

#	Session title	Session description	Lead Convener	Co-Convenors
<b>Physical Sciences</b>				
1	Astronomy and geo-space observations from Antarctica	The geographic location and atmospheric characteristics of the Antarctic continent allow for unique observations of our universe, of our upper atmosphere and of near Earth space. This session will cover unique astronomical results made from all Antarctic locations covering topics that include the study of the Cosmic Microwave Background radiation, High-energy particle detection, optical and infrared observations of stars and exoplanets. This session will also cover the topic of space weather monitoring, mitigation and forecasting. We invite contributions from all sciences involving observations of the Antarctic sky ranging from the upper atmosphere and near earth space, to the edge of the universe.	Tony Travouillon	Lucilla Alfonsi, Adriana Gulisano, Jennifer Cooper
2	Polar atmospheric processes: water cycle, snow, clouds, aerosols, radiation and gravity waves	The Antarctic atmosphere plays host to complex physical, chemical and biological processes that have global impact. This session on atmospheric processes invites observational and modelling contributions in this realm, with particular focus on the following topics: Atmospheric ice crystals and nucleation: the heterogeneous nucleation of ice around particles, homogeneous nucleation, cubic and stacking disordered ice and phase transitions, methods and instrumentation for measuring the statistics of nucleation; Aerosols: physico-chemical characterization, sources, CCN and INP, sea-spray generation, studies on aerosol-cloud interactions and their climate effects; Clouds and radiation: cloud formation, phase and persistence, and cloud radiative effect including Southern Ocean radiation bias; Snow: physical, chemical and biological aspects of its role in the past and future of Antarctica; Water cycle: studies focusing on the dynamics of the Antarctic atmospheric water cycle and its interaction with surface processes (ocean, snow) in particular by using isotopes as tracers; Gravity waves and ANGWIN: the characteristics of gravity-waves, their impact on polar and global processes and their representation in atmospheric models. Activities under the Antarctic Gravity Wave Instrument Network (ANGWIN) SCAR Physical Sciences Action Group. Studies on other polar atmospheric processes are welcome as well.	Takashi Yamanouchi, Damian Murphy	Peter Wilson, Julia Yvonne Schmale, Franzisca Scholder-Aemisegger
3	AntClim21 and beyond: Future Antarctic climate change on decadal to centennial timescales	As society strives to implement the Paris Agreement, uncertainty remains over whether accomplishment of this ambitious goal would provide a safe threshold for Antarctic and Southern Ocean environments and consequently the rest of the globe. This session invites contributions on future projections for the Antarctic and Southern Ocean climate system on decadal to centennial time scales, including variability, feedbacks and thresholds of regional and global relevance. We also invite contributions that assess model skill and uncertainty, in particular for CMIP6 results, and those that provide pathways for future performance improvements. Contributions on the timing and quantification of the emergence of the anthropogenic signal in environmental parameters are also strongly encouraged.	Nancy Bertler	Lettie Roach, Tom Bracegirdle
4	Polar meteorology: short term climate variability	Studies of Antarctic and Southern Ocean atmospheric processes using observations and/or numerical models are encouraged, including dynamics, physics, and chemistry aspects, and extending from the surface to the stratosphere. Timescales are from diurnal to several years. Coupling of the atmosphere with the ocean, sea ice, and ice sheet is also of interest. The impact of large-scale modes of variability such as the Southern Annular Mode and the El Niño-Southern Oscillation are welcome topics. Examples of envisaged investigations include katabatic and barrier winds, cyclones and fronts, numerical weather prediction, drifting snow occurrence and impacts, etc. Presentations based on tools (observational, statistical, numerical, etc.) are welcome if they are applied to investigate particular atmospheric phenomena.	David Bromwich	Steve Colwell, Adriana Gulisano

5	Antarctic sea ice variability and change: physical links with the Southern Ocean	Antarctic sea ice is undergoing rapid and prolonged changes. These changes are complex in their spatial distribution, their seasonality, and even in their timescale – a long term positive trend since the late 1970s has been followed by an unprecedented rapid decline in Spring 2016. Sea ice sits at the interface between the atmosphere and the ocean and changes in sea ice are the result of the complex interaction of any of these three components – ice, ocean, and atmosphere. These changes have global implications; Antarctic sea ice formation, export and melt are crucial for ocean ventilation through the formation of both Antarctic Bottom Water and Antarctic Intermediate Water, and potentially affect the inflow of warm Circumpolar Deep Water beneath ice shelves, promoting the retreat of the grounded portion of the ice sheet, and consequently sea level rise. In spite of the challenges associated with observing and modelling the Antarctic coastal and sea ice zones, recent observational programs and focused model development efforts are now rapidly advancing our understanding of these processes. In this session we welcome papers that address Antarctic sea ice variability and change including the current status and trends of Antarctic sea ice. Topics include but are not limited to sea ice properties, climatology, variability and trends, and process studies linking sea ice to the ocean and the wider cryosphere, including ice shelves. Studies that offer interdisciplinary approaches (e.g. remote sensing, field measurements/proxy methods combined with modelling) are particularly welcome.	Marilyn Raphael	Andreas Klocker, Will Hobbs, Ariaan Purich
6	Past climate variability from Antarctica and the Southern Ocean	Observational records from Antarctica have revealed significant climate change in recent decades, linked to large-scale modes of atmospheric circulation, ocean circulation and changes in sea ice. However, the Southern Ocean remains one of the least observed regions on earth, with limited spatial coverage and very few records extending beyond the instrumental period. We invite submissions from data gatherers, climatologists and climate modelers investigating climate variability in Antarctica, the sub-Antarctic and the Southern Ocean over decadal to millennial timescales. The session aims to highlight a range of paleoclimate archives, including ice cores, lake sediments, peat and marine records that capture climate variability on local, regional and hemispheric scales. We are especially interested in records that improve our understanding of large-scale modes of climate variability (SAM/ENSO/IPO), explore the links between mid and high-latitudes, data synthesis studies and model-data inter-comparisons.	Liz Thomas	Tessa Vance, Krystyna Saunders, Dieter Tetzner
7	Southern Ocean Circulation: change and consequences	Water transformation around Antarctica is recognized to significantly impact the climate. It is where the linkage between the upper and lower limbs of the Meridional Overturning Circulation (MOC) takes place by means of dense water formation, which may be affected by rapid climate change. Warm waters being carried eastward by the Antarctic Circumpolar Current are captured by cyclonic gyres (primarily in the Weddell Sea) and transported onto the shelf break, gradually cooling and freshening as they interact with ambient waters. Unique exchange processes and water transformation over the Antarctic continental shelf and shelf slope are contributors in the formation of deep and bottom waters originated in and exported from the Antarctic margins, which represent the major source of the world's ocean bottom water. These waters eventually spread northward filling all of the abyssal ocean-basins, underpinning the Southern Ocean importance in modulating the global MOC. In this session, we welcome papers addressing the Southern Ocean circulation variability (ranging from climatologies to climate scale trends) from both observations and numerical modelling based investigations. Studies that explore the link between the upper Southern Ocean circulation changes and the dense water formation are particularly welcome.	Marcos Tonelli	Marina Noro, Tiago Dotto

8	Past to future interplay between ice sheets in the world and regional to global teleconnections	<p>The Antarctic and Greenland ice sheets are parts of the Earth's climate system and as such, influence oceanic and atmospheric processes as much as being influenced by local to remote teleconnections. Teleconnections interacting with the ice sheets (e.g. SAM, PSA, IOD, ENSO, NAO and AMO) have various impacts on changes in local temperature, moisture transport to and from the polar regions, sea ice extent, and intermediate to bottom water exchange/ventilation. Observations and models show that the equatorial oscillations (e.g., ENSO, IOD) influence the intensity of the monsoon, which is also influenced by the climatic state of Southern high latitudes (e.g., Antarctic ice sheet extent and elevation, sea ice extent, and astronomical forcing on long timescales) and positive summer NAO, resulting in increasing total cloud cover and reduction in short-wave solar radiation which impacts the Greenland Ice sheet mass balance. Recent modeling studies show that freshwater release from Antarctica is tightly linked to the bi-polar atmospheric and oceanic seesaw mechanism, acting on millennial scales. The high-resolution geological and ice core records also testify to this interplay between the ice sheets and regional to global teleconnections but are poorly understood in climatic contexts substantially different than today. Efforts are needed at both observational and modeling levels to improve multi-centennial projections of polar regions and global climate evolution, by combining current knowledge of climatic variability with the knowledge of paleoclimatic evolution of those mechanisms. This session invites contributions from both observational, modeling, present-day to future and paleoclimate works. A particular focus is put on multi-disciplinary analysis of teleconnections, and works attempting to bridge paleo and present-day/future timescales are encouraged. Keywords: teleconnections, monsoon, bi-polar seesaw, ice sheet mass balance, paleoclimate, future climate.</p>	Florence Colleoni	<p>Suchithra Sundaram</p> <p>Sunghan Kim</p> <p>Ian Goodwin</p> <p>Co-Convended with the IASC Cryosphere Working Group (Guðfinna Th Aðalgeirsdóttir)</p>
9	Critical challenges in modelling past and future evolution of the Antarctic and Greenland ice sheets - scales, uncertainty, processes, implications for sea level	<p>This session explores improvements in our understanding and quantification of past, present and future evolution of the Antarctic and Greenland ice sheets and sea-level changes. We invite contributions about the following topics: How to improve the reliability of the projections using observations (paleo and present), models and model intercomparison exercises (ISMIP6, and others); assessment of uncertainties and probability distributions of the ice sheets' contribution to sea level change; emerging processes; feedbacks coming from interactions between components (ice sheets, ocean, atmosphere, solid earth). We focus on the present and future (multi-centennial) ice sheet evolution, but paleo-studies are encouraged if they shed a light on the mentioned topics. This session is related to ISMASS (<a href="http://www.climate-cryosphere.org/activities/groups/ismass">http://www.climate-cryosphere.org/activities/groups/ismass</a>), ISMIP6 (<a href="http://www.climate-cryosphere.org/activities/targeted/ismip6">http://www.climate-cryosphere.org/activities/targeted/ismip6</a>), SERCE (<a href="https://www.scar.org/science/serce/serce/">https://www.scar.org/science/serce/serce/</a>), PAIS (<a href="https://www.scar.org/srp/pais/">https://www.scar.org/srp/pais/</a>) and AntClim21 (<a href="https://www.scar.org/science/antclim21/home/">https://www.scar.org/science/antclim21/home/</a>).</p>	Frank Pattyn	<p>Rupert Gladstone, Adam Treverrow, Felicity McCormack, Chen Zhao, and co-Convended with the IASC Cryosphere Working Group (Guðfinna Th Aðalgeirsdóttir)</p>
10	Climate-ice-ocean dynamics of Antarctica's coast and ice shelves	<p>This session will embrace studies of the Antarctic Ice Sheet coastal area and its interaction with the ocean. It will cover the dynamics of ice shelves, ice rises, outlet glaciers and their interaction with climate and ocean. The session is interdisciplinary, covering primarily glaciology, atmospheric sciences, and ocean dynamics. The session welcomes research discussing recent observations and modelling that improves understanding of the causes of current ice loss and the likelihood of rapid, and potentially irreversible, ice sheet change in Antarctica. The changes are a significant contribution to global sea level rise, and remains a major source of uncertainty in future sea level projections. The drivers of this loss appear to be a complex mix of atmospheric and ocean circulation changes, which may have initiated in the mid-20th Century. New potential processes have increased the level of concern for rapid ice loss (ice cliffs, fast ice buttressing loss, sub-shelf channels, large GLOFs beneath the glaciers, firn aquifers and hydrofracture).</p>	Ted Scambos	<p>David Vaughan, Vikram Goel</p>

11	Remote Sensing of the Polar Regions	<p>In the last three decades, Earth and near Earth Observation has revolutionised our understanding of the rate of change, and the physical processes responsible for, change in Earth's ice covered regions. Remote sensing techniques, applied to ground based, airborne and satellite sensors, now measure a wide variety of environmental parameters that improve our ability to monitor the Polar Regions, and its change over time. Historical satellite missions (ERS, Envisat, Landsat, GRACE, Radarsat) as well global navigation satellite systems (e.g. GPS), provide an invaluable long-term record of change, and a new generation of innovative missions (CryoSat-2, ICESat-2, Sentinel-1, Sentinel-2, Sentinel-3, WorldView) have pushed the boundaries of sensor technology. This session will highlight recent scientific results in all aspects of remote sensing of the cryosphere, over land and sea ice, polar oceans and of the neutral and ionized atmosphere. We invite participants from a range of thematic backgrounds, including atmospheric scientists, geodesists, geophysicists, glaciologists, oceanographers and astrophysicists. Presentations should highlight cryospheric data from satellite, airborne or in situ instruments, over both short-term and long-term study periods. Recent developments in remote sensing methodologies for Earth and near Earth observations, data analysis, measurement campaigns, and modelling are all welcome. This session seeks to promote multi and interdisciplinary studies, bridging the SCAR Physical sciences and Geosciences divisions, and soliciting contributions from a range of different SCAR initiatives, projects and programs.</p>	Anna Hogg, Giorgiana De Franceschi	Nicolas Bergeot, Helen Fricker
<b>Geosciences</b>				
12	Surficial Processes- Geomorphology, Chemical Weathering, Exposure Age Dating, and Permafrost Dynamics	<p>This session will include research on all aspects of the surface and shallow subsurface physical, geochemical and ecological processes in ice-free regions of Antarctica. Presentations dealing with the impact of the changing climate on surficial processes, interactions of physical/biological processes, the importance of dating surface features in understanding past ice sheet behavior, and the use of Antarctic ice-free regions as extraterrestrial analogs are especially welcome. It is hoped that the session will also attract research conducted under the guise of the ANTPAS Expert Group.</p>	Berry Lyons	Mauro Guglielmin, Melisa Diaz
13	Antarctica and its neighbours in super-continent cycles	<p>The modern Antarctic continent has been through multiple global supercontinent amalgamation and breakup cycles and includes some of the most ancient crust found on Earth through to crust generated in the youngest dispersal cycle. Although only tantalising glimpses are archived in exposed outcrop and detritus, the integration of the onshore and offshore geological records with a wealth of geophysical datasets continues to transform our view of Antarctic subglacial and submarine bedrock and lithospheric architecture. Here we invite contributions that explore the evolution of the Antarctic continent (and its neighbours) throughout supercontinent cycles. We especially encourage studies that seek to integrate various aspects of geology, geophysics, geo-/thermo-chronology, and/or plate modelling, and provide a clear framework for future hypothesis testing.</p>	Jacqueline Halpin	Nathan Daczko, Laura Morrissey, Geoff Grantham

14	Integrating marine and terrestrial records of past Antarctic ice sheet and ocean behaviour	<p>Marine-based sectors of the Antarctic Ice Sheet are likely to contribute to sea-level rise over the coming centuries. Better understanding of the underlying processes, thresholds, magnitudes, and rates of previous ice-sheet change is essential to improve predictions of future sea-level rise and guide mitigation and adaptation. This session invites submissions on the broad range of Antarctic work being done on past ice sheet and ocean history from onshore, continental shelf, and deep-sea records.</p> <p>We welcome presentations on geological and geophysical studies, including drilling programs from Antarctica and from the Southern Ocean. Marine records cover a range of short to long timescales, all of which provide key insights into ice sheet dynamics and ocean circulation change. Terrestrial studies of past glacial history using outcrop studies, geomorphology, or onshore drilling can yield complementary records of past intervals of ice sheet thickening and thinning. Studies that examine smaller-than-present configurations of the ice sheet such as during past interglacials are especially welcome, particularly where they can provide constraints on past sea-level change contributions from Antarctica.</p> <p>We encourage submissions that bring together marine and terrestrial records of ice sheet behaviour or that can provide links between past Southern Ocean circulation and temperatures and ice sheet behaviour. The session is highly interdisciplinary and welcomes contributions from fields including marine geology and geophysics, sedimentology, geomorphology, paleolimnology, and paleo-oceanography as well as ice-sheet modelling.</p>	Mike Bentley	Julia Wellner, Richard Jones, Christina Riesselman
15	Ice sheet-solid earth interactions: GIA, landscape evolution and geothermal heat flux	<p>As the Antarctic ice sheet evolves, a range of solid earth and landscape processes act to control its behaviour. Forcing mechanisms, including glacio-isostatic adjustment (GIA), erosion, tectonics, and geothermal heat flow, may influence the flow and stability of the overlying ice sheet. However, these factors often cannot be fully constrained by direct measurements due to the extensive ice cover and harsh environment. Integrated geophysical and geological studies advance our understanding of the wide-ranging solid earth – ice sheet interactions. For example, the direct transfer of heat can facilitate basal melting and control the ice rheology and basal sliding (and thus erosion), and indirectly relates to the local mantle viscosity. In turn, the mantle viscosity controls a number of important phenomena, including the negative feedback on the topographically-controlled marine ice sheet instability and the time scales over which changes in ice sheet loading controls present-day uplift and subsidence through GIA processes. However, in many areas significant uncertainty remains, propagating directly into predictions of future ice sheet evolution and sea level change. This session aims to bring together research covering these broad themes to enable discussion of solid earth/landscape characterisation and ice sheet interactions. We invite contributions that relate to geothermal heat flow, active and passive source seismic analysis, landscape evolution, ice sheet modelling, GIA, and the application of numerical modelling to understand and quantify patterns and rates of ice sheet and solid earth feedbacks.</p>	Erik Ivins, Stewart Jamieson, Alex Burton-Johnson	Ricarda Dziadek, Jennifer Taylor
16	Antarctic subglacial systems: observations, measurement and modelling	<p>Knowledge of the subglacial environment in Antarctica is critical to understanding glacial, microbial and sedimentary processes. Such knowledge informs our ability to model ice sheets, our appreciation of life in extreme polar environments and our awareness of past ice and climate changes.</p> <p>In this session we welcome contributions from a wide-range of studies investigating subglacial systems. These include the use of geophysical data to comprehend basal (and englacial) ice-sheet conditions; remote sensing of ice-sheet surface change attributable to subglacial processes; direct access, measurement and sampling of the basal environment, including subglacial lakes and sediment; and numerical modelling of basal processes. We also welcome dataset analyses that build new topographic datasets, studies of the hydrological system beneath the ice sheet (including groundwater), and inspection of critical regions of the ice sheet such as the grounding line. Finally, we encourage contributions describing upcoming programmes aiming to explore and interrogate subglacial environments in Antarctica.</p>	Martin Siegert	Winnie Chu, Dusty Schroeder, Christine Dow

17	Geophysical Techniques and Analysis in Antarctic Science	Advances and innovation in geophysical instrumentation and data analysis are transforming our capacity to observe and investigate ice sheet, ice shelf, and solid-earth conditions and interactions in Antarctica. These techniques include active and passive sources governed by waves, diffusion, and potential-field equations (e.g. active and passive radar sounding, active and passive seismic, gravity, magnetics, transient electromagnetics, magnetotellurics). Such observations of the subsurface of the ice sheet and continent can be obtained from subglacial-, englacial-, supraglacial-, air-, and satellite-based platforms in instrument configurations and suites that target different regions, features and properties at different resolutions and sensitivities. This session is focused on both the development and demonstration of these approaches and their application to Antarctic glaciology and geology. Contributions related to synthesizing observations with models, sensor fusion, or machine learning approaches are also encouraged.	Dustin Schroeder, Kirsty Tinto	Matt Siegfried, Rebecca Schlegel
<b>Life Sciences</b>				
18	Birds and Marine Mammals	This session will focus on all aspects of the biology of Antarctic birds and marine mammals, which play an important role in structuring the Southern Ocean marine ecosystem. This session invites studies on topics which range from (i) ecology, including diet, trophic interactions, habitat use and modelling and demography, (ii) physiology, including adaptation to Antarctic environments, energetics and reproductive biology, (iii) behaviour, including foraging, movement patterns, intra- and interspecific interactions, and (iv) genetics, including population genetics, evolutionary genetics and molecular ecology. The session will place particular emphasis on how these aspects of predator biology interact with environmental variability and climate change.	Mark Hindell	Yan Ropert-Coudert, Ryan Reisinger
19	Genomic and transcriptomic diversity of Antarctic organism	This session will include research on all aspects of the genomics and transcriptomics of Antarctic organisms. Genomic and transcriptomic diversity can provide new opportunities for a better understanding of adaptation and the evolution of eukaryotic organisms in the Antarctic. Also, comparative studies based on the genomics and transcriptomics from the various groups can lead to new discoveries and potentially translate into useful bioactive substances.	Jin-Hyoung Kim	Hyoungseok Lee
20	The effects of change on Southern Ocean ecosystems: understanding modelling, projecting, and managing change in Southern Ocean species and food webs	We propose that this session will be coordinated by ICED and include a forum on progress of the Marine Ecosystem Assessment for the Southern Ocean (MEASO). The first part of this session will reflect on research to improve understanding and projections of changes in Southern Ocean ecosystems that are relevant to conservation and ecosystem-based management. In all, this session will focus on 1) Understanding and quantifying the state and variability of Southern Ocean ecosystems, 2) Modelling and projections of future Southern Ocean ecosystems at multiple scales, and 3) Implications for sustainable Southern Ocean governance. We welcome abstracts on emerging areas of research, field, data syntheses, and modelling studies, across a range of disciplines and stakeholders (including ecology, oceanography, biogeochemistry, climate, social, fisheries and conservation science, technicians and policy makers), providing coverage of a range of spatial, temporal and organisational scales. We are interested in engaging the wider community to allow participation and inclusion through effective partnerships to ensure sustainable observations in the Southern Ocean.	Nadine Johnston	Rachel Cavanagh, Andrew Constable, Jess Melbourne-Thomas, Monica Muelbert, Eugene Murphy, Madeleine Brasier

21	Response to climate change: physiology and adaptation of Antarctic and Southern Ocean life - a Tribute to Guido di Prisco	<p>Rapid climate change is likely the greatest global threat to biodiversity. Particularly vulnerable are the endemic biological life of the Antarctic and Southern Ocean ecosystems as it has evolved to be highly cold specialized after millions of years of sequestration in extreme cold. Current fast rates of environmental modifications could at some stage exceed Antarctic biota's adaptive capacities to keep pace, resulting in massive fallout from their climatic niche. When such “tipping points” and irreversible shifts of Antarctic ecosystems will occur are areas of urgent concern. Writ large are evaluations of evolutionary adaptive potential and acclimatory physiological plasticity that may assess Antarctic organismal and ecosystem resiliency.</p> <p>In this session, following the framework of the objectives of the SCAR AnT-ERA programme, we will discuss how marine organisms and ecosystems can and are responding to on-going climatic stressors.</p> <p>The session will serve as platform to present the most cutting-edge tools in understanding physiological and evolutionary adaptations of marine organisms, with the main objective to propose new avenues, identify knowledge gaps, and outline international research opportunities to predicting changes in ecosystems, tipping points and impacts on ecosystem services.</p> <p>Specific topics include:</p> <ol style="list-style-type: none"> <li>1) Impact of stressors on polar marine organisms and ecosystems.</li> <li>2) Biodiversity and ecosystem functioning of the Antarctic under current and future climate-change conditions.</li> </ol> <p><i>We dedicate this session to Guido di Prisco. Throughout his career, Guido inspired younger scientists to embrace polar biological research, and he challenged researchers of all ages to explore evolutionary adaptation in the context of global climate change. Guido has left an outstanding legacy, one that will continue to inspire us and polar research.</i></p>	Cinzia Verde	Lloyd Peck, Camila Signori, C-H. Christina Cheng
22	The Role of Fish in the Southern Ocean	<p>Fish are an abundant and key component of the Southern Ocean ecosystem ranging from shallow demersal notothenioids of the continental shelf to the diverse mesopelagic assemblages of the open ocean and to the deep-water fish communities of the continental slope. They are major consumers of zooplankton including Antarctic krill whilst many are key prey for marine predators including other fish species, penguins and seals. It is now thought that lantern fish migrations provide a means of rapid transfer of carbon to the deep ocean where it can be sequestered for centuries or more. Many populations of shelf species are recovering from extensive overfishing in the 1970s and 80s whilst fisheries for icefish and toothfish remain managed in a highly precautionary manner under CCAMLR.</p> <p>Currently there is extensive research being undertaken within the SCAR and CCAMLR science communities around the ecology of fish in the Southern Ocean. This session aims to bring together this expertise to showcase the breadth of research being conducted which can be of mutual benefit to the two communities. In particular the session would encourage contributions from researchers with a focus on the trophic ecology of Southern Ocean fish, Southern Ocean fish in a changing environment and predator prey interactions of Southern Ocean fish.</p>	Mark Belchier	Jilda Caccavo
23	From drones to satellites: the use of remote sensing in Antarctic ecology and conservation	<p>Remote sensing has radically expanded our capacity to survey and study Antarctic ecology, from mapping sensitive moss beds and surveying wildlife to mapping historic huts and monitoring the human footprint. Advances include, but are not limited to, techniques for efficient manual interpretation of remotely captured imagery, crowd-sourcing interpretation, computer vision for automated interpretation, three-dimensional reconstructions of landscapes, and change detection. This session will bring together researchers working on the technical challenges of remote sensing with those interested in applications for ecology and conservation.</p>	Heather Lynch	Alex Borowicz

24	Bioprospecting in Antarctica: a new frontier or a novel threat?	<p>Antarctica's extreme ecosystems shelter exceptional communities of vertebrates, invertebrates, plants, macroalgae, lichens, and different microbial groups (virus, bacteria, archaea, fungi, and microalgae), which are all potential sources of bioproducts such as antibiotics, enzymes, proteins, polysaccharides, genes, as well as organisms with potential biotechnological applications such as in bioremediation. The collection of biological material in Antarctica has been a mainstay of Antarctic science since the Age of Discovery and remains so today, and particular features of Antarctic-sourced bioproducts are already incorporated within for instance, the food, detergent and low temperature biotechnology industries. However, even though bioprospecting clearly has been taking place for many years, within the Antarctic Treaty System prospecting for biological resources for biotechnological purposes, and its regulation, has proven a sticky issue.</p> <p>In this session, we invite contributions exploring the technical and scientific aspects of biological prospecting and biotechnological applications of Antarctic science, as well as some of the policy, governance and conservation issues at stake. We invite contributions from a broad range of disciplines, including life sciences, humanities and the social sciences.</p>	Luiz Rosa	Peter Convey, Lize-Marié van der Watt, Siti Aqlima Ahmad
25	Sea ice in the atmosphere-ice-ocean-biosphere system: How, where and why is it changing, and what are the effects?	<p>While there is strong focus on rapid change occurring in Arctic sea ice, relatively little is known about the complex sea-ice environment around Antarctica (comprising both pack and fast ice), how and why it is changing and varying, and the wide-ranging physical, biological and chemical effects of such change/variability. Improved understanding of the southern coupled sea ice-ocean-atmosphere-biosphere system is required to truly explain the marked and baffling recent reversal in overall sea-ice extent – from a slight positive trend to successive record maxima peaking in 2014, followed by a rapid decline. While sea-ice extent and concentration are monitored reasonably accurately from space, much remains to be learned about the processes driving annual advance and retreat; the role of snow; sea-ice interaction with the ice sheet; sea ice as a habitat; sea-ice biogeochemical processes; and teleconnections with lower latitudes (including sea-ice relationships with southern hemisphere weather and climate). A forum for interdisciplinary sea-ice research, this session invites presentations with a focus on: (i) Antarctic sea ice in the ocean-cryosphere-atmosphere-biosphere system and (ii) sea ice as an active biogeochemical interface and a reservoir for pollutants. We encourage a holistic discussion through presentations on sea-ice process, observational, modelling and remote-sensing studies.</p>	Petra Heil	Klaus Meiners, Rob Massom, Pat Wongpan
26	Predicting and detecting tipping points and regime shifts in Antarctic and Southern Ocean systems	<p>Antarctic and Southern Ocean systems are facing unprecedented change and increasing potential for regime shifts to occur. Regime shifts involve loss of system stability, and the reorganization of the system around a different set of self-reinforcing feedbacks once a threshold or tipping point has been crossed. In particular, the presence of destabilising positive feedbacks can create runaway change and make reversal of regime shifts unlikely. Globally, regime shifts can occur at different system, spatial, and temporal scales, and tipping points at one scale or in one system can interact with tipping points in others, potentially resulting in cascading regime shifts. In the Antarctic system, tipping points have been observed or predicted in ecosystems, climate, ice-sheets and ice-ocean interactions.</p> <p>This interdisciplinary session intends to build a holistic understanding of tipping points and destabilising feedbacks in the Antarctic system, how these are distributed within and across scales and subsystems. We seek talks that investigate regime shifts in any component of the Antarctic and Southern Ocean system, using experimental, observational or modelling approaches. To keep the interest broad, we particularly encourage talks that link their study subsystem to the other components of the broader Antarctic system (e.g. impacts on or from other subsystems) to develop understanding of feedbacks and tipping points over the whole system. The hope is to develop a better understanding of how regime shifts in different parts of the Antarctic and Southern Ocean are likely to interact, or lead to cascading regime shifts.</p>	Delphi Ward and Nick Golledge	

27	Aeromicrobiology, snow and biogeochemistry over Antarctica	Polar terrestrial environments, including snow and ice, are dominated by microorganisms which drive Antarctic biogeochemical cycles and the cycling of climate-active gases. Microbial cells that build up many of these communities are believed to be mostly transported there through the atmosphere and introduced via dry or wet deposition. To survive this environment, living organisms have to be well adapted or highly resistant to extreme cold and desiccation, low nutrient availability and seasonally variable UV radiation levels. As such, it has long been considered that any life in the aerosphere, if present at all, was either dormant or functioning sub-optimally. However, it is now becoming clear that potentially dynamic polar microbial communities are ubiquitous across Antarctic terrestrial environments, including the snowpack, even at the most remote locations. This session will investigate what we know now and explore the next steps.	David Pearce	Stephen Archer, Tina Santl-Temkiv
28	Pollution in Antarctica; A Rising Tide in a Warming Climate	<p>The location of Antarctica at the end of the global distillation pathway, renders it an 'environmental sink' for the majority of known Persistent Organic Pollutants (POPs). In addition to recognized POPs, it should be considered that the global chemical industry is responsible for the registration of 1 million new chemicals every year. Inevitably therefore we can expect that a new generation of chemicals are penetrating the South Polar Circle, alongside marine debris, micro- and nano-plastics. Further, human activity in Antarctica continues to grow, representing an in situ source of anthropogenic pollutants.</p> <p>The environmental behaviour of organic chemicals is governed by environmental factors such as temperature, organic carbon and cryosphere dynamics. As such, our understanding of chemical distribution, fate, and therefore impact, in the Polar context is challenged in a warming climate.</p> <p>This session seeks to be inter-disciplinary, embracing research on environmental drivers of pollutant dynamics, system input pathways, biological impacts to endemic biota, as well as remediation efforts. The session welcomes both synthesis works on recognized POPs, as well as novel research on emerging pollutants of Antarctic concern.</p> <p>It is anticipated that the session will attract work from the SCAR ImPACT Action Group, and present a platform for mapping and coordination of future Action Group targets, however abstracts from all areas of Antarctic pollution are welcomed and will help to direct potential parallel sessions.</p>	Susan Bengston-Nash	Catherine King, Andreas Zimbelli
29	Sub-Antarctic Islands – Sentinels of Change	<p>Straddling the Antarctic Polar Front, sub-Antarctic islands are geographically unique and exhibit both periglacial and glacial conditions. These islands host unique vegetation and are important breeding sites, yet are also host to numerous threatened species. Permafrost is largely sporadic but useful as a proxy for investigating response to a changing climate. Environmental thresholds here are also narrow and contemporary climate changes, characterised by warming temperatures, fluctuations in moisture, and a higher frequency of extreme events, have the potential to narrow (or even surpass) these thresholds. As such, these islands can be regarded as sentinels of change by serving as global early warning systems.</p> <p>Changes observed in the glacial and periglacial environment will impact these unique ecosystems, affecting the biodiversity of fauna and flora, as well as geomorphology, soil dynamics, and much more. Furthermore, changes in the terrestrial and benthic environments will alter the tourism and heritage potential of these islands. This session aims to showcase sub-Antarctic research and the role of the region as a sentinel of change. Submission from ANTOS and participants of the 4th International sub-Antarctic Forum are specifically invited, as are those of emerging researchers.</p>	Christel Hansen	Craig Cary, Justine Shaw, Mia Wege

30	Environmental factors driving diversity and composition of fossil and living Antarctic communities	<p>Antarctic biota has a unique ecological composition characterized by highly specialization, responsive to local and regional physicochemical factors. Its balance can be disturbed due to environmental changes and the resilience potential of each biological group. Deep climate changes in the Paleogene, around 37 Ma, remodeled the history of life in the southern hemisphere and shaped the austral biota to the modern configuration. This marked the onset of Antarctic glaciation and was responsible for the last greenhouse-icehouse shift of the Earth's history. Very recently, however, alterations in global environmental conditions due to climate changes, such as ocean acidification and glacier melting, have occurred in a very short geological scale and are potentially affecting southern biota at alarming rates. It is therefore essential to understand the current status of biological systems and to determine their possible resilience thresholds to predict ecosystem developments in a changing world. Identifying which environmental factors affected organisms in the geological past is crucial to understand biological response to distinct past and present environmental conditions and their possible changes. Also, comparison of past and modern ecological communities may help to reveal differences in the environmental factors triggering changes in ecological structure in the past and present-day.</p> <p>This session encourages the submission of abstracts about studies both on fossil and/or living Antarctic communities aiming to understand which environmental factors are associated with their diversity, ecological structure and composition. Comparisons between fossil and living groups are not mandatory and works dealing with specific taxonomical groups are also accepted.</p>	Fernanda Quaglio, Fabiana Canini	Rowan Whittle, María Eugenia Raffi, Cristine Trevisan
31	Biological dispersal - connections at continental and inter-continental scales	<p>For long time, scientists have been fascinated by the idea that species might disperse long distances, and how dispersal might underpin distributions; the "grand game of chess with the world for a board" as Charles Darwin wrote in one of his letters. We now have a wealth of powerful methods to investigate where, when and how biological dispersal occurs. Understanding the processes and patterns of species distribution and ecological and genetic connectivity of populations is particularly relevant in the geographically isolated and rapidly warming Antarctic and sub-Antarctic regions. How will species in these regions respond to environmental changes? Which can or can't shift their distributions through dispersal? Where are the biogeographic barriers, and where are the primary dispersal pathways? What mechanisms do different species use to disperse? This session will bring together recent research on active and passive dispersal of Antarctic organisms at regional, continental and intercontinental scales. We particularly welcome talks that bring together different sources of evidence to investigate dispersal and the processes that drive it, and / or that shed light on species distributions and population connectivity, in and around the Antarctic and sub-Antarctic.</p>	Ceridwen Fraser, Papetti Chiara	Henrik Christiansen, Valérie Dulière

32	Genomic insights into past and present Antarctic Biodiversity	<p>The Antarctic region is arguably the most pristine and the most isolated globally, protected by oceanic, bathymetric, atmospheric and geographic barriers resulting from tectonic and climatic events that started in the Eocene. Today's Antarctic and sub-Antarctic biota have evolved adaptations to the extreme living conditions and are characterized by a high degree of endemism. However, the recent acceleration of climate and other environmental changes increases the probabilities of disturbing fragile Antarctic ecosystems, and may fundamentally change Antarctic biodiversity, particularly through the invasion of alien species and the loss of native biodiversity. Understanding how Antarctic biodiversity responded to past changes will help us to predict its fate in the Anthropocene. The recent and rapid spread of genomics-based techniques in ecological and evolutionary sciences has increased our capacity to explore and understand the historical and contemporary effects of climate change on the diversification, demographic history, and adaptation of Antarctic biodiversity (including microorganisms, plants, invertebrates and vertebrates). Such advances help us to understand the response and resilience of Antarctic and sub-Antarctic biota faced with the challenges of climatic and environmental change, and therefore to predict the fate of a unique biogeographic province facing the challenges of the Anthropocene.</p> <p>This session will bring together researchers in biogeography specializing in different groups of Antarctic and sub-Antarctic biota, to obtain an integrated overview of the state of knowledge of how these organisms and their communities could respond to contemporary and ongoing changes.</p>	Elie Poulin	Peter Convey, Claudia Soledad Maturana Bobadilla
33	The Antarctic Seafloor – Ecosystem interactions and environmental drivers of change	<p>The seafloor around the Antarctic margin, stretching from the nearshore to the abyss, remains one of the least known areas of our oceans. High-resolution imaging technology, coupled with in-situ benthic sampling, has enabled detailed mapping of the physical seafloor environment and the characterisation of benthic habitats and communities. Integration with datasets that reveal ice-ocean-seafloor interactions is vital for understanding drivers and future impacts of change. Seafloor environments are modulated by interactions with surface water and cryosphere processes, and provide important ecosystem services, including habitat for benthic communities and carbon sequestration, control the movement of ocean currents, and influence the distribution and deposition of organic matter. By integrating physical, biological and chemical components of earth systems this session, on The Antarctic Seafloor – Ecosystem interactions and environmental drivers of change, underpins a range of scientific research questions that support evidence-based policy decision making.</p> <p>This session will include the application and testing of a range of physical proxies to understand ecosystem patterns and the processes driving benthic biodiversity. Proxies will include geomorphic information, oceanographic and sedimentary processes, and the influence of benthic-pelagic coupling on distributions of nutrients and organic matter. Understanding the physical characteristics of habitats enables prediction of potential shifts in benthic biodiversity due to changing environmental conditions, including ice and ocean dynamics.</p> <p>We invite contributions that integrate physical, biological and/or chemical components of the seafloor environment, and ice-ocean-seafloor interactions, with a focus on examining drivers of change and identifying potential future impacts.</p>	Jodie Smith	Alix Post, Narissa Bax, Huw Griffiths

34	Progressing environmental protection of Antarctica and the Southern Ocean through science	<p>Antarctica has had a history of unique continent-wide protection under the Protocol on Environmental Protection to the Antarctic Treaty. However, even under this level of protection, impacts on Antarctic environments have been documented, particularly those near or displaced by high concentrations of human activity. The face of Antarctica is rapidly changing as threats across the region increase - primarily from climate change, biological invasions, pollution and the increasing footprint of human activity.</p> <p>At the same time, decision makers across a range of policy forums are increasingly looking for robust and peer-reviewed scientific information to make more informed decisions regarding the management, conservation and protection of the Antarctic, Southern Ocean and sub-Antarctic environments.</p> <p>Some of the key areas of interest for this session include (but are not limited to):</p> <ul style="list-style-type: none"> <li>– Current state and future projections of Antarctic systems, species and functions</li> <li>– Sustainability and impact mitigation of human activities in the Antarctic region</li> <li>– Socio-ecological approaches to Antarctic and Southern Ocean conservation</li> </ul> <p>By bringing together research from a range of disciplines, spanning life, physical, earth and social sciences, this session on Progressing Environmental Protection of Antarctica and the Southern Ocean Through Science will showcase contemporary science that is addressing some of the most pressing environmental challenges facing the region.</p>	Aleks Terauds, Mecha Santos	Daniela Liggett, Luis Pertierra
<b>Humanities and Social Sciences</b>				
35	The changing face of Antarctic tourism	<p>Since the humble beginnings of the modern era of Antarctic tourism in the 1960s, its scale and geographical reach has changed significantly. Initially only amounting to a few hundred tourists on mainly ship-based voyages to the Peninsula region, Antarctic tourism now allows more than 50,000 tourists to experience Antarctica – be it on expeditions that include landings or are mainly land-based or cruise-only itineraries. With the increased scale and greater diversity comes an increased need for responsible in-situ management and responsive governance on the one hand, and a greater potential for outreach and advocacy on the other hand.</p> <p>This session aims at exploring the different dimensions and types of tourism operations and practice; management, regulation and governance; the development of Antarctic tourism activities and markets; the concepts of ambassadorship and advocacy in tourism; socio-cultural, political, economic, and ethical aspects of Antarctic tourism; the impacts of tourism (including on, but extending beyond, the natural and built environment); tourism futures; the role of external factors (such as climate change) on tourism development and regulation; risk and insurance in Antarctic tourism operations; commercial vs. independent travel to the Antarctic; Antarctic virtual tourism; the role of technology in Antarctic tourism; contested places and spaces in tourism; and ontologies, epistemologies and methodologies in Antarctic tourism research.</p>	Daniela Liggett	Karen Alexander, Marisol Vereda

36	Antarctic Heritage	<p>2020 is the two hundredth anniversary of the first human interactions with the Antarctic continent. This session invites presentations on all aspects of research and management related to the human heritage of Antarctic activity. These may include:</p> <p>Antarctic heritage theory and practice:</p> <ul style="list-style-type: none"> <li>- historical and physical research into the material evidence of human presence;</li> <li>- the archaeology of sealing, whaling, exploration and scientific sites;</li> <li>- conservation, interpretation and management of heritage sites;</li> <li>- critical issues in Antarctic heritage research, conservation and management;</li> <li>- Antarctic heritage and contemporary science.</li> </ul> <p>Antarctic heritage governance:</p> <ul style="list-style-type: none"> <li>- studies of the development of heritage assessment and management over time;</li> <li>- policy-making that impacts heritage;</li> <li>- addressing cultural diversity, such as in different national approaches to heritage assessment, conservation and management.</li> </ul> <p>Antarctic heritage looking forward</p> <ul style="list-style-type: none"> <li>- a critical and analytical review of the current state of research, reflection upon matters raised at SCAR 2020 and consideration of future research agendas.</li> </ul> <p>The session is closely linked to those on Antarctic and Southern Ocean Histories and The changing face of Antarctic tourism, with some overlap and mutual interest in the topics covered in each.</p>	Maria Ximena Senatore	Michael Pearson, Rebecca Hingley
37	The ATS, International Law, and Governance	<p>Six decades after the signature of the Antarctic Treaty and almost thirty years after the signature of the Protocol on Environmental Protection, it is timely to review how the Antarctic system has evolved and to inquire how it will continue to evolve into the future.</p> <p>In this session, we critically interrogate the Antarctic Treaty System (ATS) and its capacity to confront present and future challenges like climate change, the sustained interest of some actors in Antarctica’s living and nonliving resources, and the latent but never forgotten territorial claims. Does the ATS have the legal tools to tackle these challenges successfully? What aspects are in need of revision (if any)? What could be improved or rethought regarding its structure and functioning?</p> <p>To answer these questions, we invite contributions that focus on specific aspects of the Antarctic legal regime, governance, and political order—for example, CCAMLR’s integration of science and policy-making, or the history of CRAMRA and its legacy. We equally invite more general perspectives that assess contested concepts like sovereignty, legitimacy, and colonialism as well as hierarchy and their place in the Antarctic context.</p>	Alejandra Mancilla	Patrick Flamm, Julia Jabour, Gabriela Roldán

38	Understanding 'The Ice' through the Humanities, Arts and Social Sciences	<p>Over three decades have passed since Stephen Pyne published his influential book <i>The Ice</i> (1986), which offered one of the first analyses of literary and artistic responses to Antarctica. This period has seen significant changes in both the Antarctic region and the humanities, arts and social sciences (HASS) disciplines. Warming oceans, the diversifying of state actors and commercial interests, and the ratification of the Madrid Protocol have all impacted the Antarctic. In the HASS disciplines a turn towards the nonhuman environment and postcolonial perspectives has produced new understandings of the region over these decades. How can they help us to make sense of the scale and rapidity of change and the terraforming consequences of land, sea, ice and atmosphere recalibrating with one another?</p> <p>This session welcomes any papers that extend contemporary understandings of 'The Ice' through the humanities, arts and social sciences. We particularly encourage research that addresses aspects of any of the following questions:</p> <ul style="list-style-type: none"> <li>• How are changing social and cultural engagements with ice impacting our understanding of the 'ice continent'? What would an 'ice humanities' look and feel like?</li> <li>• Do we need to understand Antarctica as a lively and dynamic volume rather than a discrete region below 60° South?</li> <li>• How are the pasts and futures of the global South – the 'poorer countries of the world' – interconnected with those of the Southern Ocean and Antarctica? What would a decolonial Antarctic humanities look like?</li> <li>• What new perspectives are the creative arts bringing to contemporary human and more-than-human relationships with 'The Ice'?</li> </ul>	Klaus Dodds, Charne Lavery, Elizabeth Leane	
39	New Approaches to Antarctic and Southern Ocean Histories	<p>This session aims to showcase some of the many new approaches to the history of the Antarctic and Southern Ocean regions that have emerged in recent years. The important contributions made by historians of science and exploration have increasingly been augmented by studies from environmental history, cultural history and aesthetics, and political history and geopolitics. Among the many positive consequences of this diversification has been a deeper appreciation of how Antarctica and the Southern Ocean have not only shaped the contours of human experience but have themselves become inscribed with cultural and political as well as scientific meaning. We welcome submissions from scholars working on any aspect of the history of Antarctica and adjacent oceans and in any time period. In keeping with the overall theme of the session, we particularly encourage submissions that approach Antarctic and Southern Ocean histories from new perspectives and raise broader questions about how historians, scientists, and the public at large might think about these important regions of the globe.</p>	Peder Roberts	Joy McCann, Cornelia Lüdecke, Nelson Llanos, Andrew Avery
40	Values in Antarctica: identification and vulnerability to anthropogenic impacts	<p>It has been c. 200 years since humans first set foot on Antarctica, with visitation and infrastructure development increasing markedly in the build up to the International Polar Year 1957/58. Today, impacts resulting from human activities on a global scale, combined with national operator and tourism industry activities within Antarctic itself, present an increasing threat to Antarctic environmental, scientific, historic, wilderness and aesthetic values, as well as intrinsic values. The Protocol on Environmental Protection to the Antarctic Treaty sets out a legal framework for Parties to limit the environmental impact of their activities in the Antarctic Treaty area. However, it is not clear how effective this has been at protection of the many values contained within Antarctica.</p>	Rupert Summerson, and Kevin Hughes	Shaun Brooks

41	Living and working in Antarctica	<p>Antarctica is a continent of extremes and is often regarded as one of Earth's best analogue environments for the isolation, confinement and challenges experienced during missions to outer space. Even today, Antarctica remains the most sparsely inhabited continent on the planet, with the number of people living at Antarctic research stations every year ranging from around 1,000 during the winter to around 4,500 during the austral summer. Most of the people who make parts of Antarctica their temporary homes come there to work. While research exists about human performance in Antarctica, only very limited scholarly work focuses on the motivations for people to live and work in Antarctica, their experiences and challenges while residing there, their sense of belonging and identity, their values, their connections to the continent or whether and why they desire to return to Antarctica in the future.</p> <p>This session will bring together a wide range of perspectives with a focus on facilitating knowledge-building and discussion about the socio-cultural, psychological, economic, political or environmental dimensions of living and working in Antarctica. Research presented in this session includes, but is not limited to, the following:</p> <ul style="list-style-type: none"> <li>- Psychological dimensions of living and working in Antarctica</li> <li>- Place-making and homemaking in Antarctica</li> <li>- Architectural challenges and solutions for Antarctic stations</li> <li>- Identity-building in an Antarctic context</li> <li>- Human values in relation to Antarctica</li> <li>- Cultural processes around work or life in Antarctica</li> <li>- Logistics of living and working in Antarctica</li> <li>- Challenges of overwintering or undertaking remote field work</li> <li>- Language, speech and behavior in Antarctica</li> </ul>	Pedro Marques-Quinteiro	Daniela Liggett, Gabriela Roldan
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**Medicine**

42	Current challenges in Antarctic medicine: the link between spaceflight and polar practice. Health and well-being off the grid: how adaptation to spaceflight is related to Antarctic deployments and vice versa.	<p>This session aims to facilitate presentation of a wide range of academic endeavor, since the field of Antarctic medicine relates to both fundamental research on physiological and psychological adaptation to isolated and confined environments and remote health care.</p> <p>Among the many challenges arising from Antarctic deployments are:</p> <ul style="list-style-type: none"> <li>- Planning for and provision of healthcare, training of staff, screening of deployed populations and acknowledging skill fade.</li> <li>- The public health of remote living e.g. infection, potable water.</li> <li>- Logistical challenges of healthcare provision, on-going support and telemedicine and extreme medical evacuation.</li> <li>- Specific challenges of dive medicine in remote environments.</li> <li>- Human adaptation to altitude, cold and confined small communities.</li> </ul> <p>Overall, remote healthcare in Antarctica is related to aeromedicine; maritime and diving medicine; and all research fields examining human endurance. Papers relating to these wide parameters will be considered and welcomed to further our understanding of these complicated areas.</p>	Anne Hicks	Mark Shepanek, Nathalie Pattyn
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**Cross-disciplinary**

43	Emerging technologies and their applications from the depth of the ocean, to the deep Antarctic field and space	<p>Research in Antarctica requires innovations in technology to overcome the harsh and remote environment. Renewable energy, remote &amp; automated operations, and information services are key areas for any remote science mission. Technology can lend a hand to science in remote areas, including the depths of the ocean, the deep Antarctic field and space. In the ocean, human observation has been assisted by autonomous profiling floats, under-ice gliders (AUV and ROV) and deep-ocean rovers, that provide sustained or new observations in an unforgiving ocean. Over the Antarctic ice sheet, automatic weather station (AWS), unmanned aerial vehicle (UAV) and balloons are helpful systems to cover unvisited sparse area. Advanced communications by data relay for high volume is indispensable to many Antarctic scientists, and emerging technologies promise to open up a new and wide range of science missions and applications. Satellite and space debris monitoring from Antarctica could provide a unique data set for space and atmospheric scientists. In this inter-disciplinary session we invite presentations that showcase how technologies have helped progress science in remote places. This session brings together a wide range of scientific and engineering disciplines to report on the state-of-the-art technology in development, and look forward at the future of emerging technologies and their applications.</p>	Takashi Yamanouchi, Francis Bennet	Lize-Marie van der Watt, Wilson Wai Yin Cheung, Kimberlee Baldry
44	Connecting legal and policy needs with Antarctic research (including related technologies and logistics)	<p>A more effective science-policy-law nexus has been repeatedly called for by both scientists and policymakers in addressing and managing emerging Antarctic issues, such as establishing an Antarctic liability regime, regulating Antarctic bioprospecting, and minimizing as well as mitigating impacts of climate change in Antarctica. For example, the Subsidiary Group on Climate Change Response (SGCCR) under the Madrid Protocol's Committee for Environmental Protection aims at improving policymakers' understanding of what policy-relevant research has been produced or is being undertaken as well as encouraging the research community to address some of the scientific questions that underlie burning policy issues in relation to climate change.</p> <p>The shifting roles of states and the private sector in Antarctic science may pose additional difficulties in establishing an effective and efficient policy-science nexus in the near future. Such nexuses have been advocated at the levels of domestic decision-making, national delegations, and international institutions, and, while some of those efforts have started to bear fruit, they still await in-depth examination and evaluation. Perhaps, we ought to think of more innovative means, including strategies drawing on the concepts of advocacy and ambassadorship in relation to Antarctic issues and possibly involving high-profile scientists and famous celebrities.</p> <p>This session welcomes contributions discussing actual experiences as well as innovative ideas on how to better connect science (scientists) and policy/law (policymakers and lawyers) so as to more effectively address relevant Antarctic issues.</p>	Akiho Shibata	Kevin Hughes, Daniela Liggett, Indi Hodgson-Johnston

45	Inclusive Collaborations in Antarctic Research	<p>It is well known that ensuring diversity in experience and skills in a team enhances the quality of research. Collaborations have always played a large part in polar research in general, but Antarctic research in particular due to its remoteness and the harsh work environment. While a preconceived image of a polar researcher still exists, the polar research community has recognised the need for inclusive collaboration, and the recognition and dismantling of socially and culturally enmeshed barriers to participation in polar research. Improving awareness and equity within our own community is an excellent way to prepare researchers to meet the challenges posed by the complexities of the much-needed interdisciplinary work, and the paradigmatic shift towards knowledge co-production in the polar regions.</p> <p>This is a unique opportunity for cross-disciplinary research and dialogue bringing together diverse perspectives for forging more inclusive and equitable polar research. We are looking for experience of integration across disciplinary boundaries and ideas from all perspectives, broadly including, but not limited to, the following aspects:</p> <ol style="list-style-type: none"> <li>1) Bringing together natural sciences, social sciences, humanities, governance and arts – experiences in integrating across disciplinary boundaries</li> <li>2) Diversity in polar research: Gender, including queer and gender minority (LGBTQI+), ethnic minorities in polar research, and particular challenges faced in remote fieldwork conditions, polar stations and facilities</li> <li>3) Intersectionality in polar research, and the importance of linkages between multiple identities of gender, race, ethnicity, class, age, physical ability, and others</li> <li>4) Integration of equity and inclusivity dialogues into meetings, conferences, in particular experiences in developing and implementing codes of conduct for research teams, fieldwork and for larger organisations</li> </ol> <p>This session aims to link to the dialogue that takes place in the “Gender in Polar Research: Gendered field work conditions, epistemologies and legacies”, to be held at the ASSW 2020, in Iceland.</p>	Renuka Badhe	Morgan Seag, Alex Thornton, Iqra Choudhry
46	Public engagement with Antarctica in a changing climate	<p>A primary goal of SCAR is to “communicate scientific information about the Antarctic region to the public.” In recent years, this project has taken on new urgency, as Antarctic research increasingly focuses on issues of urgent global significance such as climate change, ice melt and environmental protection. Here we invite papers that describe, evaluate, contextualize and critique the diverse ways in which scientists, communicators and educators engage with different publics, and the ways in which publics engage with Antarctic science. We particularly invite papers that focus on communicating issues of global importance in an effort to effect change.</p>	Rebecca Priestley	Rhian Salmon, Heidi Roop, José Xavier
47	Antarctic Futures	<p>Antarctica is a laboratory for both scientific research and ideas about planetary futures. At this closing session of SCAR OSC 2020, participants are encouraged to engage with critical perspectives around Antarctica’s futures in the Anthropocene bringing together debates that have arisen in earlier sessions through the lens of transdisciplinarity. Such anticipatory research is central to geophysical and life sciences. In recent years there has been novel speculative and experimental work opening new ground for humanities, creative arts and social sciences to illuminate Antarctic futures.</p> <p>A challenge for Antarctic research is how to develop robust studies that can tackle the challenges of a future that manifests in uncertain and contested ways. In this session we seek to go beyond predictive tools, to think aloud about critical scenarios as sites to tackle sociocultural phenomena in formation. Our interest is in imagining possible and preferable futures and responding creatively and critically about how such futures are narrated and traversed; calculated, and performed.</p> <p>This can be interpreted in multiple ways and creative responses are actively sought. For obvious reasons, the presentations will be required to take place within the conference time limit, the technical constraints of the venue and with a distinct connection to an academic body of work relating to Antarctica. The convenors are available to discuss potential presentations.</p>	Juan Francisco Salazar, Bob Frame	Victoria Nuviala
48	Speed talks	<p>Speed talk sessions will take place concurrently with the poster sessions at the end of each day and are primarily aimed at early career researchers who wish to build their experience in delivering presentations.</p>	Gabriela Roldan	This session will be convened by APECS

