Cambridge Centre for Climate Science

British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Institute of Computing for Climate Science

UK POLAR NETWORK

CCfCS Polar Symposium

Programme

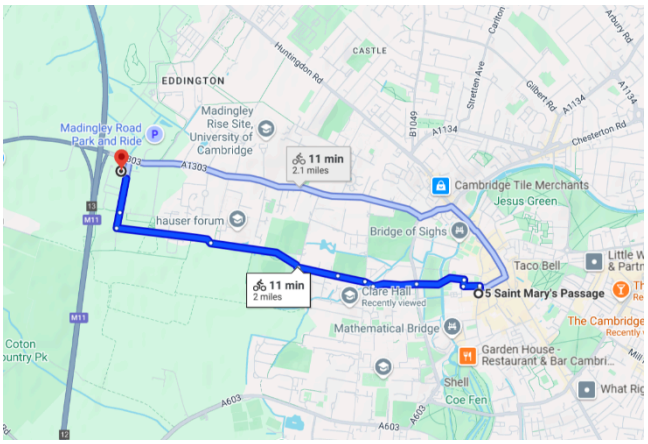
12th May 2025, 1-6pm

British Antarctic Survey
Cambridge

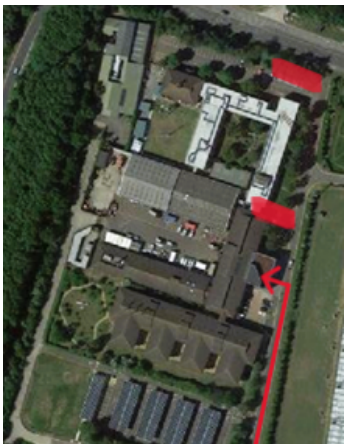
Key Information

Registration Link: https://forms.gle/kCLv1QWixdfmKb4ZA
Online attendance – Zoom Link: https://bas-ac-uk.zoom.us/j/94444358474?jst=1
Tea, coffee, juice, water, fruit, snacks and cake will be provided

Arriving at BAS:
BAS is a 10-minute cycle west from the town centre in the direction of the sports centre. Cycle parking is indicated on the map – if the visitor one is full, you may use the staff parking further from the entrance shown in red on the map. The arrow shows the route to the entrance. or 15 minutes by bus to "British Antarctic Survey", or "Madingley Rd Park-and-Ride" if on the PR1. The Park and Ride is the best place to park if travelling by car, but there is a small visitor car park by the entrance if required.







Programme *(senior talks in bold)*

11:30	Poster set-up	
12:45	Arrival	
Welcome and Introductions		
13:00	Polina Sevastyanova, Birgit Rogalla, Tarkan Bilge	
Session 1: Science Focus		Chairs:
13:10	**Angharad Downes (SCAR)**	**Connecting Polar Science and People: An Introduction to SCAR**
13:40	Chung Yan (Crystal) Fu *(Cam, Geo)*	Quantitative mid-Holocene constraints on future Arctic winter sea ice extent
13:55	Isabelle Sangha *(BAS, Cam Chem)*	Comparing simulated polar stratospheric clouds in the UKESM with CALIOP satellite data
14:10	Josh Lanham *(Cam, Earth Sci)*	Polar Water Masses in a Changing Climate: From Shelf Processes to Basin-Scale
14:25	Comfort break with coffee + ice cream (15 mins)	
Session 2: Humanities Focus		Chairs:
14:40	**Henry Burgess *(Arctic Office)***	**Introduction to the NERC Arctic Office**
14:55	**Camilla Nichol *(UKAHT)***	**Introduction to the UK Antarctic Heritage Trust**
15:10	Ilona Kater *(SPRI)*	Renewable Development on Indigenous Lands: A Just Transition in the Arctic?
15:25	Edward Rhys Jones *(Oxford)*	Japan's Arctic Diplomacy in a Changing Geopolitical Landscape
15:40	**Jerome Neufeld *(Cam, DAMTP)***	**Discussion on Polar Geoengineering**
16:00	Poster session (30 mins)	
Session 3: Early Career Focus		Chairs:
16:30	**Eleanor Honan *(UKPN, BAS)***	**Introduction to the UK Polar Network**
16:40	Ainhoa Jimenez Molina *(SPRI)*	Marine Heatwaves in Patagonia
16:55	Zhenya Tumarkin *(Cam, DAMTP)*	Ventilation in the Southern Ocean
17:10	Comfort Break (5 mins)	
17:15	Chloe Nunn (*UKPN)*	ECR Workshop (online): Polar Research Ethics: what you must do, what you should do, and how you might do it
17:45	Close	

Talk Abstracts

Angharad Downes: Connecting Polar Science and People: An Introduction to SCAR

SCAR Science and Operations Officer

SCAR advances international and interdisciplinary Antarctic research and plays a key advisory role within global science-policy frameworks. This presentation offers an overview of SCAR's work—from coordinating international scientific collaboration to supporting evidence-based policy and building research capacity. It will introduce SCAR's structure, its major science groups, and current initiatives such as the International Polar Year 2032–33. Particular focus will be given to opportunities for early-career researchers to get involved through SCAR's extensive capacity-building programme and participation in its broader global community.

Henry Burgess: Introduction to the NERC Arctic Office

Head of the NERC Arctic Office

Camilla Nichol: Introduction to the UK Antarctic heritage Trust

UK Antarctic Heritage Trust Chief Executive

Jerome Neufeld: Discussion on Polar Geoengineering

University of Cambridge, Department of Applied Mathematics and Theoretical Physics, Professor of Earth and Planetary Fluid Dynamics

Lucy Stephenson/Eleanor Honan: Introduction to the UK Polar Network

UKPN President/Former President

Josh Lanham: Polar Water Masses in a Changing Climate: From Shelf Processes to Basin-Scale

University of Cambridge, Department of Earth Science, Climate Dynamics PhD

Edward Rhys Jones: Japan's Arctic Diplomacy in a Changing Geopolitical Landscape

University of Oxford, School of Global and Area Studies, PhD

In my DPhil project, I examine how Japan uses science and technology (S&T) diplomacy to advance its power and influence. The Arctic region is a key case study for this. In my research, I look at how Japan engages in scientific collaboration in the Arctic as a means of securing influence and shaping norms. Through interviews and analysis of policy documents, I explore how scientific expertise and cooperation are strategically used by states: as tools of knowledge-sharing and collaboration, but also in 'harder' and more realist terms in increasingly complex geopolitical spaces like the Arctic.

Chung Yan (Crystal) Fu: Quantitative mid-Holocene constraints on future Arctic winter sea ice extent

University of Cambridge, Department of Geography, PhD

Climate models show their largest Arctic sea ice biases and uncertainties during winter, when ice cover most strongly impacts air-sea heat exchange, ocean mixing, and atmospheric circulation. The palaeoclimate record offers out-of-sample tests to assess model performance, but such applications have remained largely qualitative. Here, we compile a new Arctic-wide database of mid-Holocene biomarker records to evaluate sea ice simulations of this past warm period. Using a recently developed proxy system model, we present a novel Bayesian climate model weighting scheme that refines the multi-model mean winter sea ice extent based on fully quantitative proxy-model comparisons, accounting for model dependence and non-stationary proxy seasonality.

Zhenya Tumarkin: Ventilation in the Southern Ocean

University of Cambridge, Department of Applied Mathematics and Theoretical Physics, MPhil in Quantitative Climate and Environmental Science

The Southern Ocean plays a vital role in the global overturning, exposing old waters rich in carbon to the atmosphere. There remains a large uncertainty in the total fluxes of carbon in the Southern Ocean due to observational difficulties in the austral winter and interbasin variability. In this study, we use Lagrangian trajectories to find the spatio-temporal upwelling flux of water, focusing on pathways shorter than 30 years. A remarkable seasonality in ventilation is observed, with a peak in the winter. The ventilation patterns are considered in the context of the next 30 years and so their implications for climate change.

Ilona Kater: Renewable Development on Indigenous Lands: A Just Transition in the Arctic?

University of Cambridge, Scott Polar Research Institute, Postdoctoral researcher

Significant infrastructural development is proposed and already underway in the Arctic to contribute towards a global transition away from fossil fuels. This includes renewable infrastructure, and increased mining for rare earth elements and other strategic minerals used in renewable technologies. However, much of this development is happening on Indigenous lands, and disrupting traditional livelihoods such as reindeer herding, leading to strong social and legal opposition from these communities. This talk, focusing on Fenno-Scandia, will raise discussions of some of the complexities of ensuring a green transition in the Arctic is a truly Just Transition for its inhabitants.

Ainhoa Jimenez Molina: Marine heatwaves in Patagonia

University of Cambridge, Scott Polar Research Institute, MPhil in Polar Studies

Marine heatwaves (MHWs) and marine cold spells (MCSs) are prolonged periods of anomalously warm or cold water, localised in time and space, that can have significant

ecological consequences. Moreover, drivers of MHWs and MCSs are expected to impact other abiotic variables, potentially triggering further cascading biological effects.

Located in the subantarctic and forming the western boundary of South America, Patagonia experiences complex climatic interactions and increasing glacier melting, making it vulnerable to extreme temperature events. This study leverages satellite data products to improve the understanding of MHW and MCS patterns, their drivers, and impacts in the channels and fjords of southern Chile.

Isabelle Sangha: Comparing simulated polar stratospheric clouds in the UKESM with CALIOP satellite data

British Antarctic Survey and University of Cambridge, Yusuf Hamied Department of Chemistry, Met Office, PhD

Polar stratospheric clouds (PSCs) play a fundamental role in depleting stratospheric ozone. Heterogeneous reactions on their surfaces increase the concentration of active chlorine, which can catalytically destroy ozone and prolong ozone depletion by denitrifying and dehydrating the stratosphere. However, parameterisations of PSC formation is poorly included in global chemistry-climate models due to the complexity of the microphysical processes involved in PSC particle formation. This limits our ability to project the future recovery of the stratospheric ozone and the resulting climate impacts. Here, a comparison of the results from the new PSC scheme in the UKESM with the observations from the satellite-borne Cloud-Aerosol Lidar with Orthogonal Polarization (CALIOP) is presented.

Poster Session

1. **Samantha Kentwell: New facilities at BAS: Geology lab, ice core lab and aquarium**
   British Antarctic Survey, Marine Aquarium Technician

2. **Rosie Williams: Effect of model initialisation on committed sea level contribution from the Amundsen Sea Sector**
   British Antarctic Survey, Deputy Science Leader for Ice Dynamics and Palaeoclimate (IDP)

3. **Johanna Grabow: An Introduction to the Scientific Committee on Antarctic Research (SCAR)**
   Scientific Committee on Antarctic Research (SCAR), Project Officer

4. **Eleanor Honan: Introduction to the UK Polar Network**
   UKPN Member-At-Large, Former President. British Antarctic Survey, Ecosystems, Durham University, Department of Geography, PhD

5. Ingrid Cnossen: The climate of the upper atmosphere and its impact on space debris
   British Antarctic Survey, Space Weather and Atmosphere (SWA), Research Fellow

6. Megan Malpas: Ice, ice, maybe: Is blowing snow a significant local source of ice nucleating particles in the high Arctic?
   British Antarctic Survey (BAS), Atmosphere, Ice and Climate (AIC), PhD

7. Rebecca Coulson: Impact of energetic particle precipitation on middle atmosphere climate chemistry
   British Antarctic Survey (BAS) placement student from Leicester University, PhD

8. Luisa Aviles: Arctic Atmospheric Rivers: A Case Study from April 2020
   British Antarctic Survey (BAS), Atmosphere, Ice and Climate (AIC), PhD

9. Birgit Rogalla: Developing a circum-Antarctic ocean model configuration
   British Antarctic Survey (BAS), Polar Oceans (PO), Postdoctoral researcher

10. Gosha Geogdzhayev: Exploring Automated Techniques for Inferring Floe Size Distributions of Arctic Sea Ice
    University of Cambridge, Department of Applied Mathematics and Theoretical Physics (DAMTP), MPhil in Quantitative Climate and Environmental Science (QCES)

11. Nan Wu: A mechanistic model to quantify the krill faeces carbon flux in the Southern Ocean
    British Antarctic Survey, Pelagic Ecosystems, Postdoctoral Researcher

12. Niccolo Zanotti: FTorch: Enabling Online Training for Large-Scale Climate Models
    University of Cambridge, Institute of Computing for Climate Science (ICCS), Master's student

13. Yang Liu: Spatial Characteristics and Dynamic Mechanisms of the Antarctic Slope Current in the Ross Sea
    British Antarctic Survey, Polar Oceans (PO) PhD

14. Rishul Karia: Mixing Effects of Offshore Wind Farm Foundations in the North Sea
    University of Cambridge, Department of Applied Mathematics and Theoretical Physics, MPhil in Quantitative Climate and Environmental Science