expedition, and some of the early national expeditions of the late 1940s and 1950s, particularly from Australia.

Results: This paper will discuss the theoretical and conceptual elements of this work (drawn, in part, from Pratik Chakrabarti and Alison Bashford), as well as narrate and critique the texts.

Implications: The idea of southern geologies and Gondwanaland cultures will contribute to how scholars conceptualize Antarctic history and the Antarctic perspective will also affect the global conversation.

Conclusion: This paper will discuss work-in-progress relating to the history of geological ideas and practices in Antarctica.



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Cooperation with EU-PolarNet

A.J.M. Scheepstra, C.J. Bastmeijer

Annette Scheepstra (a.j.m.scheepstra@rug.nl) is a social scientist, based at the Arctic Centre of the University of Groningen. She works as a so-called stakeholder guardian in the EU-PolarNet 2 project to ensure that all relevant stake- and right holders are involved in the prioritisation of Polar research needs and will co-design Polar research actions. She is leading the GUIDE-BEST project that aims to deepen our understanding of key drivers that affect the behaviour of tourists during and after their visit, the likelihood that they become ambassadors for Antarctic conservation (and environmental protection more generally), and the role that guides play in this process. Annette is also a PTGA certified polar guide, working mainly in Svalbard.

Kees Bastmeijer (c.j.bastmeijer@rug.nl) is Professor of Arctic and Antarctic Studies and director of the Arctic Centre, University of Groningen. His research relates to the international governance of the Polar Regions and to the role of law in protecting nature. His current research interests include human-nature-relationship and the law, Indigenous Arctic cultures, property rights and nature, Antarctic tourism regulation, and the role of law in protecting wilderness. As adviser of the Dutch government, he has participated in the Antarctic Treaty Consultative Meetings since 1992. Kees is currently involved in two consortium-programs on Antarctic tourism: ProAct (Proactive Management of Antarctic Tourism) and ANT-MICI (developing knowledge and tools to Minimise Cumulative Impacts on biodiversity and wilderness values in Antarctica).

Abstract

Theoretical background / Goals / Motivation: EU-PolarNet is a coordination and action support project funded by the EU.

Methods: In the first EUPolarNet project a co-designed polar research programme was developed (see for more information eu-polar.net).

Results: The ambition of EU-PolarNet 2 is to establish a sustainable and inclusive platform to co-develop and advance European Polar research actions and to give knowledge-based advice to policymaking processes.

Implications: This platform will allow to further develop the coordination of Polar research actions in Europe and with overseas partners.

Conclusion: The aim of this presentation is to give an up-date about the EU-PolarNet activities and to discuss how this relates to the SCAR-SC-HASS research plans. A week prior to the conference there will be an EU-PolarNet retreat with a broad expert group to work on the research prioritisation. Both presenters will take part in this retreat and can give an up-date about relevant SC-HASS topics. We plan to allocate ample time for questions and discussion.



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Contributions of the anthropological study of human autochthony in Antarctica to the medical and physiological interpretation of thermoregulation and ICE environments – and vice-versa: the praxiological centrality

Luís Guilherme Resende de Assis

Dr. Luís Guilherme Resende de Assis (Ph.D. in Social Anthropology) (luisguilhermera@yahoo.com.br) researches the scientific cosmopolitical colonization of the Antarctic and its social segments ('metropolises colonizers' and 'autochthonous colonizers') since 2009. He was supported by the Brazilian Antarctic Program in 2010 and 2011 expeditions, when he performed fieldwork research on Social Anthropology together with military staff, mountaineers, archaeologists, glaciologists, cell biologists, and oceanographers. He delivered his Ph.D. thesis on the Antarctic in 2019, at the 'Federal University of Santa Catarina – UFSC', Brazil. He was 'visiting Ph.D. student' at 'Scott Polar Research Institute, University of Cambridge – SPRI/UC'. He was part of the border of the APECS International, and an expert member of HASS/SCAR. He is a member of the Laboratory of Antarctic Studies in Human Sciences, University of Minas Gerais, Brazil.

Abstract

The anthropology practiced in the 'Projeto Paisagens em Branco' and the medicine of the 'Projeto Mediantar' envisage summative and significant interfaces for the next research rounds of the Brazilian Antarctic Program – PROANTAR, aiming at the progress of science and inter, multi, and transdisciplinary scientific cooperation. Human autochthony and the scientific colonization inherent to the ATS are the focus of social anthropology, while environmental alterity and consequent physiological and behavioural responses are of interest to medicine. The approaches are apparently dissonant. On the one hand, anthropology demonstrates processes of social segmentation promoted by the ATS that differentiate the national managers of the enclave from the scientists who, indeed, experience the southern territoriality, domesticating the seasonal frequency through disciplinary methodological arrangements. On the other hand, medicine is anchored in philosophical assumptions that see Antarctica as a foreign, extreme, hostile, distant, exceptional, and stressful environment, in what is conventionally called 'ICE environments'. The shared interest between anthropology and medicine for the limits and effects of praxis makes it possible to address the very alterity between the two approaches. Articulated in terms of praxiology and praxiogenetics, this communication demonstrates how studies of thermoregulation and 'ICE' environments contribute to the establishment of anthropological understanding about the "autochthonous scientists and methods" within Antarctica. Less than a rupture between the two fields, what is observed is the possibility of lasting bridges that link the physiological to the cultural.



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Bernt Balchen, Antarctic and Arctic Aviator

Bryan Lintott

Dr. Bryan Lintott (Bli035@uit.no) is an associate professor in Polar History and Heritage at UiT, The Arctic University of Norway. Based in the Department of Technology and Safety, his academic endeavours focus on utilizing history and the social sciences to inform current research and developments. In the High North, this includes the reconstruction homes and their culturally diverse heritage values in the context of the green shift. The use digital technologies are of particular relevance in this, and other related research. Recently, Professor Gareth Rees, Scott Polar Research Institute, and he published a survey on the roles that remote sensing and robotics can provide to enhance safety for heritage practitioners and science researchers in the Arctic. He is engaged in the archaeology and environmental science interface at both poles. In 2022, he led the ICOMOS AeroSpace Heritage Task Force, which established the ICOMOS International Scientific Committee on AeroSpace Heritage - extending his interests to the Moon's South Pole and beyond.

Abstract

Theoretical background / Goals / Motivation: Bernt Balchen, a Norwegian-American, was one the leading aviators of the 20th Century. He was a pilot, engineer, military commander, combatant, explorer, executive manager, author and a talented artist. Roald Amundsen included him, as ground crew, in the *Norge* Expedition, then encouraged him to accept R.E. Byrd's invitation to the United States. In 1929, Balchen was the first to fly a plane, *Floyd Bennett*, over the South Pole on Byrd's first Antarctic expedition. In preparation, he consulted with Roald Amundsen, learning about the aviation activities associated with the *Maud* Expedition. In the mid-1930s, he upgraded a Northrop Gamma *Polar Star* for Lincoln Ellsworth's first flight across Antarctica. The two Antarctic aircraft he is associated with are in museums. The *Polar Star* is in the Smithsonian National Air and Space Museum, along with related archival materials. An initial examination of the plane's exterior and interior, in association with the archival material, reveals aspects of the development process and Balchen's design philosophy of Antarctic exploration aircraft. During WWII, he commanded several USAF operations in the Arctic. Later, he was on the planning staff for Operation Deep Freeze; proudly noting that the anoraks used by the US Navy when it went south were based on a design by Roald Amundsen. He was central to the development of SAS routes across Arctic. President Eisenhower presented him with the Harmon Trophy, acknowledging his achievements in Arctic aviation. Other recipients include Neil Armstrong, Amelia Earhart, Charles Lindbergh, Turi Widerøe and 'Chuck' Yeager. In Antarctica are the Balchen Glacier and Balchen Mountain. Powered aviation has been a fundamental aspect of Antarctic exploration, science and, in recent decades, tourism. The history of the development and deployment of aircraft in Antarctica in the late-1920s and 1930s is a topic rich in themes of technological development, aerial observation at scale, human factors, and related geopolitics and the popular imagination. The 'Bernt Balchen Research Project' aims to locate Balchen within these developments as an agent and actor. This project is part of



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broader research into Balchen's role in aviation from 1925-45. An additional goal is to understand better the dynamics of Antarctic figures, such as Balchen and Wilkens, that become entwined, or not, in two national narratives but can be 'lost' between their nation of origin and nation of activity – neither of whom 'own' them. This project is motivated by an awareness that enhancements in Antarctic aviation history can contribute to a broader understanding of the technological aspects of human engagement with Antarctica.

Methods: The primary sources for this historical research project are Balchen's writings, journals and related material culture, including the aircraft *Floyd Bennett* and *Polar Star*. Primary and secondary archival material has been accessed in New Zealand, Norway and the United States of America. An initial examination of *the Polar Star*, at the Smithsonian National Air and Space Museum, with reference to related archival material, has proved informative and provided insights into Balchen's contributions to the upgrade of the aircraft for Antarctic exploration.

Results: Results at this stage are provisional. However, a strong theme is emerging that Balchen's success as a polar aviator – he was the first pilot to fly over both poles - drew upon his experiences in both the Arctic and Antarctic. In a broader context, this is demonstrating the value of considering Antarctica in the context of the Arctic.

Implications: The history of the human presence in Antarctica reveals a clear trajectory of accelerating technological developments. As Antarctic historians move their focus beyond the Heroic Age, the need to incorporate complex technological and scientific developments into research will be both demanding and rewarding. This research will require enhanced education of Antarctic historians and working with a range of related experts. An example, the Radio Echo Sounding – Cambridge University project (RES-CU), which the author undertook as a post-doc researcher, required considerable technical and scientific training to undertake the oral histories.

Conclusion: Antarctic and Arctic aviation history is a topic that offers many opportunities for historical research and social science analysis. The 'Bernt Balchen Research Project' will contribute to this endeavour.

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Antarctica and disability: A better world for who?

Alice Oates

Alice Oates (ao330@cam.ac.uk) is a PhD candidate at the Scott Polar Research Institute of the University of Cambridge, UK. Her PhD research focuses on the historical geographies of Halley research station; the people who work there, its scientific portfolio, and its place in the politics and governance of British Antarctic science.

Abstract

Theoretical background / Goals / Motivation: In this paper I set out the case for planned research on disability in Antarctic research, motivated by an absence of such research within an otherwise highly active EDI (Equality, diversity and inclusion) landscape, and a desire to avoid people with disabilities ‘falling through the cracks’ of Antarctic EDI efforts. EDI is a growing field within the Antarctic research community, with progress taking place through community advocacy, institutional initiatives (such as the SCAR EDI Action Group), and academic research. There has, for example, been significant progress in understanding the challenges faced by women in polar research, particularly in research led by Professor Meredith Nash (Australia)¹⁵. Disability, however, remains an under-researched piece of the puzzle, hampering our ability to understand how disability and its intersection with other characteristics¹⁶ affect individuals’ experiences of polar research.

Methods: In planning.

Results: Results from doctoral research into the experience of Antarctic winterers, and reflections on engaging in Antarctic humanities research as a person with disabilities

Implications: I seek to identify and challenge barriers to the participation of people with disabilities in Antarctic research, with a view to challenging cultural and institutional structures that create and maintain these barriers.

Conclusion: Disability remains an under-researched element of the growing landscape of Antarctic EDI efforts. This paper will make the case for addressing this gap.

¹⁵ For example, Nash, M. (2022) ‘Antarctic stations are plagued by sexual harassment – it’s time for things to change’ The Conversation, available at: <https://theconversation.com/antarctic-stations-are-plagued-by-sexual-harassment-its-timefor-things-to-change-189984>

¹⁶ See Seag, M., Badhe, R., & Choudhry, I. (2019). Intersectionality in International Polar Research. Polar Record. doi: 10.1017/S0032247419000585 for a discussion of the necessity of taking an intersectional approach to inclusivity



Exploring Tourism Diversification in Antarctica

Yousra Makanse

Yousra Makanse (yousra.makanse@wur.nl) is a Ph.D. candidate at Wageningen University & Research within the Cultural Geography Research Group (GEO). Her current research aims to explore and map tourism diversification in the Antarctic, further considering the magnitude of integration of the ATS fundamental principles and values in the development of new, novel, and particularly concerning activities as part of ProAct, an NWO project funded by the Netherlands Polar Programme. Yousra holds a European Master in Tourism Management (EMTM) joint degree from the University of Southern Denmark, University of Ljubljana, and Universitat de Girona, and a bachelor's degree in Leisure and Tourism from the University of São Paulo.

Abstract

In recent years, Antarctica has become an increasingly popular destination in tandem with the growth of international tourism worldwide. Better access to the continent and compounding factors of growing international awareness of the region, along with rising global affluence and easing of international travel, have resulted in a substantial increase in the number of visitors and a concomitant increase in the diversity of tourism activities on the continent and its surrounding waters. The tourism offers expanded from small boat trips to cruises, airborne operations, and a diverse range of activities, including snorkeling, stand-up paddling, and running events (IAATO, 2018¹⁷). By 2018, more than 49 different activities were already reported to be taking place in Antarctica (IAATO, 2019¹⁸). Although discussions on tourism diversification have permeated the forums of the Antarctic Treaty Consultative Meeting (ATCM) for more than two decades, and studies have noted the increase in tourism diversification in Antarctica, what this diversification entails is not yet defined in the context of the Antarctic Treaty System (ATS). Therefore, given the increasing importance and potential effects of tourism in Antarctica, this paper aims to explore and present a comprehensive review of tourism diversification in the continent while clarifying the policy's understanding and frame of the concept in order to determine possible implications and prospects for policy and further research.

Theoretical background / Goals / Motivation: This paper aims to explore tourism diversification in Antarctica while clarifying the policy's understanding and frame of the concept in order to investigate the following research questions:

- (i) How does the ATS conceptualize and contextualize tourism diversification?
- (ii) What concerns have been mentioned regarding tourism diversification in Antarctica?

¹⁷ IAATO. (2018). IAATO Overview of Antarctic Tourism: 2017-18 Season and Preliminary Estimates for 2018-19 Season. XLI ATCM7(a)/IP071.

¹⁸ IAATO. (2019). A Catalogue of IAATO Operator Activities. XLII ATCM 17/CEP3/IP 145.



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- (iii) What policy options have been suggested for addressing concerns relating to the diversification of tourism in Antarctica, and what arguments have been used in support of or against these options? The analysis, primarily based on the examination of the policy discussions related to tourism in the ATS, is advanced by a review of tour operators' information and scholarly literature to substantiate framing considerations.

Methods: To explore the ATS policy's understanding and conceptualization of tourism diversification, a qualitative document analysis of policy documents was performed. The analysis is based on the (a) final reports of the Antarctic Treaty Consultative Meetings (ATCM) and Special Consultative Meetings (SATCM) (1961-2022), and Meeting of Experts (ATME) on Tourism and Non-Governmental Activities (2014), (b) relevant working papers submitted to the AT related to tourism (1961-2022); (c) relevant information papers submitted to the ATS related to tourism by ASOC (1991-2022) and (d) by IAATO (1991-2022). The documents were retrieved from the Antarctic Treaty Database. Secondary sources (e.g., tourism brochures, websites, media, and online information) complemented the analysis to situate tourism practices in Antarctica.

Results: Some preliminary results suggest that tourism diversification has been extensively discussed in the ATS forums; however, without clear definitions and agreements regarding the concept. Consequently, very little progress toward regulation and concrete actions has been achieved. Research is still ongoing, and results are consequently still to be drawn.

Implications: The lack of a clear definition of what the term entails can have implications for governance and regulation, as providing specific policies and guidelines that tackle specific issues within the scope of tourism diversification can prove challenging. In this sense, a lacking definition results in a lack of clarity as to what has to be regulated and why. Further, with the rapid development of new technologies and equipment used by the travel industry, tourism in the ATS area has the potential to diversify and evolve faster than the discussions at the ATCM.

Conclusion: Research is still ongoing, and conclusions are consequently still to be drawn.



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Building Antarctic connections through a Māori framework

Priscilla Wehi, Te Warihi Hetaraka, Poutama Hetaraka, Vincent Van Uitregt

Priscilla Wehi (priscilla.wehi@otago.ac.nz) works at the intersection of conservation research and Indigenous knowledge systems. She has led the Vision Mātauranga stream of a 5-year project monitoring and evaluating Ross Sea management in Antarctica.

Abstract

Theoretical background / Goals / Motivation: How can scientists undertake research, and partner with the community, in inclusive ways that make sense to both? Here I describe research undertaken between scientists and Indigenous Māori partners in New Zealand, as part of a five-year funded project 2017-2022 focused on management of the Ross Sea Marine Protected Area.

Methods: We began with the medium of whakairo to articulate Maori aspirations and concerns for Antarctica, recognizing that our worldviews inform and guide research. Whakairo is a carved art form that acts as a repository of knowledge within this oral culture, and the group included experts in carving and Māori knowledge. We held gatherings throughout 2018 to discuss the meanings this carving might carry. We also scanned oral and written sources to describe points of connection between Māori and Antarctica.

Results: In 2019, carvers travelled to Antarctica to complete and reveal the carving at Scott Base, which we documented. The literature scan identified a multitude of connections, from voyaging narratives through to scientific engagement.

Implications: Working with Indigenous and 'Western' frameworks of knowledge, we discovered the inequitable spaces these approaches are accorded. The rich conversations experienced in our team required willingness to engage with and negotiate new knowledge forms and led to deep engagement with communities. These efforts suggest it is possible to work in transformative and inclusive ways.

Conclusion: The research raised questions about power and knowledge in research and policy, but also highlights the possibilities of transformative and inclusive pathways forward.



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Status, gender and emotions in a space analog environment

Inga Popovaite, Agnieszka Skorupa, Mateusz Paliga

Inga Popovaite (inga.popovaite@ktu.lt), PhD is a sociologist at Kaunas university of technology (Lithuania). Her research interests include gender, group processes, and emotions in space analog environments. Her recent work has been published in Acta Astronautica and Journal of Human Performance in Extreme Environments.

Agnieszka Skorupa, PhD, psychologist, assistant professor at the Institute of Psychology at the University of Silesia in Katowice, Poland. She is interested in human-environment interaction. She specializes in human adaptation to the polar isolation situation; she is also the head of psychological research in the space analogue habitat Lunares. Dr. Skorupa is a Polish delegate for International Arctic Science Committee Social & Human Working Group and a member of The Committee on Polar Research of the Polish Academy of Sciences.

Mateusz Paliga, PhD is a work and organizational psychologist and an assistant professor at the University of Silesia in Katowice. His scientific interests include job performance, work attitudes, and leadership. As part of his work in Industry 4.0, he focuses on determinants and consequences of human-robot interaction, with a particular interest in HRI fluency. In his work, he employs psychological methods of research and assessment, including tests, questionnaires, and experimental design.

Abstract

Theoretical background / Goals / Motivation: In this paper we explore the relationship between gender, status, and emotion labor in space analog environments. Overwhelming emotional labor can potentially lead to deteriorated emotional health and that is an important issue for long duration missions. Research shows that in mixed gender teams in space analog environments women are more interpersonal, caring, other-oriented than men. This suggests gendered emotional labor distribution in space analog environments but there is a lack of studies that specifically investigate this. It is important because overwhelming emotional labor in some cases can lead to deteriorated emotional wellbeing. On the one hand, gender and emotions are connected via social role expectations and gender performance. But there is also evidence that the in-group status, and not gender per se, leads to different emotional behaviors.

Methods: Data come from 7 two-week long analog missions that occurred in 2022-2023 in Lunares, an analog research base in Poland. Each team consists of 5-6 members (total n=38). We use self-administered questionnaires and regression models to explore relationships between gender, in-group status, emotion labor, and self-assessed emotional well-being.

Results: We investigate relationship between emotional support, instrumental status, and gender.

Implications: Theoretical contributions include better understanding of intertwining between gender, in-group status and emotional labor. We will also contribute to better understanding of mixed-gender group processes from a structural perspective.



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Conclusion: Results contribute to the growing body of sociological studies of small group interactions in space analog (and arctic) environments.

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Conflict of Collaboration? A Critical Research on New Dimensions of Polar Science Diplomacy

Ebru Caymaz

Ebru Caymaz is an assistant professor from Canakkale Onsekiz Mart University, Turkey. Her first PhD is in the field of Business Administration and she has mainly concentrated on sustainability and sustainable development. To conduct further studies uniting the polar issues with governance, she has completed her 2nd PhD lectures in the fields of Political Sciences and International Relations.

Abstract

Several scholars have expressed the idea that the emergence of science diplomacy can dwell upon the Antarctic Treaty. The unusual level of scientific cooperation among the enemy states even during the Cold War period, as well as the successful governance of the Antarctic region based on science underlines that point of view. However, there are also conflicting views discussing the so-called hidden agendas of polar science diplomacy ranging from flag-showing missions to competitive diplomacy for science. Therefore, newly added dimensions of science diplomacy critically examine international scientific collaboration pertaining to the polar regions. While there are also conflicting views regarding Antarctic governance (such as the whaling regime), how these scientific collaborations would contribute to the governance of the continent remains vague. Accordingly, this study aims to examine polar science diplomacy from a wider perspective including the newly added dimensions. This study concludes that the emergence of regional actors both complicates and facilitates Antarctic governance on a global scale.



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“Travelers never did lie, though fools at home condemn them.” Yes, Shakespeare on Antarctica!

Ellen Cressman Frye, Ph.D.

Dr. Ellen Cressman Frye (fryee@wpunj.edu) majored in Spanish at the University of North Carolina at Chapel Hill, and then she completed her Ph.D. in Spanish Language, Literature, and Culture at the University of Pennsylvania, in Philadelphia. She is a tenured professor at the William Paterson University of New Jersey, and her field of specialization is Early Modern European literature and culture. Ellen's sub-specialty is theatre and performance studies, specifically the actor– spectator relationship as established, maintained, and enhanced by dramatic devices, including the aside, soliloquy, monologue, and metatheatre. For the past decade, she has also been researching and publishing on the literature and culture of Antarctica, most recently on religion and spirituality in and of Antarctica.

Abstract

Theoretical background / Goals / Motivation: There is no way that Shakespeare visited Antarctica (or is there?!). There was much debate about when the first human saw the land mass that is Antarctica. For many decades, it was fought over: who saw Antarctica first, Russians or the British, or perhaps even the American, Nathaniel Palmer (although his voyage arrived in November 1820, months behind the others' January dates). Even this has been challenged as of late, with the indigenous people of New Zealand claiming that they have ancestors who saw Antarctica first. The one thing that can be proven with evidence is that the first human to set foot on the continent is not until 1895, when the whaling ship *Antarctic*, led by Henryk Bull, landed at Cape Adare. However, in 2021, new research was compiled, including oral history and testimonies, and it is probable that the Maori people living in Aotearoa, also known as New Zealand, were first, over a thousand years earlier. That would render Shakespeare's presence on Antarctica plausible, merely by date! This paper seeks to link Shakespeare to Antarctica, and in the end it will be revealed how, indeed, Shakespeare managed to travel to Antarctica. (Yes, I will try to prove it!) By analyzing the instances in which Shakespeare is mentioned in Antarctic writings and using key quotes about travel and voyage from his dramas and comedies, the ideological concept of Shakespeare and Antarctica will be examined, illuminating the idea of Shakespeare's presence on the world's highest, driest, and coldest continent: Antarctica. As a scholar of early modern European literature, I am excited to connect the iconic playwright to Antarctica, in several unexpected ways!

Methods: I am researching the themes of travel and voyage in Shakespeare's plays, and I am also investigating all the instances in which Shakespeare's name appears in Antarctic literary and cultural contexts, to weave together the concept of Shakespeare on Antarctica.

Results: I am amazed at how often Shakespeare is mentioned in Antarctic writings and how Shakespeare's travel quotes (e.g., in the title of this paper, from *The Tempest*) are quite fitting!!



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Implications: This is an untouched area of research, in that I am accumulating the first taxonomy of “Shakespeare on Antarctica,” in several different ways!

Conclusion: Although Shakespeare himself as a person probably did not set foot on Antarctica, I will have proven that in essence and in spirit, he most certainly did!!



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Guided towards ambassadorship: Exploring the dimensions of protected area ambassadorship with Antarctic tour guides

Julianne Reas, Yu-Fai Leung, Lincoln Larson, Daniela Cajiao

Julianne Reas (jireas@ncsu.edu) is currently pursuing a Master of Science in Natural Resources from North Carolina State University, USA. Her research explores the interactions of people and the environment within protected areas. She is specifically interested in the relationship between tourism and conservation action in highly climate sensitive protected or natural areas, like Antarctica. Julianne utilizes her training in communication studies to conduct interdisciplinary research that works to ensure populations with varying backgrounds and influences are up to the tasks of addressing climate change through promotion of social strategies such as fostering connection to nature and strong commitments to conservation.

Abstract

Theoretical background / Goals / Motivation: The Antarctic Ambassadorship program is a tenant of the Antarctic tourism experience¹. The ambassadorship concept has been largely explored in relation to its impact on tourists behavior². This focus has resulted in an oversight in understanding more broad applications of the ambassador concept and other populations that act as ambassadors. Tour guides are a population that serve a prominent role in the protection of Antarctica³ This study aims to define the dimensions of protected area ambassadorship (PAA) by testing a conceptual model using empirical data collected from Polar tour guides.

Methods: A conceptual model of protected area ambassadorship was developed through a literature review, and empirical data was collected to evaluate the applicability of the model to the Antarctic region. 15 semi-structured qualitative interviews were conducted over Zoom with guides recruited through the Polar Tour Guiding Association. Data was analyzed using NVivo software.

Results: Analysis confirmed four major dimensions of protected area ambassadorship: place attachment, duty/responsibility, capacity, and community, with 13 sub-themes. The conceptual model now represents the interconnectedness of dimensions and the iterative process by which ambassadorship develops.

Implications: The conceptual model of PAA seems to be applicable across different types of protected areas, including the polar regions, and could be used to better understand the link between values and actions for a variety of populations.

Conclusion: The factors influencing ambassadorship behavior for Antarctic tour guides can be identified and explained within a conceptual model.

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Cooperation with and within the GUIDE-BEST-project

A.J.M. Scheepstra, Daniela Liggett and Yu-Fai Leung

Annette Scheepstra (a.j.m.scheepstra@rug.nl) is a social scientist, based at the Arctic Centre of the University of Groningen. She works as a so-called stakeholder guardian in the EU-PolarNet 2 project to ensure that all relevant stake- and rightholders are involved in the prioritisation of Polar research needs and will co-design Polar research actions. She is leading the GUIDE-BEST project that aims to deepen our understanding of key drivers that affect the behaviour of tourists during and after their visit, the likelihood that they become ambassadors for Antarctic conservation (and environmental protection more generally), and the role that guides play in this process. Annette is also a PTGA certified polar guide, working mainly in Svalbard.

Abstract

GUIDE-BEST (Growing Understanding of Individual Drivers of Expectations and Behaviours to Enhance Sustainable Tourism in Antarctica) is a new project that will start on the 1st of April 2023. It is one of the four projects that is funded as part of the thematic programme 'Antarctic tourism - Research Programme on Assessment of Impacts and Responses (PT-REPAIR) of the Dutch Research Agenda (NWA). The aim of PT-REPAIR is to stimulate polar tourism research that will enhance our knowledge of polar tourism's (cumulative) impacts in support of (inter)national policymaking to protect the Netherlands' Polar Strategy and Antarctic Treaty values. The GUIDE-BEST project aims to deepen our understanding of key drivers that affect the behaviour of tourists during and after their visit, the likelihood that they become ambassadors for Antarctic conservation (and environmental protection more generally), and the role that guides play in this process. In this session we want to present the project and discuss possible cooperation between project partners, cooperation partners and other interested parties in order to enhance cooperation with SC-HASS researchers in research that relates to the GUIDE-BEST research goals.



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Antarctic wetlands are unique, unrecognized, unprotected ecosystems

Gabriela Mataloni, Rubén D. Quintana, Marcela Libertelli

Gabriela Mataloni (gmataloni@unsam.edu.ar; mgmatal@yahoo.com) is a biologist trained in phycology and limnology from the University of Buenos Aires. For over 30 years has been involved in Patagonian and Antarctic research, first studying microalgal communities from freshwater ecosystems and wetlands, and then expanding her interest to other communities from different non-marine environments. She spent 11 Antarctic summers in Esperanza, Decepción and Primavera stations (Argentina). Location of the latter in Punta Cierva, near ASPA No. 134, arose her concern for environmental protection and conservation issues. Parallely, her long-term studies on the ecology of Patagonian peat bogs resulted in a growing interest for inter- and transdisciplinary approaches to pressing socioenvironmental issues around water in Patagonia. A former associate professor and present senior researcher at the University of San Martín (Argentina), her current work lies within the Ant-ICON Programme, involving national and international collaborations and the direction of two Antarctic early career colleagues.

Abstract

Theoretical background / Goals / Motivation: Wetlands are ecosystems characterized by the presence of water, yet different from terrestrial and freshwater ones. They sustained the development of entire civilizations while being biodiversity hotspots around the world. Because of these multiple functions most are severely impacted and need protection. Since 1971, the Ramsar Convention designated over 2000 Wetlands of International Importance in all continents but Antarctica. As the primary requisite for site designation is to contain a wetland rare, unique or representative of a biogeographical region, at least one wetland in each Antarctic Conservation Biogeographic Region would deserve this status. Here we explored the causes for this omission.

Methods: Bibliography and institutional webpages search.

Results: Although Antarctic wetlands have been long studied, most authors have not conceptualized them as such, hence misinterpreting some of their defining features, or failing to recognize their ecosystem services (Mataloni and Quintana 2017). Nor does the Protocol on Environmental Protection, in its Annex 5, take into account their uniqueness, particularly as biodiversity hotspots. The Ramsar Convention, on the other hand, requires contracting national parties to make sovereign management decisions on designated areas.

Implications: Despite converging objectives, Antarctic governance regime precludes alignment of protection measures with conventions enforced at national level. As a result, Antarctic wetlands go unprotected.

Conclusion: Synergies must be sought between ATS and international conservation conventions. Meanwhile, wetlands must be included among the ecosystem types meriting designation as internationally managed ASPAs, and existing ASPAs should identify encompassed wetlands and revise their management plans accordingly.



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Complete presentation available at <https://iia.conicet.gov.ar/mataloni-gabriela/>

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Preposterous petroglyphs: Underlands, Oils, Antarctica and The Narrative of Arthur Gordon Pym

Dr Simon Van Schalkwyk

Simon Van Schalkwyk is a Senior Lecturer in the Department of English Studies at the School for Literature Language and Media at the University of the Witwatersrand. His research interests include modern and contemporary literature and poetry, with a particular focus on the American twentieth-century, transnational modernism and modernity, and contemporary South African literature. He is currently preparing a monograph on Robert Lowell's project of poetic translation (or "imitation") within the context of Cold War containment culture. He currently acts as co-editor for *Safundi: The Journal of South African and American Studies* and as the academic editor for the *Johannesburg Review of Books*, an independent literary review based in South Africa that publishes reviews, essays, poetry, photographs and short fiction from South Africa, Africa, and beyond. His first collection of poetry, *Transcontinental Delay*, was published by Dryad Press in 2021.

Abstract

Recent scholarship has returned to Edgar Allan Poe's only novel, *The Narrative of Arthur Gordon Pym* (1838), to facilitate further inquiry into varied matters pertaining to the Anthropocene, environmentalism and object oriented ontologies (OOO). In this paper I participate in and develop these discussions by reflecting on, firstly, the specter of petroleum that haunts Robert Macfarlane's proleptic understanding of Poe in *Underland: A Deep Time Journey* (2020) and, secondly, Anders Sparrman's passing remarks in *A Voyage to the Cape of Good Hope, towards the Antarctic Polar Circle, and Round the World* (1785) about a substance misapprehended as petroleum. In doing so, I illuminate how Macfarlane conscripts Poe's narrative for ends simultaneously Western, Northern, "global" and "planetary", making it speak to his particular interest in peak-oil in ways that are both totalizingly compelling but also inimical to the apprehension of histories of the South and the Southern Ocean nestled cocoon-like within Poe and Sparrman's texts. *The Narrative of Arthur Gordon Pym*, I argue, anticipates the twinned problems of both narrative conscription and the presumable agency of vibrant matter in the form of oil, the more-than-human animal, and material waste. In this way, Poe's text also provides an intertextual opportunity for the rehabilitation of Southern histories and ways of apprehending (or misapprehending) matter adjacent to the typically anthropocentric, ethnographic and extractive gaze that, despite important theoretical resistances thereto, still informs and troubles attempts to foster urgent, ethical and environmentally just engagements with more-than-human nature and ecology.

Theoretical background / Goals / Motivation: Participates in and develops extant debates concerning Edgar Allan Poe's *The Narrative of Arthur Gordon Pym* and its recent conscription by scholars preoccupied with theoretical and conceptual frameworks linked to questions concerning the Anthropocene, environmentalism, object oriented ontology, petroculture, post-humanism and vibrant matter.

Methods: Close, comparative, and conceptual/theoretical reading.



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Results: Questions the worth of treating Poe's text as an instance of what Robert Macfarlane calls "peremptory oil-dreams" and reorients the narrative as central to the history of the Southern Oceans.

Implications: Offers a literary example of the potentialities and limits of Object Oriented methodologies of reading within the twinned contexts of planetary and local ecological and postcolonial critical imperatives.

Conclusion: Recognizes and tentatively suggests ways of reconciling scalar gaps between scientific and speculative or metaphoric modes of apprehending and engaging with both the representations of the environment, the environment itself, and environmental history.



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Revisiting the United Nations General Assembly Former Agenda Item “Question of Antarctica” and Some Future Prospects

Melis Yuksel

Melis Yuksel (melis.yuksel@atilim.edu.tr) works as a research assistant in the department of Public International Law at Atilim University, Faculty of Law (Ankara, Republic of Türkiye). She holds two master’s degrees from Hacettepe University (Ankara), one of which is in Information Technology Law and the second one is in Public Law. Within the scope of her studies in Public Law, she examined the legal status of Antarctica in the context of public international law for her master's thesis and in 2022, she published a book based on her master's thesis. Yuksel now studies for a PhD in Public Law at Hacettepe University. Her main area of interest is public international law. Her research includes polar law. She made several presentations on the Antarctic legal regime at the international conferences such as 15th Polar Law Symposium 2022 held at the premises of the University of Iceland.

Abstract

Theoretical background / Goals / Motivation: In 1983, the Question of Antarctica (“QoA”) was included to the United Nations General Assembly (“UNGA”) agenda. The Antarctic legal regime was criticized in some respects during the QoA discussions. Some delegates supported for a more universal regime. Although the regime founded upon the Antarctic Treaty was not amended, important developments were achieved. Convention on the Regulation of Antarctic Mineral Resource Activities was not entered into force and Madrid Protocol to the Antarctic Treaty was adopted. In 2005, it was decided to remain seized of the matter by the UNGA. This study seeks to reveal the mutual approaches adopted by the Member States of the UN that resulted with the removal of this item in 2005 as there were some disagreements in the beginning.

Methods: The method of doctrinal legal research is applied. International treaties, customary international law, UNGA resolutions and academic literature are examined.

Results: Most importantly, examination of the UNGA resolutions till 2005 reveals that the use of Antarctica exclusively for peaceful purposes was emphasized in each resolution and since 1994, the date consensus was achieved after years, each resolution emphasizes that the Madrid Protocol provides environmental protection procedures and designates Antarctica as a natural reserve devoted to peace and science.

Implications: Current legal regime of the Antarctic accommodates the three fundamental values namely peace, science and protection of environment.

Conclusion: For the common interest of humankind, these values should continue to be preserved. This evaluation is particularly important for 2048 and beyond since the Madrid Protocol allows for a review conference at the end of fifty-year period upon its entry into force and this period will become due in 2048.



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Monitoring tools to assess the ship-based tourism pressure on Antarctic visited sites

Pablo Tejedo, Iris Merino, Antonio Quesada, Marisol Vereda, and Javier Benayas

Dr. Pablo Tejedo (pablo.tejedo@uam.es) works in the Department of Ecology at the Autonomous University of Madrid (Spain). He began his research activity participating in applied studies and technical reports related to the management of public use in protected areas. Currently, he investigates human impact in Antarctica, where he has made several stays at Spanish scientific bases. His research interests include Antarctic environmental monitoring, tourism management, and the control of alien species. He is part of the Standing Committee on Humanities and Social Sciences of the Scientific Committee on Antarctic Research (SCAR), and the SCAR Tourism Action Group.

Iris Merino is a recent Environmental Sciences graduate from Universidad Autónoma de Madrid. She received a university grant during her final year to collaborate with the Department of Ecology, where she conducted research work. Her passion for environmental management and biodiversity conservation is reflected in her end-of-degree project, which focused on monitoring Antarctic tourism at Deception Island. Currently, she works on the management and follow-up of Spanish marine and terrestrial biodiversity research projects.

Dr. Antonio Quesada is full professor at Universidad Autónoma de Madrid (Spain). Defended his Ph.D. Thesis in 1990 and has stayed in postdoctoral placement in 1990 at University of Durham (UK), in 1991- 2 and 1993-4 at Université Laval (Canada) and in 1996 at Lake Biwa Research Institute (Japan). In research, he has been involved on cyanobacterial and cyanotoxins topics since 1986, and in polar research since 1993. He has participated in over 15 polar expeditions as a researcher. He has published over 170 research papers and books, most of them in international journals. He has participated in over 30 research projects, 11 international and has coordinated 2 European ones. In terms of management, he has been the manager of the Scientific Spanish Polar Program from 2013 to 2017, and from 2017 he is the executive director of the Spanish Polar Committee (where the national polar authority resides).

Dr. Marisol Vereda is a professor at the Economic Development and Innovation Institute (IDEI) at the National University of Tierra del Fuego in Ushuaia. She has conducted an extensive research work about tourism in natural areas and Antarctic tourism. Currently, she leads a research team that studies Antarctic tourism and its relationships with Tierra del Fuego. She is a member of the International Polar Tourism Research Network (IPTRN) Steering Committee. She has participated in the Antarctic Treaty Consultative Meetings since 2010 as part of the Argentine Delegation.

Dr. Javier Benayas is a full professor in the Department of Ecology at the Autonomous University of Madrid (Spain). He is part of the Socioecosystems Laboratory research team that addresses environmental problems from a social and human ecology perspective. His first lines of research focused on evaluating the quality and success of different environmental education programs. Throughout his career, he has developed studies in various parts of the world, such as the Galapagos Islands, to assess the impacts of visitors in protected natural areas and propose management models that



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minimize such impacts. These studies are based on the idea that conservation can be compatible with enjoyment, if it is associated with the application of an adaptive management model based on scientific results. This experience led him to be involved, since 2008, in different investigations in Antarctica to analyze the human impact in a global way and the more specific impact of tourist activity.

Abstract

Theoretical background / Goals / Motivation: The current monitoring on Antarctic ship-based tourism is mainly based on the information from the Electronic Information Exchange System (EIES), a database managed by the Antarctic Treaty Secretariat. However, this system does not provide a double-check possibility to assess its veracity and accuracy. Therefore, the aim of this contribution is to analyze the reliability of the system in use to monitor Antarctic tourism compared to other methods to collect data. Previous works developed by Bender et al. (2016); United Kingdom, Argentina, Chile & IAATO (2019); McCarthy et al. (2022) and Hogg et al. (2020) were considered.

Methods: Three different systems were used to monitor vessels presence during the 2018/2019 and 2019/2020 Antarctic seasons around Deception Island (62°57'S, 60°38'W), one of the most visited tourist destinations in Antarctica. 1) Data recorded using a terrestrial Automatic Information System (AIS) installed at the Spanish base Gabriel de Castilla; 2) data compiled from the EIES database; and 3) data obtained from satellite platforms. After, each recorded vessel was categorized into four different groups: 1) Yachts, vessels with a maximum capacity of 12 passengers; 2) Category 1, 12-200 passengers; 3) Category 2, 200-500 passengers; and 4) Cruisers only, over 500 passengers.

Results: Our analysis shows that none of the three studied systems is infallible. Despite the fact that satellites and terrestrial AIS adequately detect large vessels, they are unable to register most yachts. The database identifies small vessels much better but includes some inaccuracies and recording errors.

Implications: The analysis and monitoring of cruise tourism pressure on Antarctic visited sites based on the information from the EIES is based on partial information with certain limitations. This may affect Antarctic Treaty System's decision making.

Conclusion: Only combining different data sources it is possible to generate a correct and complete picture of the pressure and influx of maritime traffic in Antarctica.

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The Heroic Age and 'hero objects': the impact of museum practice on the interpretation of British Antarctic explorers of the early twentieth century

Henrietta Hammant

Henrietta Hammant. (h.l.hammant@pgr.reading.ac.uk), Henrietta is a PhD candidate in the anthropology of heritage at the University of Reading (UK). With a background in social anthropology, Henrietta has an MSc in Visual, Material and Museum Anthropology, and has worked in museums both in the UK and Canada for several years. Originally specialising in human-animal interactions in the Arctic, and later Inuit art, Henrietta took up a post at the Polar Museum at the Scott Polar Research Institute in Cambridge in 2019. While there her interests were drawn south to the Antarctic and the impact of museum practice on how the history of this continent is interpreted and understood. Alongside her studies she is now the Collections Manager at the Polar Museum.

Abstract

Theoretical background / Goals / Motivation: Popular interest in figures like Captain Robert Falcon Scott and Sir Ernest Shackleton can mean that museum collections relating to the Heroic Age of Antarctic exploration (broadly categorised as the late 19th – early 20th century) risk representing explorers as single men, working alone to achieve heroic feats.

Methods: This paper draws on doctoral research at the Polar Museum at the Scott Polar Research Institute in Cambridge and Discovery Point in Dundee, employing ethnography, archival research and the tracing of object biographies.

Results: Scott and Shackleton's expeditions were made possible because of – and are still influenced by – a vast network¹ of actors including people, objects² and institutions. Furthermore, these networks are not confined to the past, but stretch into the present through the work of museums.

Implications: Museums actively construct narratives about Heroic Age Antarctic explorers, both in their public-facing work, in exhibitions and education programmes, and behind the scenes in the objects they choose to accession, care for and research.

Conclusion: This paper highlights the varied and diverse cast of actors who enabled these Antarctic expeditions in the first place, and who continue to influence their popularity today. In so doing, it calls for greater nuance in the representation of the 'heroes' of the Heroic Age in contemporary museum practice.



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Australian Artists and Writers in Antarctica: A Holistic Approach

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Professor Elizabeth (Elle) Leane (Elizabeth.Leane@utas.edu.au) is based in the School of Humanities, College of Arts, Law and Education at the University of Tasmania. Her research focusses on cultural responses to Antarctica past and present. She is the author or editor of seven books, including *Antarctica in Fiction*, *South Pole: Nature and Culture* and *Performing Ice*. Herself a former Australian Antarctic Arts Fellow (2003-2004), Elle is Arts and Culture editor of *The Polar Journal*, and leader of the Australian Research Council funded project, "Creative Antarctica: Australian Artists and Writers in the Far South."

Dr Adele Jackson is an artist, a curator, and a researcher interested in the interrelationships between culture and nature. Based in Aotearoa New Zealand, she is curator of human history at Canterbury Museum and an adjunct researcher with the College of Arts, Law and Education at the University of Tasmania, hosted by Gateway Antarctica, University of Canterbury. Her research focusses on Antarctic visual culture, specifically the role of art and material culture in developing human understandings of, and engagements with, the far south. Adele led the *Antarctic Sun Lines* solargraph project, which involved an international collaboration with national Antarctic programs across the continent. She recently completed a study of artistic interpretations of Mount Erebus and is currently collaborating on an examination of cultural representations of the albatross. Adele is a team member of the Australian Research Council funded project, "Creative Antarctica: Australian Artists and Writers in the Far South."

Abstract

Theoretical background / Goals / Motivation: Works of art and literature can question our presumptions, engage our emotions, and inspire us to think innovatively about our relationship with the Antarctic region. Australia, a nation with close historical, geographical, and political connections to Antarctica, has a comparatively long history of supporting creative arts practitioners to experience the continent. However, to date there has been no large-scale critical or curatorial response to this history and no in-depth analysis of the best models for future efforts.

Methods: We have constructed a database of around ninety Australian creative artists and writers who have visited Antarctica for professional purposes, on over 150 separate residencies. We are in the process of conducting semi-structured interviews with as many of these artists and writers as possible to learn from their experiences to determine what factors contribute to a successful Antarctic residency.

Results: As our project is in its early stages, we are unlikely to have completed our interviews at the time of the conference. Instead, we will report on what we have learned



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from our database, analysing the group of Australians artists who have had Antarctic residencies in terms of art form, means of travel, location, and other factors.

Implications: Although it is too early to report specific results, we anticipate that our findings will have implications for the way in which future Antarctic arts residencies are selected and structured.

Conclusion: While artists and writers residencies are often approached individually, important insights can be gained from holistically examining a large national cohort over many decades.



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Being Proactive on Ice – the Effect of Self-Directed Learning Activities on Adaptation to Isolated, Confined, and Extreme Environments

Andres Käosaar, Marc Levesque, and C. Shawn Burke

Andres Käosaar (Andres.kaosaar@knights.ucf.edu) is a Doctoral Student in the Industrial/Organizational Psychology program and a Graduate Research Assistant at the University of Central Florida. He holds a BA and MA in Psychology (MA in clinical psychology track) from the University of Tartu, Estonia, EU. His research focuses on team dynamics in Isolated, Confined, and Extreme (ICE) environments, with the main interest in astronaut and polar teams. He is currently involved in projects exploring the role of interpersonal relationships, trust, resilience, cultural diversity, affective states and regulation, and team cognition on team dynamics and performance in teams operating in space, space simulation missions, and Antarctic stations.

Abstract

Theoretical background / Goals / Motivation: Winter-overing in Antarctica is a tough job that hundreds of individuals undertake each year. The disruption of natural circadian rhythms, lack of sensory excitement, and the monotony in Antarctic stations call for extreme adaptation. An important part of life in a winter-overing station is leisure time and how individuals use it – some activities support adaptability to the environmental demands and some activities hinder it. This study explores how self-directed learning activities influence adaptation of winter-over crew members.

Methods: Semi-structured interviews conducted with 16 participants of 1981-1982 winter-over crew at the Amundsen Scott South Pole Station (9-month wintering span, 3 interviews per individual at different time points) were thematically coded to extract connections between self-directed learning activities, motivation, job performance, quality of station life, and emotional states.

Results: The results indicate that the engagement in self-directed learning activities enhance the individual's capacity to adapt to the isolated and confined conditions of a winter-over Antarctic experience, increasing motivation, satisfaction with station life, and interpersonal relationships with crew members.

Implications: Understanding an individual's history of engagement in self-directed learning activities may act as a selection criterion for adaptable individuals for long-duration Antarctica missions. The understanding of the importance of self-learning activities can help station managers plan station life to support those activities so crucial for adaptation.

Conclusion: The study shows that although individuals should be autonomous in their ability to plan their leisure time, the need to understand the effect of different types of leisure activities is paramount for successful adaptation to ICE conditions.



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Farther In, Father Out — Reaching the World with a Multi-Faceted Outreach Strategy

Marlo Garnsworthy¹, Ceridwyn Roberts²

Marlo Garnsworthy (icebirdstudio@outlook).com Marlo is a passionate polar and ocean science communicator. She is a United States Antarctic Program Grantee, the veteran Outreach Officer of three ocean expeditions (two on IODP expeditions 382 and 390). As well as over 25 years' work in publishing as an editor and art director, she is an award-winning author and illustrator of over ten books for young people. She creates science graphics, makes fine art, and continues her independent polar outreach work. Together with her collaborator Kevin Pluck/Pixel Movers & Makers, she made animations for *The Lake at the Bottom of the World*, a full-length feature documentary about the SALSA Antarctica expedition. Marlo has also created video series for oceanographic expeditions, written articles, provided photography, managed social media, and trained scientists in outreach and how to leverage their unique communication skills.

Ceridwyn Roberts (<https://ceridwyn.nz/>) As a freelance science communicator in Aotearoa New Zealand, Ceridwyn has worked on a variety of eclectic topics including climate science, innovative technology, the wine industry, fisheries, geology and engineering and economic policy. Her current clients (alongside SWAIS2C) include Transpower NZ, the Government Economics Network, the Bioheritage National Science Challenge, and Deep South National Science Challenge.

Abstract

Accelerating changes in the West Antarctic Ice Sheet, an alarming greenhouse gas emission trajectory, a deficiency of political and societal action to combat climate change, and successful disinformation make it clear that vigorous, targeted outreach must be a top priority of the Antarctic community. But with a range of issues competing for attention, capturing a broad, diverse audience—including policymakers, stakeholders, the next generation, and the general public—with easily understood, scientifically accurate, and compelling information about Antarctic melting—and specific projects in particular—is an enormous challenge. Together, institutions, researchers, and outreach specialists are on the vanguard in this battle to capture awareness, educate, and—above all—inspire concrete and concerted action. We explore our multi-faceted communication, education, and outreach strategies for SWAIS2C (Sensitivity of the West Antarctic Ice Sheet to 2° Celsius), an ambitious international, multidisciplinary, multi-expedition project using cutting-edge technology to understand whether the success of the Paris Climate Agreement prevents collapse of the Ross Ice Shelf. This includes: a professionally designed and accessible centralized information source; an international media campaign; presentations to and meetings with lawmakers around the world; coordinated social media; plain language versions of scientific abstracts and professional journal articles; a growing list of engaging educational resources for elementary through adult lay level; and live/virtual interaction between scientist and audience. We discuss, too, how an impactful outreach program leverages the skills of individual researchers and



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provides opportunities to nurture scientist-as-communicator, plus the tools and resources for easier and less time-consuming individual and project-wide outreach.

Theoretical background / Goals / Motivation: Potential melting of the WAIS is one of the major issues of our times and will dramatically affect communities and economies worldwide, yet it is not always at the forefront of policymakers' thinking and is little-understood or regarded by the general public worldwide. It is also a primary target for concerted disinformation campaigns. Our goal is to inform as many people as possible—from lawmakers to elementary-aged children—about the vulnerability of the WAIS, its potential to raise global average sea level, and the SWAIS2C project—and, ultimately, inspire and compel global action on mitigation and preparation.

Methods: We have created a professionally designed and accessible centralized information source. Henceforth, we will be conducting an international media campaign and presentations to and meetings with lawmakers around the world. Additionally, we will:

- have persistent and engaging social media
- provide plain English versions of scientific abstracts and professional journal articles
- create a growing list of engaging educational resources for elementary through adult lay level, and expand these two other languages
- offer live/virtual interaction between scientist and audience.
- provide resources, tools, and workshops to nurture scientist-as-communicator and enhance researchers' outreach efforts.

Results: We'll present our results at the next bicentennial conference. We are just embarking on this ambitious and worthy venture.

Implications: Institutions and science projects should invest early in excellent outreach specialists with specific focuses and skills—for targeting policymakers and stakeholders, children and teens, and a diverse lay public—and leverage and train their science team to amplify the Outreach Team's efforts

Conclusion: A successful Antarctic science project requires a talented, dedicated, creative Outreach Team, and team members should have different specialties, skills, and focuses for maximum reach. Outreach efforts should be diverse and target both policymakers and stakeholders, as well as the broader public of all ages. Onboarding and involving the Outreach Team early in the project allows them to understand the project and advise on the best way to promote the research and the message.



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Sensing the albatross: culture and conservation

Adele Jackson; Hatesa Seumanutafa

Dr Adele Jackson AJackson@canterburymuseum.com. Adele is an artist, a curator, and a researcher interested in the interrelationships between culture and nature. Based in Aotearoa New Zealand, she is Curator Human History (Antarctic specialism) at Canterbury Museum and an adjunct researcher with the College of Arts, Law and Education at the University of Tasmania, hosted by Gateway Antarctica, University of Canterbury Te Whare Wānanga o Waitaha. Her research focusses on Antarctic visual culture, specifically the role of art and material culture in developing human understandings of, and engagements with, the far south. Adele led the Antarctic Sun Lines solargraph project, which involved an international collaboration with national Antarctic programs across the continent. She recently completed a study of arts-based interpretations of Mount Erebus and is currently collaborating on an examination of cultural representations of the albatross. Adele is a team member of the Australian Research Council funded project, “Creative Antarctica: Australian Artists and Writers in the Far South.”

Hatesa Seumanutafa, MMHP is Curator Māori, Pacific & Indigenous Human Histories at Canterbury Museum, Aotearoa New Zealand. Hatesa’s professional experience is in curatorship and collections management projects focused on the Museum’s Oceanic, Māori, Colonial, Asian and Middle Eastern ethnographic material. The nature of ethnographic material and the social or specialised knowledge associated has enriched Hatesa’s career as it straddles both areas, human and natural history. Naturally drawn to resolution efforts within the museums, heritage, and arts sectors, she works to develop practices and discourse relevant to indigenous peoples’ autonomy in interpreting, conserving, and utilising their material heritage.

Abstract

Theoretical background / Goals / Motivation: Venerated by many, the albatross is ‘a creature of legend, of poetry and of dreams’ⁱ yet many of the world’s albatrosses are facing crisis. Population declines due to human activity are driving many species ever closer towards extinction. Instigated by the advisory committee of the Agreement on the Conservation of Albatrosses and Petrels (ACAP), 19 June is internationally recognised as ‘World Albatross Day’ – an occasion designed to raise awareness of, and to help address, the alarming situation. Importantly, human understandings of albatrosses are strongly influenced by how they are represented in culture.

Methods: Through the combination of collections-based research and textual analysis we explore a range of meanings and ideas associated with albatrosses of the Southern Ocean.

Results: We discuss how words, images, music, performance, and treasuresⁱⁱ reveal human attitudes to, and understandings of, these magnificent seabirds.

Implications: Cultural representations are vital in developing awareness and appreciation of albatrosses.



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Conclusion: Cultural representation has a role to play in nurturing stewardship and securing a future for the great ocean wanderers.



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Transforming Tourists' Antarctic Experience: An Interim Report on the First Fieldwork Season

Elizabeth Leane, Hanne Nielsen, Can Seng Ooi, Carolyn Philpott, Anne Hardy, and Katie Marx

Professor Elizabeth Leane is based in the School of Humanities, College of Arts, Law and Education at the University of Tasmania. Her work examines cultural responses to Antarctica past and present, with a recent focus on polar travel and tourism cultures. She is the author or editor of seven books, including *Antarctica in Fiction*, *South Pole: Nature and Culture*, *Performing Ice* and *Anthropocene Antarctica*. She is currently lead investigator of the Australian Research Council funded project 'Transforming Tourists' Antarctic Experience.'

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Hanne Nielsen is a Senior Lecturer in Antarctic Law and Governance at the University of Tasmania's Institute for Marine and Antarctic Studies. She specializes in representations of Antarctica and has a particular interest in the commercial history of the continent. This includes through media and advertising, which form the topic of her forthcoming book *Brand Antarctica*. Dr Nielsen's current work focusses on the interactions between imagined versions of Antarctica and embodied encounters with the place in the context of Antarctic tourism. She is a Chief Officer of the SCAR *Standing Committee on Humanities and Social Sciences*; a co-lead of the SCAR Tourism Action Group (Ant-TAG); a member of SCAR's *Capacity Building, Education and Training Committee*; and led Theme 7 (An Inspiring and Engaging Ocean) of the Southern Ocean Decade Action Plan. Hanne.Nielsen@utas.edu.au

Abstract

Theoretical background / Goals / Motivation: Antarctica is the site of one of the most mediated forms of tourism in the world, with almost all leisured visitors travelling with an operator. Their experiences are thus framed by a suite of onboard lectures and activities as well as guided excursions. Our project focusses on the nature of this mediation and its impact on tourists' experience.

Methods: Collaborating with Intrepid Travel, we are undertaking in-situ fieldwork over two seasons to collect qualitative data (interviews and observations), on two 10-day voyages to the Antarctic Peninsula per season. During the 2022-23 season we conducted nearly a hundred interviews with passengers and expedition crew.

Results: We have not yet finished data collection or analysis, but will provide some preliminary findings emerging from our interviews, including a typology of Antarctic tourists that complements the survey-based typology recently outlined by Daniela Cajiao and colleagues.¹⁹

¹⁹ Daniela Cajiao, Yu-Fai Leung, Lincoln R. Larson, Pablo Tejado, Javier Benayas, "Tourists' motivations, learning and trip satisfaction facilitate pro-environmental outcomes of the Antarctic tourist experience." *Journal of Outdoor Recreation and Tourism* 37 (2022) 100454.



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Implications: We anticipate that, among other things, our findings will be useful in understanding what factors enhance or limit the ‘ambassador effect’.

Conclusion: This is the first of two planned seasons of fieldwork, so we will be presenting interim results and drawing preliminary conclusions.



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The relevance of Science Technology and Innovation for Strategic Concerns on Antarctica: a Brazilian Perspective

Guilherme Lopes da Cunha

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Abstract

Antarctica, one of the last frontiers to be conquered and the only uninhabited continent, seduces by the sheer magnitude of its numbers: 14 million square kilometers, the size of the combined territories of Brazil, Argentina, Chile, Uruguay, Peru, and Bolivia. The ice volume is equivalent to 70% of all freshwater available on the planet. It also holds colossal mineral deposits of enormous importance. So, no wonder Antarctica is a burning issue in world politics. In this context, Brazil has been a successful polar player for more than 40 years. Nevertheless, Brazil was not clearly interested in Antarctica before the 1970s, and most of the old documents were classified for many years. We propose to analyze how current policies and trends find their rationale in initiatives built since the 1950s when geopolitical considerations comprised location, raw material, and strategic weaponry. Today, Science, Technology, and Innovation (STI) sector is a crucial geopolitical asset. The Brazilian Antarctic Program (PROANTAR) has remained one of the most successful scientific programs in the country. It reveals a perspective related to the interaction of army officers, diplomats, and representatives of the epistemic community, evincing that STI strategies are among the highest priorities. So, is Science a top strategic asset in Antarctica's geopolitical context? We hypothesize that STI production enhances Antarctica's political and strategic relevance. Based on official documents found in military and diplomatic archives, we propose to conduct a qualitative methodological assessment in a constructivist approach and interview scientists engaged in PROANTAR, politicians, and analysts.

Theoretical background / Goals / Motivation: Cunha, 2022; Camara, 2020; Barros-Plataiu, 2022; Andrade, 2020. The aim is to verify political tensions and distention. Among the motivations, we analyze the connections between Science and political stability.

Methods: Constructivist Approach, Path-Dependence, Interview.



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Results: Altering geopolitical references in Antarctica accelerates International System transformation.

Implications: Antarctica's Science, Technology, and Innovation Sector contributes to new references for peace and interest conflict.

Conclusion: Science, Technology, and Innovation knowledge produced in Antarctica reveals transformations in world politics.



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Werner Herzog's Encounters at the End of the World: A Living Continent Questions Life Itself

Bruce Williams

Bruce Williams (williamsb@wpunj.edu) is a professor of Cultural Studies in the Department of Language, Literature, Culture, and Writing of the William Paterson University of New Jersey. A specialist in Film Studies, his areas of research focus range from national identity and the cinema to issues of film and language. He has published extensively in such journals as *The New Review of Film and Television*, *Journal of Film and Video*, *Framework*, *Studies in Eastern European Cinema*, and *Film History*. Co-author with Keumsil Kim Yoon of *Two Lenses on the Korean Ethos: Key Cultural Concepts and Their Appearance in Cinema*, his current research explores the intersection of place and identity in narrative and documentary cinema.

Abstract

Theoretical background / Goals / Motivation: This presentation analyses Werner Herzog's 2007 *Encounters at the End of the World*, a visual essay documenting individuals of diverse nationalities and backgrounds who live and work on Antarctica.¹ Herzog's earlier films, made in five continents, are known for their sensitive portrayal of the relationship between human beings and place.²

Methods: The presentation follows a Film Studies methodology of close readings of the director's narration, the subject interviews, and the film's visual images.

Results: In contrast to the majority of documentaries on Antarctica, Herzog eschews, as can be expected, extensive coverage of the hardships presented by the continent's terrain and unforgiving weather.³ Instead, he focuses on the passions and life events that have driven individuals to make Antarctica their home.

Implications: Herzog's film establishes a model for the study of the intersection between Antarctica and the human condition, a perspective that merits more research in the arts and humanities.



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The Bahía Paraíso and the Protocol of Madrid: Can a tragedy shape an environmental regime?

Ignacio Javier Cardone

Ignacio Javier Cardone (icardone@pucp.edu.pe), is assistant professor of International Relations at the Pontificia Universidad Católica del Perú. He holds a PhD in International Relations by the University of Sao Paulo and Kings College London and a Masters in Political Science by the Federal University of Parana. He is a specialist in Antarctic politics with focus in the role of science, the origins of the Antarctic Treaty, and South American Antarctic politics. He has published on Argentina, Brazil and Chile's involvement in Antarctica, with his most recent book: "The Antarctic Politics of Brazil: Where the Tropics meets the Pole" covering the history of Brazil's involvement in the white continent.

Abstract

In January 1989, six months after adopting the Convention on the Regulation of Antarctic Mineral Resources Activities (CRAMRA) and two months after it was opened to signature, the Argentine supply vessel ARA Bahía Paraíso ran aground on the west side of the Antarctic Peninsula, loosing oil and producing an environmental disaster. That was followed by Australia and France announcement they will not sign the agreement. The failure of the CRAMRA and external pressures over the Antarctic regime resulted in the negotiation of the Protocol on Environmental Protection to the Antarctic Treaty, known as the Madrid Protocol. This work analyses, based on archival work from the Antarctic Secretariat and press sources, whether the accident of the Bahía Paraíso blocked the possibility of advancing with the CRAMRA and fostered the search for a comprehensive environmental protection scheme for Antarctica, or whether it only served as a publicity tool offering a vivid example of the environmental risks involved in Antarctic activities to different actors. Although research is in progress, some preliminary findings suggest that the Bahía Paraíso accident effectively served to facilitate the fall of the CRAMRA, but the ensuing Madrid Protocol seems not to have followed any particular lessons from the accident, but merely systematized and integrated already existent and fragmented environmental regulation in a more systematic fashion, incorporating the issues of mineral resources within its scope. While it is too soon to drive any conclusions, this seem to suggest that institutional change is more path dependent than dependent on individual events.



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The Portuguese Contribution to Antarctic Science and Education

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Hugo R. Guimarães (educacao.propolar@gmail.com) is a Biosciences PhD student at the University of Coimbra (Portugal), based at the Marine and Environmental Science Centre (MARE) and at the British Antarctic Survey (BAS) in the United Kingdom. His research focuses on Antarctic marine animal ecology with a particular interest in ecological interactions of apex predators (e. g. Emperor Penguins) to climate change and conservation in the Southern Ocean, using new technologies like satellite imagery, tracking and modelling. Besides his scientific work, he is highly involved in education and outreach activities related to polar science, raising awareness for environmental issues. He is a member of APECS Portugal, since 2018, and was President in 2020 and 2021. In APECS International, he is the Representative of Portugal and the National Committee Coordinator, being the point of contact between early career scientists from all over the world.

Abstract

In the past few years, in Portugal, scientists, teachers and educators has successfully created space, time and resources to develop educational activities and collaborations about the polar regions and their importance to the Earth's balance. Working with other countries, as well as with the contribution of Polar Educators International (PEI) and the Association of Polar Early Career Scientists (APECS), our country, since the International Polar Year (IPY) 2007-2008, is highly involved in education and outreach. In this presentation, we review the most recent and relevant educational activities developed by Polar Educators Portugal team identifying researchers/scientists linked to the different groups in the Antarctic (Antarctic Treaty Consultative Meeting - ATCM, Council of Managers of National Antarctic Program - COMNAP, European Polar Board - EPB, Scientific Committee for Antarctic Research - SCAR, British Antarctic Survey - BAS, APECS/APECS Portugal), showing ourselves to be present in the contribution through consultancy and decision-making in terms of policy and legislation in Education & Outreach. We will highlight the importance of promoting POLAR WEEKS as an essential and effectively strategy to connect Polar Science and Education, also showing a set of educational and didactic activities that successfully introduced the Polar Science in the Portuguese Curriculum, by developing social skills in students who benefit from the proposed activities. This way, we are working to change this culture and conduct activities that help to boost science-educational links need to be a continued area of focus for broader science and education polar communities.

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APECS PORTUGAL: Bringing Science to the wider Public

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Joana Fragão has a degree in Biology and a master's degree in Ecology from the Faculty of Science and Technology of the University of Coimbra (Portugal). Currently is a Biosciences PhD student at the University of Coimbra and conducts research at the Marine and Environmental Sciences Centre (MARE | Portugal) and the British Antarctic Survey (BAS | Cambridge, United Kingdom). She is currently studying the impacts of anthropogenic activities (e.g., microplastic pollution) and climate change in the food chain of the Scotia Sea, Antarctica. In addition to scientific activities, she participates in actions to disseminate polar science in schools and universities. She is the current President of the Executive Committee of APECS Portugal and a member since January 2019

Hugo Guimarães is a Biosciences PhD student at the University of Coimbra (Portugal), based at the Marine and Environmental Science Centre (MARE) and at the British Antarctic Survey (BAS) in the United Kingdom. His research focuses on Antarctic marine animal ecology with a particular interest in ecological interactions of apex predators (e.g. Emperor Penguins) to climate change and conservation in the Southern Ocean, using new technologies like satellite imagery, tracking and modelling. Besides his scientific work, he is highly involved in education and outreach activities related to polar science, raising awareness for environmental issues. He is a member of APECS Portugal, since 2018, and was President in 2020 and 2021. In APECS International, he is the Representative of Portugal and the National Committee Coordinator, being the point of contact between early career scientists from all over the world.

Abstract

At current times, where information is unloaded every second, either true or false, education and outreach activities gain ultra-importance. Within the scientific community, early career researchers (ECRs) are particular sensitive to this everyday issue moreover during these unconventional times. Last years the ECRs' polar community was undoubtedly affected by the social restrictions, including the postponement of projects and fieldwork, as well as conference cancellations which affect the build of important networks, essential for the ECRs. Still, Early Career Scientists and APECS Portugal, have successfully adapted to these challenges, being able to continue with fieldwork, research projects, and educationally use online platforms and resources, which improved the outreach range of its activities across the entire country. Here, we highlight how opportunities offered by APECS Portugal for training, leadership and skill development and working on diverse education and outreach activities with APECS International, Scientific Committee on Antarctic Research (SCAR), Antarctic Polar Treaty, Polar Educators International (PEI), and with the Portuguese Polar Program (PROPOLAR) were important both for our ECRs as to all general public and schools



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involved. Moreover, in this presentation, we provide evidence of the science, education and outreach activities carried out by ECRs during the last years and discuss how these activities were successful, providing a valuable path for the future of the next generation of Portuguese polar scientists.

Conclusion: In this presentation, we intend to show the adaptability and resilience of the Portuguese early career researchers, who represent the next generation of polar scientists. APECS PORTUGAL has been running for 15 years, alongside with the different activities realized each year, who have been shaping the knowledge and vision of the wider public about the polar regions and how important is to educate and turning science available and clear for all. We also intend to show the importance of being involved in this type of activities to develop skills that are transversal to our research area, as well as for the creation of networks.



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Five months in the Antarctic seas. The remarkable Argentine Antarctic campaign of 1953-54 seen by newsreels and lost footage

Andres Levinson, Pablo Fontana

Andres Levinson_Historian graduated from University of Buenos Aires and Phd Candidate in History from the same University under the direction of Prof. David Oubiña. Currently in charge of the Research and Curatorship Area of the film Archive at Museo del Cine de Buenos Aires. Specialist in History of silent cinema, preservation and archiving of audiovisual media. Professor of Argentine History at Universidad de Buenos Aires and of Documentary Film History in the postgraduate area of the National University of Tres de Febrero. He was professor of Film History at the Universidad del Cine (FUC) and New York University. He has curated film screenings at various festivals and exhibitions. He has participated in numerous congresses, published articles in specialized magazines and books. He is the author of Cinema in the Country of the Wind, Silent Films in South Patagonia. Responsible for the restoration of the Argentine classic, Prisioneros de la tierra (1939) with the support of The Film Foundation. He currently co-directs the Project for the Preservation of Argentine Antarctic Films.

Dr Pablo Gabriel Fontana is a researcher at the Argentine Antarctic Institute (IAA). He specializes in the history of Argentine Antarctica in the 20th Century. He is head of the Humanities and Social Sciences Area in the IAA where he also manages the institutional historical archive of photography and film. His publications include La pugna antártica: el conflicto por el sexto continente 1939-1959 (The Antarctic struggle: the conflict for the sixth continent) and he has presented his work at several international conferences. Dr Fontana has participated in five Antarctic seasons, where his work focused on Argentine and international Antarctic history and heritage.

Abstract

The Argentine Antarctic campaign of 1953-54 was one of the last carried out under the notable impulse of the Peronist government. The enormous display of men and transport was recorded in part thanks to Italian film laboratories Ferrania Color who helped produce a documentary about the five months of the extensive summer campaign. The film shows the beginning of the construction of Base Esperanza, the survey of the crew of Base San Martín thanks to the recently acquired Sikorsky S 55 and the flight of the modified Lincoln bomber called Cruz del Sud over Bahía Luna and Cerro Nevado. It was also the first Argentine color film made in Antarctica. But he was not the only one who recorded that campaign, but other material, filmed in black and white 16mm produced by the Navy, survived. The documentary in a more domestic key closely follows the activities of the different endowments and among other notable findings, it films the bust dedicated to Eva Perón, who died the previous year and who, after 1955, when the Peronist government fell, was removed. Our work analyzes these film records in detail, a valuable document about the history of Antarctica in the 20th century.



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RAPAL and the Antarctic policy in South Americaa

Mariano Aguas

Mariano Aguas (marianoaguas@gmail.com) political scientist. Professor of Contemporary Political Theory and Types of Interests Representation, UP/ UNLAM/ UNLP. Former visiting professor at the University of Bologna. Director of Antarctic conservation campaign in FVSA (WWF Argentina) 2017-2021. Social and Governance Director in Agenda Antártica, 2022-2023, and head of the Observatory of Antarctic conservation policies of the University of Palermo (UP), Buenos Aires.

Abstract

The mere existence of RAPAL (Reunión de Administradores de Programas Antárticos Latinoamericanos) does imply that there is any common South American Antarctic policy? Which kind of cooperation could be observed among different countries regarding regulations? Do these policies contribute effectively with the broader conservation goals for Antarctica? Which kind of role do the local NGO's play in those matters? The aim of this paper is to help in understanding the role that RAPAL plays regarding the cooperation in Antarctic conservation efforts. Besides, a second goal will be to understand links and bonds between South American Antarctic programs and the role of some NGO's of the region.



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‘Constructing’ Antarctic security: An analysis of Antarctic security discourses and their implications

Thomas Lord

Thomas Lord. Thomas has recently completed his Master of Antarctic Studies degree at Gateway Antarctica, University of Canterbury (NZ). His studies have primarily focused on how different international relations concepts, such as ‘peace’ and ‘security’, have been applied in the Antarctic context. Alongside his interest in Antarctic politics, Thomas has a background in international relations and human rights, and works as a Senior Advisor Strategic Advice at the New Zealand Office of the Ombudsman.

Abstract

Theoretical background / Goals / Motivation: The concept of security has never been far from discussions about Antarctic geopolitics. Concerns about national security were arguably at the heart of the Antarctic Treaty negotiations in the late 1950s. However, since the signing of the Antarctic Treaty in 1959, our understanding of ‘security’ has developed significantly and differing security discourses have emerged.

Methods: This research assesses academic literature engaging with the concept of ‘security’ in relation to Antarctica. Literature was identified using Google Scholar and Scopus database searches by keywords. Each article or chapter was categorized into a security discourse by assessing: whose security is presented as being threatened (the ‘referent object’ of security), from what, and the means through which security can be achieved.

Results: Four key security discourses emerged from the literature: national security, regime security, environmental security, and human security. Other conceptualisations of security – including ‘maritime security’ and ‘resource security’ – were present. There are many overlaps in each discourse, including confusion over referent objects.

Implications: The concept of Antarctic security is often used imprecisely and frequently disassociated from wider security studies theory. Furthermore, academia may be considered as contributing to issues being elevated from the ‘political’ realm to the ‘security’ realm, which demands different responses to attain security.

Conclusion: Further research is required into the effects of discussing Antarctic security, including the effects of differing security discourses. Academia must be aware of normative role it plays in constructing Antarctic security, and the consequences of this.



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Wilderness and aesthetic values of Antarctica: developing indicators of intrinsic value.

Dr Rupert Summerson

Rupert Summerson (rupert.summerson@bigpond.com) has a PhD from the University of Melbourne, Australia on the protection of the wilderness and aesthetic values of Antarctica. He has visited Antarctica 10 times, including three winters and three and a half years living and working in Antarctica with three national Antarctic programs (UK, Australia and US). He has also made a visit on a tourist ship. He has published extensively on the protection of wilderness and aesthetic values. His current research is into the meaning and application of intrinsic value, the protection of which is mandated by the Madrid Protocol.

Abstract

The Madrid Protocol calls for the protection of the intrinsic value of Antarctica, including its wilderness and aesthetic values. Wilderness and aesthetic values are conventionally considered to be anthropocentric values and therefore instrumental. This could potentially damage the case for the protection of all these values if an argument that the Madrid Protocol contains a misunderstanding of intrinsic value is mounted which could potentially undermine its credibility. In this paper I will argue that this need not necessarily be the case and that wilderness value can, and should be considered an intrinsic value. The way that aesthetic value is assessed in the human brain supports Kant's thesis that aesthetic value is "disinterested" ¹ If aesthetic appreciation is disinterested then it cannot logically also be instrumental. If wilderness and aesthetic values can be considered "components" of, or at least have an affinity with, intrinsic value then there are potentially other features of Antarctica can could be used as "indicators" of intrinsic value. For example, silence is often considered as an intrinsic feature of Antarctica so could be used as an indicator of potential impacts on the Antarctic environment from proposed human activities. Measurable indicators are more likely to appeal to the pragmatic regime that manages Antarctica than a strictly philosophical approach. These indicators are nevertheless within the philosophical tradition of intrinsic value.

Theoretical background / Goals / Motivation: Article 3 of the Madrid Protocol states that: "The protection of the Antarctic environment and dependent and associated ecosystems and the intrinsic value of Antarctica, including its wilderness and aesthetic values and its value as an area for the conduct of scientific research, in particular research essential to understanding the global environment, shall be fundamental considerations in the planning and conduct of all activities in the Antarctic Treaty area." It is clear that while Antarctic Treaty Consultative Parties (ATCPs) may have had the motivation to protect the intrinsic value – and the wilderness and aesthetic values of Antarctica in 1991, they have failed to make any progress on implementation of protection². There are several possible reasons for this including a lack of understanding of the meaning of intrinsic value, which is acknowledged to be complex, sometimes controversial and frequently misunderstood. The need for consensus in decision making in Antarctic Treaty Consultative Meetings makes it difficult to agree when there is no



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tradition of intrinsic values in several nations' cultures. The protection of these values is often seen to be a lower priority than other matters, e.g. climate change. Nevertheless, there are 42 Consultative and Non-Consultative Parties who have acceded to the Madrid Protocol so it is expected that they understood what they have agreed to do.

Methods: Summerson³ has demonstrated that it is possible to use scientific methods to assess the impacts of human activities on the perception of wilderness and aesthetic values. While this approach is not appropriate for the assessment of intrinsic value per se, it is believed that the use of indicators will reveal how people appreciate the intrinsic value of Antarctica.

Results: No results are forthcoming at this stage. This is a theoretical consideration for discussion.

Implications: It is hoped that by developing a pragmatic approach to the protection of the intrinsic value, it will result in the implementation of actual protection of these values within the Antarctic Treaty System.

Conclusion: The proposition that wilderness and aesthetic values can be considered components of intrinsic value and the use of indicators to reveal these values is part of the discourse on intrinsic value that the Action Group on Intrinsic Value in Antarctica has initiated.



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Render | Remnant: Tracing the entangled histories of African and Antarctic whaling

[Adrienne van Eeden-Wharton](#)

Adrienne van Eeden-Wharton (adrienne.vaneeden@gmail.com / adrienne.vaneeden-wharton@tuks.co.za) is a postdoctoral fellow at the University of Pretoria, South Africa, on the *Antarctica, Africa and the Arts* project, funded by the National Research Foundation (NRF) as part of the South African National Antarctic Programme (SANAP). As an artist-researcher, her praxis has been shaped by years of walking and gathering along the shores of the southern African mainland coast and adjacent islands. Earthly expanses of loss and exchange where she follows multispecies death assemblages – from former sites of the ‘harvesting’ and ‘processing’ of whales, seals, seabirds and guano to contemporary places of disposal. She is passionate about finding ways of re/storying fraught and entangled terraqueous relations, and dreams of working in the polar regions.

Abstract

Theoretical background / Goals / Motivation: Taking a non-traditional form, this presentation traces transoceanic modern whaling histories spanning the South Atlantic, Indian and Southern oceans – from the waters along the coasts of Gabon, Angola, Namibia, South Africa, Mozambique and Madagascar to the sub-Antarctic and Antarctic whaling grounds. I draw on archival research and an ongoing body of site-responsive creative praxis that grapples with multispecies past- present-futures in the enduring aftermaths of imperialism, capitalism, extractivism and military-industrial expansion. As I map the former sites of twentieth-century shore-based whaling stations and the routes of pelagic factory ships and catchers, I explore the role of African seaports as gateways to the southern high latitude regions and the sprawling networks of capital, control and coerced labour that enabled the industrial-scale slaughter of whales.

Methods: Site-responsive creative praxis and archival research. Sources include ship logbooks, diaries and crew lists; charts and blueprints; personnel and accident registers; telegrams and letters; company accounting records, meeting minutes and annual reports; applications for permits and concessions; deeds of sale, lease agreements and insurance claims; newspaper clippings and industry-specific gazettes; biological specimens and product packaging; photographs, films and ‘memorabilia’.

Results: In this presentation of work-in-progress, montage sequences combine still (moving) images and sounds – recorded at the crumbling remains of southern African stations that operated seasonal Antarctic whaling fleets and became military training bases after the closure of the factories – alongside extracts from archival materials.

Implications: Introducing histories of exploitation and violence that connect seemingly disparate places and times.

Conclusion: Creative praxis offers possibilities for telling difficult multispecies histories less indifferently and for expressing a yearning towards more wake-full and just planetary futures.



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Interaction of Individual Differences, Affective States, and Teamwork Outcomes in Two Antarctic Stations

Andres Käosaar, Sessa Kohl-Fink, and C. Shawn Burke

Andres Käosaar (Andres.kaosaar@knights.ucf.edu) is a Doctoral Student in the Industrial-Organizational Psychology program and a Graduate Research Assistant at the University of Central Florida. He holds a BA and MA in Psychology (MA in clinical psychology track) from the University of Tartu, Estonia, EU. His research focuses on team dynamics in Isolated, Confined, and Extreme (ICE) environments, with the main interest in astronaut and polar teams. He is currently involved in projects exploring the role of interpersonal relationships, trust, resilience, cultural diversity, affective states and regulation, and team cognition on team dynamics and performance in teams operating in space, space simulation missions, and Antarctic stations.

Abstract

Theoretical background / Goals / Motivation: Affective states have been found to both indicate satisfaction with teamwork and at the same time influence individual's capacity in engaging in teamwork aspects. For understanding better which individuals adapt to the demanding conditions of winter overing Antarctic stations, we investigate how individual differences predict affective fluctuations and the interactions between affective fluctuations and teamwork outcomes (i.e., quality and effectiveness).

Methods: Based on data gathered from crews' winter-covering in two US Antarctic stations (season of 2018), profiles for individual differences (personality, collective orientation, and social intelligence), affective states (extracted from longitudinal journal entries, ten different affective variables), and teamwork outcomes (weekly measures of teamwork quality and effectiveness,

variables) will be created. The relationship between these different profiles will be analyzed.

Results: The predicted results will shed light on the existence of more and less adaptive individual profiles and how these profiles predict the relationship between affective states and teamwork outcomes.

Implications: The implications of this study are twofold. First, understanding better the profiles of adaptive individuals can support station managements in selection and station management processes. Second, the created profiles are based on nuanced individual differences, affect, and teamwork factors, furthering the empirical understanding between these aspects.

Conclusion: This unique study uses nuanced individual differences, affective states, and teamwork outcomes data for exploring the role of different teamwork aspects in the demanding environment of winter overing Antarctic crews.



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Pink Dust. Humans, architecture, environmental policies and time in Antarctica

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Maria Ximena Senatore has been working on archaeology in Antarctica for more than two decades. Currently, she Distinguished Researcher at Universidad de Alicante, Spain and Senior Researcher (on leave) at CONICET, Argentina. With a degree in archaeology and a doctorate degree in history, she is interested in understanding the human exploration and incorporation of remote lands into the modern world. Her work has focused on questioning the master narratives of the Antarctic past and the conceptualizations of heritage conservation. Her research examines human-things relations in Antarctica past and present, with a recent focus on informing sustainable and inclusive conservation policies and practices. She is the co-author of “Un pasado en Blanco. Arqueología Histórica Antártica” (Argumentum 2007). Her work in Antarctica has been published in the Polar Record, The Geographical Journal, the International Journal of Historical Archaeology, and The Polar Journal, among others.

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Abstract

[The prevailing image of Antarctica as a natural and pristine territory has been reinforced by the Treaty System policies on environmental protection toward the minimization of human impact. In this framework, humans have been perceived as transient visitors and 'things' as removable objects. The assumption behind the Madrid Protocol -the possibility of reversing the influx of imported objects- overlooks the complexity of the relationships between humans and things (Senatore, 2020). This way of thinking about human-thing relations in Antarctica is based on the assumption that things are immutable, atomized, and self-contained cultural objects (Senatore, 2022). However, we argue that things are always in a state of change (Olsen, 2010), establishing relations with human and nonhuman agents that cannot be easily reverted (Hodder, 2012). This presentation discusses the notion of human and material permanence and impermanence in Antarctica through the architectural analyses of two specific designs that entered the Antarctic scene between the 1970s and 1980s: the Igloo Satellite cabin bought by Australia to the Tasmanian designer Malcolm Wallhead and Googie Huts designed by Australian Antarctic Division engineer Attila Vrana, both manufactured by Icewall One. Here we discuss how even though these objects were designed and perceived as removable, meant to not last in Antarctica, they have lingered there for decades, becoming part of the 'colonizing things' by which humans have populated Antarctica during the twentieth century. In this sense, we argue that in Antarctica, as in many other parts of the world, the general trend is that human-thing entanglements have gradually increased in complexity and scale to an extent from which disentanglements have become difficult to overcome.



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Challenges and opportunities of social sciences interaction in researching human biology in the poles

Rosa M E Arantes; Michele Macedo Moraes; Thiago Teixeira Mendes; Alice Marques.

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Abstract

Theoretical background / Goals / Motivation: Inter- and transdisciplinary approaches in polar human biology aim to explore the potential integration of Social Sciences and Biomedical Research. Knowing how polar scenarios interfere with the health and psyche will enable biopsychosocial interventions and the most suitable monitoring strategies.

Methods: Antarctica landscape incorporated a more heterogeneous profile of social groups, genders, and studies, offering an ever-increasing space for consolidating research in Human and Social Sciences and Health. We look for the ways and risks of falling ill, the notions of cross-cultural health, and the connections with medicine in the Arctic and Space, such as in environmental disasters and pandemics, which are increasingly predictable and catastrophic due to climate change.

Results: The research in physiology and health in Antarctica and Arctic based on the conceptual and methodological specificities of a line of investigation that seeks to study the human presence in the poles in all dimensions (biological, psychological, and socio-anthropological) require rethinking theoretical assumptions about biology and culture and the delicate integration of science, environment, and subjectivity.

Implications: The Earth Poles' climate is a privileged sociocultural set on the transforming universal human biological nature by culture in specific symbolic and material conditions. Investments in human resources preparedness for a multidisciplinary human-related approach are needed.

Conclusion: The humanities input is relevant for workers in ICE environments, helping to understand the biomedical aspects better. The integrated approach can inform future Antarctic research on human-related research and enables interdisciplinary studies combining physiology, psychology, and socio-anthropology.



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Surviving on edge: an ethnography of the medical doctor experience in Antarctica

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Abstract

Theoretical background / Goals / Motivation: Remote Medicine is a specific chapter of Medicine practiced in isolated places marked by a scarce population, limited resources, and significant logistical challenges, encompassing Antarctic Polar Medicine. Physicians acting in the polar environment must have training in the risk management of individuals who travel and remain on the continent during summers and overwinters, performing a role beyond medical activity, including psychological and humanitarian care, and contributing to healthy practices and good relationships among group members. Due to the nature of the physical environment, one may need to work outside in cold and dry conditions (as low as -45°C); or cold and wet conditions associated with limited sophistication of medical support, medical evacuation, and stressors of close communal living. There are few personal accounts of medical experience within these conditions. How are the environmental conditions translated to emotions in this set? Medicine and Science consider subjectivity, impressions, feelings, emotions, and opinions unreliable. I visited the Comandante Ferraz Antarctic Station (EACF) for the first time in the summer of 2015 (MEDIANTAR Research Group, under CNPq/2013 Call), and I am interested in the aspects of being a physician in that context. As a medical doctor, putting myself in the position of those professionals working in Antarctica, the work seemed of high responsibility and loneliness. I interviewed physicians operating in the National Antarctic Programs of Rei Jorge Island and in EACF at different moments. The interviews dealt with aspects of the job's activities and procedures but also the subjective impression and life experience of working and living for a year in the isolation



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of an Antarctic Station, accessible only by ship in the summer and inaccessible in winter by the frozen sea.

Methods: In loco and online interviews, bibliographical and documentary review.

Results: We aim to discuss the experience of Medical Doctors at Antarctic Stations.

Implications: We aim to discuss the experience of Medical Doctors at Antarctic Stations.

Conclusion: Despite the significant advances in technology and communication, the Antarctic environment continues to be challenging for the practice of Medicine; just like their colleagues in past centuries, all those practicing Medicine on the white continent face serious problems during their journey.



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Ethnography of the Human Biology research in Antarctica: a work in progress.

Rosa Maria Esteves Arantes; Alice Marques; Thiago Teixeira Mendes.

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Abstract

Theoretical background / Goals / Motivation: Ethnography is based almost entirely on fieldwork requiring the immersion of the anthropologist in everyday life of the subjects. Ethnographies in human biology fieldwork are scarce, and ethnography in the Antarctic fieldwork is yet rare in literature.

Methods: According to Geertz, a continuous tension between scientific analysis and everyday life experience defines participant observation as the most used ethnographic method.

Results: Closely analyzing the scientific activity and its production may result in reductionism, but the broader perspective of studying this activity in the Antarctic context amplifies the discussion to other aspects of scientific life in the continent, from the pleasure of traveling, camping, visiting one of the most astonishing landscapes of the earth, the confinement experienced, the difficulties in working, the complicate schedule and logistics, to the geopolitical and managerial impacts of the findings.

Implications: In the case of our ethnographic work, participant observation is concomitant to our confrontation as a researcher of both fields: a scientist studying the physiological adaptation to Antarctica and, at the same time, an anthropologist trying to penetrate a form of life that needs to evoke strangeness from an everyday praxis. In this way, confronting semantic horizons means an encounter with our own. This last aspect may explain some of the difficulties of this anthropological approach.

Conclusion: We find it relevant to discuss the methodological aspects of an ongoing ethnography carried out with Human biology researchers (physiologists) in Antarctica, focusing mainly on participant observation.



Immune factors and health of Antarctic explorers

Dons'koi Boris; Kozeretska Irina; Zabara Dariya; Anoshko Yaroslava.

Boris V. Dons'koi (boris_donskoy@ukr.net), Master's degree in immunology (Kyiv Taras Shevchenko National University) 2000. PhD in Immunology 2007. Works in Institute of Pediatrics, Obstetrics and Gynecology named after academician O. Lukyanova of the National Academy of Medical Sciences of Ukraine. Mayborody str 8, 04050 Kyiv, since 1999 till now. Head of laboratory of immunology. Interests-immunology of reproduction, immune factors in predicting clinical complications. Collaboration with the (State Institution National Antarctic Scientific Center of Ukraine, Ministry of Education and Science of Ukraine, Kyiv, 01601, Ukraine) since 2020 on the topic of predicting of the health conditions of Antarctic expedition participants.

Abstract

Theoretical background / Goals / Motivation: Studying the immunophenotypic features of winterers of the Ukrainian Antarctic Expeditions (UAE) before, during, and after their assignments might shed some light on the possible place of immune accentuations in the development of certain physiological states.

Methods: We study men's (n=31) who were on 25th and 26th UAE for a whole year. Health was evaluated according to the monthly reports of the expedition's doctor³. Health status was considered unfavorable (UHS) (n=12) if a participant complained on average more than thrice a month or prematurely terminated UAE due to health conditions. In contrast, the "no health complaints" group (NHC) included 19 participants who had less than twice a month. Immune phenotype was analyzed in peripheral blood by flow cytometry.

Results: Balanced relative and absolute NK lymphocytes levels (5-18%, 100-500/ μ l) were significantly associated with NHC (84.2% and 94.2%) compared to (8.3 % and 50%) in UHS. NK CD335 expression was also balanced in all NHC, in contrast to UHS where we registered both opposite accentuations increased (CD335neg or CD335++). Elevated expression of HLA-DR on CD3+CD8⁺lymphocytes (>30%) and decreased level of CD3+CD4⁺ (<35%) was also associated with UHS risk. In Antarctica, cortisol levels sharply increased, but neither marker's of reactivation nor primary infections were registered in UAE time, as well as autoimmune ones.

Conclusion: We showed that balanced values of immune links predictive for favorable health condition during yearlong Antarctic expeditions. Individuals with immune-phenotype accentuations have significantly higher risk of UHC during adaptation to Antarctic expeditions.



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Creating a Digital Resource-Reference Platform for SCHASS

Maria Olivier

Ria Olivier is principal-investigator and digital archivist of Antarctic Legacy of South Africa (ALSA) based at Stellenbosch University. Her career started in Information sciences, with focus on digital information. She specialises in information management, it brought her to the SA National Antarctic Programme (SANAP) and SCAR in 2012. She is a member of Standing Committees on [Humanities and Social Science in Antarctica \(SCHASS\)](#) and [Antarctic Data Management \(SCADM\)](#) and a founder member of the Polar Museum Network. Her role is to preserve and promote the legacy of SA in the Antarctic region by maintaining a [repository](#) and [SANAP](#) and [ALSA](#) websites and include presentations, publications, and talks. She received the APECS International Mentorship Award (2020). She visited Antarctica in 2019 and been to all Antarctic Gateway Cities. Her passion is making information available and create a pride within all South Africa for our achievements in the Antarctic Region. riaolivier@sun.ac.za

Abstract

The SCHASS community consists of many researchers that collect material from different resources. Researchers keep their own reference system and over the years different researchers have used the same information that they have individually discovered in archives, museums etc.

It is a complex topic and may touch on intellectual property. The ATS states that: "Scientific observations and results from Antarctica shall be exchanged and made freely available", but SCAR policy states that confidentiality must be protected where human subjects are involved and where data release may cause harm."

A need from researchers, especially in the history discipline to share their resources. Discussion between Dr Ursula Rack (Institute Associate at Scott Polar Research Institute and Adjunct Fellow, lecturer, course coordinator, and teaching assistant for Antarctic Studies, University of Canterbury) and myself lead to a group discussion in 2019. Since then, I have investigated the possibility of creating such a platform and this presentation is the result.

We can learn much about Antarctic in the history that has been documented and the impact that Antarctic has on a better future. Therefore, the platform needs to be user-friendly and an easy reference tool that add value to research. It will serve the purpose of data management with the Humanities and social sciences of SCAR.

This presentation will give an overview of an online resource reference system that may be made available to researchers in the social sciences and humanities and make collaboration possible.



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Importance of preserving Social Media posts

Maria Olivier

Ria Olivier is principal-investigator and digital archivist of Antarctic Legacy of South Africa (ALSA) based at Stellenbosch University. Her career started in Information sciences, with focus on digital information. She specialises in information management, it brought her to the SA National Antarctic Programme (SANAP) and SCAR in 2012. She is a member of Standing Committees on [Humanities and Social Science in Antarctica \(SCHASS\)](#) and [Antarctic Data Management \(SCADM\)](#) and a founder member of the Polar Museum Network. Her role is to preserve and promote the legacy of SA in the Antarctic region by maintaining a [repository](#) and [SANAP](#) and [ALSA](#) websites and include presentations, publications, and talks. She received the APECS International Mentorship Award (2020). She visited Antarctica in 2019 and been to all Antarctic Gateway Cities. Her passion is making information available and create a pride within all South Africa for our achievements in the Antarctic Region. riaolivier@sun.ac.za

Abstract

“Social media plays an increasingly important role as we embrace networked platforms and applications in our everyday lives. The interactions of users on these web-based platforms leave valuable traces of human communication and behaviour revealed by ever more sophisticated computational analytics. This trace – the data generated by social media users – is a valuable resource for researchers and an important cultural record of life.” – S Thompson

ALSA’s aim is to preserve and promote the Antarctic legacy, the South African National Antarctic Programme (SANAP) community and its activities. “To preserve is to maintain, but also to retain and keep safe, it means a coming together of material that matters most” within the SANAP community. A new dimension has entered the world of preservation and digital technology opens a completely new perspective. The Worldwide Web holds millions of websites, and the Internet is the marketplace for research, expression, and communication of information. Is it necessary to preserve and provide access to ‘born digital material’.

During this presentation I would like to show you examples of ALSA’s digitised footprint and try to highlight its significance from a natural sciences and humanities perspective. Does it have an impact on Antarctica research for the future and can it have an influence on public perception?

The preservation of information and data is of utmost importance to science and research of the Antarctic region, as well as the communication of this research and science via social media.



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Navigating the Antarctic through Prism of Science, Economics and Geopolitics in the Second Half of the Twenty First Century

Suprita Suman

Suprita Suman, Guest Faculty Department of Political Science- Patliputra University, Patna, Bihar, India. Email id; suman.suprita348@gmail.com. She has completed her MA in Economics and Political Science from Patna University and completed her PhD in the Canadian Studies on Arctic Politics from School of International studies, Jawaharlal Nehru University. Currently working as a faculty in department of Political Science, Patliputra University, Patna, Bihar, India. Her research focused towards critical challenges emerging due to climate warming in the polar and ocean region to find out policy measures and public campaign resolving diplomatic loggerheads through peaceful negotiations and involving multilateral institutions. Her research interest are Polar Politics, UNCLOS, Climate Change, Blue Economy and Hydro Politics.

Abstract

The 20th century witnessed a number of multilateral treaties for a number of good reasons and maintain peace in the world and the Antarctica Treaty System was signed to keep this region demilitarized. But scientific advancement, economic lust and geopolitical ambitions surpassed the moral objectives and now the remote Antarctica is caught in 'Antarctic Rush' for research, resources and restructuring the global order. Currently every power is investing to set p research stations in the remote Antarctic, every country is lusting for the Arctic resources and few of them wish to have control and sovereignty for their geopolitical ambitions. The core argument is that the first half of the twenty second century is experiencing the declining interests in valuing the multilateral treaties for several reasons, like these treaties have fail to accommodate the majority of the countries which were under the colonial rule. The multilateral treaties have also lacked flexibility in addressing the complex issues. The treaties were being finalized there were only two worlds; the first world and the second world and a weak third world but now there is strong third world, emergence of fourth nation and the most sophisticated non-state actors which have the power of science, lust for powers and there is no abiding governance and regulations for them. So what would be the future of the Antarctic Treaty which is going to end in 2048. This paper tends to study the scenario before the end of a multilateral treaty like how the countries behave and speculate when a treaty is reaching to the climax and how the region adjacent to that particular treaty region bears these changes. As the Antarctic Treaty Region is about the Southern Ocean and Antarctic landmass, therefore the nearby oceans like Indian Ocean would bear some spillover effect of these scenario. Thus, how the science, and economic lusts and geopolitical ambition would try to interfere in Antarctic issue in the second half of the twenty century by the northerners and how they would use the connected oceanic region and how the countries in this region would respond to these spillover effect would be analyzed in this paper.



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The paper tends to examine the sustainability of theory of multilateralism in the context of climate change and globalization. It would look into the factual claims in South Pole per se. With the climate change the accessibility has been increased further facilitated the commercial ambitions of the new actors manifesting their interest within the existing regime or opposing the current regime. Throughout the paper I would be exploring that whether reaching for multilateral treaty resolves the problem for ever or not. How apolitical factor like technological growth ignite the geopolitics and increase political volatility. The paper aims to underscore the relationship of the aging powerful North the choreographer of ATS and growing and dynamic global South significantly large in number h when the expiry of the ATS is nearby after 25 years. This would highlight how the ATS would adjust with scientific advancement and geopolitical and geo- economics interests of the global south. The paper delves into the implications of the two dependent variables first the climate change in the Antarctic Region and increasing geopolitical interests in this region and how the geopolitics of research, economics would shape this relationship. As the Antarctic is located in remote south and the epic center of the Antarctic geopolitics is always the northern hemisphere therefore, how the countries situated in the north of Indian ocean, Indo pacific region countries are contesting to control the South Pole this is the basic objective of this study. Basically, this paper aims to contribute to know how the multilateral treaties are being opposed on several occasions because new emerging countries are now raising their concerns. Sometimes these concerns involve many other actors which are not directly involved yet bear the spillover effects.

Finally, the study would involve both empirical and analytical and historical methods to find the results. The data would be collected from the various departments and offices involved in fishery, mining in the Antarctic as well as the policy papers of the different countries regarding Antarctic. What is new in their policy document regarding Antarctica. Either these countries are rising for sovereignty interest in Antarctic, or they are ready to go with the ATS in current form? Or they welcome the changing scenario as the commercial benefit This would be analyzed. For this government documents would be studied to prove test the theory of multilateralism.



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Who saved Antarctica? On the Heroic Era of Environmental NGOs in the Antarctic politics

Kati Lindström, Lize-Marié van der Watt

Kati Lindström is a docent in the history of science, technology and environment, with specialization environmental humanities and uses of history at the KTH Royal Institute of Technology, Sweden. She is interested why some places, things or species are protected and others are not and studies this using a variety of methods from oral history and archival research to literary and anthropological ones in many different geographical settings from Antarctica to Japan and Estonia. From 2017, she has been working on Antarctic heritage and environmental protection, using archives in Japan, Europe, Russia, and Latin-America. She is a member of the Polar Research Committee of the Estonian Academy of Sciences and an expert member of the ICOMOS International Polar Heritage Committee. E-mail: kati.lindstrom@abe.kth.se

Lize-Marié van der Watt is a researcher and Head of Division of History of Science, technology and Environment at KTH Royal Institute of Technology, Sweden. She researches histories of polar pasts and polar futures, with a focus on the intersection between the environment, science, cultural heritage and critical geopolitics in the Arctic and Antarctica, with particular interest in Antarctic minerals regime and biosecurity. She has previously worked at the South African Antarctic Legacy Project, Swedish Polar Research Secretariat and has repeatedly served as rapporteur at Antarctic Treaty consultative meetings.

Abstract

There is a fierce competition to the honor of having saved the Antarctic environment from mineral exploitation. Both Australia and France have made repeated public claims about their pivotal role in the process, but also the UK and Chilean archives include documents with similar statements. This presentation will discuss the role of the environmental NGOs, particularly Greenpeace and ASOC, in the Antarctic politics of the 1970s and 1980s, using the historical archives of the two organizations.

Since Antarctic history is often written with the geopolitical emphasis, based on state archives, while the ENGOS were for the most part not even allowed into the meeting room, their activities are not well covered in literature. However, the campaigns were both scientifically and politically very intricate, including a comprehensive Antarctic science program and an Antarctic base, lobbying at the ATCM meetings and of the government delegation members, infiltration into state delegations, lobbying of governments during the United Nations Antarctica debate and last, but not least, massive public media campaign and direct actions.

We argue that while none of the actors could have alone shifted the balance in favor of environmental protection, the environmental NGOs played a much bigger role in the process than hitherto acknowledged.



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Resilience of the Antarctic tourism industry to changes in Cultural Ecosystem Services

Dr. Valeria Senigaglia

Dr. Valeria Senigaglia is a behavioral ecologist and marine scientist, interested in the interdependence of social science and environmental conservation. By exploring the resilience of socio-ecological systems and their current governance, she aims to assist decision-makers to sustainably manage Antarctica's cultural ecosystem services.

Abstract

Theoretical background / Goals / Motivation: The tourism industry is rapidly expanding in Antarctica, increasing by an order of magnitude over the past two decades. However, the resilience of this industry is intertwined with the resilience of the Antarctic ecosystem, and particularly those elements of it that draw the most international attention. Marine mammals represent key contributors of cultural ecosystem services (CES), but also face conservation threats from fishing, noise pollution, vessel traffic and maritime activities. Socio-ecological models can be used to map the key relationships between tourism and marine mammals in the first step towards exploring the resilience of the Antarctica tourism industry to changes in the availability of CES.

Methods: Using qualitative information from the existing literature, I developed a weighted directed graph of relationships from stressors to population growth rates, to assess the resilience of different marine mammal populations. The topology of the graphs represents i) species along a resilience index continuum (adapted from Booth et al. 2020), ii) interactions between marine mammal and activities/stressors in Antarctica (i.e. tourism, climate change and noise pollution) and iii) the most salient characteristics of tourism governance and performance (i.e. IAATO membership, revenue, etc).

Results: Preliminary results show how the differential vulnerability of marine mammal species to multiple coincident disturbances can hinder socioeconomic benefits and the resilience of the tourism industry.

Implications: By identifying the key elements within the socio-ecological system we can determine how their changes (i.e. population declines or increased tourism) might impact the resilience of both marine mammal populations and tourism structures and governance.

Conclusion: This theoretical framework will be tested using empirically data collected through expert elicitation to develop an inclusive decision-making tool for effective wildlife and marine ecotourism management.



Panel Communications



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Archeology as a tool for the redefinition of Antarctic History

Diego Aguirrezábal Piccininno

Diego Aguirrezábal is a Professor and Researcher at the Landscape Archaeology and Heritage Laboratory of Uruguay (LAPPU) of the University of the Republic in Uruguay. His work related to research and teaching in archaeology, anthropology and heritage, have allowed him to build a complex vision of social processes. He has worked in various archaeological contexts in America and Europe, from the early American settlement, the prehistoric occupation of rock shelters and the search for detainees who disappeared during the last civic-military dictatorship in Uruguay. He is a consultant for UNESCO on issues related to conservation and management of the cultural heritage. He has developed various advisory projects for public and private institutions in America and Europe. He is currently scientific manager of an international project financed by the Uruguayan Antarctic Institute. It analysis the archaeological sites linked to sealing activities in the 19th century on the South Shetland islands.

Abstract

Theoretical background / Goals / Motivation: This project seeks to build new narratives, alternatives to the official history, based on the archaeological interpretation of the material culture that is still preserved on the Fildes Peninsula. Within these processes of dispute, material culture is made up of entities that are the referent of an historical value, both at the time of its elaboration and in the present that recovers them.

Methods: Within this conceptual framework, two prospecting and recording campaigns have been carried out, both superficial and stratigraphic. This allowed knowing the internal spatial distribution, its topographic location, the characteristics of its location, the morphotechnological characteristics of the materials, the construction techniques, the state of conservation and its patrimonial situation.

Results: Based on these works, a set of new sites possibly associated with sealing activities have been located, as well as the reinterpretation of others already known, based on new evidence and a different theoretical perspective.

Implications: The objective of these works is not only to deepen the knowledge of these spaces, but also to propose new strategies for their conservation, enhancement, management and dissemination.

Conclusion: The redundancy in the evidence of these first occupations in Antarctic territory demonstrate not only an intense presence on sealing groups since the beginning of the 19th century, but also an underrepresentation of this period in the construction of Antarctic history.



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Importance of Antarctic domestic law as a mechanism for protecting the Antarctic biodiversity and ecosystems

Luis Valentín Ferrada; Carolina Flores; Catalina Sepúlveda; Giovannina Sutherland.

Luis Valentín Ferrada, PhD in Law (Universidad de Chile), Professor of International Law, Director of the Department of International Law and Director of the Antarctic Law and Policy Programme (U-Antártica) at the Faculty of Law of Universidad de Chile. Principal Investigator at the Millennium Institute for Biodiversity of Antarctic and Sub-Antarctic Ecosystems (BASE) and a researcher at the Institute of Ecology and Biodiversity. Member of the Permanent Committee on Humanities and Social Sciences of the Scientific Committee on Antarctic Research and member of the list of arbitrators of the Permanent Court of International Arbitration of The Hague in matters of Antarctic environmental protection. He has been an adviser on Antarctic and public international law at the Ministry of Foreign Affairs and the Ministry of National Defense of Chile. Email: lferrada@derecho.uchile.cl

Carolina Flores, Attorney (Universidad de Chile) and Advanced LL.M in Public International Law, with a specialization in Peace, Justice and Development (Leiden University). Instructor at the Department of International Law and member of the Antarctic Law and Policy Programme (UAntártica) at the Faculty of Law of Universidad de Chile. International Legal Consultant of the Development Law Service of the Food and Agriculture Organization (FAO). As an early-career academic, she has several publications in the field of Antarctic Law, with a focus on environmental law.

Catalina Sepúlveda, Attorney (Universidad de Chile), postgraduate in Administrative Law (Pontificia Universidad Católica de Chile). Teaching assistant and member of the Antarctic Law and Policy Programme (U-Antártica) at the Faculty of Law of Universidad de Chile.

Giovannina Sutherland, Degree in Law and Bachelor in Humanities and Social Sciences (Universidad de Chile). Postgraduate Diploma in Legal Pedagogy, Active Learning, and Educational Research (Universidad de Chile). Teaching assistant and executive coordinator of the Antarctic Law and Policy Programme (U-Antártica) at the Faculty of Law of Universidad de Chile. Affiliated researcher at the Millennium Institute for Biodiversity of Antarctic and SubAntarctic Ecosystems (BASE).

Abstract

Theoretical background / Goals / Motivation: Since the 1990s, the Antarctic Treaty Consultative Meetings (ATCM) have shown difficulties in agreeing on new international Antarctic norms. This situation seemed to change after 2002 when the Environmental Protocol's Annex V entered into force, beginning the Antarctic Specially Protected Areas (ASPA) and Antarctic Specially Managed Areas (ASMA) designation. However, the ATCM's Measures are mainly adopted now to update the existing management plans and not to cover new issues. The Environmental Protocol's Annex VI on liability adopted in 2005 is still not in force. This sort of normative paralysis generates a complex scenario for the stability and legitimacy of the Antarctic Treaty System (ATS), which is governed



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by the rule of consensus. Enacting domestic regulations to protect the Antarctic biodiversity and ecosystems could be an alternative to face this situation. Indeed, Article 13 of the Environmental Protocol states, “Each Party shall take appropriate measures within its competence, including the adoption of laws and regulations, administrative actions and enforcement measures, to ensure compliance with this Protocol”. Nevertheless, the implementation of this article faces significant challenges.

There is a great diversity among the Parties to the Antarctic Treaty. Therefore, achieving uniform regulation to protect the Antarctic environment through domestic legislation may be as difficult as reaching agreements in the ATCM. However, when Antarctica is suffering the effects of climate change, counting on updated regulations is a must. For this reason, state law remains an alternative for protecting biodiversity and Antarctic ecosystems. Should the States adopt domestic legislation and policies to achieve the ATS objectives on the national level and, in the end, globally? How could this more proactive attitude impact the relations among the Parties of the ATS agreements?

In the proposed panel, we will address

1. The enactment of domestic law to implement international instruments, in particular in the ATS;
2. The pro and cons of unilateral actions by States to regulate what international fora should do but does not;
3. The comparative review of some domestic legislation about Antarctic environmental protection; and
4. As a recent example, an analysis of how the Chilean Antarctic Law (2020) incorporates international standards.

Methods: In our research, we have used the dogmatic legal methodology. Also, we have considered the political aspects of the law. We have sought to understand the Antarctic law in force, its historical sources, and the making-law process, including the political motivation to agree on specific international regulations or enact domestic laws about Antarctic issues. We have also implemented comparative studies of domestic legislation.

Results & Conclusion: The ATS has been the object of several studies and is generally well known. On the contrary, domestic norms and policies about Antarctic issues have deserved less attention from legal scholars. This panel seeks to stimulate international discussion about it. After decades of ATS’s insufficient capacity to reach new and updated agreements, theorizing the importance of Antarctic domestic law and the comparative legal analysis of national regulations on Antarctic biodiversity and ecosystems protection is a way to increase and reinforce this protection.



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The 1980s in Antarctic History: A Profoundly Important Period

Rebecca Herman; Peder Roberts; Nelson Llanos; Adrian Howkins; Ricardo Roura.

Rebecca Herman (Panel organizer) Email: rebeccaherman@berkeley.edu Rebecca Herman is an assistant professor in the History Department at the University of California, Berkeley. She is currently developing a book project on environmental politics in Latin America in the late 20th century, in which questions of Antarctic governance feature prominently. Her first book, *Cooperating with the Colossus: A Social and Political History of US Military Bases in World War II Latin America* was published by Oxford University Press in 2022. Her essays and articles have appeared in *The American Historical Review*, *Diplomatic History*, and *Gender & History* as well as in edited volumes in the United States and Brazil.

Peder Roberts is associate professor of modern history at the University of Stavanger, Norway, and researcher at KTH Royal Institute of Technology in Stockholm, Sweden. He is the author of the monograph *The European Antarctic: Science and Strategy in Scandinavia and the British Empire* and co-editor of the volumes *Antarctica and the Humanities*, *Handbook of the Politics of Antarctica*, and the *Cambridge History of the Polar Regions* (forthcoming 2023). His research has focused particularly on the intersections of science, politics, and environmental management. Peder currently serves as co-Chief Officer of SC-HASS.

Nelson Llanos is a professor of world contemporary history and international relations at Playa Ancha University, Chile. His research interests cover topics such as U.S. foreign policy, border conflicts in Latin American, and Antarctic history. He is a member of the Association of Latin American Antarctic Historians, and a participant of the SCAR Group of Experts in Humanities and Social Sciences of the Scientific Committee for Antarctic Research (SC-HASS). Since 2016 he is the director of the Hemispheric and Polar Studies Center, Chile. His current research project analyses the historical construction and development of Chilean Antarctic and maritime identity. **Adrian Howkins** is Reader (Associate Professor) in Environmental History at the University of Bristol in the United Kingdom. His work focuses on the environmental history of the polar regions and on national parks and protected areas more broadly. He is co-editor of the forthcoming *Cambridge History of the Polar Regions*. He is co-PI on the McMurdo Dry Valleys Long Term Ecological Research site in Antarctica and is currently writing a book-length study of the environmental history of this ice-free region. In relation to this work, he has developed a strong interest in interdisciplinary collaboration in Antarctic conservation, particularly the question of how historical research can help to inform environmental management. He is a theme-lead on the Ant-ICON Research Theme Three, and recently helped to organize a workshop at the Scott Polar Research Institute in Cambridge on the human dimensions of Antarctic conservation.

Ricardo Roura is a conservation professional and independent scholar specialising in Antarctica and the Antarctic Treaty System, with extensive experience in both. He was involved in the World Park Antarctica campaign through the 1990s, including through participation in several Greenpeace Antarctic Expeditions and wintering over at Greenpeace's World Park Base. Among other roles, he is a senior adviser for the



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Antarctic and Southern Ocean Coalition (ASOC) and its representative to the Committee for Environmental Protection. He also advises the ongoing process aiming to declare the Rights of Nature for Antarctica. He has a PhD (Arctic and Antarctic Studies) from the University of Groningen (NL) and degrees from the University of Buenos Aires and Massey University/Te Kunenga ki Pūrehuroa (NZ). His broad research interest is human behaviour and humanenvironment interactions. He has published in the scholarly press on polar topics including tourism, impact assessment, protected areas, and cultural heritage.

Abstract

Theoretical background / Goals / Motivation: The contributors to this panel will present research on the 1980s as a distinctive and important historical period in the history of Antarctica. The five papers situate developments in Antarctic history in the context of broader shifts in global politics, environmental management, and prevailing ideologies surrounding race and international relations that unfolded during this decade.

Rebecca Herman's paper will reflect on struggles over Antarctic governance in the context of transnational environmental organizing that crossed the North-South divide in the 1980s. Her paper analyzes the efforts of Greenpeace International campaign organizers to advance organization's World Park campaign in Argentina after opening the organization's first office in "the South" in Buenos Aires in the mid 1980s. Ricardo Roura's paper will explore a different dimension of Greenpeace's 1980s World Park campaign, focusing on questions of heritage and wilderness management in the campaign. Roura argues that heritage and wilderness management are not necessarily opposed but rather complementary views of environmental management which should be examined in the context of the politics of the time. Adrian Howkins will analyze the story of the Japanese scientists in the McMurdo Dry Valleys during the 1980s, which offers some interesting insights into changing ideas of race and international cooperation during this era. Nelson Llanos examines a shift in Chile's Antarctic policies in the 1980s, precipitated by an increasing world interest in Antarctic mineral resources, the strengthening of the so-called "new Antarctic powers," and the boundary dispute with Argentina in the Beagle Channel area. Finally, Peder Roberts's paper will examine the three Antarctic Challenge workshops organized by Professor Dr Rüdiger Wolfrum in the 1980s, which aimed to provide a space for academics and senior policymakers to exchange views concerning the ongoing minerals negotiations and the broader questions of social and environmental justice in Antarctica.

Methods, Results and Implications: Herman, Llanos, Roberts, and Howkins all rely primarily on archival research and oral histories, while Roura's research also draws from participant field observation.

Conclusion: The panelists conclude that the 1980s was a distinctive and consequential period in the history of Antarctica.



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Energizing Collaborative Research on Antarctic Tourism: The Dutch Research Consortia and Beyond

Yu-Fai Leung; Hanne Nielsen; Daniela Cajiao; Gabriela Roldan; Kees Bastmeijer; Stefan Hartman; Machiel Lamers; Annette Scheepstra.

Yu-Fai Leung, North Carolina State University, USA.

Hanne Nielsen, University of Tasmania, Australia.

Daniela Cajiao, Wageningen University and Research, The Netherlands.

Gabriela Roldan, Antarctic Heritage Trust, New Zealand.

Kees Bastmeijer, University of Groningen, The Netherlands.

Stefan Hartman, NHL Stenden University of Applied Science, The Netherlands.

Machiel Lamers, Wageningen University and Research, The Netherlands.

Annette Scheepstra, University of Groningen, The Netherlands.

Abstract

Antarctica is increasingly threatened by global and regional pressures. The continued growth and diversification of Antarctic tourism is adding to these pressures, but the unparalleled learning opportunities and the potentially transformative experience afforded by an Antarctic visit can motivate visitors to contribute to Antarctic conservation agenda. While scholarly research on Antarctic tourism has expanded during the past two decades, significant knowledge gaps remain that have limited the formulation and implementation of science-based policies and practices to enhance the sustainability of Antarctic tourism. Recent community-wide efforts in identifying research needs and priorities, as well as in assembling research teams to tackle key knowledge gaps, are energizing Antarctic tourism research agenda, catalyzing collaborations and partnership within and between individual research teams and generating engagement opportunities for the broader Antarctic community and the society at large. Following the first Ant-TAG organized panel in which the latest trends of Antarctic tourism research are examined, this second Ant-TAG panel brings together leaders of five Dutch research consortia, including the ongoing ProAct project and four new PT-REPAIR projects, to share an overview of their projects, discuss their synergies, and explore engagement opportunities for members of Antarctic Tourism Action Group (Ant-TAG) and SC-HASS at large in addressing priority research needs. This panel will start with a brief introduction by the Ant-TAG co-leads, followed by an overview of the ongoing and new Dutch research consortia presented by respective project leads, including Kees Bastmeijer, Stefan Hartman, Machiel Lamers, and Annette Scheepstra. An ensuing discussion about the synergies and engagement opportunities provided by these consortia will be facilitated by the Ant-TAG co-leads with participation of co-applicants and cooperation partners of the consortia present and others in the audience. It is envisioned that this panel will generate a strong spirit of collaborative community by bringing members of all consortia together for an inperson exchange. It will also help



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determine fruitful linkages between and among these projects, and identify specific areas of contribution from other Ant-TAG and SC-HASS members who are not currently in the project teams.



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South American connections with the Antarctic: historical, political, ideational, cultural and emotional links across the Drake Passage - Session 1

Pablo G. Fontana (convenor); Peder Roberts (commentator); Consuelo León Wöppke; Waldemar Fontes; Ignacio J. Cardone (co-convenor).

Pablo Fontana (convenor), is associate researcher of the National Scientific and Technical Research Council (CONICET) at the Argentine Antarctic Institute (IAA) where he is Director of the Social Sciences Department. He holds a PhD in History by the University of Buenos Aires. He has participated in several Argentine Antarctic expeditions working on historical heritage and he is author of several works covering the Argentine Antarctic history. Email: fontana.pablo@gmail.com

Peder Roberts (commentator) is associate professor of modern history at the University of Stavanger and researcher at KTH Royal Institute of Technology in Stockholm. He has published extensively on the history of science, exploration, and environmental management in Antarctica and is particularly interested in transnational perspectives. He is the author of the monograph *The European Antarctic: Science and Strategy in Scandinavia and the British Empire* and co-editor of *Antarctica and the Humanities*, the *Handbook of the Politics of Antarctica*, and the first ever *Cambridge History of the Polar Regions*. Peder currently serves as co-Chief Officer of SC-HASS. Email: pwrobert@kth.se

Consuelo León Wöppke, is Director of the *Estudios Hemisféricos y Polares* electronic journal (<http://www.hemisfericosypolares.cl/revista.htm>) and Senior Researcher at the Centro de Estudios Hemisféricos y Polares (Chile). She holds a Ph.D in History by Southern Illinois University and Masters in International Relations by the University of Chile and Southern Illinois University. She has an extensive record of publications in Chile's history of involvement in Antarctica and other related questions. Email: consuelo3leonw@gmail.com

Waldemar Fontes, is a Retired Colonel, teacher, writer and independent researcher, linked to Antarctica since 1999. He was Base Commander of the Uruguayan Scientific Station Artigas in 2000, 2007 and 2009, Board Member and Chief of the Public Information Department of the Uruguayan Antarctic Institute (UAI) from 2010 to 2014, and Director of the Uruguayan Antarctic Training Center from 2018 to 2020. He is Coordinator of the Education and Outreach Team of the Uruguayan Antarctic Association "Antarkos" since 2004, member of the Latin-American Antarctic History Group since 2011, and member of the SCAR-HASSEG and the Polar Educators International. Email: wfontes@gmail.com

Ignacio J. Cardone (co-convenor), is assistant professor of International Relations at the Pontificia Universidad Católica del Perú. He holds a PhD in International Relations by the University of Sao Paulo and Kings College London and a master's in political science by the Federal University of Parana. He is a specialist in Antarctic politics with focus in the role of science, the origins of the Antarctic Treaty and South American Antarctic politics. He has published on Argentina, Brazil and Chile's involvement in Antarctica, with his most recent book: "The Antarctic Politics of Brazil: Where the Tropics



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meets the Pole” covering the history of Brazil’s involvement in the white continent. Email: icardone@pucp.edu.pe

Abstract

South America is the closest region to the Antarctic. However, the history of South American involvement in Antarctica has remained at the margins of Antarctic historiography, with the relative exception of Argentina and Chile. That despite the region being imagined as connected and related to the Antarctic since very long and being a region with almost all countries participating in Antarctic activities. Cooperation and collaboration have also been prevalent within the region and with extra-continental countries, despite conflict of interest, misgivings and suspicions. In order to strengthen the already existent production and complement it with cases that have not being covered yet, this panel brings together works that analyse the history of involvement, the ideational constructions, the political and cultural links established, and the cooperative relationship that South America have in what regards with Antarctica. This session of the panel includes diverse cases within South America: Argentina, Brazil, Chile, Perú and Uruguay. Consuelo León Wöppke analyses the elements that constitute the Chilean Antarctic identity and its historical link with the national Antarctic cultural landscape, looking for their recent evolution, challenges and the possibilities and convenience of forging a shared Latin American Antarctic identity. Waldemar Fontes covers a long history of involvement of Uruguayan nationals with the Antarctic and how the region was imagined by seafarers, artists, scientists, operators and officials involved with the region, creating an unconscious Uruguayan Antarctic identity, which description and study is still wanting. Looking for non-traditional South American Antarctic actors, Ignacio Cardone compares the origins, evolution and imaginaries of Brazil and Peru in what regards their Antarctic involvement, tracing their commonalities and differences. Closing the session, the work of Pablo Fontana assesses whether the 1950s presented a critical juncture to the Argentine Antarctic policy, in particular looking on how ideas, projects and institutions related with Antarctic were born and evolved during the Peronist rule and the governments that followed the 1955 military coup. All contributions to this panel’s session will be discussed and commented by Peder Roberts, a historian with a particular interest in comparative and transnational approaches to Antarctica, and in non-Anglosphere narratives of Antarctic history.



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South American connections with the Antarctic: historical, political, ideational, cultural and emotional links across the Drake Passage - Session 2

Ignacio J. Cardone (convenor); Adrian Howkins (commentator); Luis Valentín Ferrada; Daniela Sampaio; Nicolás Terradas; Pablo Fontana (co-convenor).

Ignacio Javier Cardone (convenor), is assistant professor of International Relations at the Pontificia Universidad Católica del Perú. He holds a PhD in International Relations by the University of Sao Paulo and Kings College London and a Masters in Political Science by the Federal University of Parana. He is a specialist in Antarctic politics with focus in the role of science, the origins of the Antarctic Treaty, and South American Antarctic politics. He has published on Argentina, Brazil and Chile's involvement in Antarctica, with his most recent book: "The Antarctic Politics of Brazil: Where the Tropics meets the Pole" covering the history of Brazil's involvement in the white continent. Email: icardone@pucp.edu.pe

Adrian Howkins (Commentator), is Reader (Associate Professor) in Environmental History at the University of Bristol in the United Kingdom. His work focuses on the environmental history of the polar regions and on national parks and protected areas more broadly. He is co-editor of the forthcoming Cambridge History of the Polar Regions. He is co-PI on the McMurdo Dry Valleys Long Term Ecological Research site in Antarctica and is currently writing a book-length study of the environmental history of this ice-free region. In relation to this work, he has developed a strong interest in interdisciplinary collaboration in Antarctic conservation, particularly the question of how historical research can help to inform environmental management. He is a theme-lead on the Ant-ICON Research Theme Three, and recently helped to organize a workshop at the Scott Polar Research Institute in Cambridge on the human dimensions of Antarctic conservation. Email: adrian.howkins@bristol.ac.uk

Luis Valentin Ferrada, is professor of International Law, Director of the Department of International Law, and Director of the Antarctic Law and Policy Programme (U-Antártica) at the Faculty of Law of the Universidad de Chile. He holds a PhD in Law by the Universidad de Chile. He is Principal Investigator at the Millennium Institute for Biodiversity of Antarctic and SubAntarctic Ecosystems (BASE) and researcher at the Institute of Ecology and Biodiversity. He is member of the Permanent Committee on Humanities and Social Sciences of the Scientific Committee on Antarctic Research and member of the list of arbitrators of the Permanent Court of International Arbitration of The Hague in matters of Antarctic environmental protection. He has been an adviser on Antarctic law and public international law at the Ministry of Foreign Affairs and the Ministry of National Defense of Chile. Email: lvferrada@derecho.uchile.cl

Daniela Sampaio is research associate at the Bielefeld University. She holds a PhD in International Relations by the University of Sao Paulo. Daniela has been researching the Antarctic Treaty since 2012, developing her expertise in environmental governance. After an internship at the Antarctic Treaty Secretariat in 2015, she has been working as a Secretariat Advisor for Antarctic Treaty Consultative Meetings, supporting decision making in diplomatic meetings. In late 2019, she concluded a Marie Curie Research



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Fellowship at the University of Leeds, successfully producing the project: "POLARGOV - From an environmental to a resource regime? Institutional innovation for the management of Tourism and Marine Protected Areas within the Antarctic Treaty governance". She was a finalist at the Marie Skłodowska-Curie Awards 2019 in the category 'Scientific Careers for Policy-Making'. Email: danirics@yahoo.com.br

Nicolás Terradas, is assistant professor of International Relations at the Pontifical Catholic University of Peru. He holds a Ph.D. in International Relations from Florida International University, in Miami, where was a Fulbright scholar from 2011 to 2013. His research focus is on IR Theory (specifically the English School approach) and the international relations of Latin America. He has published articles in *International Studies Review*, *Cambridge Review of International Affairs*, and the *Oxford Research Encyclopedia of International Studies*. Email: nterradas@pucp.edu.pe

Pablo Fontana (co-convenor), is associate researcher of the Argentine National Scientific and Technical Research Council (CONICET) at the Argentine Antarctic Institute (IAA) where he is Director of the Social Sciences Department. He holds a PhD in History by the University of Buenos Aires. He has participated in several Argentine Antarctic expeditions working on historical heritage and he is author of several works covering the Argentine Antarctic history. Email: fontana.pablo@gmail.com

Abstract

South America is the closest region to the Antarctic. However, the history of South American involvement in Antarctica has remained at the margins of Antarctic historiography, with the relative exception of Argentina and Chile. That despite the region being imagined as connected and related to the Antarctic since very long, and being a region with almost all countries participating in Antarctic activities. Cooperation and collaboration have also been prevalent within the region and with extra-continental countries, despite conflict of interest, misgivings and suspicions. In order to strengthen the already existent production and complement it with cases that have not being covered yet, this panel brings together works that analyse the history of involvement, the ideational constructions, the political and cultural links established, and the cooperative relationship that South America have in what regards with Antarctica. Following that objective, this session covers changes and continuities in the political definition of Chile and Brazil, and analyse the South American Antarctic identity and cooperation. The work of Ignacio Cardone covers the evolution of the Brazilian Antarctic Policy after 40 years of involvement in Antarctica, and analyse the recently modified version of the policy, which replaced a 25 years old version. That goes in parallel with the analysis of Luis Valentin Ferrada about the significance of the Chilean Antarctic Policy of 2022 from the perspective of the 2050 Antarctic challenges, assessing the continuities and changes present in that policy, from its first version in 1956 to this date. The presentation of Daniela Sampaio looks at what the Argentina, Brazil, Chile, Ecuador, Peru and Uruguay have in common in what regards their involvement in Antarctica, focusing on the history of their cooperation, their institutional organisation, and their shared imaginaries that contributed to shape the governance of the region. Closing the session, the work of Nicolás Terradas looks at the origins and evolution of the concept of South American Antarctica as an ideal that looked to formulate a regional international society, challenging the understandings and interpretations about territoriality and Antarctica



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present in the global international society. All contributions to this panel's session will be discussed and commented by Adrian Howkins, an environmental historian with particular interested in interdisciplinary collaboration in Antarctic conservation and with an extensive expertise in South American Antarctic history.



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The Antarctic Treaty System and its Connection to Other Global Governance Bodies: A Solution to the ‘Paradox of Protection’ in Antarctica?

Alejandra Mancilla, Yelena Yermakova, and Miguel Salazar

Yelena Yermakova is a political philosopher. She is interested in the governance of international spaces such as the Polar regions, the deep seabed, the atmosphere, and outer space. Specifically, her research focuses on which institutions should govern these spaces and what makes these institutions legitimate. Her PhD thesis, *Governing Antarctica: Assessing the Legitimacy and Justice of the Antarctic Treaty System*, is about decision-making and the authority in the Antarctic regime. Her email is yy646@cornell.edu.

Alejandra Mancilla is a professor of philosophy at the Department of Philosophy, Classics, History of Art and Ideas, Faculty of Humanities, University of Oslo. Her main research interests are in political and environmental philosophy, and ethics. She is the principal investigator of the five-year project *Dynamic Territory: A Normative Framework for Territory in the Post-Holocene*, which asks how to solve conflicts of interest around land and natural resources on a global scale, when the stability and predictability of geographic, climatic and demographic factors can no longer be taken for granted.

Miguel Salazar is a PhD candidate in political science and international relations at the Institut d'Etudes Politiques de Paris and a researcher affiliated to the Biodiversity of Antarctic and SubAntarctic Ecosystems Institute (BASE). His work addresses the historical, political and organizational conjunctures of the polar regions. His current doctoral thesis deals with the incidence of non-state actors in the construction of the Antarctic regime from a common pool resources approach with a focus on Chilean Antarctic policy between 1991 and 2021.

Abstract

The Antarctic Treaty System (ATS) has been praised for safeguarding the pristine Antarctic environment. Yet, no decisions agreed at the Antarctic Treaty Consultative Meetings (ATCMs) that restrict activities in the region will prevent catastrophic damages to it. Antarctic melting is the result of anthropogenic climate change, and it is the actions elsewhere in the world and not in Antarctica that threaten the region most. To protect Antarctica, it is not sufficient to only protect Antarctica. This presents a ‘paradox of protection’ in environmental governance. Solutions to this paradox require looking beyond the ATS and call for joint efforts with other international environmental governance institutions. Antarctic experts have argued for a closer relation between the ATS and the UN as well as noting the exclusivity of the ATS and a “mutual non-interference policy” with the UN. Current legal and policy frameworks provide a fragmented system of governance and are not adequately equipped to respond to climate change in an integrated and precautionary way according to a recent IPCC report. The panel will bring researchers together to discuss potential paths toward a more cohesive approach to Antarctic protection. Some of the questions the panel will



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address are: How can the ATS forge a closer relation with the UN and, specifically, the UNFCCC? Are there any changes to the ATCMs that can lead to more openness to other international and global environmental fora? Will moving away from a patchwork to a network kind of environmental governance undermine the role of nation-states? And, if so, does a multilevel Antarctic governance that allows for a stronger role of non-state actors present an opportunity for a stronger connection with environmental global governance institutions? The panel invites contributions from various disciplines including contributions from international law, international relations, political science, political philosophy, history, and public policy to discuss a path toward more interconnection between Antarctic governance and other global governance bodies. Comparative analyses are welcome.



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International Governance Status of Antarctic Tourism and Suggestions for Improvement

YU AO

Yu Ao, born in August 1992, graduated from the Faculty of Arts and Humanities, University of Macau, with a Master degree in Literature, majored in Chinese-Portuguese Translation. Currently working as an assistant researcher at National Marine Data and Information Service (NMDIS), China, which is a government funded public institution subordinates to the Ministry of Natural Resources of China, responsible for the management of national marine data and information resources, providing guidance and scientific stewardship for the national marine data and information; and providing information and technical support for marine economy, marine management, public service and marine environmental protection, and conducting related research. Yu's main research direction is marine and polar policy studies in spanish-portuguese-speaking countries, as well as marine and polar policy of China. Participated ATCM XLIV- CEP XXIV, as well as CCAMLR40 as a member of the Chinese delegation. E-mail: yuaocally@sina.com.

Abstract

Theoretical background / Goals / Motivation: Thanks to the rapid development of economy, science and technology, humans are increasingly able to adapt and use nature, the unique and most primitive ecological environment in Antarctica is becoming an important tourism resource. Recent years, with the increasingly diversified forms of tourism and the explosive growth of the number of tourists in Antarctica, the protection of the ecological environment in Antarctica is facing unprecedented threats and pressures. Although there are a series of treaties such as the Antarctic Treaty and the The Protocol on Environmental Protection to the Antarctic Treaty, they have failed to keep up with the pace of human activities in Antarctica. The Antarctic Treaty System has not added new mandatory treaties or agreements for decades, and the institutional malpractices of international management of Antarctic tourism have gradually emerged. In light of the special realities of Antarctic governance, Antarctic tourism management should be promoted from three aspects: improving the internal policies and regulations of the Parties to the Antarctic Treaty, building an international communication platform, as well as formulating specific guidelines for the Antarctic region, so as to jointly improve the system of global management rules for Antarctic tourism. Antarctic tourism is one of the most common activities in Antarctica, and is also one of the main ways of peaceful utilization of Antarctica by human beings. The purpose of the paper is to explore useful ways, from global and national perspectives, to promote the management of Antarctic tourism, as well as, based on the special realities of Antarctic tourism governance, to improve the system of global governance rules for Antarctic tourism.

Methods: The paper contains four kinds of methods, which are literature consulting method, questionnaire investigating method, on-the-spot observing method, and interview inquiring method.



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Results: The boom in Antarctic tourism has seriously damaged the Antarctic ecological environment, the Antarctic Treaty and the The Protocol on Environmental Protection to the Antarctic Treaty have failed to keep up with the pace of human activities in Antarctica.

Implications: The paper, to some extent, will contribute to promote the Antarctic tourism to develop in a healthy and sustainable direction.

Conclusion: Antarctic tourism management should be promoted from three aspects: improving the internal policies and regulations of the Parties to the Antarctic Treaty, building an international communication platform, as well as formulating specific guidelines for the Antarctic region.



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Puerto Toro: The forgotten intersection between Chile's American and Antarctic territories.

Consuelo León; Mauricio Jara; Nelson Lanos.

Consuelo León is a professor of History and Geography (Universidad de Chile), M.A. in International Studies (Universidad de Chile), M.A. and Ph.D. in History (Southern Illinois University, United States). She is a senior researcher and author of numerous articles published in national and foreign specialized journals. She is a consultant and evaluator in international affairs and permanent participant of the Meetings of Latin American Antarctic Historians (EHAL) and the SCAR SC-HASS conferences. Dr. León is the general editor of the Journal *Estudios Hemisféricos y Polares*. consuelo3leonw@gmail.com

Mauricio Jara is a professor of History and Geography (Universidad de Chile), M.A and Doctor in History (Universidad de Chile). He is a researcher and author of many articles and books about history of international relations in Chile and Chilean polar and Antarctic history. Dr. Jara has been consultant and evaluator for history journals. Currently, he is a professor at the Department of History, Universidad de Playa Ancha, Chile. Since 1996, he has been an active participant of the Latin American Antarctic Historians Meetings (EHAL). mjara@upla.cl

Nelson Llanos is a professor of world contemporary history and M.A. in international relations. His research interests cover topics such as U.S. foreign policy, border conflicts in Latin American, and Antarctic history. During the last decade, he has participated in the Latin American Antarctic Historians Meetings (EHAL), as well as in the SCAR SC-HASS conferences. Since 2016 he is the director of the Hemispheric and Polar Studies Center, Chile. nelson.llanos@upla.cl.

Abstract

Theoretical background / Goals / Motivation: Puerto Toro is a small settlement located to the south of the Beagle Channel. It was founded by the Chilean government in 1892, in order to ensure Chile's sovereignty in the southern region and to have some control over the activities of foreigners who arrived without authorization to exploit natural resources. Particularly significant was the exploitation of gold (since 1890). From that strategic place, the government also projected its presence, collection and survey of information on the archipelagos located in the surroundings of Cape Horn and towards the South Shetland Islands, territories under Chilean jurisdiction. Since the importance of this small settlement has been scarcely studied, this research is intended to analyze Puerto Toro's role in the maritime connection between the so called Chilean Antarctica and the rest of the national territory until mid 20th century; to delve into the causes of its slow growth and development; and to glimpse its future significance in a possible forthcoming scenario of growing tension and international competition over sovereignty and natural resources in the southern sea area and the Antarctic continent.



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Methods: Analysis of historical sources such as: logbooks, lighthouse reports, and other official documents found at the Chilean Navy Archives (memoirs, correspondence, photographs, maps, and others), as well as press material during the period under study.

Results: This proposal is part of an early-stage research.

Implications: This proposal aims to make visible a project of territorial occupation that has been forgotten and that to this day represents the intersection between the Chilean territories in South America and Antarctica. In this way, the efforts made by Chile -in late 19th century- to establish a bridge of fluid communication between South America and Antarctica are highlighted. This initiative sought not only to strengthen Chilean national sovereignty, but also to cooperate in security and international navigation in the dangerous southern seas.

Conclusion: Although it is common to hear about Punta Arenas as the "Chilean gateway to Antarctica", there are other cities and settlements that have also played that role over time. It is very important to verify that in late 19th century, Chilean authorities understood that the country extended from South America to Antarctica, continuously, through the Drake Sea. The connection between both portions of Chile was sustained by maritime activities and, for that reason, it was necessary to establish a series of ports and other minor settlements capable to support maritime trade and operations by the Chilean Navy. In this way, the project of Puerto Toro, as a point of connection between the American Chile and the Antarctic Chile meant a bold initiative and, although it has been overlooked over the years, it could gain relevance in the face of the new challenges that the Antarctic continent will face in the near future.



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Round table Communications

Antarctic Tourism: Research Trends

Daniela Cajiao, Yu-Fai Leung, Hanne Nielsen, Gabriela Roldan (+ representatives of Ant-TAG subgroups, names TBC)

Hanne Nielsen is a Senior Lecturer in Antarctic Law and Governance at the University of Tasmania's Institute for Marine and Antarctic Studies. She specializes in representations of Antarctica and has a particular interest in the commercial history of the continent. This includes through media and advertising, which form the topic of her forthcoming book *Brand Antarctica*. Dr Nielsen's current work focusses on the interactions between imagined versions of Antarctica and embodied encounters with the place in the context of Antarctic tourism. She is a Chief Officer of the SCAR Standing Committee on Humanities and Social Sciences; a co-lead of the SCAR Tourism Action Group (Ant-TAG); a member of SCAR's Capacity Building, Education and Training Committee; and led Theme 7 (An Inspiring and Engaging Ocean) of the Southern Ocean Decade Action Plan. Hanne.Nielsen@utas.edu.au

Daniela Cajiao Dr. Daniela Cajiao is a former post-doctoral researcher at North Carolina State University and a current post-doc researcher at Wageningen University. Her research focuses on Antarctic tourism, especially analyzing the environmental and social dimensions of this activity. Complementary research interests include governance and decision-making processes within the Antarctic Treaty System. In 2019, she became the joint-first recipient of the IAATO-COMNAP Fellowship. Currently, she is a member of the Scientific Committee on Antarctic Research (SCAR), the Standing Committee on the Humanities and Social Sciences (SC-HASS), and a co-lead of the Antarctic Tourism Action Group (Ant-TAG).

Abstract

Theoretical background / Goals / Motivation: This event, centered on Antarctic Tourism Research Trends, will bring together the Antarctic Tourism Research community for presentations outlining the current priorities and wider discussion to gauge interest in the proposed next steps within this research area. The round table is hosted by the SCAR Tourism Action Group (Ant-TAG), with the aim of fostering connections and collaborations across Antarctic tourism research.

Methods: This roundtable session will begin with an overview of the Antarctic Tourism Horizon Scan, presented by Yu-Fai Leung. Presenting the key priorities identified through this process will set the scene for discussions in the second part of the session. Daniela Cajiao will elaborate on the priorities by outlining the key themes and areas of interest that are emerging within the contemporary policy realm. Next, Ant-TAG representatives of the four sub-groups (policy, governance, logistics, and engagement) will deliver short presentations to share their work plans and the planned products emerging from each of the groups. Such products include a review of literature on Antarctic Ambassadorship; a manuscript for the Antarctic Environments Portal; a



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database on incidents in the Antarctic; and information papers for international Antarctic meetings.

Results: The second half of this session will be focused on audience participation, with discussion on the presentations and priorities invited. This discussion will in turn inform the work plans of the Ant-TAG subgroups.

Implications: The main outcome from this session will be greater understanding of the Antarctic Tourism research landscape as well as clarity on the perceived priorities in this area from across the wider SC-HASS community.

Conclusion: This round table, hosted by Ant-TAG, will ensure Antarctic tourism research has a visible presence at the SC-HASS conference, and will inform the progress of an active Action Group.



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Reinvigorating the science-based decision making in the Antarctic Treaty System: MPAs, Emperor Penguins, Climate Change (and other issues from Helsinki ATCM)

Akiho Shibata; Kees Bastmeijer; Timo Koivurova; Gustavo Ramirez Buchheister; Yuki Matsumoto; Chihiro Takegami

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*TBC as to his physical participation.

Abstract

“The science and scientists are not heard any more in the Antarctic governance!” This was the underlying criticism of the *Nature* special issue in 2018: “Reform the Antarctic Treaty”²⁰. They claim, for example, despite the convincing scientific evidences, the proposals for the establishment of Marine Protected Areas (MPAs) under CCAMLR, for the designation of Emperor Penguins as Specially Protected Species under Annex II of the Madrid Protocol, for stronger Antarctic specific responses to the climate change, and for stronger regulations of Antarctic tourism were obstructed by the objections of a very few. Thus, they continue, “Scrap the veto!” It is often said that science-based decision making would result in more effective governance in solving the common problems and, based on such experience, the governance regimes have established their tailor-made legal, institutional and procedural mechanisms to support such decision making. The ATS has been considered as one of the most robust governance regimes in implementing the science-based decision making, particularly with the Scientific Committee on Antarctic Research (SCAR) “as a nonpolitical, international, professional scientific body...(making) it possible for science to play a strong political role within the treaty without becoming politicized or compromising its scientific integrity”.²¹ Under the CCAMLR, the Scientific Committee, an inter-governmental recommendatory body composed of the representatives with “suitable scientific qualifications”, is expected to provide the best available scientific information to the decision making body, the CAMLR

²⁰ Editorial, “Reform the Antarctic Treaty”, *Nature* 558, 161 (2018).

²¹ James h. Zumberge, “The Antarctic Treaty as a Scientific Mechanism- The Scientific Committee on Antarctic Research and the Antarctic Treaty System,” *Antarctic Treaty System An Assessment* (1986), p.182.



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Commission.²² Within the ATS, scientifically informed policy decisions are made at the ATCM and the CAMLR Commission, where the consensus rule applies.

How exactly should we the ATS governance experts understand the criticisms of the Antarctic scientific community as expressed in the *Nature* special issue? Is it really the consensus rule in the policy making forum which is obstructing the science-based decision making in the ATS? Or, is it truly the divergent views on the science that makes it difficult for the Antarctic scientific community to inform the policy in one voice (like the controversial days under the Whaling regime)? Are there any structural improvements that can be suggested in re-establishing a constructive dialogue between the scientists/scientific bodies and the governmental officials/policy-making bodies at the international/national/delegation levels? Can we the lawyers provide certain substantive as well as process principles, such as the precautionary, cooperation and accountability principles, so as to normatively forge the policy decisions based on best scientific information? Or, is it just a reflection of the current (and, hopefully, temporary) global geopolitical tensions and rivalries, in which we the Antarctic experts, both in governance and science, cannot do much about it than mobilizing high-level political leverage? This Round Table welcomes both case studies from recent “controversies” and historical, theoretical governance analysis implicating on the science-based decision making in the ATS.

²² The Secretariat of CCAMLR homepage: “Scientific Committee”. <https://www.ccamlr.org/en/science/scientific-committee>



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Roundtable on Public Engagement with Antarctic Research

Katie Mar; Ram Vijayaraghavan; José Xavier; Tiara Walter; Elizabeth Leane

Professor Elizabeth (Elle) Leane is based in the School of Humanities, College of Arts, Law and Education at the University of Tasmania. After completing a PhD focussed on the language of popular science books, she shifted her research focus to cultural responses to Antarctica past and present. She is the author or editor of seven books, including *Reading Popular Physics*, *Antarctica in Fiction*, *South Pole: Nature and Culture* and *Anthropocene Antarctica*. Elle co-leads PEAR with Katie Marx and is part of a UTAS team that is collaborating with the Australian Antarctic Division to better understand citizens' attitudes towards Australia's activities in Antarctica. Elizabeth.Leane@utas.edu.au

Abstract

Theoretical background / Goals / Motivation: At a time when the future of the Antarctic and the planet is threatened by warming temperatures and geopolitical conflict, the task of engaging people in Antarctic research is more urgent than ever. Just as important is ensuring that this engagement is well-informed and high-impact. The SC-HASS Public Engagement with Antarctic Science Action Group (PEAR AG) aims to use humanities and social science methods to describe, evaluate, contextualize and critique the diverse ways in which engagement between Antarctic researchers, communicators and educators and different non-specialist publics occurs. We understand engagement to encompass communication (informing the public about the Antarctic region), consultation (asking the public what they think and feel about the region) and participation (exchange of ideas and collaboration). Given the wide range of initiatives to engage the public in Antarctic research, and the global importance of many of the issues this research deals with, it is important for practitioners and researchers alike to share their goals, experiences, and results.

Methods: This roundtable brings together the leads of the PEAR AG, researchers Katie Marx and Elizabeth Leane, together with a diverse group of people involved in different forms of public engagement: a marine ecologist and polar educator (José Xavier), an artist-researcher (Jean de Pomereu) and a journalist with a strong interest in the Antarctic (Tiara Walters). As participating chair, Leane will ask each of the other participants to address a series of questions relating to the challenges and opportunities that the Antarctic region in particular generates when it comes to public engagement. Discussion will then be open to the floor.

Results: We hope that this roundtable will enable a rich and frank conversation about public engagement, and will also have practical benefits for those keen to broaden and deepen engagement with their own research.

Implications: N/A

Conclusion: N/A



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Antarctic and Southern Ocean Conservation

Yelena Yermakova; Natasha Gardiner; Daniela Liggett; Adrian Howkin; Hanne Nielsen.

Daniela Liggett (daniela.liggett@canterbury.ac.nz) is a social scientist with a background in environmental management, Antarctic politics and tourism research. Her research interests include the governance of human activity in polar environments and the complexities of Antarctic values. Daniela has contributed to the Scientific Committee on Antarctic Research's (SCAR) *First Antarctic and Southern Ocean Horizon Scan*, has been a Chief Officer of SCAR's *Standing Committee on the Humanities and Social Sciences* (until August 2022), and is a member of both SCAR's *Standing Committee on the Antarctic Treaty System* and its *Capacity Building, Education and Training Committee*. She is now one of the chief officers of SCAR's flagship Scientific Research Programme Ant-ICON (Integrated Science to Inform Antarctic and Southern Ocean Conservation). She is on the editorial boards of *The Polar Journal*, *Polar Geography* and *Antarctic Science*.

Natasha Gardiner is a PhD candidate at the University of Canterbury, New Zealand, with a background in psychology and sociology. Her research investigates science-policy knowledge exchange practices in the Antarctic context, but her interests also extend to marine conservation in the Southern Ocean and Antarctic governance more broadly. Natasha serves as a steering committee member of Ant-ICON and she supports New Zealand's work towards the Committee for Environmental Protection in her role as an Environmental Advisor at Antarctica New Zealand.

Yelena Yermakova is a political philosopher. She is interested in the governance of international spaces such as the Polar regions, the deep seabed, the atmosphere, and outer space. Specifically, her research focuses on which institutions should govern these spaces and what makes these institutions legitimate. Her PhD thesis, *Governing Antarctica: Assessing the Legitimacy and Justice of the Antarctic Treaty System*, is about decision-making and the authority in the Antarctic regime.

Hanne Nielsen is a Senior Lecturer in Antarctic Law and Governance at the University of Tasmania's Institute for Marine and Antarctic Studies. She specializes in representations of Antarctica and has a particular interest in the commercial history of the continent. This includes through media and advertising, which form the topic of her forthcoming book *Brand Antarctica*. Dr Nielsen's current work focusses on the interactions between imagined versions of Antarctica and embodied encounters with the place in the context of Antarctic tourism. She is a Chief Officer of the SCAR *Standing Committee on Humanities and Social Sciences*; a co-lead of the SCAR Tourism Action Group (Ant-TAG); a member of SCAR's *Capacity Building, Education and Training Committee*; and led Theme 7 (An Inspiring and Engaging Ocean) of the Southern Ocean Decade Action Plan.

Adrian Howkins is Reader (Associate Professor) in Environmental History at the University of Bristol in the United Kingdom. His work focuses on the environmental history of the polar regions and on national parks and protected areas more broadly. He is co-editor of the forthcoming *Cambridge History of the Polar Regions*. He is co-PI on the McMurdo Dry Valleys Long Term Ecological Research site in Antarctica and is



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currently writing a book-length study of the environmental history of this ice-free region. In relation to this work, he has developed a strong interest in interdisciplinary collaboration in Antarctic conservation, particularly the question of how historical research can help to inform environmental management. He is a theme-lead on the Ant-ICON Research Theme Three, and recently helped to organize a workshop at the Scott Polar Research Institute in Cambridge on the human dimensions of Antarctic conservation.

Abstract

Ant-ICON invites you to join us for a lively panel discussion on Antarctic and Southern Ocean conservation in a better world. The panel will examine alternative paths to Antarctic conservation for a more inclusive and integrated approach that more fully considers the nature of nested and complex Antarctic socio-ecological systems as biocultural assemblages. The panel will explore how Antarctic environmental governance is shaped and to what extent some of the lessons that we have learned from the past can be used to inform Antarctic conservation framings in the future. We aim to foster a creative, open and provocative discussion around potential new ways forward for Antarctic environmental stewardship and welcome participants who are excited to think about the status quo through a critical lens. The panel will present multidisciplinary contributions to address a range of conservation-based questions such as, but not limited to: What is the appropriate framing for how we talk about Antarctic conservation? Do we need to redefine 'conservation'? What should be the place of humans and infrastructure in Antarctica? Considering the scale of global climate change, how do we balance the focus between local concerns and teleconnections? How can multiple voices and viewpoints be taken into account when we discuss Antarctic conservation? How can Antarctic environmental protection be more transparent and accountable? How might Antarctic research and policy communities improve knowledge exchange practices at the science-policy nexus? How do we address complex trade-offs such as the positive impacts of Antarctic research on society versus the negative impacts of Antarctic research on the environment? How can comparative assessments of the interactions between Antarctic environments and landscapes, and human activities better inform conservation practices?



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The Antarctic Treaty System in a South American perspective: the importance of a unity to face challenges and encourage cooperation.

Raphael Fernandes Vieira; Cristian Lorenzo; Hugo Mariz de Moraes; Luis Valentín Ferrada; Patricio Garcés Ramírez.

Raphael Fernandes Vieira, Master student in International Relations and a researcher of the South Atlantic Department of Instituto de Relaciones Internacionales – Universidad Nacional de La Plata (IRI-UNLP), with focus on scientific and logistic cooperation between South American countries and its strategic interests in Antarctica and its surrounding areas. He has a B.A. in International Relations (UniBH). He also is the president of Brazilian National Committee of Association of Polar Early Career Scientists (APECS Brazil), member of the Council of APECS International, member of APECS Argentina and Regional Coordinator of Brazil Group of Red Federal de Estudios sobre Malvinas (ReFEM 2065).

Cristian Lorenzo, is a social scientist with a background in International Relations. His research interests include the geopolitical aspects of conservation and climate change within the framework of the Antarctic Treaty System and the geopolitics of knowledge in the Antarctic and surrounding waters. Dr Lorenzo has been contributing to SCAR's Standing Committee on the Humanities and Social Sciences as a member of the Executive Committee since 2017, chaired the SC-HASS Conference in Ushuaia (2019) and worked in Antarctic affairs for the provincial government of Tierra del Fuego, Antártida e Islas del Atlántico Sur in Argentina (2020-2022). He is a researcher at the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) and lecturer at the Universidad Nacional de Tierra del Fuego, Antártida e Islas del Atlántico Sur (UNTDF) in Ushuaia, Argentina.

Hugo Mariz de Moraes, PhD candidate in Political Science at Federal University of Pernambuco; he has a Master's and a B.A. in Political Science also at Federal University of Pernambuco; Bachelor's degree in Biological Science at Federal Rural University of Pernambuco. Currently is researcher of the Brazilian Antarctic Program, dedicated to studies in global environmental governance and the institutional arrangements regarding polar politics, the Antarctic Treaty System, and international environmental regimes. Is the former vice-president and member of the board of the Association of Polar Early Carrer Scientists (APECS-Brazil), from 2021-2022.

Luis Valentín Ferrada, PhD in Law (Universidad de Chile), Professor of International Law, Director of the Department of International Law and Director of the Antarctic Law and Policy Programme (U-Antártica) at the Faculty of Law of Universidad de Chile. Principal Investigator at the Millennium Institute for Biodiversity of Antarctic and Sub-Antarctic Ecosystems (BASE) and a researcher at the Institute of Ecology and Biodiversity. Member of the Permanent Committee on Humanities and Social Sciences of the Scientific Committee on Antarctic Research and member of the list of arbitrators of the Permanent Court of International Arbitration of The Hague in matters of Antarctic environmental protection. He has been an adviser on Antarctic law and public



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international law at the Ministry of Foreign Affairs and the Ministry of National Defense of Chile.

Patricio Garcés Ramírez, Ambassador of the Foreign Service of Ecuador, Consul-general of Ecuador in Barcelona. Juris Doctor (Pontificia Universidad Católica del Ecuador). Ex-Director of Management of Non-Governmental International Cooperation; Ex-Undersecretary of International Cooperation Subrogant; and Ex-Director of Bi-Multilateral and Regional International Cooperation of the Foreign Affairs and Human Mobility Ministry. He was also the Responsible for International Cooperation of Ecuador in SEGIB and in PFICCS; and Main Member of the Council of Global Environment Facility – GEF, for the circumscription of Brazil, Colombia, and Ecuador.
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Abstract

The Antarctic Treaty represents a successful case in multilateral agreements, creating a structural environment dedicated to science, where cooperation and peace between States are prevalent. Since its entry into force in 1961, Member States employed great efforts for the maintenance of its essence. Currently the inclusion of other variables, such as, by the Environmental Protocol, the eventual review of the prohibition on mineral exploitation as of 2048 approaches, especially the advance of the effects of climate change in the region, its possible observe new behaviours. These events can drastically shift the dynamics of the governance that reigns over the Antarctic Treaty System. Take into consideration the current geopolitical context while at the same time looking towards future transformations, what position can the South American countries assume as a regional group in the decision-making process regarding the future of the Antarctic continent?

Is the idea of a South American Antarctica (Antártida Sudamericana) a possible retake? What have the South American States learnt throughout more than sixty years of Antarctic diplomatic involvement? How to reconcile divergent and even conflictive points in favour of the region's common interests? What are the possible consequences to South America if the discussions are conducted by the Global North? What is the importance of the national or regional identities in this process? Considering the historical role of South American countries in the Antarctic governance, this roundtable will address the aforementioned above questions by Antarctic scholars in different fields of Social Sciences, with affiliations to universities and centres of research in South America.



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The importance of an APECS National Committee for a better early career researcher

Raphael Fernandes Vieira (APECS Brazil); Gabriela Roldán (APECS Argentina); Céline Rodrigues e Hugo Guímaro (APECS Portugal); e Paola Barros Delben (APECS Brasil)

Raphael Fernandes Vieira is a Master student in International Relations and a researcher of the South Atlantic Department of Instituto de Relaciones Internacionales – Universidad Nacional de La Plata (IRI-UNLP), with focus on scientific and logistic cooperation between South American countries and its strategic interests in Antarctica and its surrounding areas. He has a B.A. in International Relations (UniBH). He also is the president of Brazilian National Committee of Association of Polar Early Career Scientists (APECS Brazil), member of the Council of APECS International, member of APECS Argentina and Regional Coordinator of Brazil Group of Red Federal de Estudios sobre Malvinas (ReFEM 2065).

Hugo R. Guímaro is a Biosciences PhD student at the University of Coimbra (Portugal), based at the Marine and Environmental Science Centre (MARE) and at the British Antarctic Survey (BAS) in the United Kingdom. His research focuses on Antarctic marine animal ecology with a particular interest in ecological interactions of apex predators (e. g. Emperor Penguins) to climate change and conservation in the Southern Ocean, using new technologies like satellite imagery, tracking and modelling. Besides his scientific work, he is highly involved in education and outreach activities related to polar science, raising awareness for environmental issues. He is a member of APECS Portugal, since 2018, and was President in 2020 and 2021. In APECS International, he is the Representative of Portugal and the National Committee Coordinator, being the point of contact between early career scientists from all over the world.

Paola Barros Delben psychologist and doctoral student in organizational and work psychology, requirements and data analyst and project manager and vice president of APECS-Brazil. She is an honorary member of the Brazilian Air Force, for her contributions to the Instituto de Psicologia da Aeronáutica (IPA), awarded the COMNAP-SCAR Fellowship 2021 and first place in the professional category of the first edition of the Sylvia Leser de Mello award, 2022, in co-authorship of the paper disseminating polar psychology, experiences with the Brazilian Antarctic Program and innovations for professional practice in the country, offered by the Federal Council of Psychology (CRP) of Brazil.

Abstract

The Association of Polar Early Career Scientists (APECS) is an international and multidisciplinary organization focused on shaping new leaderships in Polar Science and Education and connecting researchers around the world. Its primary aim is to bring together Postdoctoral researchers, Doctoral, Masters and undergraduate students to share their knowledge and experiences, in order to build a network involving the Polar, Alpine, Oceanic and Maritime sciences, as well as promoting and integrating its activities. With more than six thousand members, APECS is represented in all continents through



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its National Committees in more than 30 countries. The proposal of this round table is to briefly present the past and recent experiences and activities of each National Committee and address the challenges they face, according to their local and regional realities, as well as their goals. Throughout its existence, APECS gathered achievements and faced challenges, some of them common to countries, and some others unique, that need to be known. Also, the efforts of this community resulted in tangible products, such as nationally distributed newsletters, guides, books, and traditional events for the dissemination of polar science and education, recognized by peers and society in general. During International Polar Week (IPW), activities are synchronized so that relevant topics are concentrated, with lectures and contests, for example, which attract an even larger audience. There is a notorious need for more investments and promotion initiatives that guarantee the performance of APECS and, individually, of polar researchers at the beginning of their careers. Specific training, scholarships, and other incentives can be crucial for directing highly qualified professionals to be absorbed by their own territories - expanding the reach of Polar Science - or migrating to countries with more opportunities. There are still questions about the future perspectives of greater representativeness, performance, and visibility of APECS, both in front of SCAR and in the Organs state bodies of their countries. Finally, the last question to be addressed is how to expand access to polar researchers in projects, also considering the focus on equity, diversity, and equality, emerging themes of relevance.



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International and interdisciplinary collaborations with polar psychology

Paola Barros Delben, Pedro Marques Quinteiro, Agnieszka Skorupa, Daniela Silvestre, and Roberto Moraes Cruz

Paola Barros Delben, psychologist and doctoral student in organizational and work psychology, requirements and data analyst and project manager and vice president of APECS-Brasil. She is an honorary member of the Brazilian Air Force, for her contributions to the Instituto de Psicologia da Aeronáutica (IPA), awarded the COMNAP-SCAR Fellowship 2021 and first place in the professional category of the first edition of the Sylvia Leser de Mello award, 2022, in co-authorship of the paper disseminating polar psychology, experiences with the Brazilian Antarctic Program and innovations for professional practice in the country, offered by the Federal Council of Psychology (CRP) of Brazil. E-mail: p.barros.delben@gmail.com

Pedro Marques Quinteiro, is an Associate Professor at the School of Economic Sciences and Organizations (ECEO, Universidade Lusófona, Lisboa, Portugal), and serves as an Associate Editor at the Spanish Journal of Psychology. His current research interests regard leadership and teamwork in extreme environments (e.g., healthcare; firefighting; polar regions), and the study of teams as complex adaptive systems. Pedro has published in top journals such as *Group & Organization Management*, the *European Journal of Work and Organizational Psychology*, and the *Polar Journal*. He is involved in several research projects, supported by the NTR-INGRoup Grant Scheme, the Portuguese Polar Program, and the European Space Agency. In this context, he has already led two scientific expeditions to King George Island (Antarctica).

Agnieszka Skorupa, PhD, psychologist, assistant professor at the Institute of Psychology at the University of Silesia in Katowice, Poland. She is interested in human-environment interaction. Specialist in human adaptation to the polar isolation situation, also the head of psychological research in space analogue habitat Lunares. Polish delegate for International Arctic Science Committee Social & Human Working Group. Member of The Committee on Polar Research of the Polish Academy of Sciences. Contact e-mail: agnieszka.skorupa@us.edu.pl

Daniela Silvestre, physician, president of the Brazilian Association of Wilderness Medicine (ABMAR), and postgraduate with the International Diploma in Expedition and Wilderness Medicine at the Royal College of Physicians and surgeons of Glasgow. Advanced Wilderness Life Support (AWLS) International Instructor. Master's student in the Graduate Program in Psychology of Organizations and Work at the Federal University of Santa Catarina (UFSC).

Roberto Moraes Cruz, psychologist and engineer, professor at the Postgraduate Program in Psychology (Federal University of Santa Catarina - UFSC), doctor in Ergonomics, with a postdoctoral degree in Epidemiology at the University of São Paulo (USP) and Universitat de Barcelona, UB, Spain. Leader of the Human Factor Laboratory at UFSC, CNPq productivity fellow, author of books, psychological tests approved at SATEPSI and high-impact scientific articles, editor-in-chief of *Revista Psicologia: Organizações e Trabalho* (rPOT).



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Abstract

Polar psychology has a direct interface with the human, social, economic, environmental, and health sciences, in particular an interlocution and mutual collaboration with medicine and human physiology. It can also offer subsidies and insights for the development and improvement of technologies, for risk management and logistical processes, and for raising awareness of sustainability and climate. However, the perspectives of acting in research and practice of polar psychology in national programs or in consortia and projects in other fields and interdisciplinary, are still reduced. Currently, polar psychology, even with significant advances, continues as an emerging field in global terms and appears as a strict area with fewer incentives and investments, compared to other classic polar sciences. The works published on psychological aspects in human beings in the natural laboratory of the polar regions comprise almost a century of scientific production and focus on investigating: constructs related to psychological illness, mainly stress and depression, also salutogenic aspects of experiences, psychophysiological alterations, such as impacts on the sleep-wake cycle, cognitive impairments, effects of exposure to different levels of isolation, confinement and extremes, motivation, adaptation, leadership, group cohesion, psychosocial dynamics, and specific, seasonal and ice disorders. Studies are also based on finding or developing effective strategies to improve selection and preparation processes and improve working conditions and shared temporary or permanent residence. In a general panorama, experimental projects are found, including in analogous environments, with a certain degree of control of the variables that attract scientists in the field of psychology about more assertive prediction and prescription studies. Finally, works in collaboration and cooperation between other areas and countries are highlighted, a situation that can be observed as recurring and expanding, given that some phenomena are inseparable from areas of science in close dialogue. Some questions and problematizations are present to discuss the limits, barriers, and horizon of possibilities for polar psychology for the coming years: What are the main challenges of international and interdisciplinary collaboration with polar psychology? How is the dialogue established and expanded between psychology and medicine and human physiology in polar science? What contributions does polar psychology offer to spatial psychology and environmental psychology? Research results in basic and applied polar psychology can allow for tangible advances, which have an impact on the performance and quality of human activities in ICE contexts, which tends to prevent accidents, illnesses, and crises, consequently, the costs related to expeditions. With the plans for the next decade being written and published, it is relevant to bring to the agenda the issue of polar psychology and its importance for polar programs, both in the Arctic and in the Antarctic, in search of more visibility and opportunities.



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Understanding Antarctic Exceptionalism(s)

Senatore, Maria Ximena (Chair), Cristian Lorenzo (Chair), Alejandra Mancilla, Alessandro Antonello, Luis Valentín Ferrada, Emmanuelle Sultan, Charne Lavery, and Hanne Nielsen

Maria Ximena Senatore has been working on archaeology in Antarctica for more than two decades. Currently, she Distinguished Researcher at Universidad de Alicante, Spain and Senior Researcher at CONICET, Argentina (on leave). With a degree in archaeology and a doctorate degree in history, she is interested in understanding the human exploration and incorporation of remote lands to the modern world. Her work has focused on questioning the master narratives of the Antarctic past and the conceptualizations of heritage conservation. Her research examines human-things relations in Antarctica past and present, with recent focus on informing sustainable and inclusive conservation policies and practices. She is the co-author of “Un pasado en Blanco. Arqueología Histórica Antártica” (Argumentum 2007). Her work in Antarctica has been published in the *Polar Record*, *The Geographical Journal*, *International Journal of Historical Archaeology*, and *The Polar Journal*, among others. mariaximena.senatore@ua.es.

Cristian Lorenzo is a social scientist with a background in International Relations. His research interests include the geopolitical aspects of conservation and climate change within the framework of the Antarctic Treaty System and the geopolitics of knowledge in the Antarctic and surrounding waters. Dr Lorenzo has been contributing to SCAR’s Standing Committee on the Humanities and Social Sciences as a member of the Executive Committee since 2017, chaired the SC-HASS Conference in Ushuaia (2019) and worked in Antarctic affairs for the provincial government of Tierra del Fuego, Antártida e Islas del Atlántico Sur in Argentina (2020-2022). He is a researcher at the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) and lecturer at the Universidad Nacional de Tierra del Fuego, Antártida e Islas del Atlántico Sur (UNTDF) in Ushuaia, Argentina.

Alejandra Mancilla is professor of philosophy at the Department of Philosophy, Classics, History of Art and Ideas, Faculty of Humanities, University of Oslo. She works on global justice, human rights, territorial rights, animal and environmental ethics. Currently, she leads the five-year project *Dynamic Territory*, aimed at rethinking territorial governance in times of climatic, geographic, and demographic change, and she is working on a manuscript about Antarctica in political theory. She is the author of *The Right of Necessity: Moral Cosmopolitanism and Global Poverty* (Rowman & Littlefield 2016). Her work has been published in the *Journal of Political Philosophy*, *Ethics and International Affairs*, *Grotiana*, *The Journal of Applied Philosophy*, and *Polar Journal*, among others.

Alessandro Antonello is a senior research fellow in history at Flinders University, Adelaide, Australia. His research investigates the environmental, cultural, and geopolitical histories of Antarctica, oceans, the cryosphere, and the global environment more generally. His major work on Antarctic history is *The Greening of Antarctica: Assembling an International Environment* (Oxford University Press, 2019).



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Charne Lavery, is a Senior Lecturer in the Department of English at the University of Pretoria, South Africa, and Co-director of the Oceanic Humanities for the Global South project (www.oceanichumanities.com) with Isabel Hofmeyr. She explores ocean cultures of the global South, focused on the Indian Ocean world, the deep sea and seabed, and the Antarctic region. Her first monograph, *Writing Ocean Worlds: Indian Ocean Fiction in English*, appeared in 2021. Other recent publications include co-edited special issues on 'Water' (Wasafiri), 'Thinking Oceanically' (Eastern African Literary and Cultural Studies) and 'Reading for Water' (Interventions); and two co-edited books, *Maritime Literature and Culture* (Palgrave) and *Reading from the South* (Wits Press). She is a South African Humanities and Social Sciences delegate to the international Scientific Committee on Antarctic Research (SCAR) and PI on a South African National Research Foundation's Antarctic Programme (SANAP) project: 'Antarctica, Africa and the Arts'.

Emmanuelle Sultan, MNHN and Sorbonne Université, France. As a physical oceanographer, my research work has mainly focused on the study of the Southern Ocean and the abiotic environment of the East Antarctic ecosystem since 1994. The diagnosis of global change and its impact as well as the consequences of the collapse of the Mertz Ice Tongue in 2010 has allowed me to initiate a reflexive approach from my original discipline. My experience of fieldwork on board and on land, outreach and joining the HASS initiative, initiated a research approach weaving together practice, scientific research and arts. Since 2016, with Elisa Dupuis, documentation officer at the French National Archives and PhD student in archaeology, we design research projects on the presence/absence of humans in the Southern Ocean, sub-Antarctic regions and Antarctica. The involvement of Rachel Prat, a young researcher in social anthropology, strengthens the team of the project "HABIT-ANT?" supported by the French Polar Institute.

Hanne Nielsen is a Senior Lecturer in Antarctic Law and Governance at the University of Tasmania's Institute for Marine and Antarctic Studies. She specializes in representations of Antarctica and has a particular interest in the commercial history of the continent. This includes through media and advertising, which form the topic of her forthcoming book *Brand Antarctica*. Dr Nielsen's current work focuses on the interactions between imagined versions of Antarctica and embodied encounters with the place in the context of Antarctic tourism. She is a Chief Officer of the SCAR Standing Committee on Humanities and Social Sciences; a co-lead of the SCAR Tourism Action Group (Ant-



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TAG); a member of SCAR's Capacity Building, Education and Training Committee; and led Theme 7 (An Inspiring and Engaging Ocean) of the Southern Ocean Decade Action Plan.

Abstract

The round table aims to reflect on the significance of *Antarctic exceptionalism(s)*, both in conceptual and practical terms. This aim entangles a comprehensive understanding of the place and role of Antarctica in our contemporary world. We will try to achieve this aim with the invaluable contribution of scholars working in diverse fields of humanities and social sciences, (e.g., history, law, literature, philosophy, international relations, anthropology, archaeology), based in different continents and working in the frame of a myriad of academic traditions.

Antarctic exceptionalism has been envisioned from different perspectives, considered as a given fact or as a cultural process that has been taking place over time. We can consider some examples to illustrate different conceptual understandings of it, such as:

- Antarctic exceptionalism has been generally accepted as a consequence of the achievements of diplomacy. It has worked to maintain the geopolitical status quo under the Antarctic Treaty System.
- Antarctic exceptionalism arises from its unique geographic and environmental characteristics. Remoteness and wilderness have contributed to the idea of a one-of-a-kind place on Earth for humans.
- Antarctic exceptionalism, as a cultural process, has been built through historical narratives, environmental policies, and cultural expressions and representations.

Several questions could be linked to these different views.

- If Antarctica has been considered exceptional, the questions are as follows: when, by whom and based on what criteria?
- What does exceptionalism mean? How does it work? Is there one idea of exceptionalism? Are there many ideas of different exceptionalisms?
- How has the concept of exceptionalism been built over time? What factors have influenced the configuration of exceptionalism? What factors have been disruptive to the idea of exceptionalism?
- What are the past and present implications of considering Antarctica exceptional? What are the dilemmas that Antarctic exceptionalism entails?

To start the round table, after a brief introduction to the topic, the invited participants will have **5 min to present a provocation idea or view, followed by a particular question to all of us**. This will be the way to start the general discussion. Finally, the participants will be invited to present some concluding words before the closing of the round table.



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Curating Antarctica: Shaping histories and futures through ideas, art, and objects.

Adele Jackson; Jean de Pomereu; William L. Fox; Henrietta Hammant; Ria Olivier.

Dr Adele Jackson AJackson@canterburymuseum.com Adele an artist, a curator, and a researcher interested in the interrelationships between culture and nature. Based in Aotearoa New Zealand, she is Curator Human History (Antarctic specialism) at Canterbury Museum and an adjunct researcher with the College of Arts, Law and Education at the University of Tasmania, hosted by Gateway Antarctica, University of Canterbury. Her research focusses on Antarctic visual culture, specifically the role of art and material culture in developing human understandings of, and engagements with, the far south. Adele led the Antarctic Sun Lines solargraph project, which involved an international collaboration with national Antarctic programs across the continent. She recently completed a study of artistic interpretations of Mount Erebus and is currently collaborating on an examination of cultural representations of the albatross. Adele is a team member of the Australian Research Council funded project, "Creative Antarctica: Australian Artists and Writers in the Far South."

Dr Jean de Pomereu is a Marie Skłodowska-Curie Research Fellow at the Scott Polar Research Institute, University of Cambridge. His research focuses on two separate but interconnected themes. One is the scientific and political history of the Greenland and Antarctic ice sheets. The other is the visual and material culture of Antarctica, including photography, drawing, painting, scientific images and objects. His broader professional experience comprises Antarctic art and photography, publishing, science reporting, education, and curation. Jean holds a PhD in Historical Geography from the University of Exeter and an MPhil in Polar Studies from the University of Cambridge. He has recently co-written and published *Antarctica: A History in 100 Objects* (Conway/Bloomsbury, 2022).

William L. Fox is director of the Center for Art + Environment at the Nevada Museum of Art in Reno and the instigator of the Antarctic art archive at the same museum. Fox has published poems, articles, reviews, and essays in more than seventy magazines and written eleven nonfiction books exploring art, cognition and landscape. is a writer whose work is a sustained inquiry into how human cognition transforms land into landscape. His many non-fiction works rely upon fieldwork with artists and scientists in extreme environments. In 2001–2002 he spent two-and-a-half months in Antarctica with the National Science Foundation, at the Antarctic Visiting Artists and Writers Program. He has been a Lannan Foundation writer-in-residence and received a Guggenheim Foundation fellowship.

Henrietta Hammant is a PhD candidate in the anthropology of heritage at the University of Reading (UK). With a background in social anthropology, Henrietta has an MSc in Visual, Material and Museum Anthropology, and has worked in museums both in the UK and Canada for several years. Originally specialising in human-animal interactions in the Arctic, and later Inuit art, Henrietta took up a post at the Polar Museum at the Scott Polar Research Institute in Cambridge in 2019. While there her interests were drawn south to the Antarctic and the impact of museum practice on how the history of this continent is



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interpreted and understood. Alongside her studies she is now the Collections Manager at the Polar Museum.

Ria Olivier is co-investigator, project manager and digital archivist of the Antarctic Legacy of South Africa, Stellenbosch University; sponsored by National Research Foundation, Department of Science and Innovation, South Africa as part of the South African National Antarctic Programme (SANAP). Her research interests are the heritage material of South Africans in the Antarctic and Sub-Antarctic Islands, information management, and public engagement. Ria is a member of both the Marine and Antarctic Research Strategy (MARS) Committee and the Network of Data and Information Curation Communities (NEDICC) in South Africa. She is the South African representative in the SCAR Standing Committees on Antarctic Data Management (SCADM) and Humanities and Social Science (SC-HASS).

Abstract

Theoretical background / Goals / Motivation: Curation is at the heart of how Antarctic histories are interpreted and remembered, how the present is perceived, and how the future is imagined. Choosing what is preserved within archives and collections, and deciding what is communicated through exhibitions and publications, has a powerful influence on our ideas and beliefs about the continent.

Methods: This multi-disciplinary panel is involved in the curation of Antarctic exhibitions, archives, and publications. The panel will introduce their work and the co-chairs, Jackson and de Pomereu, will facilitate a discussion.

Results: The discussion will explore the values and questions that guide the selection, organisation, presentation and stewardship of Antarctic-focused ideas, stories, art, and artefacts.

Implications: Key questions guiding the discussion are: What values and priorities inform collecting and selecting decisions? What responsibilities do we have to the past, present and future of Antarctica? Whose culture and whose stories are represented, and whose are missing?

Conclusion: The discussion will unpack the following questions: How might Antarctic histories be re-imagined and re-presented? How might our work shape the future of Antarctica.



Situating Antarctic Art

Jean de Pomereu; Adele Jackson; Andrea Juan; William L. Fox; Nadim Samman

Dr Jean de Pomereu is a Marie Skłodowska-Curie Research Fellow at the Scott Polar Research Institute, University of Cambridge. His research focuses on two separate but interconnected themes. One is the scientific and political history of the Greenland and Antarctic ice sheets. The other is the visual and material culture of Antarctica, including photography, drawing, painting, scientific images and objects. His broader professional experience comprises Antarctic art and photography, publishing, science reporting, education, and curation. Jean holds a PhD in Historical Geography from the University of Exeter and an MPhil in Polar Studies from the University of Cambridge. He has recently co-written and published *Antarctica: A History in 100 Objects* (Conway/Bloomsbury, 2022).

Dr Adele Jackson is an artist, a curator, and a researcher interested in the interrelationships between culture and nature. Based in Aotearoa New Zealand, she is curator of human history at Canterbury Museum and an adjunct researcher with the College of Arts, Law and Education at the University of Tasmania, hosted by Gateway Antarctica, University of Canterbury. Her research focusses on Antarctic visual culture, specifically the role of art and material culture in developing human understandings of, and engagements with, the far south. Adele led the Antarctic Sun Lines solargraph project, which involved an international collaboration with national Antarctic programs across the continent. She recently completed a study of artistic interpretations of Mount Erebus and is currently collaborating on an examination of cultural representations of the albatross. Adele is a team member of the Australian Research Council funded project, “Creative Antarctica: Australian Artists and Writers in the Far South.”

Andrea Juan is an artist and curator who works with photography, digital video, graphic art, objects and installations. From 1999 to 2016 Andrea was Professor of Art at UNTREF National University, in Buenos Aires, Argentina. As head of cultural projects for Dirección Nacional del Antártico, Andrea established and led Argentina’s Antarctic artist residency programme. Her work has been supported through the UNESCO-Aschberg programme and a Guggenheim Foundation fellowship. Since 2002 she has developed all her artwork outdoor, in natural environments working in magnificent scenarios. In 2014 she carried out performances and video installations in Antarctica based on scientific research related to climate change.

William L. Fox is a writer whose work is a sustained inquiry into how human cognition transforms land into landscape. His many nonfiction works rely upon fieldwork with artists and scientists in extreme environments. He is director of the Center for Art + Environment at the Nevada Museum of Art in Reno and the instigator of the Antarctic art archive at the same museum. Fox has published poems, articles, reviews, and essays in more than seventy magazines and written eleven nonfiction books exploring art, cognition and landscape. In 2001–2002 he spent two-and-a-half months in Antarctica with the National Science Foundation Antarctic Visiting Artists and Writers Program. He has been a Lannan Foundation writer-in-residence and received a Guggenheim Foundation fellowship.



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Dr Nadim Samman read philosophy at University College London before receiving his PhD from the Courtauld Institute of Art. He was co-director of Import Projects e.V. in Berlin from 2012 to 2019 and, concurrently, Curator at Thyssen-Bornemisza Art Contemporary, Vienna (2013-2015). He curated the 4th Marrakech Biennale (with Carson Chan) in 2012, and the 5th Moscow Biennale for Young Art in 2015. He co-founded and co-curated the 1st Antarctic Biennale (2017) and the Antarctic Pavilion (Venice, 2015-). In 2014 Foreign Policy Magazine named him among the '100 Leading Global Thinkers'. Widely published, in 2019 he was First Prize recipient of the International Award for Art Criticism (IAAC). He is currently Curator at KW Institute for Contemporary Art, Berlin.

Abstract

Theoretical background / Goals / Motivation: Antarctica is known as a continent for peace and science. Another important but all too often overlooked constant in its history, however, is artistic engagement with the region. This engagement originated prior to Antarctica's discovery and thrives to this day across the visual, performing and literary arts. Today, with Antarctica at the centre of our environmental and climate concerns, it has become increasingly important to ask where and how Antarctic art can be situated? Not just geographically, but also socially and intellectually.

Methods: This multi-disciplinary panel is involved in both the making and curation of Antarctic art. The panel will introduce their work and the co-moderators, de Pomereu and Jackson, will steer and facilitate the discussion.

Results: The discussion will explore how Antarctic art is best situated socially, intellectually, and geographically. It will seek answers as to whether Antarctic art should be considered separate or part of wider artistic developments and trends? Or indeed whether the idea and characterization of 'Antarctic art' is even appropriate? Key to this questioning will be whether Antarctic art has become a genre in its own right or if, on the contrary, Antarctica is merely an 'inspiration resource' exploited by disparate artistic actors to their own ends?

Implications: The participants will examine the contexts within which Antarctic art has been produced, and how different contexts may have influenced different outputs. In doing so, it will compare nationally sponsored artist and writers' residencies in Antarctica, and art produced during private expeditions to the continent. A key implication will be whether Antarctic art even needs to be produced in Antarctica?



Poster Communications



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Facing Antarctica ICE: the role of wearables technology in fieldwork human biology research.

Michele M. Moraes; Thiago T. Mendes; and Rosa M. E. Arantes.

Rosa Maria Esteves Arantes (MD, Ph.D. in Cell Biology). Psychoanalyst graduated in Medicine (1987) and in Anthropology (2016) at Universidade Federal de Minas Gerais (1987), Master's in Pathology (1995) and Ph.D. in Cell Biology (2000) from Universidade Federal de Minas Gerais). Experience in cell biology, histopathology, and experimental models of human diseases, the autonomic nervous system, and the enteric nervous system. Coordinator of the MEDIANTAR Research Group - Antarctic Medicine, Physiology, and Anthropology/PROANTAR/BRAZIL, linked to the Institute of Biological Sciences of the Federal University of Minas Gerais (UFMG). Currently interested in human physiology, adaptative stress in isolated, confined (cold), and extreme environments, Anthropology of Health, and Anthropology of Sciences. rosa.esteves.arantes@gmail.com

Thiago Teixeira Mendes (Ph.D. in Exercise Physiology). Graduated in Physical Education (2006), master's in physical education (2009), and Ph.D. in Sports Science (2017) from the Federal University of Minas Gerais (UFMG). Associate Professor at the Department of Physical Education and permanent member of the Graduate Program in Medicine and Health (PPGMS) at the Federal University of Bahia (UFBA), Graduate Programs in Physical Education, and the Graduate Program in Health Sciences at the Federal University of Maranhão (UFMA). Coordinator of the Laboratory of Exercise Physiology and Health (LAFES), a group linked to the Núcleo MotriS - Nucleus for Research in Motricity and Health and, GEPPET - Study and Research Group in Psychophysiology of Exercise and Training at UFBA. Researcher and Deputy Coordinator of the MEDIANTAR Research Group – Antarctic Medicine, Physiology, and Anthropology/PROANTAR/BRAZIL, linked to the Institute of Biological Sciences of the Federal University of Minas Gerais (UFMG).

Abstract

Theoretical background / Goals / Motivation: Antarctica is a space-analog ICE (isolated and confined environment) where physiological responses are key-adaptive adjustments. Despite increasing technology and logistical expertise, the physiological monitoring ICE is defiant. Technology facilitating facing the Antarctic ICE hindrances for data collection is interesting to investigative physiology.

Methods: We present our experience with commercial disposable wrist-worn wearables in the natural world where combinations of environmental stresses co-exist. We discuss using cardiac autonomic monitoring by chest strap plus smartwatches or smartphone platforms application (app), disposable wrist-worn actigraphy, and skin temperature measurements by wireless data log button-sized sensors in the Antarctic field.

Results: For use during fieldwork in Antarctica, a device's advantages are (i) portability, battery life, and low need for recharging; (ii) offline data acquisition and transfer, allowing data extraction, reducing the need for internal memory and increasing data security; (iii)



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operating range up to low temperatures; (iv) waterproof performance, as it must withstand snowstorms, summer rains or excessive sweat accumulation on clothes during fieldwork, (v) absence of wires and data storage in the sensor, guarantying continuous recordings and simplifying collections.

Implications: Remote monitoring is not a substitute for the “in loco” use of wireless equipment but needs investment due to its increasing demand in remote places, such as Antarctica, mainly due to similar restrictions imposed by COVID-19.

Conclusion: Wearable technologies operating in the face of ICE defies, allowing the development of interventions for the individuals' well-being in ICE, are essential for improving the quality of data obtained in fieldwork.



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Interaction of Individual Differences, Affective States, and Teamwork Outcomes in Two Antarctic Stations

Andres Käosaar, Sessa Kohl-Fink, & C. Shawn Burke

Andres Käosaar (Andres.kaosaar@knights.ucf.edu) is a Doctoral Student in the Industrial-Organizational Psychology program and a Graduate Research Assistant at the University of Central Florida. He holds a BA and MA in Psychology (MA in clinical psychology track) from the University of Tartu, Estonia, EU. His research focuses on team dynamics in Isolated, Confined, and Extreme (ICE) environments, with the main interest in astronaut and polar teams. He is currently involved in projects exploring the role of interpersonal relationships, trust, resilience, cultural diversity, affective states and regulation, and team cognition on team dynamics and performance in teams operating in space, space simulation missions, and Antarctic stations.

Abstract

Theoretical background / Goals / Motivation: Affective states have been found to both indicate satisfaction with teamwork and at the same time influence individual's capacity in engaging in teamwork aspects. For understanding better which individuals adapt to the demanding conditions of winter overing Antarctic stations, we investigate how individual differences predict affective fluctuations and the interactions between affective fluctuations and teamwork outcomes (i.e., quality and effectiveness).

Methods: Based on data gathered from crews winter-overing in two US Antarctic stations (season of 2018), profiles for individual differences (personality, collective orientation, and social intelligence), affective states (extracted from longitudinal journal entries, ten different affective variables), and teamwork outcomes (weekly measures of teamwork quality and effectiveness, ten variables) will be created. The relationship between these different profiles will be analyzed.

Results: The predicted results will shed light on the existence of more and less adaptive individual profiles and how these profiles predict the relationship between affective states and teamwork outcomes.

Implications: The implications of this study are twofold. First, understanding better the profiles of adaptive individuals can support station managements in selection and station management processes. Second, the created profiles are based on nuanced individual differences, affect, and teamwork factors, furthering the empirical understanding between these aspects.

Conclusion: This unique study uses nuanced individual differences, affective states, and teamwork outcomes data for exploring the role of different teamwork aspects in the demanding environment of winter overing Antarctic crews.



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Visualizing Antarctic tourism footprints through the COVID-19 pandemic

Yu-Fai Leung; Pablo Tejedo; Daniela Cajiao; Javier Benayas

Yu-Fai Leung is a Professor in the Department of Parks, Recreation and Tourism Management at North Carolina State University, USA. His research aims to advance the science and practice of sustainable visitor management in protected/natural areas globally, including Antarctica. He has become engaged in Antarctic research since 2018, having recently completed a research prioritization project for Antarctic tourism and currently collaborating in several Antarctic tourism research consortia funded by the Dutch Research Council. He co-leads the Antarctic Tourism Action Group (Ant-TAG) under the Standing Committee on the Humanities and Social Sciences (SC-HASS) of SCAR. He also coordinates the Biodiversity Working Group of the Tourism and Protected Areas Specialist (TAPAS) Group in IUCN World Commission on Protected Areas. He was the editor-in-chief for 2018 IUCN best practice guidelines on sustainable tourism and served as a member of the IUCN Delegation to 2021 and 2022 Antarctic Treaty Consultative Meetings. Leung@ncsu.edu

Dr. Pablo Tejedo works in the Department of Ecology at the Autonomous University of Madrid (Spain). He began his research activity participating in applied studies and technical reports related to the management of public use in protected areas. Currently, he investigates human impact in Antarctica, where he has made several stays at Spanish scientific bases. His research interests include Antarctic environmental monitoring, tourism management, and the control of alien species. He is part of the Standing Committee on Humanities and Social Sciences of the Scientific Committee on Antarctic Research (SCAR), and the SCAR Tourism Action Group.

Dr. Daniela Cajiao is a former post-doctoral researcher at North Carolina State University and a current post-doc researcher at Wageningen University. Her research focuses on Antarctic tourism, especially analyzing the environmental and social dimensions of this activity. Complementary research interests include governance and decision-making processes within the Antarctic Treaty System. In 2019, she became the joint-first recipient of the IAATO-COMNAP Fellowship. Currently, she is a member of the Scientific Committee on Antarctic Research (SCAR), the Standing Committee on the Humanities and Social Sciences (SC-HASS), and a co-lead of the Antarctic Tourism Action Group (Ant-TAG).

Dr. Javier Benayas is a full professor in the Department of Ecology at the Autonomous University of Madrid (Spain). He is part of the Socioecosystems Laboratory research team that addresses environmental problems from a social and human ecology perspective. His first lines of research focused on evaluating the quality and success of different environmental education programs. Throughout his career, he has developed studies in various parts of the world, such as the Galapagos Islands, to assess the impacts of visitors in protected natural areas and propose management models that minimize such impacts. These studies are based on the idea that conservation can be compatible with enjoyment, if it is associated with the application of an adaptive management model based on scientific results. This experience led him to be involved,



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since 2008, in different investigations in Antarctica to analyze the human impact in a global way and the more specific impact of tourist activity

Abstract

Theoretical background / Goals / Motivation: Antarctic tourism had experienced continuing growth and diversification before the COVID-19 pandemic, reaching 74,000 visitors in the 2019-2020 season. This was accompanied by increased concerns about the sustainability of Antarctic tourism as evidenced by the discourse at recent ATCM/CEP meetings. Like global tourism and other industries, Antarctic tourism came to almost a complete halt in the 2020-2021 season following the onset of COVID-19 global pandemic and outbreaks in the final tourist expedition of the preceding season. This halt, however, was short-lived as tourism is set to return to its growth trajectory, with a modest return in the 2021- 2022 season, and now coming back in full force in the current (2022-2023) season with an estimated total of over 100,000 tourists. This poster aims to visualize the dynamics of Antarctic tourism footprints before, during and after the pandemic using tourist vessel traffic images.

Methods: We illustrate the amount, spatial extent and distributional patterns of tourist vessel traffic based on processed Automatic Identification System (AIS)-based images, which were created using vessel GPS data broadcast to the AIS. Tourist vessel routes were selected from the overall vessel dataset to form the resultant images for comparisons. All images were supplied by VesselFinder Ltd..

Results: Comparing to the pre-pandemic (2019-20) image, the pandemic (2020-21) image show an extreme reduction in the number of tourist vessel routes and the number of visitor sites accessed by these vessels, confirming that a very clear “anthropause”, or a halt in human activities, took place in Antarctica as in many protected areas worldwide during that period. We are in the process of obtaining the images from 2021-2022 and 2022-2023, which are expected to show significant increases in vessel traffic and there may be observable differences in the distribution of vessel routes.

Implications: Changes in tourist vessel traffic have direct and significant implications on carbon footprints of Antarctic tourism, as well as tourist activity impacts on the Antarctic environment resulting from the number, location and distribution (e.g., degree of concentration vs. dispersal), and use intensity of visitor sites. The utility and limits of these images in illustrating these issues will be discussed.

Conclusion: Visualizing Antarctic tourist footprints using vessel images can quickly capture the attention of researchers, policy makers, and the public, helping them realize tourism management challenges. It will also inform the public discourse about tourism trends, potential impacts, and possible solutions.



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Algorithm for psychological preparation program for expeditionaries in polar regions.

Natasha Barros Delben; Roberto Moraes Cruz; and Paola Barros Delben

Natasha Barros Delben, student in physics at the Federal University of Santa Catarina (UFSC), CNPq Scientific Technological Initiation scholarship holder, awarded in 2022 for her work on the thesis project of Paola Barros-Delben, co-advisor, by the Graduate Program in Psychology (UFSC), under the guidance of prof. Dr. Roberto Moraes Cruz, nat_x-23@hotmail.com

Roberto Moraes Cruz, psychologist and engineer, professor at the Postgraduate Program in Psychology (Federal University of Santa Catarina - UFSC), doctor in Ergonomics, with a postdoctoral degree in Epidemiology at the University of São Paulo (USP) and Universitat de Barcelona, UB, Spain. Leader of the Human Factor Laboratory at UFSC, CNPq productivity fellow, author of books, psychological tests approved at SATEPSI and high-impact scientific articles, editor-in-chief of Revista Psicologia: Organizações e Trabalho (rPOT). Awarded first place in the professional category of the first edition of the Sylvia Leser de Mello award, 2022, in co-authorship of the paper disseminating polar psychology.

Paola Barros Delben, psychologist and doctoral student in organizational and work psychology, requirements and data analyst and project manager and vice president of APECSBrasil. She is an honorary member of the Brazilian Air Force, for her contributions to the Instituto de Psicologia da Aeronáutica (IPA), awarded the COMNAP-SCAR Fellowship 2021 and first place in the professional category of the first edition of the Sylvia Leser de Mello award, 2022, in co-authorship of the paper disseminating polar psychology, experiences with the Brazilian Antarctic Program and innovations for professional practice in the country, offered by the Federal Council of Psychology (CRP) of Brazil.

Abstract

It was the objective of this study to develop an algorithm to support a psychological preparation program for polar expeditioners heading to Antarctica or the Arctic. The theoretical and technological construction was guided by requirements analysis, considering expeditionary experiences and specialists' evaluation, with subsequent validation in a simulation. The proposal is based on an expanded safe behavior model, aimed at reducing intentional and unintentional human errors, and the subsequent chain of events. The algorithm is described starting with: identified undesirable event (accident, illness or crisis) and recognition of: risks of losses and damages; imminent risk (emergency) or not (urgency); unfeasible self-assistance or unavailable telesupport; face-to-face assistance required; assistance provided (end of algorithm). The details of the assistance are printed in the program's protocols, which comprise the steps: A) with phases of identifying the human factor, context and resources; and B) with the phases of the activity itself, pre, during and post. The specialists' evaluation was positive, most are unaware of similar proposals, and the majority also considered: the implementation of the program is totally important; that there would be massive adherence as long as



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there were no costs or even if there were; and as a minimum requirement for classification/ selection. The main fears would be related to the treatment and security of information. The development of components of a future system is recommended, aiming at the automation of digital processes and mechanisms, with offline functionalities, that meet the demands of the contexts.



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PATHOS (Polar oceAn-aTmospHere interactiOnS) for schools

Manuel Dall'Osto

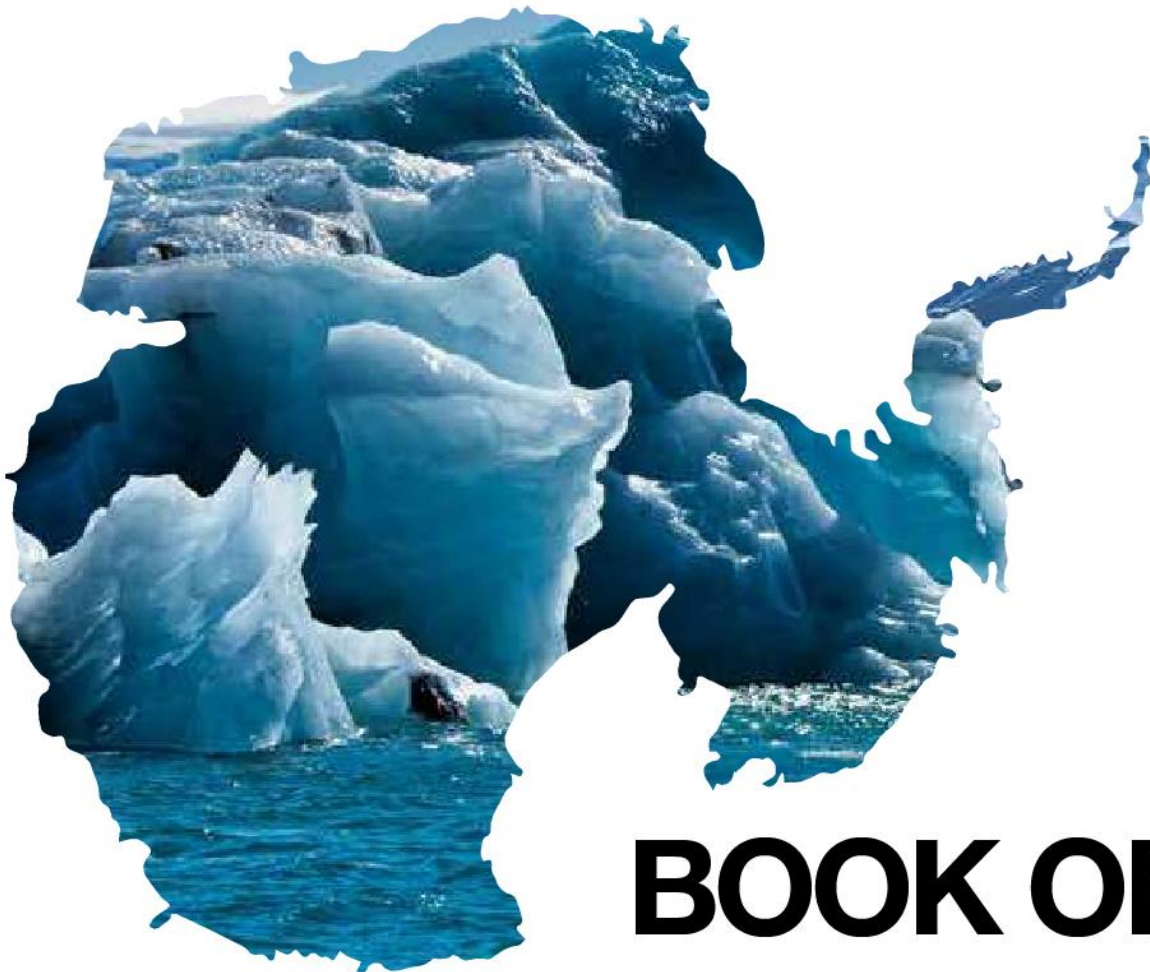
Manuel Dall'Osto, Institut de Ciències del Mar, CSIC Pg Marítim de la Barceloneta 37-49, 08003 Barcelona, Spain].

Abstract

Polar regions are at forefront of changes in climate forcing and climate-biogeochemical-ecological interactions. PATHOS (Polar oceAn-aTmospHere interactiOnS) aims to study the sources, composition and dynamics of aerosols in Antarctic environments. One of the main aim is to facilitate novel dissemination of polar results to a wider audience to the society, developing activities aiming at the Sustainable Development Goals (SDG) and at leveling up ocean and climate literacy of the target audience, especially students and teachers.

We also aim to (a) build innovative/new educational materials, including hands-on activities (especially drawn towards working the Sustainable Development Goals (SDG) in the classroom) and (b) perform novel experiments related to the research topic (aerosols and climate) in schools - for the first time - developing a low-cost primary aerosol chamber - with guidelines for its use and didactic guides with ideas for using in schools to understand the importance of the water cycles and Antarctica.

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BOOK OF ABSTRACTS



"THE ANTARCTIC FOR A BETTER WORLD"