

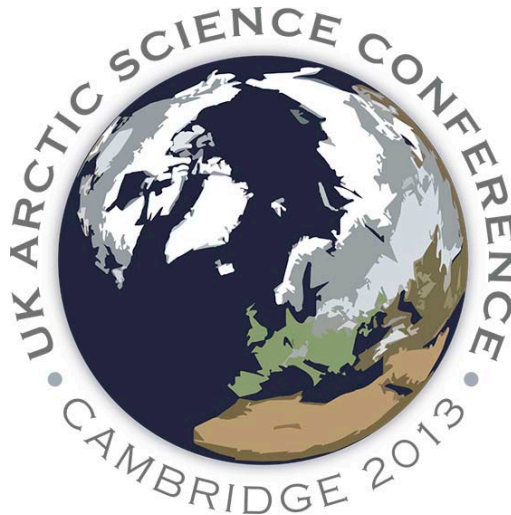


Scott Polar Research Institute
University of Cambridge



Arctic Office
NATURAL ENVIRONMENT
RESEARCH COUNCIL

UK ARCTIC SCIENCE CONFERENCE 2013



Scott Polar Research Institute

18 – 20 September

With financial and administrative support from the NERC Arctic Office

Financial support for icebreaker/poster session refreshments provided by Planet Ocean Ltd.



Please note: Conference programme may be subject to change

Programme of Events

General information:

Registration desk for UK Arctic Science Conference: Scott Polar Research Institute foyer

UK Arctic Science conference sessions – 18th to 20th September 2013: Bristol-Myers Squibb (BMS) Lecture Theatre, Department of Chemistry

The Lecture Theatre is accessed from Lensfield Road, via a shared entrance road with the Scott Polar Research Institute (located on the left of the access way). The entrance to the Lecture Theatre is on right hand side towards the end of the shared entrance road. There is no direct access to the Lecture Theatre from the Department of Chemistry main entrance.

UK Arctic Science Conference Icebreaker and Poster sessions: BMS Lecture theatre – Upper Foyer

UK Arctic Science Conference Buffet lunch (Thursday) and Coffee breaks: BMS Lecture Theatre – Lower Foyer

Please note: For the UK Arctic Science Conference, a buffet lunch is provided on Thursday only.

Associated meetings:

UK Polar Network Software and Sustainability Workshop (Organiser: Nick Toberg, UKPN): 09:00 to 18:00, Tuesday 17th September, Museum Gallery and Large Lecture Theatre, Scott Polar Research Institute, University of Cambridge

Full programme available on the UKPN Website: <http://polarnetwork.org/events-and-workshops/2013-software-and-polar-research-workshop/>

UK Sea Ice Group Meeting (Organiser: Danny Feltham, University of Reading): 13:00, Tuesday 17th September to 12:30, Wednesday 18th September: Pfizer Lecture Theatre, Department of Chemistry

UK Polar Network Panel Meeting: 13:15 to 14:15, Friday 20th September: SPRI Lecture Theatre (see UKPN website for further information or contact Katrin Schmidt (k.schmidt@uea.ac.uk))

UK Sea Ice Group Meeting Programme

(Tuesday 17th and Wednesday 18th September)

Tuesday 17th September

13:00 Buffet Lunch

13:55 Introduction

14:00 Development of the Global Sea Ice 6.0 CICE Configuration
Dr Jamie Rae et al. (*Met Office*)

14:20 Frozen assets: Understanding archaic sea ice descriptions
Mr Matthew Ayre (*Sunderland University*)

14:40 Arctic predictability: the APPOSITE project
Dr Ed Hawkins et al. (*University of Reading*)

15:00 September Arctic sea ice minimum predicted by spring melt pond fraction
Dr David Schroeder (*University of Reading*)

15:20 Sea ice and the ocean mixed layer over the Antarctic shelf seas
Mr Alek Petty (*University College London*)

15:40 Coupling a multilayer sea ice model to the atmosphere: problems, solutions, and results
Mr Alex West et al. (*Met Office*)

16:00 Break: Tea and Coffee

16:30 Posters

17:30 Close

Wednesday 18 September (sea ice meeting continued):

- 09:30 Impact of variable atmospheric and oceanic form drag on simulations of Arctic sea ice
Dr Michel Tsamados et al. (*University of Reading*)
- 09:50 The effect of black carbon on light penetration and reflectivity of artificially grown sea ice
Ms Amelia Marks and Dr Martin King (*Royal Holloway*)
- 10:10 A Snow/sea ice albedo and light penetration depth response to increasing black carbon:
dependence on snow/sea ice optical properties – a modelling study
Dr Martin King and Ms Amelia Marks (*Royal Holloway*)
- 10:30 The refreezing of melt ponds on Arctic sea ice
Dr Daniela Flocco (*University of Reading*)
- 10:50 Break: Tea and Coffee**
- 11:10 Comparing fixed and dynamic-salinity models of sea ice
Mr David Rees Jones and Prof Grae Worster (*University of Cambridge*)
- 11:30 Modelling biogeochemical tracer transport in sea ice due to gravity drainage
Dr Andrew Wells and J Hitchin (*Oxford University*)
- 12:00 Discussion and Announcements**
- 12:30 Close**

UK Arctic Science Conference Programme

Wednesday 18th September

12:30 to 13:15 REGISTRATION

13:20 to 13:30 Welcome and opening address

Dr Poul Christoffersen (*Scott Polar Research Institute*)

13:30 to 15:30 Oral session 1: Terrestrial biogeochemistry

13:30 Primary production and carbon cycling of Arctic Terrestrial Ecosystems

Prof. Mathew Williams (*University of Edinburgh*)

13:45 Links between landscape change and the biogeochemistry of Svalbard rivers

Prof. Andy Hodson (*University of Sheffield*)

14:00 Mineralogy constrains microbial abundances in Arctic soils; implications for methane releases to the atmosphere

Prof David Graham (*Newcastle University*)

14:15 Linking terrestrial and freshwater carbon cycling in Arctic permafrost ecosystems

Dr Lorna Street (*University of Sheffield*)

14:30 Arctic bioaggregates: from formation to function

Dr Harry Langford (*University of Sheffield*)

14:45 Soil microbial succession in a sub-arctic setting

Dr Nick Cutler (*Scott Polar Research Institute*)

15:00 The Eocene flora of Svalbard and its climatic significance

Dr Abigail Clifton (*Getech*)

15:15 The organic carbon budget of a glacial system: can glaciers recycle organic matter?

Ms Krystyna Koziol (*University of Sheffield*)

15:30 to 15:45 Break (refreshments provided)

15:45 to 17:45 Oral session 2: Atmosphere

15:45 Investigating DMS emission at the edge of melting Arctic sea ice using satellite remote sensing

Dr Diane Knappet (*Plymouth Marine Laboratory*)

16:00 The complex response of Arctic cloud compensation nuclei to sea-ice retreat

Dr Jo Browse (*Leeds University*)

16:15 The ACCACIA project Aerosol Cloud Coupling and Climate Interactions in the Arctic

Dr Ian Brooks (*Leeds University*)

16:30 Cloud and aerosol measurement with the MASIN Twin otter during the ACCACIA field campaigns 2013

Dr Amélie Kirchgassner (*British Antarctic Survey*)

16:45 Methane and other greenhouse gases in the Arctic Measurements, Process studies and Modelling (MAMM)

Dr Garry Hayman (*Centre for Ecology and Hydrology*)

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Wednesday 18th September (continued)

- 17:00 The simulation of Arctic Cloud Changes, with warming, in HadGEM2-ES
Dr Jeff Ridley (*Met Office*)
- 17:15 The effect of the interplanetary magnetic field on polar surface pressure and its
global consequences
Dr Gareth Chisham (*British Antarctic Survey*)
- 17:30 Measurements of greenhouse gas fluxes and associated key variables from a mire
and pine forest in Arctic Finland
Dr Julia Drewer (*Centre for Ecology and Hydrology*)

17:45 to 19:00 Icebreaker Reception and Poster session 1 with refreshments

Thursday 19th September

REGISTRATION DESK OPEN FROM 08:30

08:50 to 09:00 Opening remarks and announcements

09:00 to 11:00 Oral session 3: Modelling

- 09:00 Drivers of Arctic sea ice decline in the HadGem1 coupled model
Ms Ann Keen (*Met Office Hadley Centre*)
- 09:15 Idealised Arctic and regional sea ice cover predictions: initialisation month dependence
Dr Jonathan Day (*NCAS, University of Reading*)
- 09:30 A sensitivity study of the sea ice simulation in the global coupled climate model, HadGEM3
Dr Jamie Rae (*Met Office Hadley Station*)
- 09:45 Modelling of snowpack photochemistry and impact on the polar atmosphere
Dr Roland von Glasow (*University of East Anglia*)
- 10:00 Snow modelling for Arctic science
Prof Richard Essery (*Leeds University*)
- 10:15 Modelling a continuous permafrost basin on the north slope of Alaska
Dr Ruth Mugford (*Scott Polar Research Institute*)
- 10:30 Modelling of Taliks under evolving lakes in permafrost
Miss Johanna Scheidegger (*University of East Anglia*)
- 10:45 Interaction of water and carbon in the Arctic: performance of the UK land surface model JULES
Dr Eleanor Blyth (*Centre for Ecology and Hydrology*)

11:00 to 11:15 Break (refreshments provided)

11:15 to 13:15 Oral session 4: Physical Oceanography

- 11:15 Variability of Arctic Ocean heat content: A model-based analysis and implications for an autonomous observing system
Dr Camille Lique (*University of Oxford*)
- 11:30 Seasonal variability of the East Greenland coastal current
Mrs Abigail Marshall (*University of Sheffield*)
- 11:45 Spin Up of the Beaufort Gyre and the effects of Arctic Sea Ice Cover
Mr Peter Davis (*University of Oxford*)
- 12:00 Seasonal cycle of pan-Arctic volume – heat and FW fluxes during 2005-2006
Dr Takamasa Tsubouchi (*National Oceanography Centre*)
- 12:15 Sea level in the Arctic Ocean: cross-calibrating the Envisat and Cryosat-2 Radar altimeters
Mr Tom Armitage (*CPOM*)
- 12:30 Pathways and dynamics of the East Greenland current in eddy-resolving global ocean models and observations
Dr Yevgeny Aksenov (*National Oceanography Centre*)

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Thursday 19th September (continued)

12:45 Characterisation of horizontal variability in the Arctic Ocean – the impact of sea ice
Dr Charlotte Marcinko (*National Oceanography Centre*)

13:00 Oceanic heat delivery to the South-East Greenland Ice Sheet
Dr Finlo Cottier (*Scottish Association for Marine Science*)

13:15 to 14:00 Buffet Lunch

14:00 to 15:45 Oral Session 5: Fjords & Plumes/marine geology

14:00 Impacts of subglacial discharge on glacier melting
Mr Satoshi Kimura (*British Antarctic Survey*)

14:15 Melting-driven evolution of an ice shelf coupled to a buoyant meltwater plume
Dr Andrew Wells (*University of Oxford*)

14:30 Sediment plume variability in Jokulsaron, Iceland, from in-situ spectrometry and MODIS satellite imagery
Dr Richard Hodgkins (*Loughborough University*)

14:45 Long-term marine climate of the Northwest Passage: deglaciation to present
Dr Anna Pienkowski (*Bangor University*)

15:00 Manganese-rich layers in Arctic Ocean sediments: Biogeochemical archives on glacial-interglacial timescales
Dr Christian Maerz (*Newcastle University*)

15:15 Evidence for palaeo-ice sheet in an unexpected place; Widespread, multi-source glacial erosion on the Chukchi margin
Mr Dayton Dove (*British Geological Survey*)

15:30 Reflection seismic investigations of the Canadian Beaufort Sea margin
Ms Christine Batchelor (*Scott Polar Research Institute*)

15:45 to 16:00 Break (refreshments provided)

16:00 Characterising iceberg scour in diamicton, Scoresby Sund, East Greenland
Dr Lorna Linch (*University of Brighton*)

16:15 to 18:00 Oral Session 6: Greenland Ice Sheet

16:15 Testing the Neoproterozoic “Snowball Earth” hypothesis in Northeast Greenland
Prof Michael Hambrey (*Aberystwyth University*)

16:30 Limited dynamic response of the Greenland ice sheet to exceptional 2012 melting
Mr Andrew Tedstone (*University of Edinburgh*)

16:45 The control of supraglacial lake drainage on Greenland ice flow
Dr Marion Bougamont (*Scott Polar Research Institute*)

17:00 The subglacial access and fast ice research experiment (SAFIRE) in Greenland
Dr Poul Christoffersen (*Scott Polar Research Institute*)

Thursday 19th September (continued)

- 17:15 Greenland iceberg calving: its variability and links to ice sheet surface mass balance and regional climate change
Prof Grant Bigg (*University of Sheffield*)
- 17:30 Characterising Little Ice Age to present tidewater glacier dynamics and response to climate: observations and modelling of Kangia Nunaata Sermia, SW Greenland
Mr James Lea (*University of Aberdeen*)
- 17:45 Atmospheric and oceanic climate forcing of the exceptional Greenland Ice Sheet surface melting in summer 2012 – and a preliminary report of 2013 conditions
Prof Edward Hanna (*University of Sheffield*)

18:00 to 19:00 Poster Session 2

Friday 20th September

REGISTRATION DESK OPEN FROM 08:30

08:50 to 09:00 Opening remarks and announcements

09:00 to 10:45 Oral session 7: Social & Policy/Arctic land-ice

- 09:00 British Antarctic Survey Logistics support to Arctic fieldwork
Mr Michael Dinn (*British Antarctic Survey*)
- 09:15 The NERC small aircraft fleet – its use for Arctic science
Dr Tom Lachlan-Cope (*British Antarctic Survey*)
- 09:30 Europeanization of near-Arctic environments: historical human-ecodynamic perspectives from Norse Greenland's outer fjords
Prof Ian Simpson (*University of Stirling*)
- 09:45 Extraordinary circumstances: The expanded role of registered Nurses as the sole provider of health care in isolated Greenlandic settlement
Mr Christopher Nelson (*University of Alaska/University of Oulu*)
- 10:00 Glacier change on Novaya Zemlya, Russian Arctic since the Little Ice Age and links to the 20th/21st century climatic variability
Dr Katie Wooldridge (*Canterbury Christ Church University*)
- 10:15 Temporal variability of meltwater and sediment transfer dynamics at an Arctic glacier, Storglaciaren, Northern Sweden
Mr Richard Gravelle (*Loughborough University*)
- 10:30 Linking surface energy balance calculations and temperature index models of surface melt: Revision of the Positive Degree Day methodology
Dr Leanne Wake (*Northumbria University*)

10:45 to 13:15 Oral session 8: Arctic Ecology

- 10:45 Historical diets, food web dynamics and climate change in the Arctic
Ms Bryony Townhill (*CEFAS*)
- 11:00 The Arctic Ocean nutrient budget; transport of dissolved inorganic and organic nutrients
Dr Sinhue Torres-Valdes (*National Oceanography Centre*)

11:15 to 11:30 Break (refreshments provided)

- 11:30 Phytoplankton photophysiology and community structure in the Greenland Sea
Dr Heather Bouman (*University of Oxford*)
- 11:45 Combined effect of ocean acidification and freshening: Swimming behaviour response of juvenile and adult pteropods
Dr Clara Manno (*British Antarctic Survey*)
- 12:00 A tool for determining the regional ecology of near-apex predators
Dr Thomas Brown (*Plymouth University*)
- 12:15 Modelling the influence of Copepod behaviour on faecal pellet export at high latitudes
Dr Geraint Tarling (*British Antarctic Survey*)

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Friday 20th September (continued)

12:30 The impact of ocean acidification on Arctic surface ocean biology: results from the 2012 UK ocean acidification research programme expedition
Dr Ray Leakey (*Scottish Association for Marine Science*)

12:45 The impact of the Little Ice Age on the biological structure of lakes in South West Greenland
Dr Erika Whiteford (*Loughborough University*)

13:00 Future of Polar Science
Prof Jane Francis (*University of Leeds*) - TBC

13:15 Concluding remarks

13:30 End of Conference

UK SEA ICE GROUP MEETING POSTERS (listed in alphabetical order by lead author)

Presenter	Title	Affiliation
Amna Jrrar	Pre-industrial climate and sea ice variability in the UM-UKCA model	University of Cambridge
Ann Keen	A case study of a modelled episode of low Arctic sea ice	Met Office, Hadley Centre
Olivier Lecomte	Interactions between snow and melt ponds in sea ice models	Université Catholique de Louvain
Nathanael Melia	Predicting the opening of Arctic sea routes	University of Reading
Carl Robinson	Polar Airborne Survey Technology	British Antarctic Survey
James Screen	Possible influence of sea ice on European summer climate	University of Exeter
Steffen Tietsche	Quantifying the potential to predict Arctic climate on seasonal to interannual time scales	NCAS-Climate, University of Reading
Michel Tsamados	Sensitivity of Antarctic sea ice to form drag parameterization	University of Reading
Alexandra Weiss	Atmospheric boundary layer observations over Arctic sea ice around Spitsbergen in the scope of the ACCACIA project	British Antarctic Survey

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UK ARCTIC SCIENCE CONFERENCE POSTERS (listed in alphabetical order by lead author)

Presenter	Title	Affiliation
Bola Akinyemiju	Vegetation response to temperature variability, in Troms, Norway	University of Manchester
Chris Ball	Hemispherical-directional reflectance (HDRF) of Arctic snow covered tundra for the validation of satellite remote sensing products	Royal Holloway, University of London
Kelly Baustian	Aircraft based measurements of ice nuclei during the campaign ICE-ACCACIA	University of Leeds
Elise Biersma	Seasonal variation in abundance of terrestrial Arthropods on Spitsbergen	British Antarctic Survey/University of Cambridge
Elise Biersma	Biogeography of Polar Bryophytes	British Antarctic Survey/University of Cambridge
David Blake	James Clark Ross as a platform for Arctic science data acquisition and associated marine technologies	British Antarctic Survey
Jo Browse	Low impact of future Arctic shipping on high-latitude black carbon deposition	University of Leeds
Sonal Choudhary	High Arctic Tundra retains most of the atmospheric nitrogen deposited: provides important ecosystem service	University of Sheffield
Finlo Cottier	Controls on the vertical distribution of migrating zooplankton – a case study of complexity from the high Arctic	Scottish Association for Marine Science
Eleanor Darlington	Submarine glacial melt contributions inferred from development of sediment plumes, Kongsfjorden, Svalbard	Loughborough University
William Davies	Scale challenges in Arctic environmental policy: the case of offshore petroleum in Greenland	University of Leeds
Mike Dinn	British Antarctic Survey logistics support to Arctic fieldwork	British Antarctic Survey
Cynan Ellis-Evans/Nick Cox	UK Arctic Research Station	NERC Arctic Office
Rebecca Fisher	Methane emissions from Arctic wetlands - isotopic characterisation	Royal Holloway, University of London
Mark Forshaw	Parametrising the effect on mean Arctic circulation due to eddy-topography interactions	University of Oxford
Anna Foster	The effect of freeze-thaw cycles on the mineralisation of LMW-DOC in Arctic and temperate soil	Bangor University
Adrian Fox	New airborne science opportunities with the NERC Dash-7 aircraft	British Antarctic Survey
Eleanor Frajka-Williams	Deep convection and convective scalings of vertical velocity in the Labrador Sea from Seaglider	University of Southampton
Renske Gelderloos	Modelling the Canadian Arctic Archipelago	University of Oxford
Madeline Giles	The key role of dissolved organic matter in regulating microbial diversity, community structure and organic carbon cycling in Arctic lakes.	University of Essex
Laura Hobbs	Vertical Migration of Arctic zooplankton –A pan-Arctic perspective	Scottish Association for Marine Science
Laura Hobbs	The UK Polar Network: Inspiring and developing the next generation of Polar Scientists	UK Polar Network

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Presenter	Title	Affiliation
Ilka Illers	The deglacial transition in the Canadian Arctic Archipelago: the marine perspective	Bangor University
Rebecca Jansen	An overview of the atmospheric boundary-layer above the marginal ice zone during ACCACIA	University of Leeds
Amy Jowett	A reappraisal of Greenland Ice Sheet surface mass balance from 1870 to 2012	University of Sheffield
Marek Kubicki	Analysis of the GEC geoelectric field E_z at high and middle geographic latitudes	Institute of Geophysics, PAS
Yueng-Djern Lenn	Semidiurnal tides on the Laptev Sea shelf with implications for shear and vertical mixing	Bangor University
Ben Lincoln	Vertical exchange in the Arctic Ocean	Bangor University
Graeme MacGilchrist	The Arctic Ocean carbon sink	University of Southampton
Nathanael Melia	Predicting the opening of Arctic sea routes	University of Reading
Kevin Newsham	Mycothalli of Kongsfjorden, West Spitsbergen	British Antarctic Survey
Aga Nowak	The response of a High Arctic catchment to climate change – A long term study from the Bayelva watershed	University of Sheffield
Anna Odzimek	Low-level stratiform clouds and related atmospheric electricity at ground level at Hornsund, Svalbard, and mid-latitude station, Swider.	Institute of Geophysics, PAS
Vincent Rinterknecht	Collapse of the Jakobshavn Icebræ ice stream 12.0 ka ago	University of St Andrews
Carl Robinson	Polar Airborne Survey Technology	British Antarctic Survey
Howard Roscoe	Iodocarbons in the Arctic sea ice zone	British Antarctic Survey
James Screen	Possible influence of sea ice on European summer climate	University of Exeter
Mark Stevenson	Biological and geochemical markers of carbon flux in Arctic lake sediments, Disko Island, Greenland	University of Nottingham
Steffen Tietsche	Quantifying the potential to predict Arctic climate on seasonal to interannual time scales	NCAS-Climate, University of Reading
Alexandra Weiss	Atmospheric boundary layer observations over Arctic sea ice around Spitsbergen in the scope of the ACCACIA project	British Antarctic Survey
Andrew Wells	Modelling biogeochemical tracer transport in sea ice due to gravity drainage	University of Oxford
Alex West	The energy and freshwater budget of the Arctic Ocean region: simulation by a CMIP5 model	Met Office Hadley Centre
Jeremy Wilkinson	New EC project ICE-ARC: Ice, Climate, and Economics – Arctic Research on Change	British Antarctic Survey
David Wilton	A coupled ocean-iceberg model over the 20th Century: Iceberg flux at 48°N as a proxy for Greenland iceberg discharge	University of Sheffield
Samuel Wright	Natural resource governance in the Arctic: Understanding key stakeholders' perceptions of risk and organisational field dynamics	University of Leeds

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