



INTERNATIONAL GLACIOLOGICAL SOCIETY

International Symposium on  
Ice Streams and Outlet Glaciers



Durham University  
Durham, UK  
19–24 July 2020

*Co-sponsored by:*

❄ Department of Geography, Durham University

FIRST CIRCULAR  
June 2019

<http://www.igsoc.org/symposia/2020/durham>

The International Glaciological Society will hold an International Symposium on 'Ice Streams and Outlet Glaciers' in 2020. The symposium will be hosted by the Department of Geography, Durham University, Durham, UK on 19–24 July 2020.

## THEME

Ice streams and outlet glaciers are important components of an ice sheet's mass balance and their behaviour directly impacts on sea level. These corridors of fast-flowing ice have been described as the 'arteries' of an ice sheet and their distinction is largely semantic, with ice streams bordered by slower-moving ice and outlet glaciers bordered by exposed bedrock at the surface. Since the recognition of the importance of these features in the 1970s, there has been a huge growth in their investigation. This began with the pioneering work on West Antarctic ice streams and has subsequently expanded to studies of ice streams and outlet glaciers in all of the world's major ice sheets and ice masses. Of urgent concern for society are recent observations of dynamic changes in ice streams and outlet glaciers, which are thought to be responsible for an acceleration in global eustatic sea-level rise.

In parallel, those studying palaeo-ice sheet beds have long recognized the distinctive geomorphology of ice streams in both marine and terrestrial settings. The study of palaeo ice streams offers an unprecedented opportunity to reconstruct their behaviour over time-scales much longer than modern observations permit, generating new insights into the spatial and temporal controls on their flow, including longer-term perspectives on retreat rates and thinning histories. The beds of palaeo ice streams and outlet glaciers are also more accessible for investigation, leading to new insights regarding the mechanisms of sediment erosion, transport and deposition beneath fast-flowing ice, including the formation of subglacial bedforms.

In addition to empirical studies, there have been major advances in our ability to simulate ice-stream and outlet-glacier behaviour in numerical models. Moreover, observations and reconstructions of ice streams/outlet glaciers have provided useful data to test and calibrate numerical models and recent developments have seen improved projections of mass loss.

The aim of this symposium is to bring together scientists working on both modern and palaeo ice streams/outlet glaciers, together with those using numerical modelling, in order to facilitate greater interaction and the cross-pollination of ideas, data and theoretical insight on one of glaciology's most important topics.

## SUGGESTED TOPICS

We seek papers and presentations on any aspect of ice streams and outlet glaciers, including observations at a range of spatial and temporal scales and insights gleaned from numerical modelling. Key topics include (but are not limited to):

1. Observations of ice streams/outlet glaciers and their links to the ocean–climate system
2. Interactions between ice streams/outlet glaciers and floating ice shelves/ice tongues
3. Geophysical studies of ice streams/outlet glaciers, including englacial and subglacial observations, and processes of sediment erosion, transport and deposition
4. Reconstructions of palaeo ice streams/outlet glaciers, including their links to the ocean–climate system and terrestrial investigations of their subglacial sediments and landforms
5. Numerical modelling studies of past, present and future ice-stream/outlet-glacier behaviour and/or of key processes relating to their behaviour
6. The role of ice streams/outlet glaciers in ice-sheet instabilities (e.g. Heinrich events).

## PROGRAMME

The symposium will include oral and poster sessions, with ample free time for discussion. Additional activities will include an opening Icebreaker, a banquet dinner in the magnificent Durham Castle and a mid-week day-trip to explore the glacial history and glacial geomorphology of palaeo-ice-stream beds in northern England, including a visit to the UNESCO World Heritage site of 'Hadrian's Wall'.

## ABSTRACT AND PAPER PUBLICATION

Participants who wish to present a paper (oral or poster) at the Symposium should submit an abstract by 14 February 2020. Accepted abstracts will be posted on the Symposium website. The Council of the International Glaciological Society will publish a thematic issue of the *Annals of Glaciology* on topics consistent with the Symposium themes and participants are encouraged to submit manuscripts for this volume.

## SYMPOSIUM ORGANIZATION

Magnús Már Magnússon (International Glaciological Society).

## SCIENCE STEERING AND EDITORIAL COMMITTEE

Co-chairs: Chris Stokes and Colm Ó Cofaigh.

Scientific Editors will be announced in the Second Circular.

## LOCAL ORGANIZING COMMITTEE

Chris Stokes (Chair, Durham University), Jennifer Arthur (Durham), Rachel Carr (Newcastle University), Louise Callard (Newcastle), Dave Evans (Durham), Stewart Jamieson (Durham), Bertie Miles (Durham), Colm O'Coifaigh (Durham), Dave Roberts (Durham).

## VENUE

The symposium will be held in the Department of Geography, Durham University, which is located on the Mountjoy Campus, just 10 minutes walk from the historic centre of Durham city, where there are numerous restaurants and traditional pubs, bars and cafes, as well as several tourist attractions and walking trails along the wooded banks of the River Wear. Durham University is England's third oldest and the Department of Geography (founded in 1928) is recognized as one of the leading centres of geographical research and education in the world and with a strong focus on ice sheets, ice streams and sea-level change.

## LOCATION

Durham is a small (pop. 65 000), but spectacular cathedral city in northeast England with a rich heritage. Narrow cobbled streets wind their way around the rocky peninsula carved by a meander in the River Wear to the majestic Norman cathedral and castle, which are a designated UNESCO World Heritage site.

The city is well served by various transport links. Newcastle International Airport is only 45 min by road/rail and is well-connected to various European hubs (e.g. London, Amsterdam, Paris). There are also regular train services along the East Coast railway line to London (3 h) and Edinburgh (1 h 40 min), and regular services to Manchester, including direct train routes to Manchester Airport (2 h 30 min).

## FURTHER INFORMATION

If you wish to attend the symposium, please register your interest online at <http://www.igsoc.org/symposia/2020/durham/>

The Second Circular will give further information about accommodation, the scientific programme/steering committee, additional activities, and preparation of abstracts and final papers. Members of the International Glaciological Society, as well as all those who have pre-registered, will automatically receive the Second Circular. Information will also be updated on the IGS conference website as it becomes available and a local website will be available in Autumn 2019.