



# Verification and Validation of Cryospheric Models

4 - 9 August 2024, Northumbria University, Newcastle, UK



Registration, the Icebreaker and the scientific program take place in the **Business and Law Building at Northumbria University** (City Campus East, Northumbria University, Newcastle NE2 1XA): <https://www.google.com/maps/@54.9753771,-1.6044481,18.75z?entry=ttu>.

All oral presentations will take place in **Lecture Theatre 002** on the ground floor.  
All poster presentation will take place in the **Foyer space** in front of the lecture theatre.

Further information can be found here:

IGS website: [https://www.igsoc.org/event/northumbria\\_2024](https://www.igsoc.org/event/northumbria_2024)

Local organiser: <https://www.northumbria.ac.uk/about-us/news-events/events/2024/08/igs-symposium-aug-2024/>

## SUNDAY 4 August 2024

17:00 - 20:00 Registration

18:00 - 20:00 Icebreaker

## MONDAY 5 August 2024

8:00 - 9:00 Registration

09:00 **Opening address**

### Cryosphere observations I (convener Regine Hock)

09:20	Kenichi Matsuoka	<a href="#">Scientific rationale for the RINGS efforts facilitating airborne geophysical surveys and relevant research of the Antarctic Ice Sheet margin</a>
09:40	Bernd Kulesa	<a href="#">Transient electromagnetic imaging of basal marine ice in Larsen C Ice Shelf, Antarctic Peninsula</a>
10:00	Siobhan Killingbeck	<a href="#">Magnetotelluric imaging of deep subglacial conditions beneath Thwaites Glacier and WAIS Divide</a>
10:20	Benjamin J. Wallis	<a href="#">Ice shelf and glacier grounding line delineation with synthetic aperture radar in low coherence regions using tidal motion correlation – a new grounding line dataset for the Antarctic Peninsula</a>

10:20 - 11:10 Break

### Cryosphere observations II (convener Regine Hock)

11:10	Sebastian B. Simonsen	<a href="#">Data-driven modelling of satellite radar altimetry for Greenland ice sheet mass balance</a>
11:30	Xianwei Wang	<a href="#">Collision with Seamount Triggers Breakup of Antarctic Iceberg</a>
11:50	Andreas Wernecke	<a href="#">New observational uncertainties for sea-ice model evaluation</a>
12:10	Sophie Nowicki, Harley McCourt	short announcements: ISMIP7 workshop, ECR activities

12:30 - 13:30 Lunch break

### Hydrology I (convener Ruth Mottram)

13:30	Bethan Davies	<a href="#">Deplete and Retreat in the Andean Water Towers: data-model comparisons for improving understanding of glacio-hydrological processes</a>
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13:50	Hongyi Li	<a href="#">Monitoring and modeling glacier and snowmelt water resources in complex high-mountain terrain</a>
14:10	Natasha Lee	<a href="#">An Investigation into Observed Summer Colour Changes of Icelandic Proglacial Lakes</a>
14:30	Tim van den Akker	<a href="#">Observations and modelling the long-term development of a perennial firn aquifer on the Lomonosovfonna ice cap, Svalbard</a>

14:50 - 15:20 Break

Hydrology II (convener Ruth Mottram)		
15:20	Sammie Buzzard	<a href="#">MONARCHS: a 3-D model of ice shelf surface hydrology</a>
15:40	Joel Harper	<a href="#">Quantifying meltwater infiltration mechanisms in firn on the Greenland Ice Sheet with observational time series and numerical simulations</a>
16:00	Jeremie Schmiedel	<a href="#">Validation of effective subglacial hydrology models</a>
16:20	Tim Hill	<a href="#">Gaussian Process emulation of a subglacial drainage model</a>

17:00 - 18:00 **SCAR RINGS workshop (room 403, 4th floor)**  
contact Felicity McCormack <felicity.mccormack@monash.edu>

17:00 - ... **ECR drinks, Cumberland Arms** (<https://maps.app.goo.gl/TQHEKenBn3XeLJU9>)

## TUESDAY 6 August 2024

Cryosphere-atmosphere-ocean interactions I (convener Steph Cornford)		
09:00	Ruth Mottram	<a href="#">Evaluating a regional climate model ensemble of surface mass budget to understand diverging future projections</a>
09:20	Hui Gao	<a href="#">Greenland Mass Balance from Laser Altimetry between 1995 and 2020</a>
09:40	Charlotte Lang	<a href="#">Sensitivity of coupled climate and ice sheet simulations of modern Greenland to atmospheric, snow and ice sheet parameters</a>
10:00	Mikkel Lauritzen	<a href="#">Reconstructing the Holocene thinning of the Greenland Ice Sheet</a>

10:20 Break

Cryosphere-atmosphere-ocean interactions II (convener Dan Martin)		
10:50	Nicole-Jeanne Schlegel	<a href="#">Ice sheets and surface energy balance: observational opportunities and key model uncertainties</a>
11:10	Georgina Woolley	<a href="#">Multi-physics ensemble modelling of Arctic tundra and taiga snowpack properties</a>
11:30	Libo Wang	<a href="#">Impact of topography and meteorological forcing on snow simulation in the Canadian Land Surface Scheme Including Biogeochemical Cycles (CLASSIC)</a>
11:50	Harley R. McCourt	<a href="#">The State and Fate of Global Permafrost: A time series of modelled permafrost extent (1960-2020).</a>

12:30-13:30 Lunch break

13:30-15:00 **Poster session 1 (ground-floor foyer, see schedule below)**

15:00-15:30 Break

15:30-17:00 **Poster session 2 (ground-floor foyer, see schedule below)**

**ISMIP7 workshop  
(room 403, 4th floor)**  
contact Sophie Nowicki  
<ismip6@gmail.com>

**Post-poster beers and soft drinks (ground-floor foyer)**

17:00 - 18:00

**ECR workshop (room 021)**

contact Harley McCourt <harley.mccourt@northumbria.ac.uk> and Qing Qin <q.qin@northumbria.ac.uk>

## WEDNESDAY 7 August 2024

### Ice-sheet dynamics I (convener Sammie Buzzard)

09:00	Brent Minchew	<a href="#">Scaling rheological insights from laboratories to ice sheets using remote sensing and ice-flow models</a>
09:20	Ching-Yao Lai	<a href="#">How can physics-informed deep learning help reveal the flow law of ice?</a>
09:40	Daniel Martin	<a href="#">What's in a number? (implications of n=4)</a>
10:00	Felicity McCormack	<a href="#">What can we learn about ice sheet dynamics by investigating geothermal heat flow in East Antarctica?</a>

10:20 Break

### Ice-sheet dynamics II (convener Sammie Buzzard)

10:50	Christine S. Hvidberg	<a href="#">How stable are the ice divides in the northern Greenland ice sheet?</a>
11:10	Hilmar Gudmundsson	<a href="#">Drivers of ongoing changes Thwaites and Pine Island Glaciers, West Antarctica.</a>
11:30	Lielle Stern	<a href="#">Stability of radially spreading extensional flows and Ice shelves</a>
11:50	Ann Kristin Klose	<a href="#">Long-lasting and irreversible Antarctic ice loss caused by warming overshoots</a>

12:30 Lunch break

13:30 - 19:30

**Mid-week excursions**

## THURSDAY 8 August 2024

### Initialization and calibration I (convener Felicity McCormack)

09:00	Alex Bradley	<a href="#">Using the ensemble Kalman inversion to calibrate ice sheet models</a>
09:20	Jessica Badgeley	<a href="#">Improving modeled ice dynamics in Northwest Greenland with transient calibration: From multi-decadal trends to seasonal cycles</a>
09:40	Dominik Fahrner	<a href="#">Impact of geothermal heat flow choice on Greenland ice sheet spin up</a>
10:00	<i>cancelled</i>	

10:20 Break

### Initialization and calibration II (convener Felicity McCormack)

10:50	Tom Mitcham	<a href="#">Challenges and approaches to initialising ice sheets in UKESM</a>
11:10	Trystan Surawy-Stepney	<a href="#">Using observations of surface fracture to address ill-posed ice softness estimation over Pine Island Glacier</a>
11:30	Therese Rieckh	<a href="#">Design and performance of ELSA v2: an isochronal model for ice-sheet layer tracing</a>

11:50	Antoine Hermant	<a href="#">Towards isochronal calibration of continental scale ice sheet models</a>
12:30-13:30	Lunch break	
13:30-15:00	<b>Poster session 3 (ground-floor foyer, see schedule below)</b>	
15:00-15:30	Break	
15:30-17:00	<b>Poster session 4 (ground-floor foyer, see schedule below)</b>	
18:00	<b>Symposium Banquet</b> at The Biscuit Factory (16 Stoddart St, Newcastle NE2 1AN, <a href="http://www.thebiscuitfactory.com">www.thebiscuitfactory.com</a> )	

## FRIDAY 9 August 2024

<b>Cryosphere-atmosphere-ocean interactions III (convener Ching-Yao Lai)</b>		
09:00	Adrian Jenkins	<a href="#">Physical controls on the ocean circulation beneath ice shelves revealed by a simple diagnostic model</a>
09:20	Ronja Reese	<a href="#">Do ice-ocean feedbacks influence a regime shift of the Filchner-Ronne ice shelf cavity?</a>
09:40	Steve George	<a href="#">Implementing a Greenland marine terminating glacier melt parameterisation within an Earth System Model framework</a>
10:00	Uta Krebs-Kanzow	<a href="#">The AWI Earth System Model with interactive ice sheets for simulations on millennial timescales</a>
10:20	Break	
<b>Ice fracture and calving (convener tbc)</b>		
10:50	Juan Michael Sargado	<a href="#">Simulation of crevasse field evolution using a phase-field approach</a>
11:10	Iain Wheel	<a href="#">Self organisation in tidewater glaciers and ice shelves: implications for calving laws</a>
11:30	Sainan Sun	<a href="#">Revisiting the implications of cliff-height dependent calving law on West Antarctic glaciers</a>
11:50	Oliver J. Marsh	<a href="#">Rift growth and calving triggered by ocean tides and resulting in rapid acceleration of the Brunt Ice Shelf</a>
12:30	Lunch break	
<b>Future perspectives (convener tbc)</b>		
13:30	Tamsin Edwards	<a href="#">Improving, evaluating and sharing projections of global mean sea level change to 2300</a>
13:50	Sophie Nowicki	<a href="#">How much does model weighting alter projections of ice sheet evolution?</a>
14:10	Michele Petrini	<a href="#">Topographically constrained tipping point for complete Greenland Ice Sheet melt</a>
14:30	Regine Hock	<a href="#">How much global glacier mass loss is committed under policy-relevant global warming scenarios?</a>
14:50 - 15:00	Closing remarks	

## SATURDAY 10 August 2024

9:00 - 21:00	<b>Post-symposium excursion</b> to Hadrian's Wall
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### Poster session 1 (Tuesday 6 August 2024, 13:30 - 15:00)

1.1	Holly Bartlett	<a href="#">Quantifying suspended sediment export from the Kangerlussuaq region of West Greenland (2017 – 2023)</a>
1.2	Allison Chartrand	<a href="#">Greenland-scape: Assessing analytic and numerical models for improving representation of subglacial topography in slow-flowing regions</a>
1.3	Xiangbin Cui	<a href="#">Available and possible datasets based on seven season's airborne ice-penetrating radar survey in East Antarctica through the Chinese "Snow Eagle 601"</a>
1.4	Lenneke Jong	<a href="#">Model Development and Integration in the Integrated Digital East Antarctica Program</a>
1.5	Rebecca McCerery	<a href="#">Chemical Weathering Products in Seasonally Diverse Proglacial Waters as Tracers for Glacial Hydrologic and Geochemical Modelling</a>
1.6	Carolyn Michael	<a href="#">The EOLIS dataset: Monitoring Land Ice from CryoSat-2 Swath processing</a>
1.7	Ipseeta Nayak	<a href="#">Evaluating the consistency of subglacial overdeepenings derived from different Digital Elevation Models and Ice thickness Models.</a>

### Poster session 2 (Tuesday 6 August 2024, 15:30 - 17:00)

2.1	Ritu Anilkumar	<a href="#">Assessing the role of machine learning in glacier mass balance modelling: A case study over large Himalayan glaciers</a>
2.2	Ritu Anilkumar	<a href="#">Explainable AI aids the development of a dynamically enhanced temperature index glacier mass balance model that outperforms traditional empirical models</a>
2.3	Jon Arrizabalaga-Iria	<a href="#">Firn densification in two dimensions: modelling the collapse of snow caves and enhanced densification in ice-stream shear margins</a>
2.4	Basile de Fleurian	<a href="#">Development of a new snow model in the framework of the ERC IVORI ERC project</a>
2.5	Pascal Hagenmuller	<a href="#">Seasonal observations of the microstructure of snow in an Arctic environment</a>
2.6	Wayne de Jager	<a href="#">Increased rotational Coupling between Antarctic Sea Ice and the Atmosphere Over the Last 30 Years</a>
2.7	Andreas Henz	<a href="#">Transient reconstruction of Younger Dryas to present-day glacier evolution in the Alps constrained by the geological record</a>
2.8	Owen King	<a href="#">Glacier area and mass change along the South American Andes over the last five decades.</a>
2.9	Jonas Liebsch	<a href="#">A spatio-temporal ice loading model for Mýrdalsjökull Icecap(Iceland)</a>
2.10	Anna Puggaard	<a href="#">Greenland surface mass balance using physical-informed deep learning</a>
2.11	Johnny Rutherford	<a href="#">Representation of snow thermal conductivity controls future simulated winter carbon emissions in shrub-tundra</a>
2.12	Max Brils	<a href="#">Climatic drivers of ice slabs and firn aquifers in Greenland</a>

### Poster session 3 (Thursday 8 August 2024, 13:30 - 15:00)

3.1	Violaine Coulon	<a href="#">Historically-constrained projections of freshwater fluxes from Antarctica</a>
3.2	Jan De Rydt	<a href="#">The simulated response of Antarctic ice flow to observed perturbations in ice-sheet geometry.</a>
3.3	Benjamin Getraer	<a href="#">Impact of assumptions for Glen's flow law exponent: 30% greater Amundsen Sea Embayment ice loss by 2100 if <math>n = 4</math></a>
3.4	Emily Hill	<a href="#">Modelling the recently observed evolution of Helheim Glacier</a>
3.5	Eliot Jager	<a href="#">The future of Upernavik Isstrøm : sensitivity analysis and bayesian calibration</a>

3.6	Ana Carolina Moraes Luzar	<a href="#">Impact of model initialization on future projections of the Greenland ice sheet evolution</a>
3.7	Olivia Raspoet	<a href="#">New estimates of englacial and basal thermal conditions of the Antarctic ice sheet</a>
3.8	Camilla Schelpe	<a href="#">On the theoretical limitations of joint inversion for basal slipperiness and ice viscosity</a>
3.9	Tim van den Akker	<a href="#">Modelled ice sheet sensitivity to basal friction parameterizations is determined by the amount of buttressing and the flow factor inversion.</a>

#### Poster session 4 (Thursday 8 August 2024, 15:30 - 17:00)

4.1	Aminat Ambeloron	<a href="#">Modeling the Impact of Stochastic Iceberg Calving on Ice Sheet Dynamics</a>
4.2	Jowan Barnes	<a href="#">Towards predictive modelling of Antarctica using the Úa-FESOM coupled ice-ocean framework</a>
4.3	Cristina Gerli	<a href="#">Weak relationship between remotely detected crevasses and inferred ice rheological parameters on Antarctic ice shelves</a>
4.4	Rebecca Goodison	<a href="#">The relationship between cliff-height and calving rates for Hektoría Glacier in the Larsen B Ice Shelf</a>
4.5	Jim Jordan	<a href="#">Calving MIP - Idealised experiments into calving algorithms and laws</a>
4.6	Yiliang Ma	<a href="#">Evaluation of coupled Earth System Model - icesheet simulations of Greenland against observational products</a>
4.7	Richard Parsons	<a href="#">Glacier Calving - Observations and Modelling</a>
4.8	Brad Reed	<a href="#">Validation of a new coupled ice-ocean model of the Amundsen Sea sector</a>
4.9	Sam Sutcliffe	<a href="#">Modelling Ice Cliff Collapse with the Material Point Method</a>
4.10	Jo Zanker	<a href="#">Ice-ocean coupled modelling for Nioghalvfjærdsbræ (79NG), Greenland</a>