

**British Geophysical Association: Geophysics Into High Schools Meeting**



**May 17th, University of Leeds**

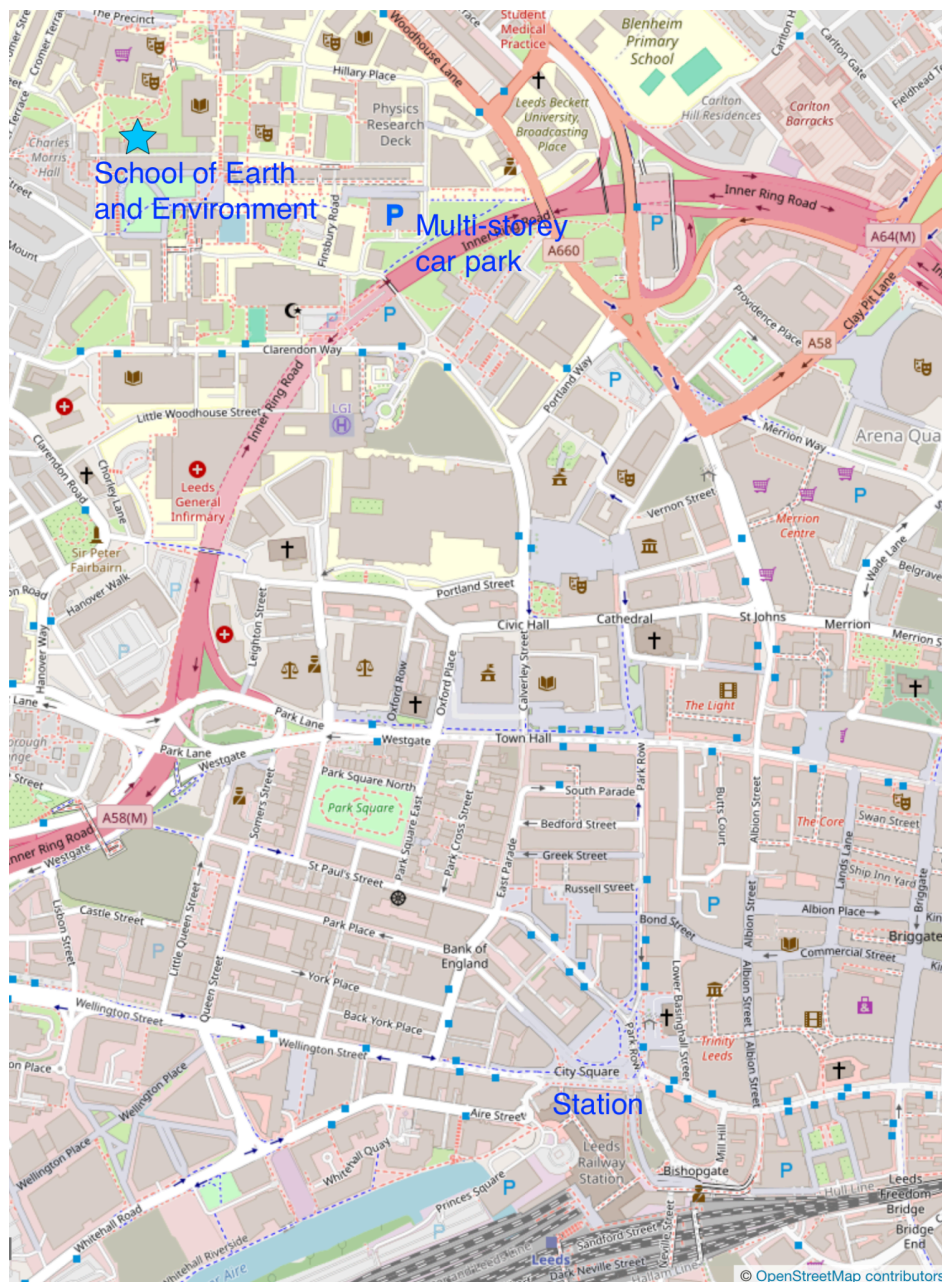
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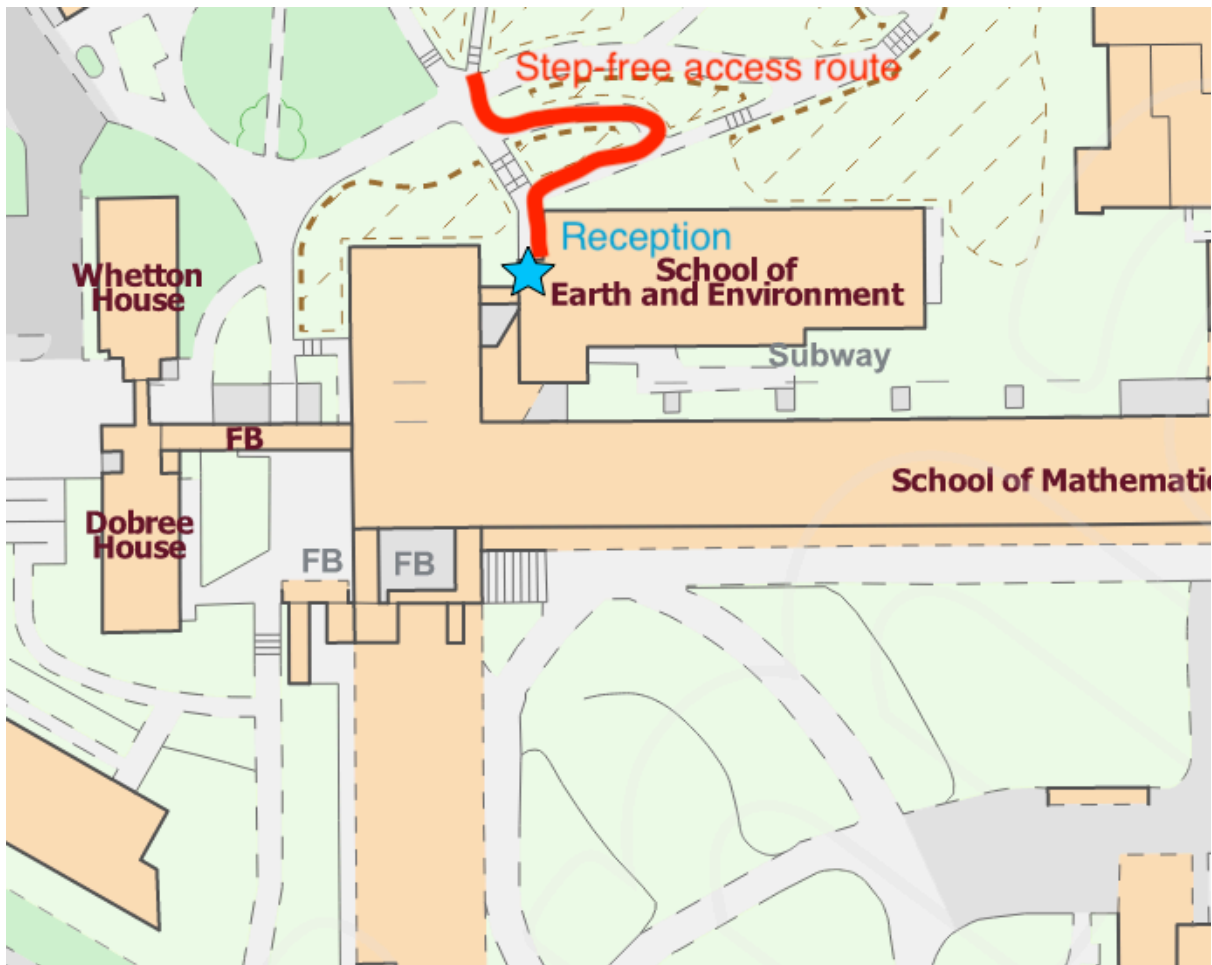
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# Logistics

**Venue & Meeting structure:** The meeting will be held at the University of Leeds in the School of Earth and Environment (SEE), in the school seminar rooms (room 8.119). These are behind reception, on your left as you enter the school via the main entrance, off the foyer area. Female and male toilets are available close to the seminar room, further away from reception. Small rooms will be available for use as private spaces if needed for any reason (please enquire with meeting organisers - contact details page 5). The seminar room includes microphones and hearing loops.



Map of Leeds showing the School of Earth and Environment, Leeds train station and the University multi-storey car park. Map data: [OpenStreetMap](https://www.openstreetmap.org/)



Map of University of Leeds campus, showing location of SEE reception and the step-free route to it. Map data: Ordnance Survey.

**Getting there:** Directions to the University of Leeds campus, including information about public transport to Leeds itself and within the city, can be found on the [University's directions page](#). The School is building number 84 on the maps displayed on campus and reception is located at [this point](#), to which there is step-free access.

**Car Parking:** Limited car parking is available in the [University multi-storey car park](#) for a flat rate of £7 for the day, and must be pre-arranged by a member of University staff for you. You can then pay by card at one of the pay machines. Please email [j.neuberg@leeds.ac.uk](mailto:j.neuberg@leeds.ac.uk) if you would like to arrange parking. . There are a number of [dedicated spaces on campus for blue badge holders](#), including 20 in the multi-storey car park, which can also be booked in the same way as general spaces. Please note that in general parking cannot be guaranteed and if there are no spaces available when you arrive then you will need to park off campus, for instance in the nearby [Woodhouse Lane council car park](#).

**Catering:** Food and refreshments will be provided throughout the day, accounting for dietary requirements noted at meeting registration. Tea/coffee will be available during registration.

Morning/afternoon breaks will have hot and cold drinks including uncaffeinated options, and snacks. Lunch will be a sandwich buffet.

**Talks/Poster Requirements:** Talk slots are 15 minutes including time for questions, we ask speakers to keep strictly to time in order to allow for a full discussion at the end of the meeting. Speakers are asked to use microphones provided in order for online-attendees to hear their talks clearly. We ask all presenters to bring a copy of their talk on a USB stick to be uploaded during registration or in the break before their session is due to start. Posters are A1 portrait format and should be put up during registration and will be on display throughout the day for viewing in all breaks/lunch slot.

**Code of Conduct:** This meeting is organised by the British Geophysical Association (BGA), a Joint Association of the Geological Society of London and the Royal Astronomical Society. Attendees hence must follow the Events Codes of Conduct outlined by BGA's parent societies (GeoSoc and RAS). In summary:

1. *Speakers give their time freely, many have traveled a considerable distance. All deserve a fair and encouraging hearing. Try to be on time for the start of a session, or otherwise slip quietly into the lecture theatre, refrain from loud conversations outside the doors and switch off mobile phones, and if you must use a laptop computer do so inconspicuously in one of the rear seats.*
2. *Remember that harassment and sexist, racist, or exclusionary jokes are not appropriate. Harassment includes offensive verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, sexual images in public spaces, deliberate intimidation, stalking, following, harassing photography or recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome sexual attention.*
3. *All communication given by speakers, organisers and attendees should be appropriate for a professional audience including people of many different backgrounds. Sexual language, jokes and imagery is not appropriate at this event.*
4. *Be considerate to others. Do not insult or put down other attendees. Respect organisers. Any issues should be reported to meeting lead Jenny Jenkins either in person or via email. Those not respecting the code of conduct may be asked to leave the meeting and face a ban from future BGA sponsored events.*

**Meeting organisers Contacts:** If you have any questions or requests for additional dietary/access needs, please contact event organisers as soon as possible so we are able to accommodate if possible.

- Andy Nowacki [A.Nowacki@leeds.ac.uk](mailto:A.Nowacki@leeds.ac.uk) (catering/venue queries)
- Locko Neuberg [J.Neuberg@leeds.ac.uk](mailto:J.Neuberg@leeds.ac.uk) (catering/venue/car-park requests queries)
- Jenny Jenkins [Jennifer.jenkins@durham.ac.uk](mailto:Jennifer.jenkins@durham.ac.uk) (schedule/meeting content)

## Schedule Overview:

<b>TIME</b>	<b>SESSION</b>
9:00 - 9:45 am	Registration & coffee
9:45-10am	Welcome/Introduction
10-10:45am	SESSION1: University Outreach
10:45-11:00am	----- <b>Break</b> -----
11:00-12:15pm	SESSION 2: Outreach Projects & Industry Perspectives
12:15 - 1:15pm	----- <b>LUNCH</b> -----
1:15 - 2:00pm	SESSION 3: Educational Groups and potential partnerships
2:00-2:15pm	----- <b>Break</b> -----
2:15-2:30 pm	SESSION 4: Data collection
2:35-5:00pm	DISCUSSION: <i>Key Issues, routes forward &amp; plan of future actions</i>

# Detailed Schedule: Talks and Speakers

## WELCOME/INTRODUCTION 1) 9:45-10 am

**Talk 1: Welcome, event details & context:** The current state of Geophysics in Higher Education  
*Jenny Jenkins, British Geophysical Association / Durham University*

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## SESSION 1) 10-10:45am University Outreach

**Talk 2 (online):** An overview of Universities Geoscience UK (UGUK) activities supporting recruitment to University Geoscience Courses  
*Sian Davies-Vollum, University Geoscience UK/ University of Northampton*

**Talk 3:** University of Aberdeen Geophysics Teaching and Outreach Activities  
*Dave Cornwell (presented by Amy Gilligan), University of Aberdeen*

**Talk 4:** University of Leeds: Outreach in Geophysics  
*Jurgen (Locko) Neuberg, University of Leeds*

## ----- 15 minute Break -----

## SESSION 2) 11-12:15 pm Outreach Projects & Industry Perspectives

**Talk 5:** Induced Seismicity Case Histories for Outreach – The European Plate Observing System's, Thematic Service on Anthropogenic Hazards: EPISODES web-portal  
*Ian Stimpson, Keele University*

**Talk 6:** GeoBus, University College London: Delivering Earth Science Outreach Online  
*Amy Gentry, University College London*

**Talk 7:** Engineering geophysics in the UK: a bright but uncertain future  
*Jim Whiteley, AtkinsRéalis*

**Talk 8:** Mapping The Underground – Opportunities for school leavers and graduates in near-surface geophysics  
*Sam Roberts, Met Geo Environmental Ltd*

**Talk 9:** Engaging Local Colleges with Geophysics  
*Tom Smith, SEP Geophysical*

## -----1 hour - Lunch & Posters -----

**SESSION 3) 1:15 - 2 pm**

**Educational Groups and potential partnerships**

**Talk 10:** An introduction the work of Institute of Physics Learning and Skills Department

*Rachel Hartley, Institute of Physics*

**Talk 11:** An Introduction to the work of STEMlearning

*Mark Langley, STEMlearning*

**Talk 12:** An Introduction to the Ogden Trust & strategies for introducing geophysics in schools

*Caroline Neuberg, Ogden Trust*

----- **15 minute Break** -----

**SESSION 4) 2:15-5pm**

**Data on issues and Future Actions**

**Talk 13:** Initial Results of BGA Geophysics Education Surveys: Pupils, teachers, undergraduates and Industry perspectives

*Amy Gilligan & Jenny Jenkins, British Geophysical Association/ University of Aberdeen / Durham University*

***DISCUSSION:*** *Key Issues, routes forward, plan of future actions*



# List of Posters:

**1: Studying Geophysics at Imperial College London**

*Rebecca Colquhoun, Imperial College London*

**2: Geophysics at the University of Liverpool**

*Andy Biggin, University of Liverpool*

**3: The geophysics degrees at the University of Edinburgh**

*Hugh Pumphrey, University of Edinburgh*

**4: Geophysics at the British Antarctic Survey**

*Alex Brisbane, British Antarctic Survey*

**5: Physics at your Fingertips! Tactile resources to enrich public engagement with  
archaeo-geophysical data**

*Adam Booth, University of Leeds*

**6: 100 influential papers from Geophysical Journal International: developments in Geophysics over  
the last 100 years**

*Sue Bowler, Royal Astronomical Society*

**7: Earthlearningidea: 15 years on and still going strong!**

*Pete Loader, Earth Science Teachers Association & EGU UK Education Field Officer*

# Abstracts

## TALKS

### **Talk 1: The current state of Geophysics in Higher Education**

*Jenny Jenkins, British Geophysical Association / Durham University*

*A welcome to the meeting and some background on the current state of geophysics teaching in higher education in the UK, based on data collected from all current Geophysics high education providers.*

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### **Talk 2: An overview of Universities Geoscience UK (UGUK) activities supporting recruitment to University Geoscience Courses**

*Sian Davies-Vollum, University Geoscience UK/ University of Northampton*

*Universities Geoscience UK (UGUK) is the advocacy group that represents Geoscience providers at Universities in the UK. We serve as the platform for collating, sharing and discussing sector-wide issues and solutions relative to Geoscience in Higher Education. In an effort to address the declining number of students studying geoscience degrees we collaborated with the Geological Society on a strategy to enhance enrolment. The strategy identified key themes that then underpinned actions around: Geoscience in the school curriculum, routes into studying geoscience, diversity and accessibility and raising governmental awareness. The work focusing on Geoscience in the school curriculum recognises that geoscience appears across the school curriculum but is not necessarily recognised or delivered as geoscience and is also often taught by those with little or no experience of the subject. This resulted in the development of the TEACH EARTH portal, hosted on the UGUK website ([www.earth-science.org.uk/teach-earth](http://www.earth-science.org.uk/teach-earth)). The portal provides STEM teachers in primary and secondary schools, who may not have a background in geoscience, with materials to support delivery of geoscience aspects of their subject. Resources are aligned to a subject and a key stage level to support ease of use by teachers. The resources have been developed and provided by UGUK member universities.*

*Please also see article in Winter 2023 edition of Geoscientist Magazine*

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### **Talk 3: University of Aberdeen Geophysics Teaching and Outreach Activities**

*Cornwell, D.G.1, Gilligan, A.1, Baker, S.1, Kennedy, H. 1, Madani, A. 1, Gani, L. 1, Comte, J-C.1, Giannakis, I.1, Kurjanski, B.1*

*1 University School of Geosciences, University of Aberdeen, Aberdeen, UK*

*We present the current and recent activities in the Department of Geology and Geophysics, part of the School of Geosciences at the University of Aberdeen that relate to geophysics teaching and outreach. For undergraduate teaching this encompasses second year geophysics, geophysics fieldwork, and occasional fourth year geophysics projects. At MSc level we deliver a broad based and integrative 12-month MSc Geophysics programme that prepares UK and international students for employment and/or further doctoral study. At PhD level we develop students in diverse geophysics research topics, from deep Earth seismology to archaeological geophysics.*

*Our outreach efforts have intensified over recent years, through acquiring and deploying over 10 Raspberry Shake seismometers in public homes across Scotland, and volunteering to present earthquake-, Earth-, and tectonics-related talks and table-top demonstrations to ages from 3 to 73! We have assembled multiple demonstration tools, including a brick earthquake machine, spaghetti earthquake magnitudes, Pangea puzzle, slinky springs, toilet roll Earth model, etc. We utilise phone, Lego, Raspberry Shake, and Güralp 6TD/Certimus seismometers for various classroom and public microearthquake experiments and can use our large geophysics equipment pool for school and public outreach activities, e.g. archaeological ground penetrating radar (GPR). Geophysics staff are regularly engaged with national schemes including Seismometers for Schools, STEM Ambassadors, Nuffield Research Placements, and CREST Awards, and local Aberdeen May Festival and Techfest activities.*

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#### **Talk 4: University of Leeds: Outreach in Geophysics**

*Jurgen (Locko) Neuberg, University of Leeds*

*This presentation gives an overview about several outreach activities carried out by Leeds University staff ranging from school visits to teacher conferences, from keynotes to hands-on activities. We will point out what we experienced on the way, which activities went well and why others went less well.*

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## **SESSION 2) Outreach Projects & Industry Perspectives**

#### **Talk 5: GeoBus, University College London: Delivering Earth Science Outreach Online**

*A. Gentry<sup>1</sup>, J. Brodholt, L. Vočadlo*

*1 a.edgington@ucl.ac.uk, Department of Earth Sciences, University College London, Gower Street, London, WC1E 6BT*

*The GeoBus UCL project is an online outreach programme that brings free interactive Earth science workshops into the classroom. From volcanoes to earthquakes, the workshops aim to inspire school children in the Earth Sciences and to showcase the links between Earth sciences and the school curriculum.*

*GeoBus was originally developed by the department of Earth and Environmental Sciences at the University of St Andrews, Scotland. Due to the success of this project, a London based GeoBus was developed. This was initially funded by a NERC grant and Schlumberger and is now supported by the UCL Department of Earth Sciences. When the GeoBus UCL project began, it was a van full of hands-on kit brought to schools across London. However, the global pandemic transformed the project, and it has developed into a set of activities and workshops delivered from a distance. The workshops are presented live via video call, and students are sent activity packs to accompany the session. With this new mode of engagement comes new advantages: we have no limit on location and the sessions can be streamed into multiple classrooms simultaneously, providing maximum flexibility to suit a busy school timetable. Despite our initial reservations, the “virtual workshops” are extremely popular and we are currently reaching >20,000 students each year.*

*In this talk we will be showcasing the practicalities of how our workshops run and what goes into development. Currently our workshops are booked primarily by Primary Schools (~75% of workshops are booked for Key Stage 1 and 2 students) but we are looking into ways of increasing the percentage*

of Key Stage 3 and 4 students and how to better provide a vital link between geophysics researchers and the future scientists sitting in classrooms across the UK and beyond.

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### **Talk 6: Induced Seismicity Case Histories for Outreach – The European Plate Observing System's, Thematic Service on Anthropogenic Hazards: EPISODES web-portal**

*Ian Stimpson, Keele University*

*The European Plate Observing System ([www.epos-eu.org](http://www.epos-eu.org)) is a multinational data portal for Solid Earth Geophysics. The Thematic Core Service: Anthropogenic Hazards (TCS AH) has a web portal EPISODES ([episodesplatform.eu](http://episodesplatform.eu)) containing induced seismicity datasets and associated production data from a variety of causal processes (water reservoirs, geothermal, ccs, hydrocarbons, mining, etc.) and software applications to process and analyse the data. Keele University is responsible for TCS AH outreach activities and is developing packages to showcase the issues related to induced seismicity for schools.*

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### **Talk 7: Engineering geophysics in the UK: a bright but uncertain future**

*Jim Whiteley, AtkinsRéalis*

*UK geotechnical companies reported a combined turnover of £2.58bn in 2023, up 26% from 2022 and approaching double the yearly average turnovers of £1.51bn reported between 2018 – 2020 (Kajastie, 2023b). Uptake of remote sensing, 3D visualisation and 'big data' approaches (amongst others) are increasingly used in major infrastructure projects, driven by rising demand for novel approaches, technologies and skills to support projects (Kajastie, 2023a). Near-surface geophysical techniques, with their unique ability to bridge the gaps in resolution and scale between broad surface observations and localised subsurface point measurements, stand to both increase benefit and reduce costs to ground engineering projects. The UK has an established near-surface geophysics sector; several geophysical survey companies have been operating for over 30 years, and last year saw the release of the first major update to landmark industry guidance on geophysics for ground investigations in over 20 years (Usher et al., 2023).*

*However, innovations in near-surface geophysics have been relatively slow to market when compared to developments in other fields such as remote sensing (Whiteley et al., 2024). Few engineering consultancies in the UK employ geophysicists as part of their increasingly multi-disciplinary service offering, with this lack of technical representation resulting in a poor understanding of the potential benefits of geophysics at the client level. Furthermore, many practitioners of near-surface geophysics in the UK come from the field of geology, with relatively few having studied geophysics at university level. Practitioners with an education in geophysics have tended to come from courses that are steered toward resource exploration rather than engineering applications, potentially due to a poorly defined career-track for near-surface geophysicists. Hence, the pool of candidates from which industry-leading near-surface geophysicists can be developed is small. Consequently, the near-surface geophysics industry is especially exposed to the ongoing decline in students studying geology at university level.*

*The future of near-surface geophysics, particularly in support of ground engineering projects, is bright but uncertain. The opportunities to incorporate and expand geophysical applications as a unique*

approach in the ground engineering toolbox have never been more apparent; whether there will be enough qualified practitioners to take up these future opportunities remains in the balance.

#### References

- Kajastie, N. 2023a. GE100 2023: Ground engineering skills in demand. *Ground Engineering Magazine*. emap Publishing.  
<https://www.geplus.co.uk/features/ge100-2023-ground-engineering-skills-in-demand-25-09-2023/>
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- Usher, C., Stringfellow, M. & Grossey, T. 2023. *Good Practice Guide to Using Geophysics in Ground Investigations: A Client's Guide*, CIRIA.
- Whiteley, J., Cox, E. & Koe, A. 2024. Perspectives on Practical Tools, Best Practice and Emerging Technologies in the Application of Geophysics for Enhancing Resilience to Geohazards. In: Toll, D. G. & Winter, M. G. (eds.) *Geo-Resilience 2023 Conference*. Cardiff, Wales: British Geotechnical Association.

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### **Talk 8: Mapping The Underground – Opportunities for school leavers and graduates in near-surface geophysics**

Sam Roberts, Met Geo Environmental Ltd

*The use of geophysics for archaeology and heritage management was popularized by Time Team in the 1990's and 2000's, but with the departure of that TV show from our mainstream screens in 2014, "Geofizz" is becoming forgotten and is no longer prominent in the national consciousness.*

*Geophysics plays a crucial role in survey applications within the construction and environmental professions and is being used to provide information throughout the whole project lifecycle of developments.*

*From archaeological geophysics involving large-scale landscape reconnaissance techniques, to urban applications of geophysics for utility mapping and modelling, and exploring targeted methods of assessing structural characteristics of buildings; this presentation will provide a flavour of some of the career opportunities that exist today for high school leavers and graduates interested in jobs involving near-surface geophysics in the survey profession.*



**GPR Survey of Reservoir Spillway Basin**

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### **Talk 9: Engaging Local Colleges with Geophysics**

Tom Smith, SEP Geophysical

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**Talk 10: An introduction the work of Institute of Physics Learning and Skills Department**

*Rachel Hartley, Institute of Physics*

*The talk will provide a short introduction to the work of the Institute of Physics (IoP) Learning and Skills department, which aims to ensure that everyone has access to a high-quality physics education, no matter their background. There is a growing demand for physics skills in technical roles that would provide rewarding career opportunities for many students. But not if they think “physics isn't for people like me”.*

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**Talk 11: An Introduction to the work of STEMlearning**

*Mark Langley, STEMlearning*

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**Talk 12: An Introduction to the Ogden Trust & strategies for introducing geophysics in schools**

*Caroline Neuberg, Ogden Trust*

*In this presentation, I will introduce the Ogden Trust, which aims to increase the uptake of physics post-16 by supporting physics education and engagement for all young people (4-18), particularly those in under-represented groups, as well as propose one idea to integrate geophysics to the physics school syllabus.*

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**Talk 13: Initial Results of BGA Geophysics Education Survey: Pupils, teachers, undergraduates and Industry perspectives**

*Amy Gilligan<sup>1/2</sup>, Jenny Jenkins<sup>1/3</sup>, Jess Johnson<sup>1/4</sup>, Lidong Bie<sup>1/4</sup>, Anna Horleston<sup>5</sup>, Vivian Leonhardt<sup>1/6</sup>*

*1. British Geophysical Association, 2. University of Aberdeen, 3. Durham University, 4. University of East Anglia, 5. Bristol University, 6. Edinburgh University*

*Geophysics recruitment in higher-education appears low across numerous UK institutions, and has led to several course closures in recent years. In order to tackle these issues effectively we need an understanding of their root cause, using real data to explore our own assumptions and hypothesis of why this is happening.*

Here we present initial results (using data collected Jan-April 2024) from the British Geophysical Associations Geophysics Education Surveys. These addressed stake-holders throughout the educational pipe-line, from high-school students (16-18) and teachers, to undergraduates students, recent graduates and industry employers. Surveys will continue to be open until the end of the academic and school years, so continued dissemination and publication is encouraged, to ensure initial results are as representative of the wider population as possible. Insights provided by this data collection exercise will help shape community discussions and future actions, on how we can inspire the next generation of geophysicists.

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## POSTER ABSTRACTS:

### **Poster 1: Studying Geophysics at Imperial College London**

*Rebecca Colquhoun, Imperial College London*

*On behalf of the Admissions team within the Department of Earth Science and Engineering at Imperial, I will present an overview of our geophysics degree structure. We will discuss admissions to the degree as well as giving details of the on-course structure, including independent projects and fieldwork, and how the geophysics degree interacts with other programs in the department (Geology, Earth and planetary science).*

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### **Poster 2: Geophysics at the University of Liverpool**

*Andy Biggin, University of Liverpool*

*At least one geophysics honours programme has run continuously at the University of Liverpool since 1967. This commenced under the Sub-department of Geophysics which was founded in 1963 under the joint aegis of both of the Physics and Geology departments. In 1985, the sub-department was absorbed into the Department of Geological Science and geophysics programmes have run alongside other Earth Science programmes since that time. Geophysics has run as both 3-years bachelors and 4-year integrated masters and the BSc offer has variously been combined with other disciplines including Geology, Physics, Mathematics and Environmental Sciences. Here we will present current and proposed offerings of Geophysics at Liverpool, their structures, intakes, and the challenges associated with maintaining and delivering them in the current environment.*

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### **Poster 3: The geophysics degrees at the University of Edinburgh**

*Hugh Pumphrey, University of Edinburgh*

*The geophysics degree at the University of Edinburgh dates back to 1969 with the appointment of Alan Cook as the first chair in a small department of Geophysics, which merged with the department of Geology in 1989 and became part of a large and diverse School of GeoSciences in 2002. Meteorology teaching has a similarly long history, but only as a part of other degrees. At about the time that the School of GeoSciences was formed a University-wide timetable revision meant that it became possible to set up a joint degree in Geophysics and Meteorology. Today, all variants of the*

geophysics degree provide a mathematically rigorous training in geophysics and include an international field geophysics course, run in collaboration with Universität Münster and Université de Paris-Saclay. The basic degree is a Scottish-style 4-year B.Sc. There are two routes to extend this to an integrated masters: by a professional placement year, or by a final year based around a large research project. The syllabus was revised considerably a decade ago; the third year emphasises skills while the fourth year emphasises applications of geophysics. The degree is currently successful in the sense that a large fraction of graduates go on to higher degrees or employment in industries which make direct use of their geophysical training. Challenges faced include recruitment of sufficient students, declining mathematical training of entrants, and managing the interface of the degree with the degrees in physics and in Earth sciences.

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#### **Poster 4: Geophysics at the British Antarctic Survey**

Alex Brisbourne, British Antarctic Survey

British Antarctic Survey (BAS) is the UK's centre for polar research. It seeks to provide information about the state of these frozen regions: how and why they are changing and what they might look like in the future. Geophysics is one of the most important tools for this purpose, and onshore, offshore and airborne geophysical surveys are regularly undertaken.

Active seismic experiments are used to investigate the bed of the ice streams as well as ice rheology, both of which control ice flow and how the ice streams will respond to the warming climate. Earthquake seismology methods are used to study icequakes, tiny fractures at the base of the ice streams, that can also tell us about how ice flows. Gravity and magnetic data are used to understand the geology beneath the ice sheets and how, for example, this can impact geothermal heat flow and therefore the ice sheet temperature profile. Radar surveys are used extensively to map the thickness of the ice sheets, monitor melt rates beneath ice shelves, and understand ice dynamics. In the marine environment, seismic reflection, magnetic, swath bathymetry and sidescan sonar are used to understand glacial processes and ice sheet history.

Understanding all these features and processes is critical to projecting how the ice sheets will respond over the next decades to centuries and geophysics is one of the main tools available for this purpose.



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#### **Poster 5: Physics at your Fingertips! Tactile resources to enrich public engagement with**



## **archaeo-geophysical data**

Adam Booth (1), Raymond Holt (2), Briony Thomas (2,3)

University of Leeds: (1) School of Earth and Environment (2) School of Mechanical Engineering (3) School of Design

*There is an increasing demand on the geoscience community for effective dissemination of data and inferences, equitably engaging a wide audience with communication resources. At the same time, the community needs to stimulate interest in and awareness of geoscience in early-stage learners.*

*As inspirational as geophysical images can be, they are almost exclusively presented in visual formats. The origins of our project are to explore how geoscience engagement can be enriched for users with a visual impairment and/or neurodiverse condition, by converting geophysical images into tactile surfaces; however, these innovative presentation formats could also enrich communication with school audiences.*

*Working with a local heritage agency (Barnsley Museums, UK), our initial prototypes are tactile versions of geophysical data acquired over buried industrial archaeology at the Yorkshire village of Elsecar. Through a series of co-creative interviews, we are appreciating the requirements of a range of users and progressively refining the design of the tactile models – while ensuring that production remains practical (i.e., cost effective, durable product). For permanent installations, acrylic is a promising fabrication medium - but cheaper swell paper offers greater promise for mass dissemination, including schools resources.*

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## **Poster 6: 100 influential papers from Geophysical Journal International**

Sue Bowler

Royal Astronomical Society

*The Royal Astronomical Society has been publishing research in geophysics for more than 100 years, and all papers in Geophysical Journal International (GJI) are now freely available online. **100 Influential Papers from Geophysical Journal International** celebrates that anniversary by looking back at key papers from the archive, together with introductory essays by GJI subject editors. The result is a useful resource – free to download – for exploring the development of the subject and a starting point for educational activities.*

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## **Poster 7: Earthlearningidea: 15 years on and still going strong!**

Pete Loader

Earth Science Teachers Association & EGU UK Education Field Officer

**The EARTHLEARNINGIDEA (ELI)** website was born during the 2008 International Year of Planet Earth. Masterminded by the late Professor Chris King and two colleagues on a volunteer basis, ELIs are published every two weeks on a specially designated website (<https://www.earthlearningidea.com>) along with a weekly blog. Each activity presents an Earth science topic, including many on geophysics, using an interactive, inquiry-based

approach (based on the CASE model) to educate and motivate pupils, whilst developing their thinking and investigative skills.

There are now over 440 activities, many with accompanying videos and transcripts and all are FREE to download. Since December 2008, over 6.6 million activities have been downloaded from all over the world and, with the help of international colleagues in geoscience education, many of the activities have been translated into 11 languages. These represent a major teaching resource in UK geoscience education and form the basis of geoscience workshops run in association with the EGU Geoscience Education Field Officer (GEFO) programme across the UK and Europe.