

# An icy summer's retreat

■ A 'FRIGID ZONE' may not sound like the liveliest place to pass the summer, but for glaciologist Andy Hodson, who spent his in High Arctic Svalbard studying glaciers at differing stages of retreat, it's one of the most dynamic environments on the planet.

A specialist in glacier ecology from the University of Sheffield, Andy received the Society's Peter Fleming Award this year to continue his investigations into the existence of micro-organisms on glaciers, some ten trillion of which are released annually when the ice thaws.

Working with a multi-disciplinary team of scientists from the UK, Norway and Russia, Andy's research is the first to

examine glacial melt as a combined physical and biological phenomenon. Demonstrating that these vast expanses of frozen water are actually thriving ecosystems in their own right, his work has revealed that the microbes that colonise glaciers may actually be heightening the processes that cause them to melt. Trapping wind-blown particles and other debris that would otherwise be washed away, the organisms form patches called 'cryoconite', which darken the ice surface and allow more of the sun's energy to be absorbed.

Andy and the team were able to incubate microbes on the surface of the ice, employing modern DNA methods and microscopy to study how cryoconite forms and directly observing why it persists upon the ice by influencing its surrounding habitat. 'We were amazed by the extent of biological colonisation upon these glaciers,' he says. 'We found active cryoconite patches everywhere we looked. Their darkening of the ice has been enough to increase the absorption of solar radiation by more than 30 per cent across broad areas.'

Even in this mild season, late snow cover on the ice made crossing the glaciers more treacherous than usual. 'Decades of melt have produced very large, deep meltwater channels, whose winding pathways create ominous "voids" beneath the snow,' Andy says. 'It can be harder to predict where these lie than straighter crevasses.'

They weren't the only ones to have ventured that way. Andy believes they found a set of new dinosaur footprints in the Jurassic rocks excavated by the glaciers, and was impressed by the wildlife they spotted on a daily basis. 'The waters were teeming with fish, beluga whales, seals and the occasional walrus,' he says. 'The Russian crew caught lots of cod for us to eat, which I suspect was only present because fresher waters from the North Atlantic are invading the fjords. There is a consensus that as sea ice keeps weakening in these fjords, such waters penetrate them further, making both water and coastal air temperatures warmer. This of course might also help to explain the dramatic retreat of the glaciers in the area.'

Having now returned from the field, Andy and his team are aiming to produce improved models of glacier retreat based on the life-cycle of cryoconite and the way in which it darkens the glacier surface after the ice has lost its snow cover.

One of more than 65 innovative projects the Society has supported in polar regions in the past five years, Andy's expedition also marked the centenary celebrations of the University of Sheffield's geography department.

**i** The RGS-IBG is open to ideas for projects anywhere in the world, making more than 80 funding awards a year within its programme of 23 grants. For more information, visit [www.rgs.org/grants](http://www.rgs.org/grants)

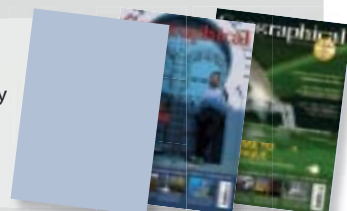


Glaciologist Andy Hodson drills for microbes in the polar ice. Hodson's research focuses on cryoconite, patches of dark material formed by cyanobacteria (inset, left)



**JOIN THE  
SOCIETY  
GET THE  
MAGAZINE**

The Royal Geographical Society (with IBG) promotes enjoyment and understanding of our world. Membership is open to all. You may use geography in your profession, have a thirst for geographical knowledge or a passion for travel. *Geographical* is the Society's magazine and is available as part of membership. To find out more, call the Membership Office on 020 7591 3080



**SELECTION OF EVENTS**



PATRON  
Her Majesty The Queen

HONORARY PRESIDENT  
HRH The Duke of Kent

THE COUNCIL PRESIDENT  
Michael Palin

VICE PRESIDENTS Barnaby Lenon, Professor David Livingstone, Dr Heather Viles

HONORARY TREASURER Stephen Henwood

HONORARY SECRETARIES  
Dr Georgina Endfield (*Research*),  
Professor David Petley (*Expeditions and Fieldwork*),  
Catrin Woodend (*Education*)

MEMBERS OF THE COUNCIL  
Sir Keith Ajegbo, Michael Ashby,  
Professor Michael Bradshaw, David Hayman,  
Dr Vanessa Lawrence, Dr Nick Middleton,  
Professor Susan Owens, Professor Neil Roberts,  
Dr John Shears, Tony Thomas,  
Major General Roy Wood

**The Royal Geographical Society (with IBG)** is a leading world centre for geographers and geographical learning. One of our aims is to stimulate the awareness and enjoyment of the subject to a diverse range of people.

Geography is about the understanding of the people, places and environments of our world, the processes by which they are changing, and the interconnections between them – both locally and globally.

The Society carries out a wide range of activities to support these aims. We support research groups; promote geography within the national curriculum; produce scholarly publications; provide training in scientific field techniques and expeditions; offer information through our large map collection, library and picture library, and engage the wider public through our popular national lecture series.

TO FIND OUT ABOUT JOINING THE SOCIETY, PLEASE CONTACT US ON  
**+44 (0)20 7591 3080** OR VISIT OUR WEBSITE  
AT [www.rgs.org/joinus](http://www.rgs.org/joinus)

**RGS-IBG CORPORATE BENEFACTORS:**  
LAND ROVER, ORDNANCE SURVEY, ROLEX,  
SHELL INTERNATIONAL AND TRAILFINDERS



9 NOVEMBER, 6.30PM  
**HIDDEN HISTORIES OF EXPLORATION**

(Lecture, London)  
Professor Felix Driver delivers this illustrated lecture, which will take a new look at the history of exploration as represented in the Society's remarkable collections.

It coincides with a major new exhibition in the Pavilion and Foyle Reading Room.  
Free for RGS-IBG Fellows and members only



18 NOVEMBER, 7PM  
**MICHAEL MEETS... MUSA IBRAHIM**

(Interview, London)  
Michael Palin talks to Musa about his extraordinary journey from Somalia to Britain, providing an eloquent insight into what it means to be a refugee and a way of looking at the world through someone else's eyes.

Tickets: two free tickets per RGS-IBG Fellow or member. Bookings are essential. To book, please contact the Events Office on [events@rgs.org](mailto:events@rgs.org) or 020 7591 3100

23 NOVEMBER, 2PM  
**BE INSPIRED... Travel planning using the collections**

(Afternoon talk, London)  
The third in a new series of monthly afternoon talks given by speakers who have used the Society's collections to inspire their writing, travel or personal research – intended to inspire members and non-members alike to use our rich resources for their own projects. Venue: Education Centre, RGS-IBG.

Tickets free to RGS-IBG members and educational users. Non-members: £5, in advance. Pre-booking required. Contact 020 7591 3044 or [showcase@rgs.org](mailto:showcase@rgs.org)

11 NOVEMBER, 7PM  
**DISCOVERING THE CANADIAN ARCTIC**

(Travel evening, London)  
An informative evening for anyone who wants to experience the Canadian Arctic Circle for the first time, put questions to our expert panel, and discover more at the exhibitor stands.

Tickets: RGS-IBG members £10, non-members £15. Price includes wine and an information pack. To book, please contact the Events Office on [events@rgs.org](mailto:events@rgs.org) or 020 7591 3100



20 NOVEMBER, 7PM  
**CEILIDH**

(Young members' event, London)  
A great opportunity to meet other young members at our popular Scottish celebration dinner with Ceilidh dancing. No dancing skills necessary – just come and have fun! All welcome.

Tickets: RGS-IBG members £35, non-members £40. Limited places, book early (maximum of four tickets per member). Dress code: black tie. To book, please contact the Events Office on [events@rgs.org](mailto:events@rgs.org) or 020 7591 3100

27 NOVEMBER, 7.30PM  
**WILDLIFE CONSERVATION IN A FORMER WAR ZONE**

(Lecture, Chester)  
Lise Hanssen works in the zone bordered by Namibia, Angola and Botswana and will discuss how recent hostilities have affected the work of conservationists there. Joint meeting with Fauna and Flora International.

Venue: Chester Zoo Lecture Theatre, Upton, Cheshire.

Buffet costs £3.50. For details, contact the Events Office on [events@rgs.org](mailto:events@rgs.org) or 020 7591 3100

