



**BSG** British Society for  
Geomorphology  
**NEWSLETTER**  
Sept 2022



*Edited by Dr Josh Ahmed*



**YouTube**

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Alexander Osborne, UK

# Message from the Executive Committee

As President of the BSG, Heather Viles has been working hard this year to enhance and energise the Fellowship to better reflect the diversity of today's geomorphological community. Fellows of the BSG are members of the Society who have made significant contributions to the advancement of geomorphology through, for example, refereed research publications, professional practice which has produced influential reports and recommendations, influential pedagogic advances in learning and teaching, and service to the activities of the BSG. We hope to increase the number of Fellowships made over the next 8 years, by electing 5-8 Fellows per year in order to ensure a diverse, representative, and active Fellowship. This September, five new Fellows were announced at the Annual Meeting in Northumbria – **Professors Louise Bracken, Martin Evans, Dave Nash, Dan Parsons and Stephen Tooth**. Heather welcomes any suggestions of names to be considered for future Fellowships from any member of the society at any time.

**Professor Heather Viles** (University of Oxford)  
**President, 2019-2024**

I'd like to thank Tom Coulthard (*University of Hull*) for leadership of the BSG Windsor Postgraduate Workshop over many years and am pleased to announce that Lucy Clarke (*University of Gloucestershire*) will be taking on this role for 2022 workshop. Thanks go to our incoming joint Chairs Katy Kemble and Rich Jeffries for pushing forward with the new BSG website and also for developing a BSG policy in view of the Climate Emergency. I'd also like to thank our President, Heather Viles for overseeing the BSG Fellowship selection process. Thank you to all BSG committee and sub-committee members for their enthusiasm and hard work in keeping the numerous activities of the Society running for another year and for bringing forward new initiatives. Finally, I'd like to thank Katie Meek for providing vital administrative support for the BSG.

**Professor Andy Russell** (Newcastle University)  
**Chair (outgoing), 2021-2022**

Katy Kemble has been working very hard to get the [BSG's new website](#) up and running. Apart from looking fabulous, it'll be far more useful for BSG members, with all the key information and updates you need, and with content easier to find. Keep your eyes peeled for announcements about its launch.

Meanwhile, as we experience droughts one day and floods the next, Rich has been working on the BSG's response to the Climate Emergency.

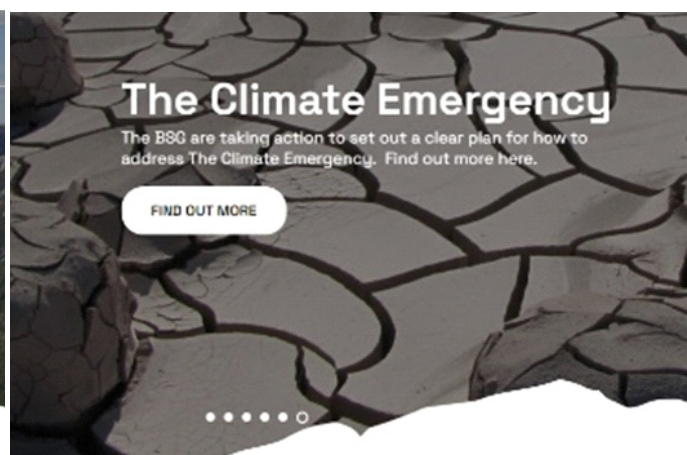
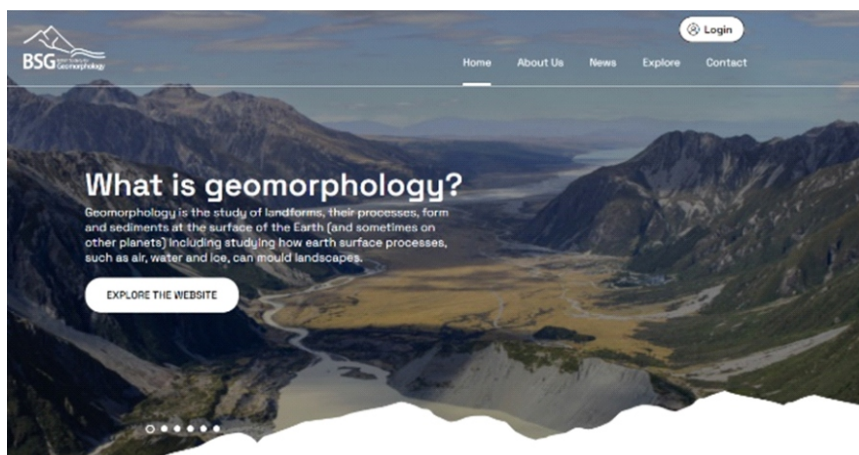
***The BSG considers the Climate Emergency to be one of the greatest challenges faced by people and the planet.*** And we are acting – we're setting up a society climate policy and working group. The BSG has two roles in relation to climate change:

- (1) *The BSG can support geomorphological science to help society to understand, mitigate and adapt to climate change.*
- (2) *The BSG should do its bit in reducing its own emissions.*

To oversee these areas of work, we are setting up a climate advisory group. We're looking for people to get involved, to guide the BSG's work on climate. This is a great opportunity to develop your professional network and to gain experience. Rich launched the BSG's climate action work at the AGM; you can check our new website for more information.

On a personal note, Katy welcomed baby Jake Coe into the world in July (who many of you would have met at the annual meeting) – roll on the next generation of geomorphologists!

**Katy Kemble** (Jacobs) & **Rich Jeffries** (Environment Agency)  
**Co-Chairs, 2022-2023**



# News and Events

## Reduced BSG membership fees

The British Society for Geomorphology is currently offering a 25% reduction on all membership fees. The membership will give you access to the society's journal (Earth Surface Processes and Landforms), the ability to apply to the many society grant schemes, and reduced registration rates to BSG and International Association of Geomorphologists (IAG) conferences.

## Currently available membership rates:

**Full members: £30/year**

**Postgraduates: £30 for 4 years!! or £40 for 3 years for springboard**

**Unwaged/Retired: £12/year**

## Menstruation in the field

Dr Bethan Davies (Newcastle University) and Dr Becky McCerery (Northumbria University) recently published advice for those planning and undertaking fieldwork in remote locations for menstruating persons. The article outlines recommendations for field leaders to better support their colleagues in the field from the perspective of two women who menstruate and undertake fieldwork. You can read the full article [here](#).

## #BSGJobs

Remember, if advertising job positions for PhD students, research assistants, postdoctoral research positions, or teaching positions, please tag the BSG (@BSG\_Geomorph) and use the hashtag #BSGJobs on Twitter to allow us to help advertise your positions across our social media platforms. These posts will also be available on the website for you to search for.

## BSG YouTube Channel

The Society's YouTube Channel has been recently updated to include both the Postgraduate Forum-led webinar series on careers in geomorphology and the Outreach and Education Committee-led Digital Resources webinar series. There are also interviews with geomorphologists from the European Geosciences Union (EGU) meeting in 2019, the Debates in Geomorphology video series, and all the medal award lectures from BSG20. Head on over and [subscribe](#) to the channel to keep up-to-date with all the latest content

## BSG Website

The Society's website has had a full transformation and is ready and waiting for you to take a look. The site is much more user-friendly and accessible, meaning you can find the information you need with ease. We will be adding new features to the website and want to hear from you about your research and your work. If you have something to share, please get in touch with Katy Kemble or Josh Ahmed.



Chandan Pradhan, India

# Annual Conference 2022: Northumbria

*Hello from the new BSG Chairs, Katy and Rich*

We really enjoyed seeing so many of you in Newcastle. It was an excellent meeting with great site visits and interesting workshops. Many thanks to Matt Westoby, the others in the excellent Newcastle team, and to all the presenters for making it a great success. Our thanks also to the outgoing Chair Andy Russell for his recent leadership and hard work.

Three themes stood out from the meeting. The first was diversity – human, conceptual and geomorphic. There were high-quality presentations by people from different countries, career stages, cultures and perspectives – telling us about scientific advances and applications in a wide range of geomorphic settings. There was even a good diversity of ages, with the youngest audience members being only weeks or days old! All of which is great. But we feel that the BSG needs to do more to increase diversity, equality and inclusion amongst geomorphologists. This will be one of the things we focus on in the year ahead, so look out for more on this topic soon.

The second standout point was climate change. Many of the presentations showed us the accelerating and concerning geomorphic changes caused by climate change. Glaciers are retreating, rivers and coasts flooding, and the land is literally sliding. Fiona Tweed's presentation was a brilliant example of impactful research that also documented some impacts of climate change. Other presentations gave us ever-deeper insight into the fundamental geomorphic processes that drive coasts, rivers and glaciers. Several people looked at the human impact on geomorphology. We need this scientific knowledge now more urgently than ever. It will help us understand, mitigate and adapt to the impacts of climate change. The BSG funds some of this ground-breaking research, and we should as a Society be proud of that. But the research we fund also contributes to the problem: much of what we do results in the emission of greenhouse gases – whether that's travelling to a field site or running an annual meeting. So you may be pleased to know that we are also taking action on climate – when we fund research, we now ask people to think about and to reduce the emissions of greenhouse gases caused the work we fund. For more on the BSG and climate change, see our new page on the [climate emergency](#) and our [grants](#) pages.

The third thing that stood out was communications. There was some fabulous science communication going on. The presentations were clear, engaging, and often funny – with the final afternoon being a particular highlight. This was no mean feat. In contrast, we know there have been some problems with us as BSG leaders communicating with you all recently. We're sorry about that and are working hard to improve things. The new website is helping us sort those problems out. So look out for better and more useful info from us in future.

Katy and I are pleased and proud to be the first non-academics to lead our professional learned Society, and by doing the role jointly (and in Katy's case while on maternity leave from her job at Jacobs) we also hope to show others that you can be a leader and make a contribution wherever you are in your career, whatever organisation you are in, while maintaining a good work-life balance. So, please do consider getting involved in Society activities. It can give you valuable experience, is rewarding, and is often quite fun. Keep an eye on our [website](#) for upcoming vacancies on committee positions or other ways you can get involved.

And lastly, here's a photo from Newcastle: it's our Sunday field trip to the Wooler Water, an active gravel-bed river that as you can see has literally been cut in half by this massive concrete ford. We learned what problems this type of structure creates, why it was built in the first place (because of geomorphic impacts caused by industrial gravel mining), and how it will be removed to restore natural geomorphic processes. This exemplifies why we do what we do. We're geomorphologists applying the science to improve the environment. Not a bad way to spend your time.



**Katy Kemble (Jacobs) & Rich Jeffries (Environment Agency)  
Co-Chairs, 2022-2023**

# BSG Committee Member Sought

The BSG is run by a volunteer Executive Committee elected from its membership. Most posts are for a three-year period and each year new Committee Members, Officers and co-opted positions, are required. We currently have a vacancy for Vice Chair Publications.

The Vice Chair leads the BSG's Publications Sub-Committee. This Sub-Committee is responsible for all official Society publications and outputs, maintenance of the society website and reporting on activities within the society on the website and social media. It is responsible for promoting the Society journal *Earth Surface Processes and Landforms* and Society liaison with Wiley Publishers. The BSG Publications Sub-Committee reports to the BSG's Executive Committee and produces an annual report to Wiley Publishers. Reports will also be sent to the Outreach and Research Sub-Committees when appropriate. Further details about the structure of the Society can be found [www.geomorphology.org.uk](http://www.geomorphology.org.uk).

This role is critical to the future success of the BSG and we urge BSG members to give it due consideration. The Society benefits from a healthy financial position and is currently investing in a wide range of initiatives intended to promote the discipline and profession of geomorphology, including dispersal of significant research grant funding, development of outreach activities, improvements to our website, membership management and publications portfolio. There is also scope to shape the society through development of our five-year strategic plan. All this activity relies on the energy and commitment of BSG Committee Members.

The post will last for three years, starting mid-October 2022. Applicants should submit a **two-page CV briefly detailing relevant experience, and the name of a proposer and seconder to the Honorary Secretary ([richard.williams@glasgow.ac.uk](mailto:richard.williams@glasgow.ac.uk)), by 1600 BST - Friday 7 October 2022.**

Please feel free to contact Richard Williams or the current post holder (Eli Lazarus, [E.D.Lazarus@soton.ac.uk](mailto:E.D.Lazarus@soton.ac.uk)) beforehand if you'd like any more details about these roles. There will be an online election if the role is contested.

Dr Richard Williams (Glasgow University)  
**Honorary Secretary, 2020-2023**

## Postgraduate News

We were very excited to be able to welcome PGR students from all over the UK and further afield to the BSG conference in Northumbria. It has been a long couple of years without in-person interactions at conferences. We had a great time hearing about new and exciting research from our new members and introducing them to the brilliant BSG community!

We hosted an Early Career Researcher workshop with discussions about grant applications, fellowships, and careers. This was a perfect event for putting together some very useful tips and for you to ask all your questions about applications. Our member Holly also worked alongside the Committee for Professional Geomorphology to organise the workshop "To Model or Not to Model".

Another highlight from the committee is the session *Crowd-solving Problems in Earth sciences* that Erin Harvey and Sam

Woor co-convended at EGU 2022 this past May. They hosted some great discussions about access difficulties, problems of temporal and spatial scaling and extrapolation, lack of methods, and everyday life challenges as a scientist.

Lastly, we have been busy getting the new website ready! Make sure to check out our postgraduate section, where we will be updating our activities and posting useful information. You'll also find it easier to access the grants section and get all the information on how to apply for PGR and conference attendance funding!

We are always looking for new members for the BSG Postgraduate Forum. If you want to get involved, contact us via email at [bsgpostgrads@gmail.com](mailto:bsgpostgrads@gmail.com) or email the current chair ([marina.ruiz.so@ed.ac.uk](mailto:marina.ruiz.so@ed.ac.uk)).

**Marina Ruiz Sánchez-Oro**, University of Edinburgh  
Chair, Postgraduate Forum  
[marina.ruiz.so@ed.ac.uk](mailto:marina.ruiz.so@ed.ac.uk)



# Outreach and Education News

Projects funded through the Outreach and Education grant have continued to spread the word about the importance of geomorphology this summer. Six virtual geomorphology tours have been part of interactive displays at British Science Week activities, at the Royal Welsh Agricultural Society show in July (including a visit by the First Minister of Wales, Mark Drakeford MS) and at the National Eisteddfod of Wales in August, where a talk was also given introducing geomorphology and the BSG. Visitors to these events were able to explore the virtual tours and learn about geomorphology and its links to historical and contemporary society. If you are interested in exploring the tours, please follow the QR codes below.

Tom Lawrence of Cardiff University also held a geomorphology outreach day for pupils of Severn Primary School, Canton, Cardiff. This event – 'a day in the life of a geomorphologist' – introduced the pupils to the nature and importance of geomorphology with the aim of encouraging pupils in this urban area with landscape and the outdoors. Marie Busfield and I have also given talks on geomorphology and geology to year 12 and 13 pupils as part of the Girls into Geoscience initiative.

At the Annual Meeting in Northumbria, a discussion was held as part of the Early Career Researcher Session regarding the Geomorphological Outreach Grant, with a view to encouraging more applications to the fund from early career researchers. If you have an idea for an exciting outreach and education activity, please do consider applying to the fund – deadlines are the 30<sup>th</sup> September and 1<sup>st</sup> February and more details are available on the BSG website. Please do get in touch with the committee if you have any questions.

The BSG podcast is nearly ready for launch! Keep an eye out on the BSG social media channels for more details very soon! If you would like to contribute, have ideas for possible discussion items, or technical tips on creating or promoting podcasts please get in touch.

We are also planning on developing a 'geomorphological outreach' item for the 'Geomorphological Techniques' series of guides (available on the BSG website). If you are interested in contributing, please get in touch.



Cors Caron



Tan-y-bwlch



Grogwynion



Ynyslas



Pontarfynach/  
Devils Bridge



Cwm-du



**Dr Hywel Griffiths (Aberystwyth)**  
**VC Outreach and Education Committee**  
hmg@aber.ac.uk

# BSG Photo Competition 2022

It's time once again to look through those holiday snaps, those fieldwork photos, and those stunning images of geomorphology as we launch the BSG Photo Competition 2022. As usual, the Communications and Publications Committee along with the Vice-Chair of the Outreach Committee will form the judging panel who will reward the best photo with a £100 prize. We will also be offering £50 for the two best runner up photos.

The rules are pretty simple: you can submit a maximum of two photographs and **MUST** be registered as a BSG member (you can do this on our website - see page 2 for a link). Photo submissions will be received through Twitter, Facebook, and Instagram, but **will only be counted if they tag the BSG in their post and use the hashtag #BSGPC22**. Failure to do so will unfortunately mean you will not be entered into the competition. The submission deadline is **28 October 2022 at 23:59 UTC**

**A full list of terms and conditions can be found here:**

- 1) *The theme of the BSG photographic competition is geomorphology and is open to individual interpretation.*
- 2) *Entrants can submit up to two photos through either the BSG Facebook account, Twitter feed, or via Instagram by tagging @BSGgeomorphology. **ALL ENTRIES MUST USE THE HASHTAG #BSGPC22 to be considered.** The BSG may subsequently contact entrants to supply a high resolution copy of the photograph.*
- 3) *The competition is open to all up-to-date members of the British Society for Geomorphology (non-members' entries will be disqualified).*
- 4) *Each entry should be marked with where the photograph was taken.*
- 5) *The competition closes at 23.59 on Friday 28 October 2022 (UTC).*
- 6) *All entries will be judged by the members of the BSG Communications and Publications Sub-Committee plus the Vice Chair of the Outreach Committee. They will shortlist the top three photographs and select their favourite entry; the winner will receive a prize of £100 and two runners up prizes of £50 will be awarded to the other two shortlisted entries. All three will appear in the BSG biannual newsletter. Our decision is final and no correspondence will be entered into. The prize is non-transferable, non-refundable and non-changeable. Competition winners will, in the first instance, be contacted through the Twitter, Instagram, or Facebook accounts with which they submitted their entries or via email.*
- 7) *All entries must be the original work of the entrant and must not infringe the rights of any other party. The entrants must be the sole owner of the copyright in all photographs entered and must have gained permission of any people featured in their entries. Further, entrants must not have breached any laws when taking their photographs.*
- 8) *Entrants will retain copyright in the photographs that they submit. By entering the competition all entrants grant the BSG the right to use the images on publicity material for the society and on the BSG website and social media sites. No fees will be payable for any of the above uses.*
- 9) *By entering, entrants will be deemed to have agreed to be bound by these rules and the BSG reserves the right to exclude any entry from the competition at any time and in its absolute discretion if the BSG has reason to believe that an entrant has breached these rules.*

For some inspiration, you can check out last year's top three entries from Adam Hepburn, Olivia Verplancke, and Alexander Osborne, below:





# Committee for Professional Geomorphology

The Committee have said a farewell to our Charities & Trusts Sector Reps Lucy Shuker and Julie Wozniczka, a huge thank you to them for their hard work. We have now welcomed Mike Blackmore of Wessex Rivers Trust to fill this role and we're excited to see what he can bring to the committee! We have also welcomed back Helen Reid of SEPA, who has joined Fiona Caithness as regulatory rep after her maternity leave.

## Workshops and Webinars:

Following the success of the face-to-face and virtual events in May 2022, the committee are now focusing on a workshop at the BSG Annual Meeting on Monday 5<sup>th</sup> September, on the theme of modelling in an applied setting: "To Model or Not To Model".

We are also looking to set up a regular lunchtime webinar series. Please fill in this questionnaire below so that we can gauge what you would like to see included in these webinars, for how long, and how frequently:

<https://forms.office.com/r/sf7sdhacDK>

## Knowledge Sharing Platform:

With the shiny new BSG website on the horizon, we are also looking to set up a platform where we can join up academics, consultants, regulators and charities & trusts sector workers. One idea for the platform is to advertise projects that might need further research or ongoing monitoring, or academic research or techniques that needs to be put into applied practice.

*If you want to get in touch please contact Mattie Biddulph (BSG CPG Chair)*

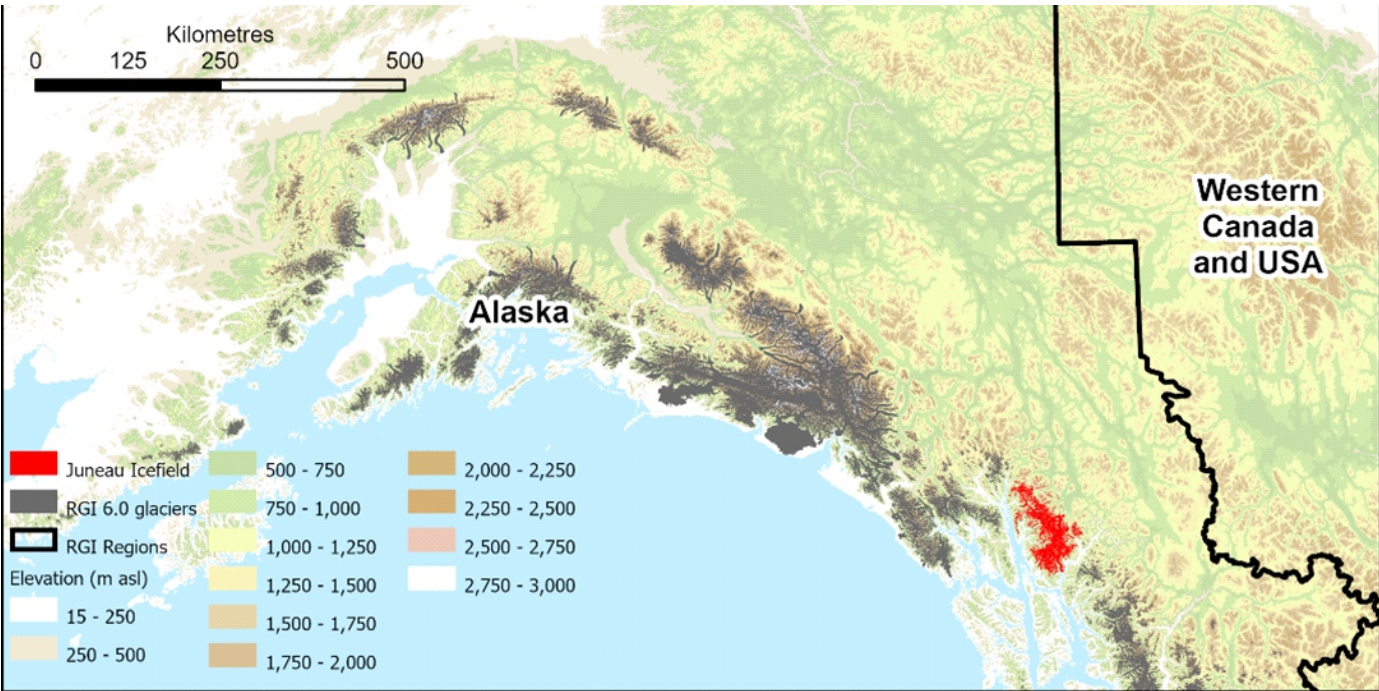
**Dr Matilda Biddulph (Mattie), Chair of the BSG Committee for Professional Geomorphologists,**  
Geomorphology Specialist, Environment Agency  
[Matilda.biddulph@environment-agency.gov.uk](mailto:Matilda.biddulph@environment-agency.gov.uk)



# ESP&L Research Highlight

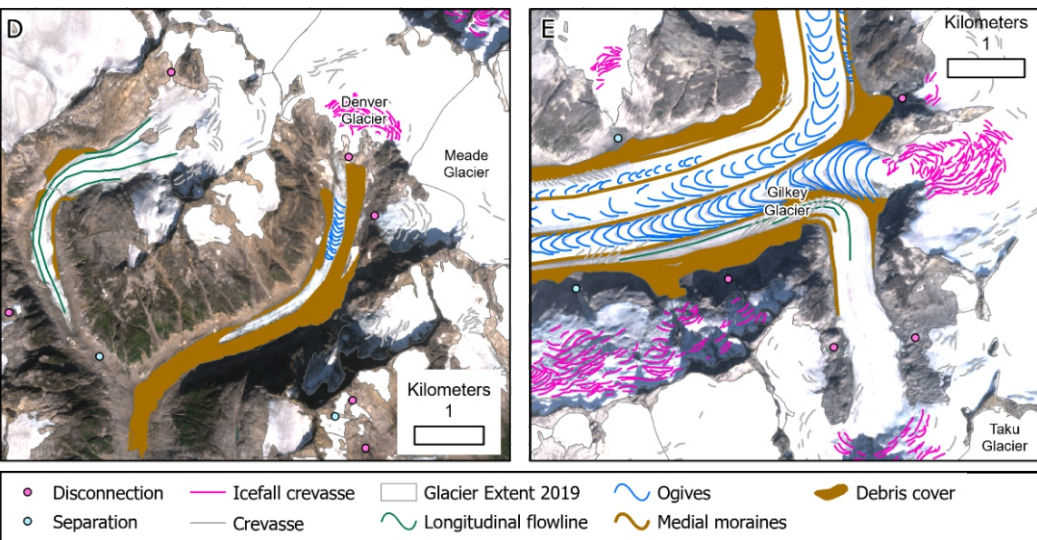
Dr Bethan Davies

[Jacob Bendle](#), [Jonathan Carrivick](#), [Robert McNabb](#), [Christopher McNeil](#), [Mauri Pelto](#), [Seth Campbell](#), [Tom Holt](#), [Jeremy Ely](#), [Bradley Markle](#)



**Figure 1.** Location of Juneau Icefield. Black boundary demarcates the different regions of the Randolph Glacier Inventory

In this paper, we provide a detailed glaciological and geomorphological map that outlines the Neoglacial geomorphology and contemporary glaciology (in 2019 AD) of Juneau Icefield, in USA/Canada (Figure 1). This plateau icefield is susceptible to non-linear and threshold behaviour that will accelerate its response to climate change, including 'disconnections' between glacier accumulation and ablation area as ice thins. Globally, mountain glaciers and ice caps are losing dramatic volumes of ice. The resultant sea-level rise is dominated by contributions from Alaska. Plateau icefields may be especially sensitive to climate change due to the non-linear controls their topography imparts on their response to climate change. However, Alaskan plateau icefields have been subject to little structural glaciological or regional geomorphological assessment, which makes the controls on their mass balance difficult to ascertain.



Using Randolph Glacier Inventory glacier outlines from 2005 AD, Sentinel satellite imagery and Arctic DEM, we manually updated the inventory for 1050 glaciers and 368 lakes in the Juneau Icefield region for the year 2019. The contiguous area of the icefield, which included 218 outlet, valley glacier and mountain glaciers, was 3251.3 km<sup>2</sup> in 2019. Together with the Icefield's surrounding peripheral glaciers, the glacierised area was 3816.4 km<sup>2</sup> in 2019. We found that 63 glaciers had disappeared since the 2005 inventory, with a reduction in

**Figure 2.** Examples of glacier disconnections (pink dots) and separations (pale blue dots) on Juneau Icefield

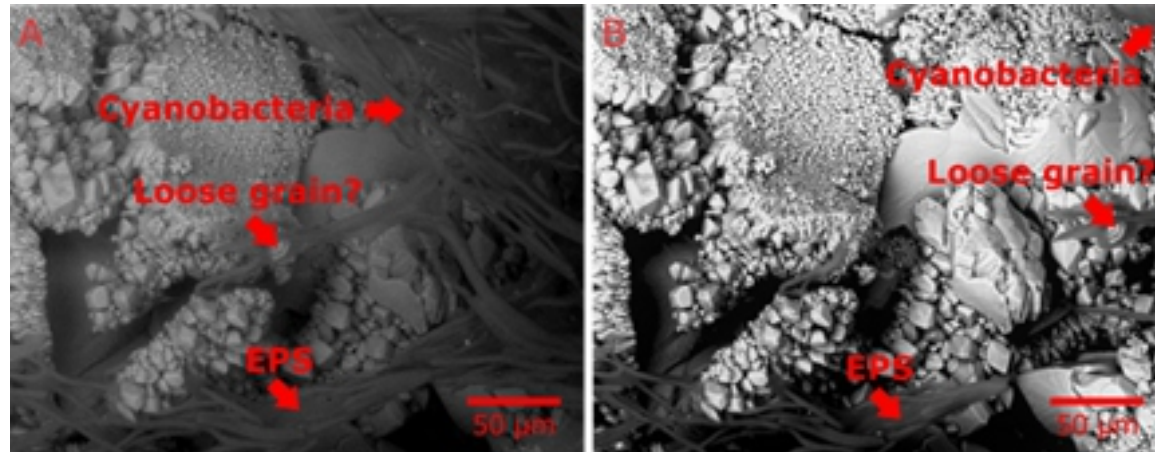
We also present the first structural glaciological and geomorphological map for an entire icefield in Alaska. Glaciological mapping of >20 800 features included crevasses, debris cover, foliation, ogives, medial moraines and, importantly, areas of glacier fragmentation, where glaciers either separated from tributaries via lateral recession ( $n = 59$ ), or disconnected within areas of former icefalls ( $n = 281$ ). Importantly, disconnections occurring within glaciers can separate accumulation and ablation zones, increasing rates of glacier mass loss. Glacier disconnections are widespread across the icefield and should be critically taken into consideration when icefield vulnerability to climate change is considered.

Geomorphological mapping of >10 200 landforms included glacial moraines, glacial lakes, trimlines, flutes and cirques. These landforms were generated by a temperate icefield during the Little Ice Age (LIA) neoglaciation. These data demonstrate that the present-day outlet glaciers, which have a similar thermal and ice-flow regime, have undergone largely continuous recession since the LIA.

You can check out the full publication in the BSG's journal, *Earth Surface Processes and Landforms*, [here](#).

# The effects of cyanobacteria biofilms on water transport and retention of rocks - Dr Laurenz Schröer

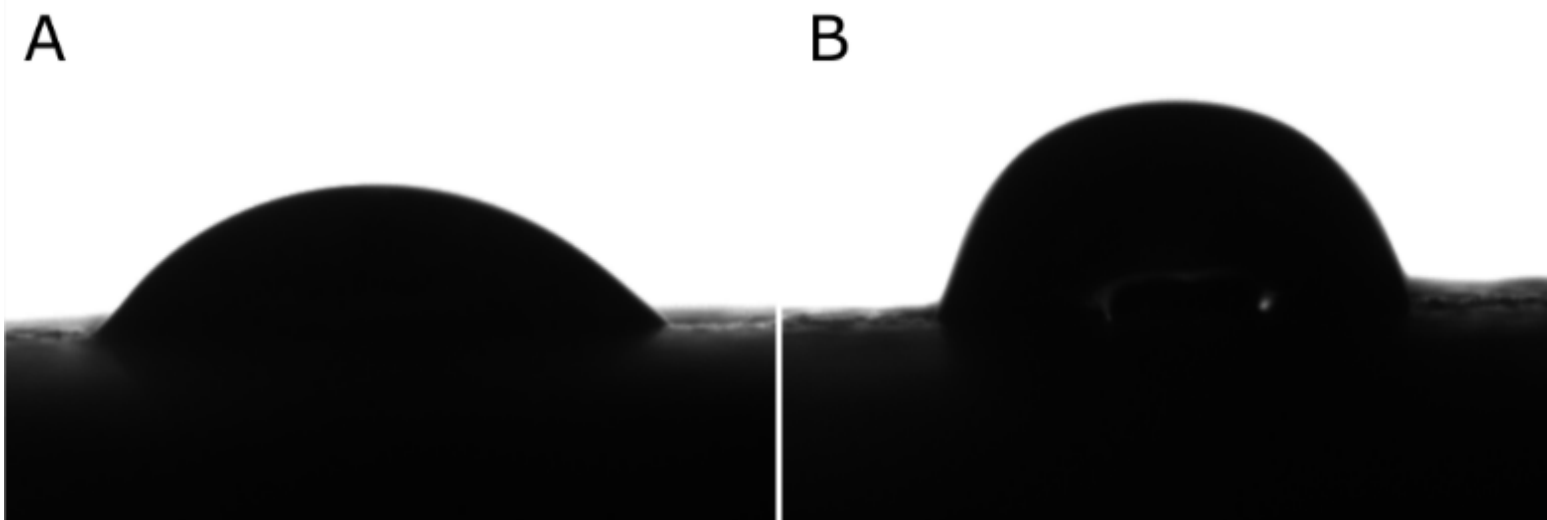
Bacteria colonize numerous substrates, including rocks. Attached to the surface, they form biofilms or communities embedded in extracellular polymeric substances (EPS). The bacteria affect the rock substrate by inducing discoloration, dissolution or precipitation of minerals. Moreover, biofilms could alter water transport and influence the water retention properties of the rock. Any change in the water-rock relationship might affect rock weathering, as water is the principal actor in rock deterioration. The effect of biofilms in soils was intensively studied, but extensive experiments on rocks are missing. Increased knowledge of this topic is necessary to understand how biofilms impact rock deterioration, certainly as climate change and decreasing air pollution could favour biological growth.



**Figure 1.** ESEM image of biofouled Euville at a RH of (A) 100% and (B) 10% showing the shrinkage of the cyanobacteria and the EPS.

Cyanobacterial biofilms of *Phormidium autumnale*, a common rock colonizer, were cultured on three porous sedimentary rocks: Ernzen (LU), Euville (FR) and Savonnières (FR). The amount of biofilms was estimated by spectrophotometry. They were visualized by (environmental) scanning electron microscopy (ESEM and SEM) and optical microscopy on thin sections. The effect of the biofilms on water transport and retention was determined by assessing water transport properties on fresh and biofouled samples based on European standards.

Microscopy showed that the cyanobacteria mainly colonized the outer surface and often sealed the pores. ESEM visualized that biofilms shrunk and swelled with changing relative humidity (RH) (Figure 1). It was observed that this could potentially induce physical damage on the grain scale. The influence of the biofilms on the water transport properties was often limited but overall consistent over the different rocks. The biofilms reduced the capillary coefficient and drying rate but induced a higher water content and increased the water vapour sorption. The most important effect was on the water contact angle, where a low amount of biofilms could induce (near) hydrophobic conditions (Figure 2). The biofilms had no measurable impact on the gas permeability and water vapour diffusion. The changes induced by the biofilms might be limited but could affect future rock alteration. These biofilms could obstruct the pores and hinder water migration. Moreover, this could influence freeze-thaw or salt weathering and future colonization and needs further investigation. Future research should also focus, among others, on the wettability, include biofilms of heterotrophic bacteria and already weathered rocks.



**Figure 2.** Water droplet immediately after contact with (A) untreated and (B) biofouled Savonnières limestone.

