BSG British Society for Geomorphology

NEWSLETTER

JUNE 2025

Afon Ogwen Valley, Wales

- Saraswati Thapa

Edited by: Erin Harvey & Jayesh Mukherjee


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Afon Rheidol potholes , Wales - Stephen Tooth

Message from the BSG President

I hope that, like me, you are looking forward to this year's annual meeting in Leeds where amongst all of the other exciting geomorphology and supportive activities, we will be celebrating the 50th anniversary of Earth Surface Processes and Landforms. This will include some reflections from Fellows about the genesis of the journal and its importance for them, either because of the influential science they found there or the opportunities it gave them to present their work to an engaged, global community. We look forward to hearing your stories and reflections about our journal. We are also hoping to include a 'Meet the Fellows' event, which will be an opportunity to say hello in a social setting and exchange thoughts on some ideas emerging from a working group of Fellows who have been thinking about how best the Fellowship can be used to support the Society and play an active, constructive role. Please look out for that in the programme and come along if you can. As a reminder, Fellows are members of the Society who have made significant contributions to the advancement of geomorphology through, for example, their published research or professional practice. Two new Fellows will be announced this year, and although we do not have a requirement to appoint new members every year, **we welcome your nominations**, especially where they promote diversification of the fellowship (instructions on the BGS website: /About us/BSG Fellows). Like many of the systems we study, academia never seems to achieve much stability, but right now many members are experiencing a particularly unsettling time; for example, with jobs and departments at risk in the UK, and government support and recognition under threat in the USA. Amidst these difficulties I hope your fieldwork, experiments, contracts, holidays and visit to Leeds this Summer provide time for revelling in some geomorphology and the respite that brings.

Professor Stephen Rice
BSG President
Manchester Metropolitan University

Credit: Anindya Majhi
Chhattisgarh, India

Message from the Executive Committee

Over the past few months, the Executive Committee has been busy, with Sub-Committee chairs organising events, assessing and awarding grants, engaging with our cognate societies and making sure the membership is kept up to date with opportunities and news. The 2025 BSG award winners have been decided and as you can see from their short citations in this issue, the diversity of their research and their contributions to the discipline are outstanding – I am looking forward to welcoming them all to Leeds and sharing their incredible success.

Over the last week or so I have seen a flurry of emails from the Leeds organising committee about the exciting programme that is developing for this year's annual meeting. As usual there will be a mix of posters and talks from the community, and we will hear from the 2025 award winners. As Steve mentioned at this year's annual meeting, we will also be celebrating the 50th anniversary of Earth Surface Processes and Landforms. As part of this Stuart Lane has been leading in the development of an exciting programme for the 2025 Cuchlaine King Symposium with a theme of 50 years of change in geomorphic systems, of which you can find out more about in this issue of the newsletter. Specifically, the symposium will be dedicated to the ways in which human activities, direct and indirect, are driving changes in Earth surface processes and the landforms that they create, often beyond what is found in the historical record. We have an exciting line up of invited speakers, but you will have an opportunity to take part via poster sessions combined with "pop-up" poster introductions to encourage exchange between researchers on this theme. This is your opportunity to come together as a geomorphological community so please do register to attend.

I am sure those of you who have attended the annual meeting over the past few years will have met and talked with our wonderful Fi Wi Road interns. Since 2021 the Fi Wi Road Internship has supported Black heritage geography and geoscience students to join a paid summer internship to support them in building networks, voice and experience, encouraging them to stay within a discipline. Every year the BSG funds 2-3 of these interns and we now have a new cohort who started last week and whom you will meet and hear from over the coming months – keep your eyes our for the webinar that they will organise in July.

I look forward to welcoming many of you to Leeds in September. Until then enjoy the summer months and whatever geomorphological adventures that brings, whether in work or play!

Dr Annie Ockelford
BSG Chair
The University of Liverpool

Credit: Rebecca Hodge
Isle of Skye, Scotland

ESPL at 50 years

Earth Surface Processes and Landforms at 50 years.
This is a special year for the journal *Earth Surface Processes and Landforms* (ESPL), a title jointly owned between its publisher Wiley and the British Society for Geomorphology (BSG); is our 50th volume. I say "our" because ESPL is a journal important to both its publisher and to the BSG. The journal has supported the discipline of geomorphology both through the publication of cutting edge geomorphological research over the last 50 years, but also financed a significant component of the BSG's activities. The journal is founded upon a strong collaboration between Wiley and the BSG, one that has survived radical changes in the publishing industry over the least five decades. These are reviewed in my 50th anniversary editorial (Lane, 2025).

The journal was launched in 1976 as *Earth Surface Processes*, becoming *Earth Surface Processes and Landforms* in 1981. Mike Kirkby, of Leeds University, edited the journal from 1976 to 2007 and is now serving his last year as an Associate Editor; a truly remarkable contribution to the history of geomorphology. Our annual best paper award is now named after him. Originally published in print form in just four issues per year, it was first published electronically (along with print from the late 1990s) and we moved to electronic manuscript handling in the mid 2000s. The number of issues grew progressively along with submissions, to 15 per year by the 2010s. With the number of readers requesting printed copy down to one handful, from its 50th anniversary volume, we moved to electronic availability only. Whilst the administration of the journal was handled by Fiona Kirkby, also of Leeds University, in dedicated service for more than 40 years, times have changed, and the journal is now fully administered by Wiley.

The BSG is celebrating the history of the journal in a number of ways. The society is encouraging personal reflections on ESPL papers that have impacted us as researchers, the science that we do and the development of our careers. The BSG Annual Meeting will return to Leeds, where it all started, for its annual meeting. A few years ago, the BSG and ESPL instigated an annual symposium named after Cuchlaine King, a pioneering quantitative geomorphologist, whose work very much captured the spirit of the early papers published in ESPL. The Cuchlaine King symposium, held annually as part of the BSG Annual meeting has this year as its theme 50 years of change in geomorphic systems. The symposium will reflect upon the ways in which human activities, direct and indirect, are driving changes in Earth surface processes and the landforms that they create, often beyond what is found in the historical record. You can submit abstracts to the 1st July at this link https://water.leeds.ac.uk/british-society-for-geomorphology-annual-conference-2025/. Finally, in our last issue of the year, we are planning to publish a small number of commentaries on the impacts of some of those early papers, primarily written by Early Career Researchers. If you would like to write such a commentary, please get in touch at stuart.lane@unil.ch.

Central to ESPL is a close collaboration with the BSG. Like any relationship, this collaboration has required effort and it has not always been plain sailing. However, and supported by mutual trust, the relationship has grown to what it is today. At the same time, the publishing industry is changing beyond recognition, notably as we move further towards truly Open Science. The challenges today for the journal, and for the BSG, are not what they were 50 years ago, even 10 years ago. This is why it is so important for this relationship to remain strong such that both the BSG and ESPL can remain leading actors in the geomorphic landscape.

Prof. Stuart Lane,
Managing Editor,
June 2025.

Reference

Lane, S.N., 2025. Editorial 2025: *Earth Surface Processes and Landforms*—The 50th volume. *Earth Surface Processes and Landforms*, 50, e6064, https://doi.org/10.1002/esp.6064

Annual Conference 2025: Leeds

This year the British Society for Geomorphology Annual Conference, incorporating the 3rd Cuchlaine King Symposium, will be hosted by the University of Leeds.

The BSG Annual Conference is the most important event in the BSG calendar, bringing together geomorphology researchers and professionals to share their work across the entire sphere of geomorphology, and network with peers. This year's event will have a uniquely Leeds flavour as we will be celebrating the 50th anniversary of the journal Earth Surface Processes and Landforms.

The oral and poster presentation sessions, covering all aspects of geomorphology, provide an excellent opportunity to share your latest research and practice.

Early career researcher and professional geomorphology workshops will offer a great chance to develop technical and transferable skills alongside new or familiar peers.

We will celebrate the BSG Medal and Award winners through keynote presentations, and look forward to hosting the Cuchlaine King Symposium, which this year has the theme "50 years of changing geomorphological processes and landforms" and keynote speaker Irina Overeem.

A guided walk on Leeds waterways and bridges (with a geomorphology perspective!) is included in the registration on a first come, first served basis. There will also be a pamphlet for a self-led walk around parts of the Leeds Flood Alleviation Scheme.

Registration and abstract submission for BSG2025 is now open online here: https://water.leeds.ac.uk/british-society-for-geomorphology-annual-conference-2025/ where registration benefits and conference venue, which is just a few minutes from the city train station, travel and accommodation options are detailed. The Frost Reception will be in Cloth Hall Court and the conference dinner will be at the Royal Armouries; more details and links on the conference website.

All conference enquires can be directed to our dedicated inbox: BSG2025@leeds.ac.uk

Prof. Jonathan Carrivick
University of Leeds
BSG2025 Conference Organisation Committee

Credit: Robi Routh
Svínafellsjökull glacier, Iceland

BSG Executive Committee Vacancies

The BSG is seeking applications to fill four positions on its Executive Committee starting in September 2025. If you would like more information about the available roles or are interested in applying, please send your CV along with a short email explaining why you are interested in the position to Fiona Caithness (fiona.caithness@sepa.org.uk).

The **deadline** for applications is **11th August 2025**.

Junior Deputy Chair
The Junior Deputy Chair (JDC) assists the Chair and Senior Deputy Chair with the day-to-day running of the society and has a key coordinating role in promoting equality, diversity, and inclusion within the BSG. The Junior Deputy Chair is an elected one-year role, with the incumbent assuming the role of Senior Deputy Chair in the subsequent year, and then the role of Chair in the year after to facilitate succession planning. The JDC reports to the Executive Committee on the BSG's EDI activities at their quarterly meeting (April, September and November).

Outreach Vice Chair
The Vice-Chair of Outreach (VCO) is responsible for managing and coordinating the Outreach Committee's activities. The committee's main responsibilities include promoting the science of geomorphology to the public and encouraging the teaching of geomorphology at all levels, including schools, colleges, universities, and to the wider public. The VCO reports to the society's executive committee on the varies activities which have taken place at their April, September and November meetings. VCO is also a member of the Finance Committee where they report to committee where they report back how their annual budget is being allocate. The position is held for a three-year term.

Professional Geomorphologist Vice Chair
The Vice-Chair of the BSG's Committee for Professional Geomorphology (VCPG) is responsible for overseeing and managing the Professional Geomorphologists sub-committee and its budget, encouraging more professional geomorphologist to join the BSG, and strengthening connections across all sectors of geomorphology (academic, regulatory, consultancy and trusts and charities) . The VCO reports to the society's executive committee on the varies activities which have taken place at their April, September and November meetings. VCO is also a member of the Finance Committee where they report to committee where they report back how their annual budget is being allocate. The position is held for a three-year term.

Publications and Communications Secretary
The Secretary of the Publications and Communications (SecPub) Sub-Committee is responsible for arranging and recording the minutes of Publications Sub-Committee meetings, and for promoting the BSG through its social media channels with support from others within the committee. The SecPub reports to the Vice-Chair of the Publications Sub-Committee and will stand in for the Vice Chair of Publications should they be unable to attend executive or financial Committee meetings. The position is held for a three-year term.

Credit: Stephen Tooth
Rajasthan, India

BSG Medals and Awards – 2025

The David Linton Award

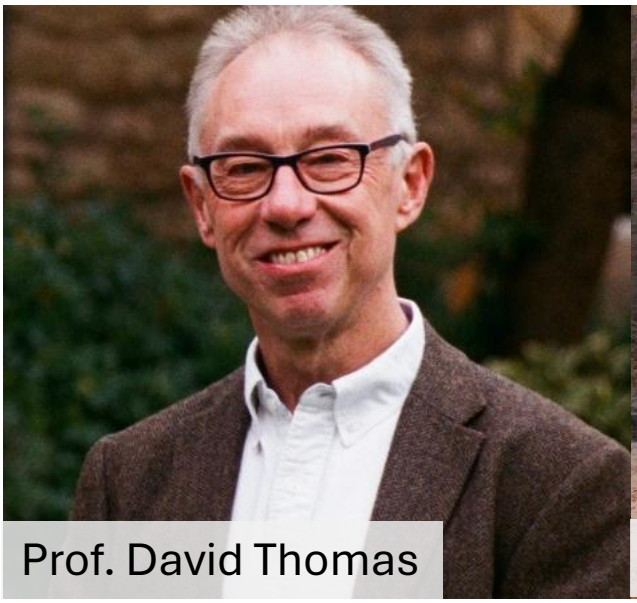
Professor David Thomas – University of Oxford

The David Linton Award is given to a geomorphologist who has made a leading contribution to the discipline over a sustained period. Professor David Thomas is a hugely influential scholar who has made outsized contributions to dryland and desert geomorphology research. His track record covers contemporary processes that shape arid landscapes, reconstruction of Quaternary landscapes, and the interplay between desertification and human migration and mobility. Professor Thomas has also been an outstanding advocate for our discipline, championing geomorphology through a number of senior national and international leadership positions. His sustained and enormous contribution towards geomorphology mean he is a highly deserving recipient of the Linton Award.

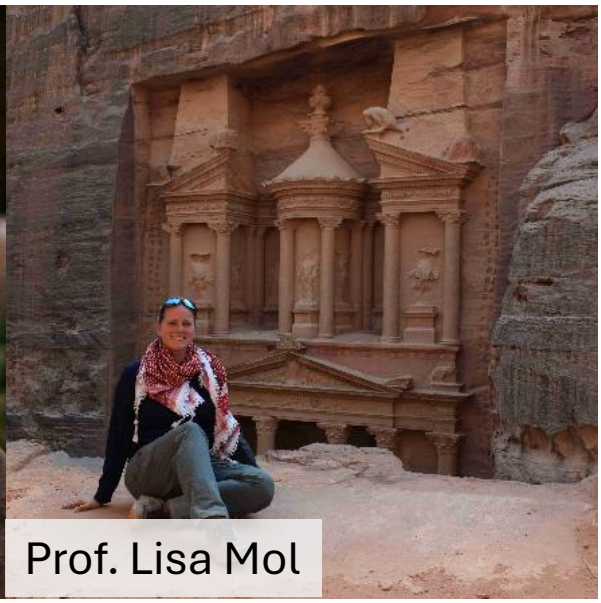
The Gordon Warwick Award

Professor Lisa Mol – University of the West of England

The Gordon Warwick Award is made annually for excellence in geomorphological research by someone within 15 years of being awarded their doctorate. Professor Mol's research truly pushes the boundaries of geomorphological research, using highly innovative applications of rock weathering scholarship to experimentally quantify complex rock deterioration processes associated with ballistic and explosive impacts in heritage sites. Prof Mol's exceptional research is firmly rooted in geomorphology, but her interdisciplinary approach has shown how geomorphic research can transcend traditional discipline boundaries, bringing geomorphology to the forefront in addressing challenging research questions in conflict areas. As such, she is a very worthy recipient of the Warwick Award.



Prof. David Thomas



Prof. Lisa Mol

Nominations for 2026 BSG Awards are open now (Closing date 31st December 2025) and applications can be made through the BSG website. If you require any further information, please contact Jeff Warburton (BSG Awards Officer) jeff.warburton@durham.ac.uk.

BSG Medals and Awards – 2025

The Dick Chorley Award
Dr Sophie Horton – University of Canterbury, NZ.

The Chorley award is made for a published paper based on PhD research. Sophie's paper, "Changes in shore platform wetting and drying cycles following the 2016 Kaikōura earthquake: Implications for incipient marine terrace evolution", considered changes in the distribution of wetting and drying cycles across shore platforms. Changes were examined using a new empirical model that considered tidal inundation, insolation, rainfall, and algal suppression and is notable for its contributions to shore platform geomorphology.

The Michael J. Kirkby Award
Wren Raming (Arizona State University) Kelin Whipple and Ayron Strauch

The Mike Kirkby award for the best paper published in the journal Earth Surface Processes and Landforms for 2024 is made to Wren Raming, Kelin Whipple and Ayron Strauch for a paper entitled Limits to knickzone retreat and bedrock river incision on the Hawaiian islands. The ESPL Editorial Board noted that in this conceptually and methodologically wide-ranging paper, the authors used the special nature of volcanic islands of different age to identify the critical condition that causes knick zones to stall rather than continue to migrate upstream. They showed that this critical condition is related to a narrow range of unit stream power values required for bedrock incision. The results are of potentially very wide-ranging importance for how we interpret landscape evolution across a range of different environments as well as for how the landscape response to wider climate and other forcings.

The Marjorie Sweeting Dissertation Prize
Sophie Snowball, Newcastle University

Sophie dissertation investigated the pollution and exposure risk from an unexposed historic coastal landfill site in Ryhope, Sunderland, with the aim of helping inform how coastal management strategies may prioritise coastal defence, remediation and leachate management. Sophie's thesis was chosen as the recipient of this year's award not only because it was very well written and professionally presented, but also because it addressed an extremely interesting, novel project with a strong rationale. It is an excellent example of how geomorphology can be applied to environmental management problems.

Nominations for 2026 BSG Awards are open now (Closing date 31st December 2025) and applications can be made through the BSG website. If you require any further information, please contact Jeff Warburton (BSG Awards Officer) jeff.warburton@durham.ac.uk.


Dr Sophie Horton


Dr Wren Raming

Postgraduate News

Your Postgraduate Forum Committee

The current ***PGR representatives*** in various sub-comms/working groups are: ED&I – Ayyappadas CS (Oxford), Professional – Varsha Natarajan (Ulster), Research & Outreach - Aaditya Kapil (Northumbria), Website Officer – Adam Hartley (QMUL) and Comms Officer – Jayesh (Aber).

Postgraduate Activity

Last December, the new cohort of doctoral researchers were welcomed to the ***40th edition*** of the BSG's annual Windsor Workshop 2024 at Cumberland Lodge, Windsor, UK. The ***PGR Blog initiative*** has kicked off and first two blogs were published in June 2025 and can be read here: Blog 1 & Blog 2. We are also planning to launch our monthly webinar series soon. The PG Forum committee members have also been busy attending and working in the UK and abroad:

- Aadi, Adam and Louie attended the EGU 2025 in Vienna, Austria.
- Tom Hoseason attended the Earth Surface Processes Institute (ESPIn) workshop and subsequent CSDMS conference at the University of Colorado, Boulder, USA.
- Varsha is presently in Caltech (USA) as a visiting doctoral researcher.
- Ayyappa has recently completed his fieldwork, collecting OSL samples from the Vaigai River basin in the southern Indian state of Tamil Nadu.
- Robi completed an exciting field trip to the Svínafellsjökull glacier in Iceland.
- Faith has been working on Quarry Lake (Barton-under-Needwood) collecting water and sediment samples for a Quarry Life Awards 2025 project.
- Lin had received the BSG Postgraduate Conference Attendance Grant to present his PhD work at the AGU Fall Meeting 2024 in Washington, D.C., 9-13 Dec 2024.

Some important ***upcoming*** conferences – QRA PGR Symposium, UK Lum Meet, GRSG AGM, AGU 25

We are always open to new members eager to help represent student voices within the BSG and to assist in planning and hosting postgraduate events. If you are interested in joining, feel free to reach out at bsgpostgrads@gmail.com or scan the QR code.

Follow us at:

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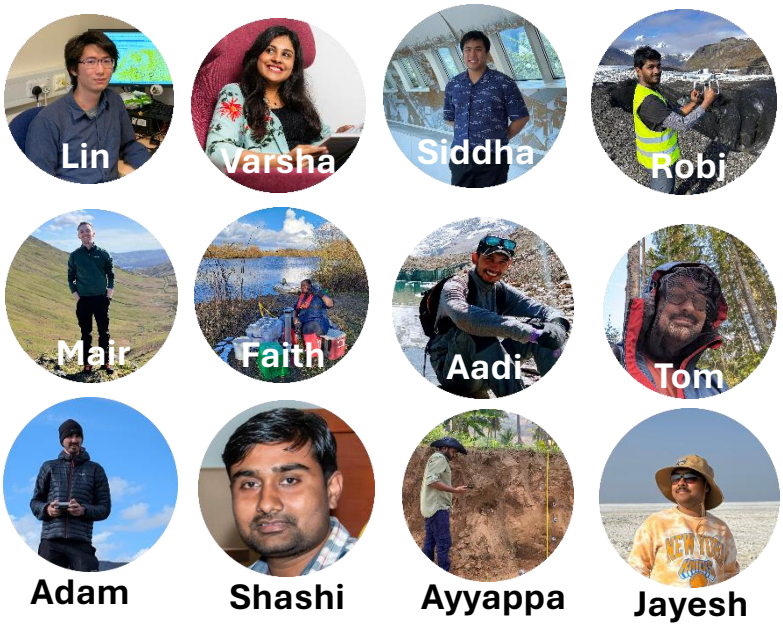
Facebook: BSG Postgraduates

Jayesh Mukherjee
Aberystwyth University
Postgraduate Forum Chair
jam169@aber.ac.uk



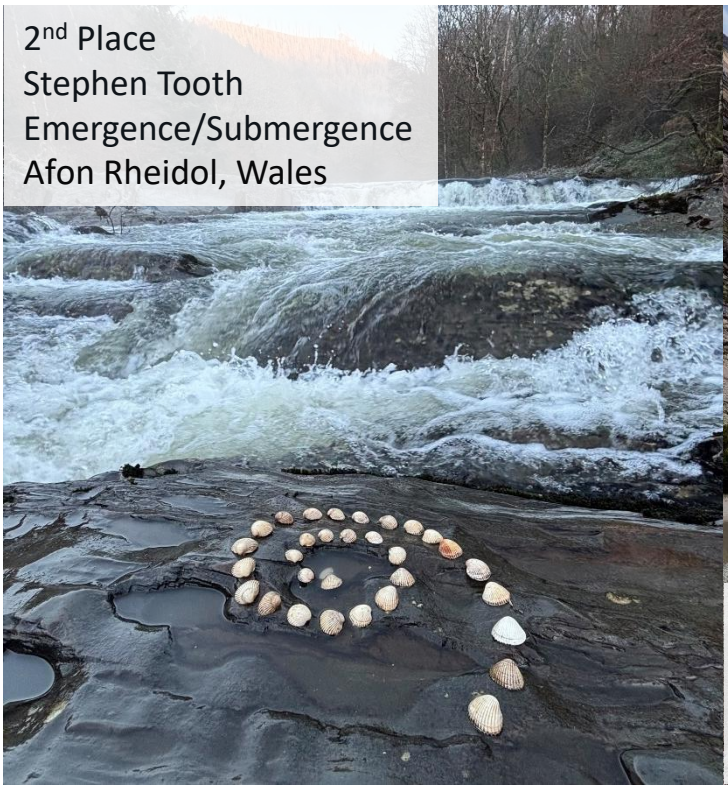
#BSGAC Winners

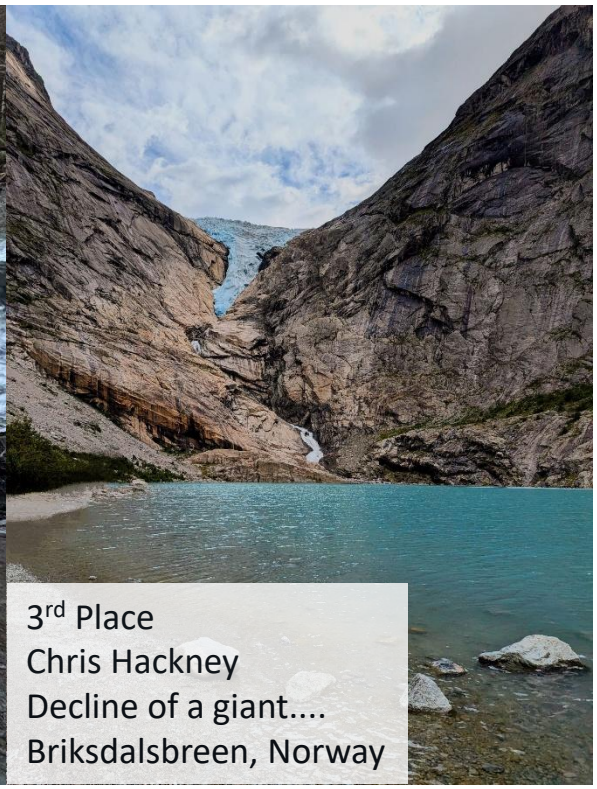
Thanks to all those who entered this years BSG Art Competition. We had 16 entries, and the following winners were chosen...

Keep checking our social media platforms at the end of the year to enter #BSGAC26.

1st Place
Saraswati Thapa
River Valley in Afon Ogwen, Wales

2nd Place
Stephen Tooth
Emergence/Submergence
Afon Rheidol, Wales





3rd Place
Chris Hackney
Decline of a giant....
Briksdalsbreen, Norway

Outreach and Education News

For the second year, the BSG sponsored the Geographical Association's Physical Geography Photo Competition. This year was 'The Power of Physical Geography' – a theme which is, of course, very relevant to geomorphology! In addition to capturing the theme in a striking photograph, the competition asks budding geographers and photographers to provide a 250-word explanation or reflection on how the photograph captures the theme. This year's winning entries, as well as the second and third placed entries can now be seen on the GA's website. This is an excellent collection of photographs, spanning fluvial, glacial (and periglacial), and coastal environments and processes and highlighting the power of erosion and weathering processes particularly. Locations ranged from Eastbourne to Switzerland and Canada! The judges' comments on each photograph can also be seen. Many congratulations to the two winners, Florence Turnbull, from Stroud High School, and Thara Leenahwattana from Shrewsbury International School and also to the runners up.

The winners were announced at the recent GA conference held in Oxford Brookes University in April, which Hywel Griffiths attended on behalf of the BSG as an exhibitor. This was an excellent opportunity to engage and make links with geography teachers and other organisations, and share our resources, including '10 reasons why geomorphology is important' and the new 'Fluvial Geomorphology in Action' YouTube videos, created by Dewi Roberts.

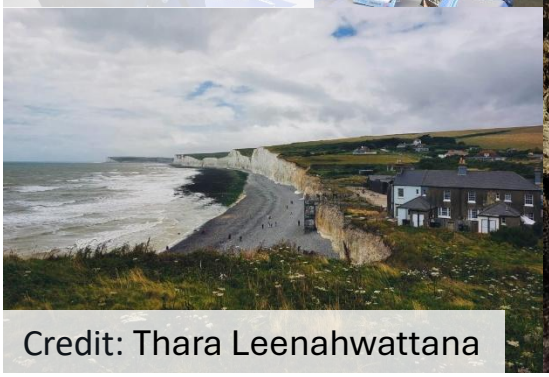
The RGS's Jewel of Arabia project has produced some fascinating resources related to dryland landscapes - check them out here.

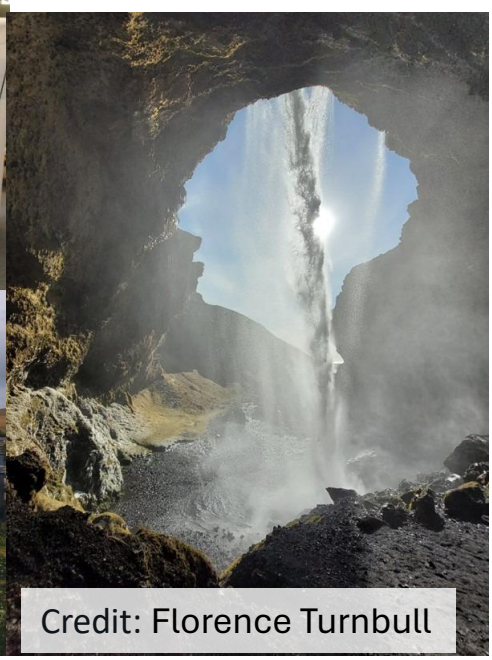
It's also that time of year when academics might be marking undergraduate dissertations. Please do nominate suitable undergraduate dissertations for the Marjorie Sweeting Dissertation Prize. More details are available here and nominations can be made by BSG members by logging in to the members area of the BSG website.

Finally – there will be two committee positions open at the annual meeting in September, including the committee Chair and the Education Officer. Please get in touch with Hywel Griffiths (hmg@aber.ac.uk) if you are interested in putting your names forward!

Dr Hywel Griffiths (hmg@aber.ac.uk)
BSG Outreach Chair
Aberystwyth University

Credit: James Cull


Credit: Thara Leenahwattana


Credit: Florence Turnbull

Committee for Professional Geomorphology


Chair
Dr Mattie Biddulph (Environment Agency)

Secretary
Oliver Grant (Environment Agency)


Regulatory Reps

Oli Burns (Environment Agency)

Dr Nish Halwyn (Natural England)


Consultancy Rep
Dr Hannah Joyce (Atkins)

Charities & Trusts Rep
Mike Blackmore (Wessex Rivers Trust)


Academic Rep
Dr Bobby Houseago (Loughborough University)

Postgraduate Rep
Varsha Natarajan (Ulster University)


Committee Member
Jessica Knaggs (Arcadis)

QRA Engineering Group (Geology Society) Rep
Dr Paul Fish (Jacobs)

We represent all sectors of geomorphology within the applied or 'professional' world. On our committee we also have an academic and postgraduate rep, so that we can maintain and strengthen our links with academia. We're all geomorphologists after all!

What are we working on?

Seminars: we continue to run monthly seminars on a variety of topics – thank you to our speakers as always!

Geomorphology careers roadshow: we want to shine a light on potential careers in geomorphology to students and postgraduates, watch this space.

Annual conference workshop: as always, we'll be running a workshop on the first morning of the annual conference – see you there!

Committee vacancies

In September the role of chair for the committee for professional geomorphologists will be vacant, so please get in touch if this is something you might be interested in.

matilda.biddulph@environment-agency.gov.uk

Dr Matilda Biddulph
CPG Chair
Environment Agency

Credit: Mary Bourke
Rosslare Strand, Ireland

ESPL Research Highlight

Dr. Christine Fey

While the correlation between glacier retreat and rising temperatures in the Alps is well documented, much less is known about the influence of climate change on rockfall and rock avalanches in the region. This study investigates the spatial distribution of rockfalls above the timberline in the Stubaier- and Ötztaler Alps (2950 km2, Eastern Alps, Austria, Fig. 1).

Rockfalls were identified using an automated pre-classification approach and manual verification of detected rockfalls based on digital surface models (DSMs) derived from 2006 and 2017 airborne laser scanning (ALS) datasets and orthoimages (Fig. 2).

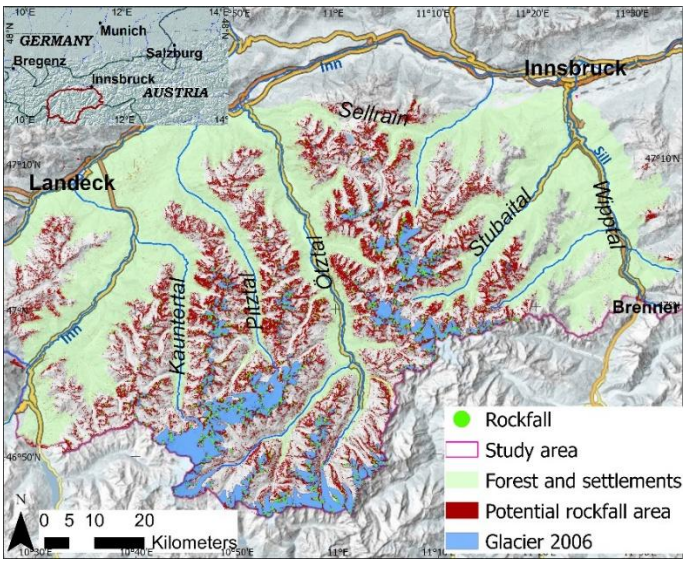


Fig. 1. The study area.

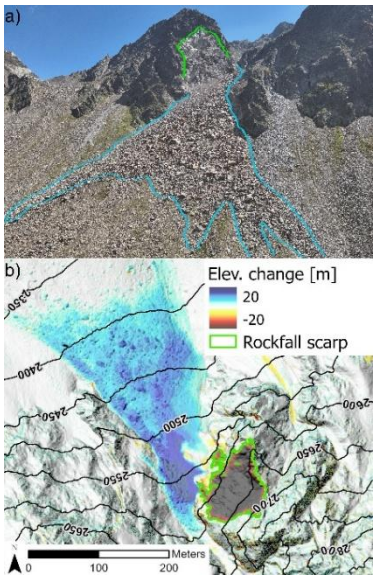


Fig. 2. *A 100 000 m^3 rockfall.*

A total of 1989 rockfalls were identified, with volumes ranging from 200 m^3 to 200,000 m^3. Notably, 76% of the rockfalls occurred in areas with a mean annual ground surface temperature (MAGST) below 0°C, which represent only 22% of the potential rockfall area (Fig. 3 and Fig. 4). In addition, 40% of the events occurred in areas that have been deglaciated since 1969, representing only 4.7% of the potential rockfall area. This study provides the first comprehensive regional inventory of recent rockfalls for a large area in the Eastern Alps and shows a strong spatial relationship of rockfall to permafrost degradation and glacier retreat areas.

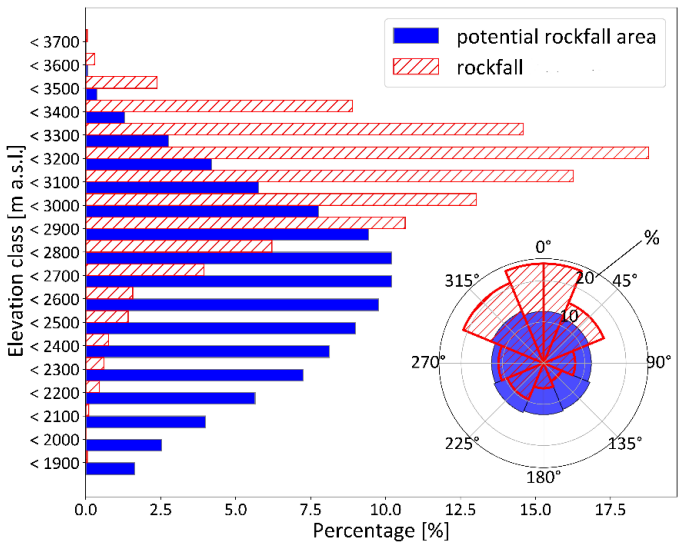


Fig. 3. Elevation and slope exposure distribution of the potential rockfall area in relation to the percentage of rockfalls in this area.

You can read the full article in Earth Surface Processes and Landforms here.

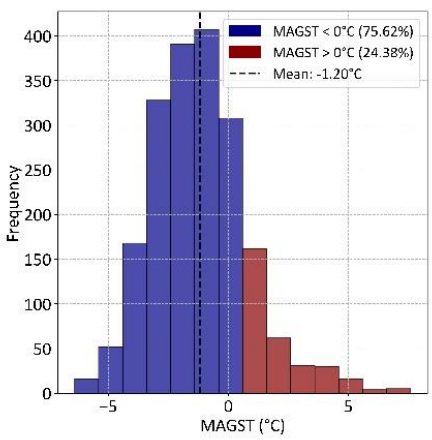


Fig. 4. Modelled MAGST at the mapped rockfall scarps.

Plow versus Ice Age: who “wins”?

Dr Shanti Penprase

Glacial periods are one of the most extreme periods of naturally occurring, climate-driven changes in erosion rate, with shifts in glacial climate driving major changes in local vegetation and erosion rate mechanisms. However, the role of humans in shaping process and rates of sedimentation on landscapes is exponentially increasing in our modern age, with the “hockey-stick” style exponential increase of humans on natural processes noted by Mann et al. (1998). So, how do erosion rates driven by these two mechanisms compare?

In Trout Creek, a tributary to Upper Mississippi River in southeastern Minnesota (USA), changes in the Laurentide Ice Sheet margin and associated glacial climate had major impacts on catchment averaged erosion rate of the landscape since the Pleistocene (Fig. 1). Following the retreat of the Laurentide Ice Sheet after the Last Glacial Maximum, the region has remained paraglacial, with many rivers and their catchments still responding to glacially-driven changes in local base level and the warming of climate from a proglacial tundra to the oak savannah-style vegetation present in the region today. However, after 1850 CE, Euro-Americans settled in this region and introduced plow-based agriculture, livestock, and vegetation clear-cutting. The results of these land use practices on Trout Creek and the surrounding catchments were rapid and devastating, as sediment mobilized from the valley uplands and hillsides rapidly incised the valley walls and was deposited within the valley bottom– triggering major flooding. Filled with post-settlement alluvium, streams in the valley bottom of Trout Creek flooded often and dramatically, with the town of Beaver, in the nearby Beaver Creek Catchment flooding 28 times in 1938 alone. Throughout the region houses and fields in the valley bottom filled were buried by up to a meter of sediment in some locations (Fig. 2).

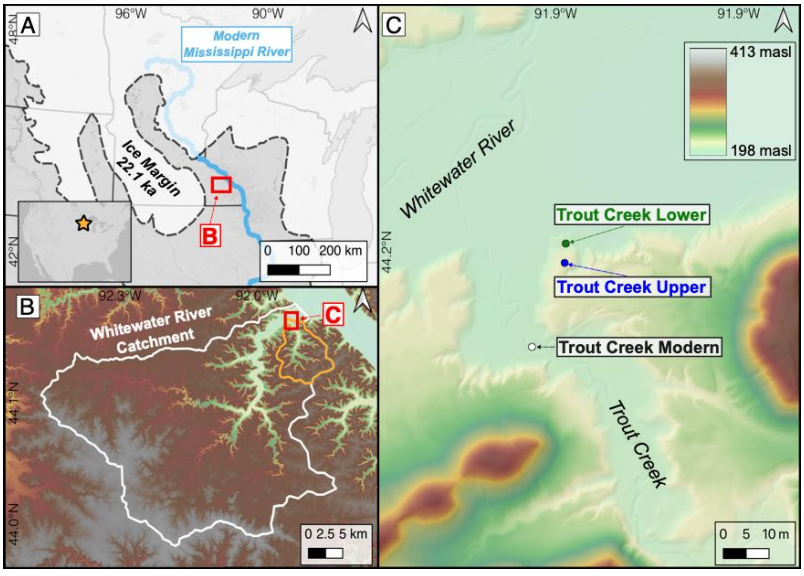


Fig. 1. *Study location in the Upper Mississippi River Valley, USA*

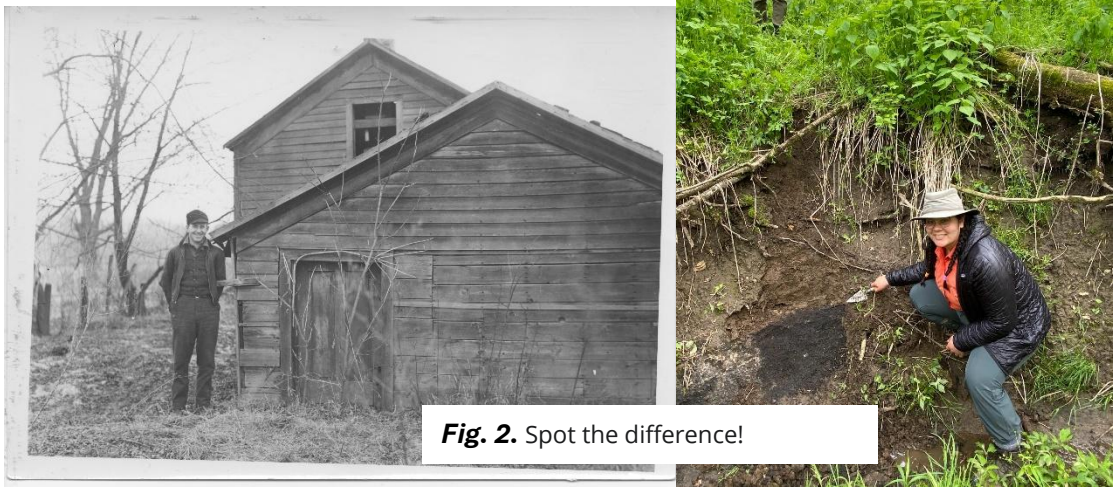


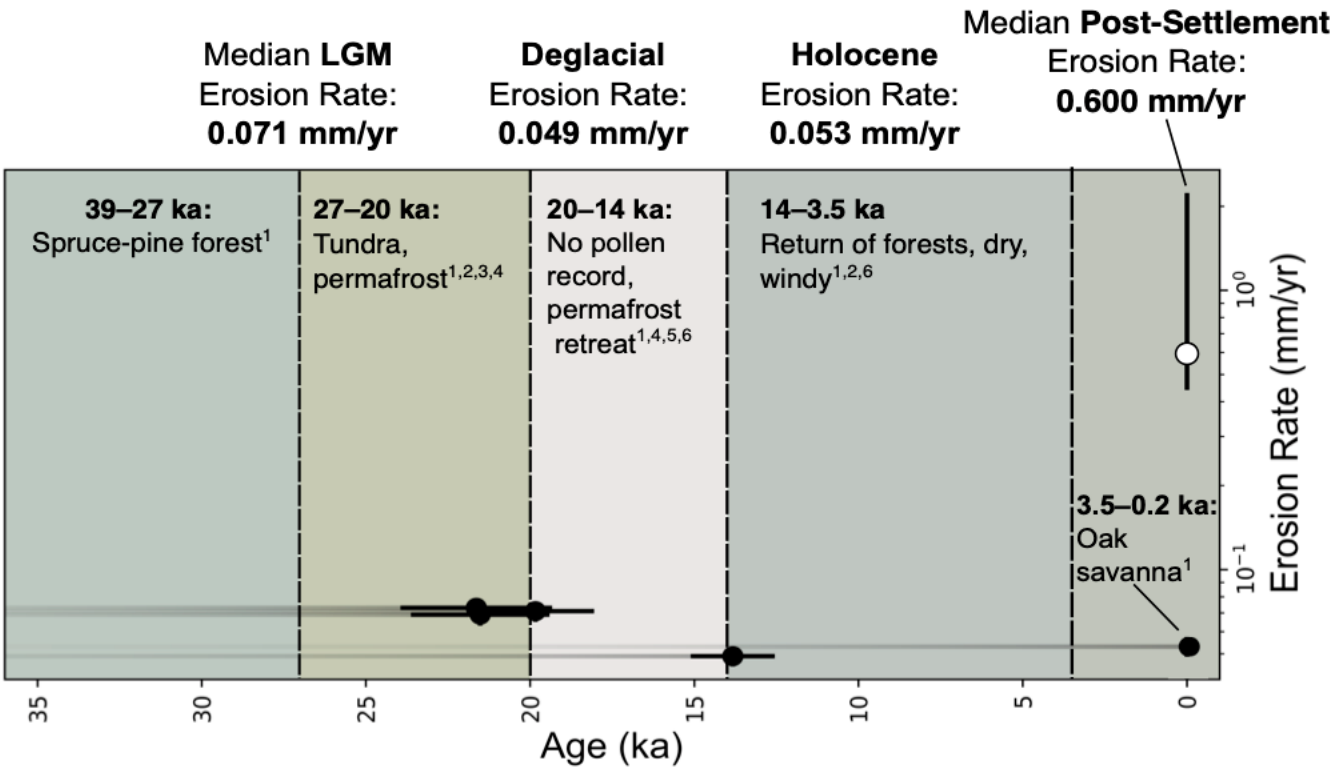
Fig. 2. Spot the difference!

Plow versus Ice Age: who “wins”?

Dr Shanti Penprase

To assess how erosion rates under the natural, high-magnitude climate and eco-geomorphic change triggered by the retreat of glacial climate compare to Euro-American agricultural erosion rates, pair cosmogenic ^{10}Be analyses and optically stimulated luminescence (OSL) ages from samples of alluvium to build a paleoerosion-rate chronology for Trout Creek in southeastern Minnesota. We find erosion rates and associated integration periods of 0.069–0.073 mm yr^{-1} (32–20 ka), 0.049 mm yr^{-1} (28–14 ka), and 0.053 mm yr^{-1} (14–0 ka). We relate these rates to (1) the transition from forest to permafrost at the onset of the Last Glacial Maximum, (2) the decline of permafrost coupled with limited vegetation, and (3) climate warming and vegetation re-establishment. These pre-settlement erosion rates are 8× to 12× lower than Euro-American agricultural erosion rates previously quantified in the region. Our results demonstrate that agricultural erosion rates far exceed climate-induced erosion-rate magnitude and variability during the shift from the last glaciation into the Holocene.

Read the full article in Geology or read a feature on the project in Science.



1 **Driftless Area**; Baker (2019)
2 **Upper Mississippi River Valley**; Bettis et al. (2008)
3 **Driftless Area**; Carson et al. (2019)
4 **Southwestern Wisconsin**; Batchelor et al. (2019)
5 **Upper Mississippi Valley**; Mason and Knox (1997)
6 **Western Wisconsin**; Schaetzl et al. (2022):

Fig. 3. *Trout Creek (Upper Mississippi River Valley, USA) paleoerosion rate and regional paleoenvironmental chronology. Erosion rates and errors shown in black; error bars for the 10Be-derived erosion rates appear within the data points due to the logarithmic scale. The time scale of integration is shown in grayscale.*

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Briksdalsbreen glacier, Norway - Chris Hackney