BSG British Society for Geomorphology

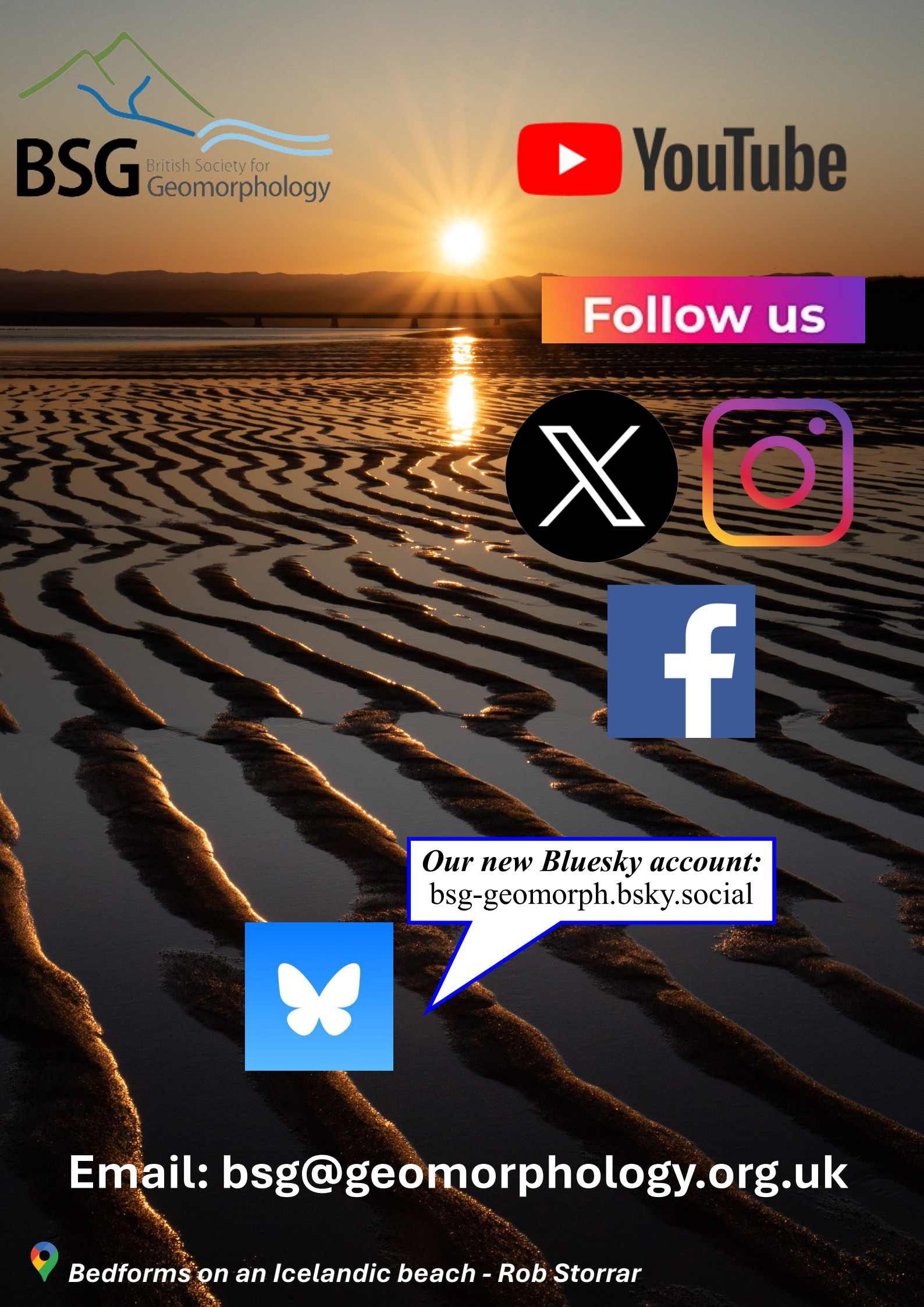
NEWSLETTER

NOVEMBER 2024

Landmannalaugar, Iceland

"Go for the lava field, fall for the braid plain"
- Prof Steve Rice

Edited by: Erin Harvey & Jayesh Mukherjee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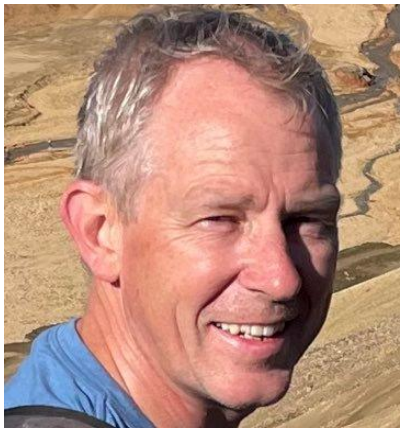
Bedforms on an Icelandic beach - Rob Storrar

Message from the BSG President



Hello, my report will be brief as I am still easing into the role, pondering the large (figurative) shoes that I will try to fill. For those of you who were not able to attend the excellent AGM and meeting in Loughborough, let me reiterate my thanks to Heather for her dedication and hard work as President between 2019 and 2024, not least in making significant progress in diversifying the Fellowship. Fellows are members of the Society who have made significant contributions to the advancement of geomorphology through, for example, refereed research publications, professional practice, influential pedagogy, and service to the activities of the BSG. I intend to continue that work and, with that in mind, I would welcome suggestions for new Fellows at any time, noting that there is an upcoming deadline for receiving nominations of **31 December 2024** (instructions on BSG website).

Going forward I hope to establish a small working group of Fellows who will consult, discuss and deliver some ideas about how best the Fellowship can be used to support the Executive and membership, for example, around delivery of our new strategy. In response to a request I made recently, I had some remarkable offers of help from Fellows who's personal circumstances should really preclude them from any such expectations. This reflects something golden about our Society that we should cherish, which is that our common love of landscapes and landscape-forming processes runs deep, can continue long after the daily grind of academia or professional practice have been left behind, and helps to define a community that can support one another. I hope your fieldwork, experiments, teaching, contracts and other responsibilities this Autumn are allowing time for revelling in some geomorphology.

Professor Stephen Rice
BSG President
Manchester Metropolitan University

Ennerdale, Lake District - Adam Hartley

Message from the Executive Committee

Like Steve, as the new Chair, I am just getting used to the role and making sure I am doing all the things necessary to keep the Society running smoothly – a huge thank you to the outgoing Chair, Louise Callard, for handing everything over to me in such excellent shape!

For those of you who were able to join us at the annual conference in Loughborough I am sure you will agree with me that the meeting was a huge success. From the role of AI in geomorphology to the formation of the channels on Mars I think we can all agree that the diversity of talks, including the outstanding array of awards talks, is testament to the breadth of the discipline we call home! The BSG has always prided itself on being a supportive and encouraging environment for those earlier in their career and their talks and posters at the Loughborough meeting really were excellent – I think it is safe to say that the future of our discipline is in safe hands! Many thanks to Ed Baynes, the FiWi Road interns and the rest of the organising committee from Loughborough who now hand the baton on to Leeds!

Over the last week I have had the chance to catch up with all the Sub- Committee chairs and as always, I am impressed by the diversity of the opportunities the BSG offers its members. We have just had our latest research grants round so our Research Committee are busy assessing and awarding those. The Outreach and Education Committee is helping to formulate the BSG response to the Government curriculum and assessment review. The Professional Geomorphology Committee continues to host an outstanding array of seminars that are going from strength to strength. The Publications and Communications Committee continue to ensure that members are kept up to date about opportunities as well as working to ensure we have the best possible relationship with Wiley. The Postgraduate Forum are coming up with an exciting programme of both online and in person events for our postgraduate community so watch this space!

Over the coming months the Executive Committee will focus on developing a plan to implement the new strategy, giving us the opportunity to define what success looks like for the Society. For me personally, that means ensuring that we are continuing to fund a diverse grants portfolio, supporting the thriving postgraduate community, increasing the breadth of reach of the society and ensuring that the BSG represents the whole of the geomorphology community.

It is nomination season so please do think about who you would like to see recognised for their outstanding contribution to geomorphology. As Steve mentioned we are also looking for suggestions and nominations for new BSG fellows so please do get your thinking caps on!! As I said at the AGM, I am passionate about ensuring everyone has a voice so please do get in contact with me (A.Ockelford@liverpool.ac.uk) or any members of the Executive Committee with suggestions, concerns or ideas to make the BSG stronger for everyone.

Dr Annie Ockelford
BSG Chair
The University of Liverpool

Giant's Causeway, Northern Ireland – Soumik Das

Annual Conference 2024: Loughborough

In September, Loughborough University welcomed over 120 delegates to its campus in the East Midlands (plus a further 20 online delegates) for the Annual Conference of the British Society for Geomorphology. The conference began with a pre-conference field excursion to the Charnwood Forest Geopark, where over 25 delegates explored three key locations in this important area for UK geology: Morley Quarry, Beacon Hill and Bradgate Park. Despite a damp start, the weather improved as the excursion considered how geology shapes the modern landscape, searched for internationally famous Ediacran age fossils, and considered the critical aspects of geoconservation required to preserve these landscapes for future generations.

The main conference proceedings began with workshops organised and facilitated by the BSG Postgraduate Forum on navigating funding and fellowship applications and the BSG Committee for Professional Geomorphologists on Life as a Professional Geomorphologist, before two and a half days of scientific sessions. The seven oral sessions and > 40 posters showcased the breadth and diversity of geomorphology, from dryland and arid environments through to river restoration via tectonic geomorphology, sediment transport processes, glacial environments and novel applications of emerging technologies. Throughout the oral sessions we also had the opportunity to celebrate the 2024 BSG Medal and Award winners. The conference featured the second Cuchlaine King Symposium, with invited speakers highlighting the importance of '**Extreme Events in Geomorphology**' across multiple geomorphic domains including mountain landscapes, deserts, coasts, and on Mars. The **Special Issue** in *Earth Surface Processes and Landforms* associated with the Symposium remains open for submissions, and we would like to encourage you to share your work here.

Alongside the scientific sessions, the BSG conference provided an opportunity for networking and socialising amongst delegates with the Icebreaker drinks reception held in the Robert Allison Suite at Loughborough University stadium (named after former Vice-Chancellor at Loughborough and former Chair of the BSG) and the Conference dinner and Awards ceremony held in the delightful surroundings of Holywell Park. We were pleased to welcome special guest Prof Chris Linton, grandson of Prof David Linton, to present the Medals at the Awards ceremony.

The Local Organising Committee at Loughborough would like to thank all who attending the 2024 BSG Annual Conference and for presenting your work. It made the conference highly successful, and we are looking forward to 2025 in Leeds!

Dr Edwin Baynes
BSG Conference Organising Committee
Loughborough University

Postgraduate News

Your Postgraduate Forum Committee

The BSG PG Forum thanks David (Loughborough) for his wonderful service as the former Chair during his tenure for the past two years. At the start of the new academic year (2024-25), there was a new membership intake to the PG Forum, even beyond the UK! This year, we have welcomed *Louie (Cambridge*); *Zareena, Grace, Tom (QMUL); Faith, Jamie (Loughborough); Lucy (Glasgow); Robi (Poland); Shashi (New Delhi), Shobhit (Kanpur) and Maxwell (Dublin)*. While David, Adam (QMUL), Ying-Tong Lin (Durham) and Harley (Northumbria) continue to be part of the committee. The PG Forum plans to organise webinars and online workshops in 2025 and an evening social with the German and other Young Geomorphologists groups at the upcoming EGU.

Postgraduate Activity

In December, the new cohort of BSG doctoral researchers will be welcomed to the *40th edition* of the annual Windsor Workshop 2024. The PG Forum committee members have also been busy attending and supporting various events throughout the UK and abroad :

- BSG Annual Meeting 2024 at Loughborough included a *Postgraduate Grant Writing* workshop hosted by David, Adam (QMUL) & Isabel (Potsdam). Catherine Sanders (Lincoln), Bobby Houseago (Loughborough) & Adam Smith (UCL) were panellists at the event.
- Adam Hartley attended the British Hydrological Society Conference and the Flood Modeller Conference and did exciting fieldwork in Arctic Sweden, undertaking peat and permafrost surveys and taking peat cores.
- Lin will present his PhD work at the AGU Fall Meeting 2024 in Washington, D.C., 9-13 Dec 2024.

*Some important **upcoming*** conferences – QRA ADM (6-9 Jan 2025 at Newcastle) & EGU General Assembly (27 April - 2 May 2025 at Vienna).

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 below.

Follow us at:
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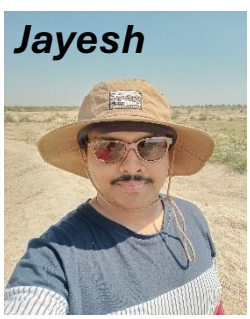
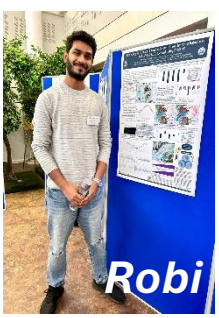
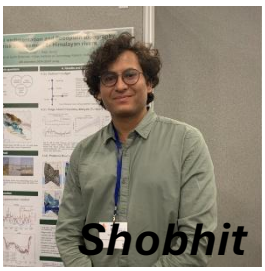
Jayesh Mukherjee
Aberystwyth University
Postgraduate Forum Chair
jam169@aber.ac.uk







Outreach and Education News

The Society recently responded to the UK government consultation on 'Improving the curriculum and assessment system' in England, emphasising the importance of geomorphology withing geography and environmental science, and highlighting key areas of focus such as ensuring accessible and inclusive fieldwork opportunities. Thanks to all members who responded to our call for contributions.

Dr Hannah Williams recently stepped down as Committee Secretary after four years. Thank you for all your work, Hannah! Dr Morgan Jones, from the Department of Geography and Earth Sciences at Aberystwyth University has stepped into Hannah's shoes. Morgan is a glacial geologist and geomorphologist, whose research focuses on the response of debris-covered glaciers to climate change, as well as debris-covered glacier evolution and the role of glacier change in fluvial geomorphological changes. Welcome Morgan!

Simon Pinfield, Resources, Projects and Partnerships Manager at the Royal Geographical Society who has represented the RGS on the Outreach and Education Committee for many years, is stepping down from the committee role for now. Thank you, Simon, for all your thoughtful contributions to the committee over the years and for raising awareness of geomorphological resources through the RGS. The RGS has a wide variety of educational resources linked to geomorphology that Simon and the team have developed, including Discovering Antarctica and Discovering the Arctic.

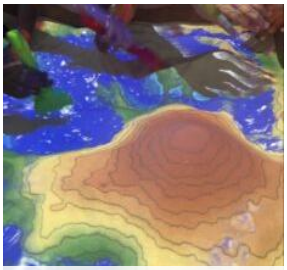
Judging is underway for the annual Geographical Association Physical Geography Photo Competition, which the BSG is supporting for the second year. Winners will be announced very soon. Last year's winners can be seen here. The GA Physical Geography Special Interest Group has a fascinating blog (Teaching Physical Geography), and new ideas for blog posts from BSG members would be welcome.

Dr Janet Richardson (Edge Hill University), Professor John Boardman, Dr Bob Evans, Dr David O'Connor, and Dr Charlotte Chivers have been awarded a Geomorphological Outreach Grant for a project titled 'Outreach with organisations that work with agricultural land managers and their advisors'. The project will focus on knowledge exchange on soil geomorphology with a wide range of relevant stakeholders such as farming unions and DEFRA, and the production of outreach material. Congratulations to the team and we look forward to seeing the results.

Would you like to share your research with school and college students, and raise awareness of what geomorphologists do? We are looking to create a range of diverse profiles that can be shared with schools and colleges to raise awareness of the role of geomorphologists in research, teaching, industry and outreach. If you work in geomorphology in some capacity, whether as a PhD student, professor, consultant, teacher, or any other role, please do get in touch and we can provide you with some brief questions to answer.

If you have any thoughts, ideas or feedback regarding geomorphology outreach and education, please do get in touch!





Photos from: https://www.geomorphology.org.uk/news/

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

BSG Windsor Workshop 40th Anniversary

The popular BSG Windsor Workshop PhD Training was launched in 1984 and this year is the 40th anniversary for the event. We are therefore looking to mark the occasion by collating together photographs, information and memories of past Windsor Workshops. If you, or someone you know, attended the Windsor Workshop please get in touch and share these - it would be fantastic to cover all the decades that it has been running! Please send these to Lucy Clarke: Lucy.Clarke@ntu.ac.uk.

Dr Lucy Clarke
BSG Windsor Workshop Team
Nottingham Trent University

Committee for Professional Geomorphology

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Dr Mattie Biddulph
(Environment Agency)

Secretary
Oliver Grant
(Environment Agency)

Regulatory Reps

Oli Burns
(Environment Agency)

Dr Nish Halwyn
(Natural England)

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Academic Rep
Dr Bobby Houseago
(Loughborough University)

Postgraduate Rep
Harley McCourt
(Northumbria University)

Committee Member
Jessica Knaggs (Arcadis)

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

There has been a lot of change in the committee recently, so it's a good time to remind you all who we are and what we do.

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!

Coming up

For the next year we will be continuing our seminars, CPD events, and workshops, and we have lots of exciting ideas. Look out for communications and as always, if you would like to get involved or have any questions, pop us an email or message on twitter.

matilda.biddulph@environment-agency.gov.uk

Dr Matilda Biddulph
CPG Chair
Environment Agency

ESP&L Research Highlight

Dr Timothy Baxter

In Britain, the European mole (*Talpa europaea*) has an estimated population of around 41 million individuals (Fig. 1 and 2). These small subterranean mammals play an important role in sediment systems through the bioturbation of surface and subsurface sediment, resulting in the formation of molehills and extensive tunnel systems. However, compared to other fossorial mammals, the impact of moles as biogeomorphic agents is poorly understood. Furthermore, little is known about how molehills develop and degrade over time, or how long they persist as landscape features.

By examining molehills over four months on a floodplain in Oxfordshire, UK, we provide a quantitative assessment of how these landforms evolve over time and space. Through the creation of high-resolution digital elevation models (DEMs) using structure-from-motion (SfM) photogrammetry, we derive a variety of metrics describing molehill morphology and produce a detailed record of how molehills change at weekly time intervals (Fig. 3). In addition, measurements of molehill volume are used to estimate the excavation rate of moles over a month.

Key findings — (i) molehills are dynamic landforms that change in size and shape in response to phases of construction, collapse, erosion, and rebuilding, (ii) rates of degradation are influenced by soil characteristics and seasonal weather conditions, (iii) molehills can persist as landscape features for several months, (iv) and moles are capable of moving a substantial volume of sediment in highly active areas (3.89 $m^3\,ha^{-1}\,month^{-1}$).

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

Fig. 1. The European mole and molehills.

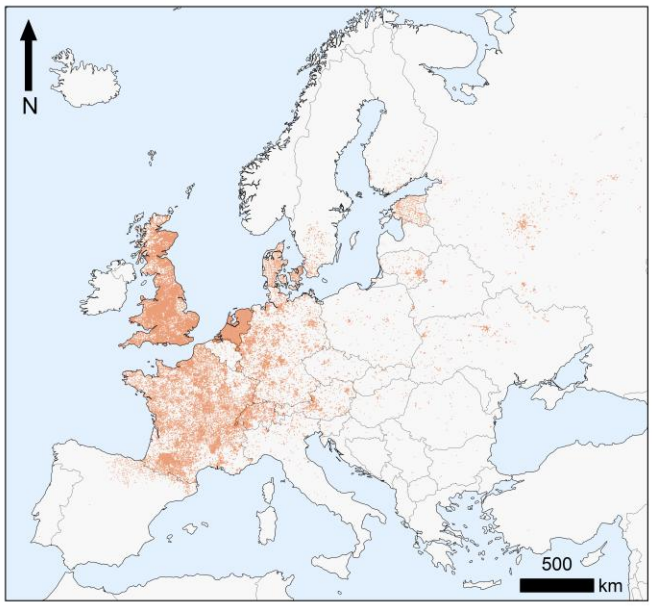


Fig. 2. Recorded observations of the European mole.

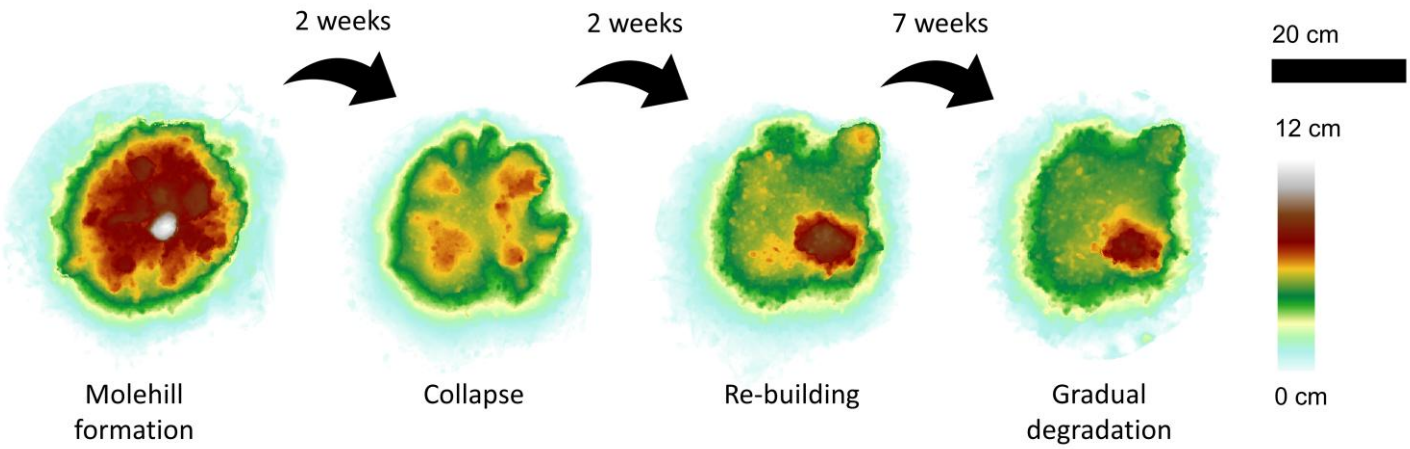


Fig. 3. Molehill evolution over time.

River capture enhances the uplift of Mount Everest

Dr Jin-Gen Dai and Dr Matthew Fox

Mount Everest (also known as Sagarmatha or Chomolungma) is not only Earth's tallest mountain, but stands mysteriously higher than its Himalayan neighbors, rising about 250 meters above other major peaks despite the region's reasonably uniform tectonic conditions. New research reveals that river capture may partly explain this enigmatic elevation, but also its ongoing growth.

Our study focuses on the Arun River, which unusually flows from the northern flank of Mount Everest towards the north and through Tibet before it turns south and cuts a deep gorge through the crest of the Himalaya. Using stream power modeling, we discovered that the Arun River likely captured upstream drainage from Tibet between 50,000 and 100,000 years ago. This timing aligns with dated pluvial sediments near the capture point.

This drainage capture triggered a cascade of geological responses. The enlarged river began cutting more deeply into the landscape, with incision rates reaching 5-10 millimeters per year along the deepest parts of the gorge. These erosion rates are much higher than long term rates constrained with low-temperature thermochronometry but consistent with previously unexplained short term rates constrained with cosmogenic nuclide concentrations. As the river carved its gorge, the surrounding crust responded through isostatic rebound – much like a floating board rising when weight is removed from one end.

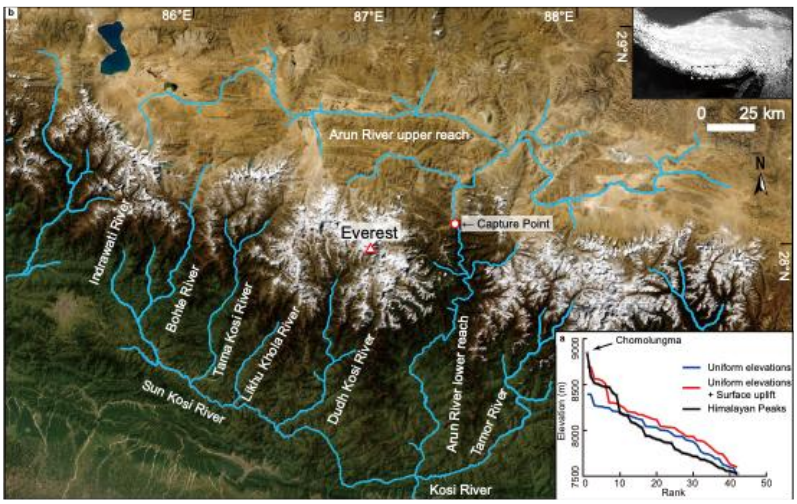


Fig.1 **a**. Mountain peaks above 7,500 m in the Himalaya ranked by elevation. Chomolungma is off the almost linear relationship between rank and elevation. **b**. Map of Kosi River showing the location of capture point.

This rebound effect extends tens of kilometers from the river, lifting the surrounding landscape including Mount Everest. This process has contributed 15-50 meters to Mount Everest's height through enhanced rock uplift rates of 0.16-0.53 millimeters per year. While modest compared to the total height, this additional uplift helps explain the peak's anomalous elevation but also the high rates of rock uplift measured with GPS.

The findings demonstrate how river evolution can influence mountain building through complex feedback between erosion and crustal dynamics. While tectonic forces remain the primary driver of Himalayan elevations, this study reveals how drainage reorganization can create localized variations in mountain height through isostatic response to erosion.

You can read the article in full in Nature Geoscience here

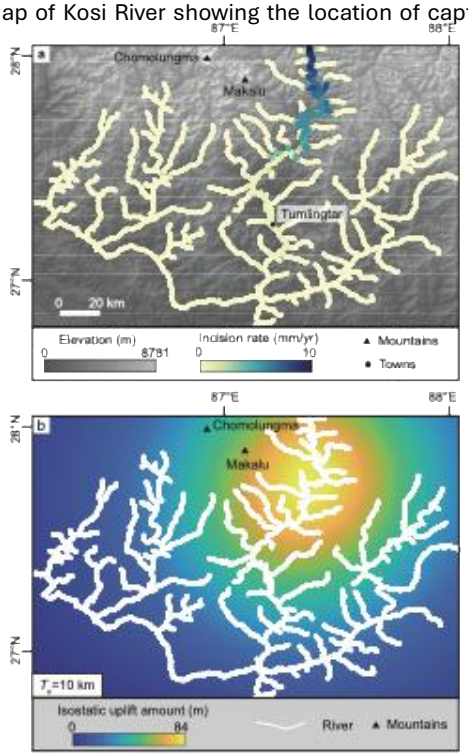


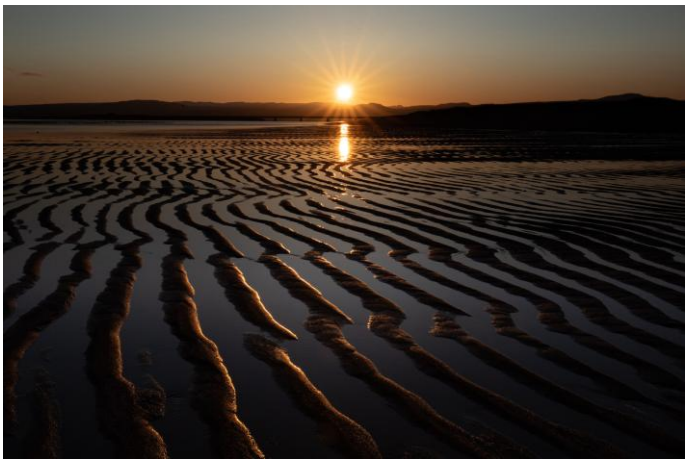
Fig.2 Non-steady erosion occurs where erosion rates are greater than the rock uplift rates and leads to surface uplift. **a**, The difference between rock uplift rate and erosion rate is greatest in the High Himalaya. Due to the recent change in fluvial incision, it is expected that the highest parts of the landscape have not responded to this increased erosion. Therefore, these areas will experience isostatic surface uplift. **b**, The flexural response to enhanced erosion of the Kosi River leads to enhanced surface uplift across the highest Himalaya for and effective elastic thickness (T_e) equal to 10 km.

Art Competition 2024

It's time once again to look through those holiday snaps, those fieldwork photos, and your stunning artistic representations of geomorphology as we launch the BSG Art Competition 2024. This year, as well as photographic submissions we also encourage members to share all types of art (e.g. painting, sketches, even sci-art data visualisations) that represent an aspect of geomorphology. 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 submission with a £100 prize. We will also be offering £50 for the two best runner up entries.

The rules are pretty simple: you can submit a maximum of two images and **MUST** be registered as a BSG member (you can do this on our website - see page 2 for a link). Submissions will be received through Twitter (X), Facebook, Instagram and, for the first time, Bluesky **but will only be counted if they tag the BSG in their post and use the hashtag #BSGAC24**. Failure to do so will unfortunately mean you will not be entered into the competition. The submission deadline is **10th January** 2025 at 23:59 UTC.

For some inspiration, you can check out last year's top three entries from Stephen Rice, Rob Storrar and Adam Hartley.



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

1) The theme of the BSG art competition is geomorphology and is open to individual interpretation.

*2) Entrants can submit up to two images through either the BSG Facebook account, Bluesky feed, X feed, or via Instagram by tagging @BSGeomorphology/@bsg-geomorph. **ALL ENTRIES MUST USE THE HASHTAG #BSGAC24** to be considered. The BSG may subsequently contact entrants to supply a high-resolution copy of the image.*

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 or what inspired the art.

5) The competition closes at 23.59 on Friday 10th January 2025 (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 images 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 Bluesky, X, Instagram, or Facebook accounts with which they submitted their entries or via email.

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.

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 images entered and must have gained permission of any people featured in their entries. Further, entrants must not have breached any laws when taking photographs.

8) Entrants will retain copyright in the images 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.

Prof Edward Derbyshire 1932 - 2024

Ed Derbyshire made a dual contribution to earth sciences, as an outstanding researcher of glacial deposits and as a dedicated, painstaking international science co-ordinator. Graduating in Geography with Geology from the new University College of North Staffordshire (UCNS, later Keele University) in 1954, he began glacial deposit studies at McGill University. However, his experience in student politics put him in a good position to later assume roles in scientific bodies. After two decades of developing his research, he began scientific administration as Secretary of the BGRG in 1975.

A research career

At McGill Ed investigated glacial deposits around Knob Lake in northern Quebec leading to his MSc thesis and journal articles. Returning to Keele, he published work on glacial landforms in North Wales and the Cheviots. A move to Monash University, Victoria, Australia permitted him to examine evidence of glaciation in Tasmania, leading to his Ph.D. and 12 papers, including collaborative work on a glacial map of Tasmania.

Returning to Keele again in 1967, he developed his sedimentological skills, beginning to collaborate with soil engineers in understanding glacial tills. A key opportunity arose in 1977, when as one of five British geomorphologists visiting China as guests of Academia Sinica (CAS) he began studying the Chinese loess. That led to six months in 1980 at the CAS Lanzhou Institute of Glaciology with Shi Yafeng, beginning an association with Chinese Quaternary scientists that set him firmly on the international Quaternary science scene. From Lanzhou, he and six CAS colleagues joined the International Karakoram Project in the upper Hunza Valley in Pakistan. This cemented Ed's China link. Through the 1980s work in the loess region intensified, with a major project on loess landslides culminating in the book *Landslides in the Thick Loess Terrain of North-West China* (2000).

Ed had moved to Leicester in 1984, developing major facilities for analysing glacial tills and loess sediments. He widened his collaboration with pedologists and landslide engineers but decided to take early retirement, joining Jim Rose at Royal Holloway to develop the Quaternary Science programme there. From this base, he engaged in international programmes on the evolution of deserts, wind-blown sediments, desert margins and palaeo-monsoons, and medical geology.

A science management career

Ed's science leadership began with the BGRG, from being Secretary in 1975, he became President in 1982. Ed's arranging for 33 Chinese delegates to the BGRG 1985 Manchester International Conference led to many UK-China graduate student exchanges and research visits.

He was elected Secretary-General 1991-1995 of INQUA, at the Beijing conference chaired by his great friend Liu Tungsheng, one of China's pre-eminent earth scientists. In 1999, Ed was made an Honorary Life Member of INQUA. He became Chairman 1996-2001 of the IGCP (UNESCO's Geoscience Programme), encouraging greater emphasis on the social relevance of its work, later editing a review (*Tales Set in Stone, 2012)* of its work.

The IGCP role enabled him to promote United Nations International Year of Planet Earth (IYPE), for UNESCO and IUGS. From 2002 he led the IPYE Science Programme Committee but also gave much discrete help, editing a book series from the programme and being editor-in-chief of IPYE's Planet Earth Magazine, checking all texts including the advertisements and the respective companies.

Photo from University of Leicester: https://le.ac.uk/about/history/obituaries/2024/edward-derbyshire

Prof Edward Derbyshire 1932 - 2024

From 2007-2010 Ed found his international links invaluable as Secretary, Foreign and External Affairs of the Geological Society of London, in engaging UK earth scientists in international programmes and in reaching out to government, industry and the public. As in earlier roles, he gave outstanding service, taking new initiatives and attending to all the boring details. Ed Derbyshire championed international collaboration in the earth sciences, ever willing to help others and promote science for the benefit on humankind. He received many international awards from UNESCO, the IUGS, INQUA and RGS for his work. I personally have enormous gratitude to him, for his long friendship and his kindness during my 6 months study leave at Keele in 1975.

Obituary by Professor Ian Douglas

Oberaargletscher, Switzerland - Dr Will Wenban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British Society for
Geomorphology
www.geomorphology.org.uk
Aberystwyth North Beach, Wales - Stephen Tooth