INTERNATIONAL SYMPOSIUM
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SEPTEMBER 2026 | ATHENS, GREECE

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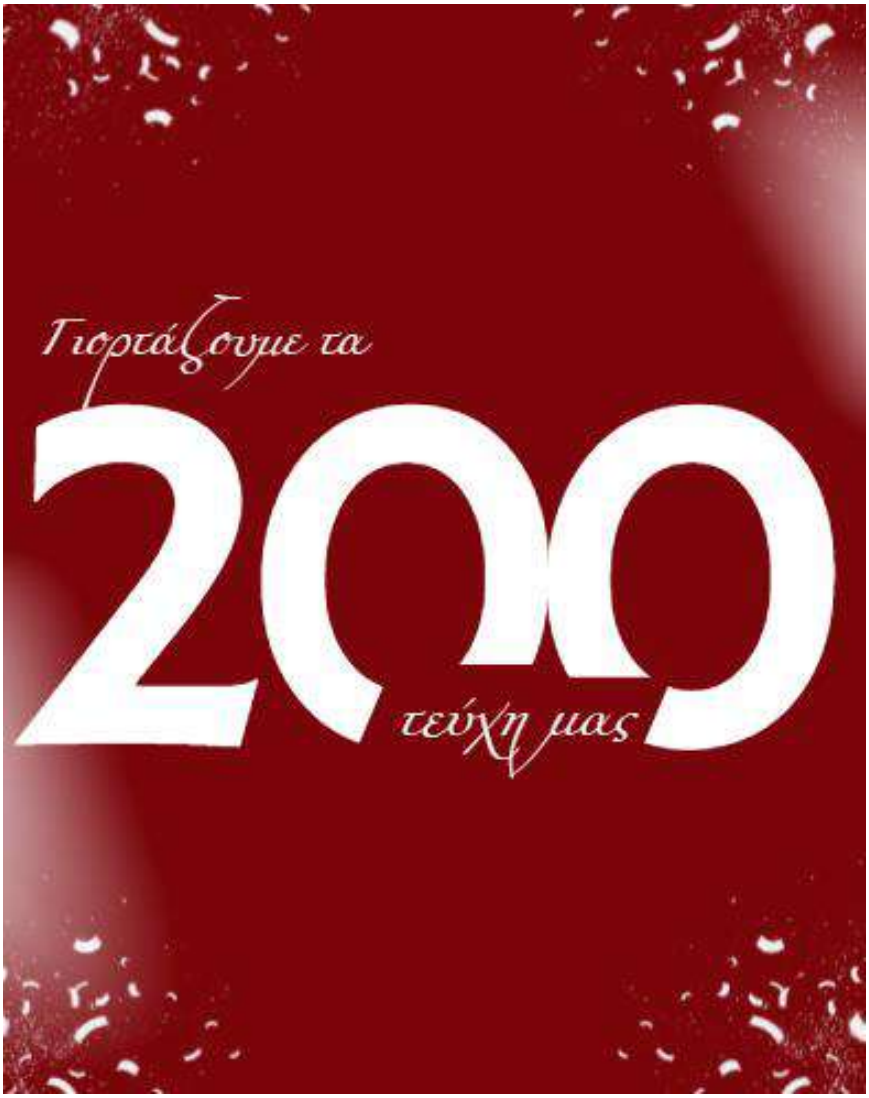

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ΑΡΘΡΑ

Case Study: The Carsington Dam Failure (Derby, UK, 1984)

Michael Bennett, P.E., M.ASCE (GFT: Audubon, PA)

In 1932, seasoned American civil engineer Joel Justin opened his book *Earth Dam Projects* by noting:

"Broadly speaking, man learns only by his failures. Hence, it is of prime importance for engineers charged with the design and construction of earth dams to study the failures of the past, for fortunate is the man who can learn from the failures of others rather than from his own" (Justin 1932).

Much of Justin's manual on the proper design and construction of embankment dams is solidly outdated over 90 years later, to say nothing of his language on how humanity learns. Yet his opening remarks remain as timely as they were the year FDR first ran for president. The study of history of all kinds allows us to learn on the dimes of our forebears, and that is seldom clearer than when one studies geotechnical and dam engineering failures. Indeed, the Association of State Dam Safety Officials (ASDSO) maintains a robust website (https://damsafety.org/dam-failures) devoted to dam failure and incident case studies so modern engineers can learn from their predecessors' mistakes. The site, to which the author has contributed several entries, represents an invaluable resource to geo-professionals (on the topic of dam engineering failures.

Of course, not all such failures are created equal. The phrase "dam engineering failure" calls to mind sobering images of water roaring through a breach after heavy rain, frantic evacuations as a wave thunders down a valley, and a long, difficult, and emotional process of cleaning up and rebuilding. It takes nothing away from such heartrending scenes to note that not all dam failures are quite so catastrophic. Plenty result in property damage and destruction, project schedu-ling setbacks, and bitter and often litigious disputes over re-sponsibility yet are at least free from the angst that accom-panies deaths or serious injuries. One such lower-key failure is the UK's Carsington Dam, which in 1984 underwent a ma-jor slope failure just as construction was concluding. It re-sulted in neither flooding nor fatalities but still led to major technical advances – and badly embarrassed many parties.

Carsington Dam, which was rebuilt following the 1984 slide, lies near the River Derwent and is roughly 10 miles northwest of the city of Derby. (Fans of the legend of Robin Hood may be interested to learn that the real Sherwood Forest sits 25 miles east-northeast of the reservoir.) The structure was first planned in the late 1960s to improve central England's water supply and was designed in the late 1970s. The dam was planned to be 120 feet tall, 4,020 feet long, and capable of retaining 28,400 acre-feet of water. Construction began in spring 1981 (Kennard and Bromhead 2000, Rocke 1993, Sachpazis 2013, Skempton and Vaughan 1993).

From the start, the geotechnical design of the original Carsington Dam fell far short of the standard of care. The designers generally followed the typical design of an embankment dam – clay core, inner and outer shoulders, drainage features, and so forth – and incorporated some standard geotechnical features into their work, such as grout curtains and uplift wells for seepage control. However, the team insufficiently considered several other key geotechnical factors. The site subsurface investigation found roughly 6 feet of highly plastic yellow clay beneath the topsoil, but the designers never specified that this potentially problematic material needed to be removed from the dam's footprint. Nor did they note that the yellow clay contained shear surfaces from historical solifluction (landslides induced by freeze-thaw cycles) at the site. The team conducted only minimal lab testing before choosing material parameters that pushed, and in some cases overstepped, the limits of appropriate conservatism. This was especially concerning since the designers included an unconventional toe, dubbed a "boot," in the upstream side of the dam's clay core. Such a boot presents clear risks for sliding within a dam, but the team did not rigorously evaluate probable slip surfaces through it. In fact, evidence suggests that critical slip surfaces within the dam were never systematically assessed. Neither, apparently, was the potential for progressive shear failure within the structure (Kennard and Bromhead 2000, Rocke 1993, Sachpazis 2013, Skempton and Vaughan 1993).

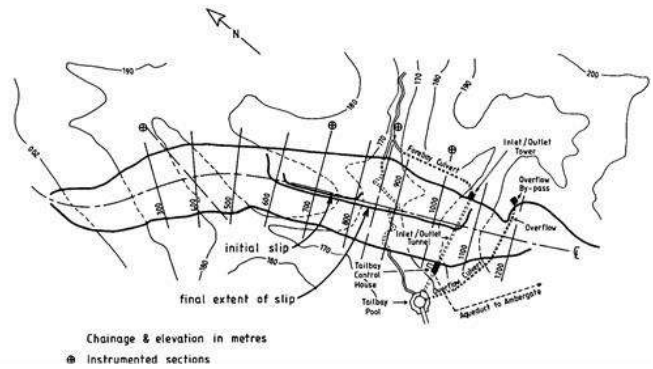

Image 1: Layout of the original Carsington Dam, annotated with the future failure zone.
Source: Skempton (1985).

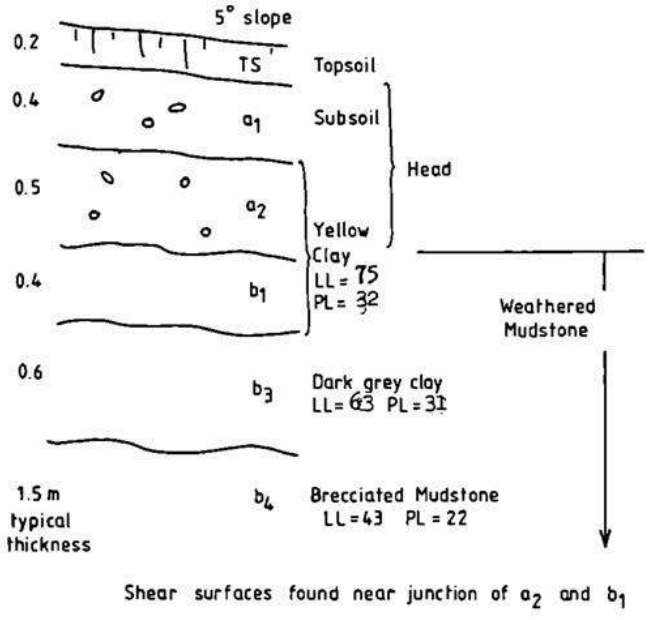

Image 2: Stratigraphy of post-failure test pit excavated at the Carsington Dam site.
Source: Skempton (1985).

The woes at Carsington Dam intensified as fill placement for the embankment got underway in summer 1982. The designers had called for the dam's core to be built of yellow clay excavated from on-site borrow pits, notwithstanding its solifluction shears. The team also failed to account for the elevated pyrite content of the mudstone clay used for the dam's upstream shell when choosing to use limestone riprap on, and drainage blankets within, the embankment. This created

the potential for sulfuric acid leaching from the mudstone clay to react disastrously with the calcium carbonate in the limestone, potentially producing excessive build-ups of carbon dioxide. Tragically, this possibility came to pass; during construction, four workers died of asphyxiation while inspecting a drainage tunnel in which gases from pyrite drainage-limestone reactions had built up (Baldermann et al. 2024, Kennard and Bromhead 2000, Penman et al. 1995, Skempton 1985, Skempton and Vaughan 1993).

Image 3: Suspected solifluction surface in a post-failure test pit.
Source: Rowe (1991).

Image 4: Cross-section of the original Carsington Dam. Source: Skempton and Vaughan (1993).

While the designers' choices began having detrimental impacts on Carsington Dam well before it approached completion, several of the contractor's construction decisions exacerbated these problems. For example, the contractor placed and compacted the core and boot clay as much as 8% wet of its optimum moisture content, leading to high pore pressures and low shear strength within the already problematic material. At another point, the contractor built a 20-foot-high toe berm extending about 785 feet along the structure's upstream face. This choice allowed for quicker embankment construction but also reduced the already inadequate time available for the core's oversaturated clay to consolidate. Furthermore, the contractor's compaction machinery created numerous ruts within the yellow clay, each representing a potential new slip surface. Later analyses determined that these ruts most likely played only a minor role, if any, in the dam's failure, but their presence reflected the cursory consideration with which all too many decisions on the project were made (Kennard and Bromhead 2000, Penman et al. 1995, Rocke 1993, Skempton 1985, Skempton and Vaughan 1993)

Despite these shortfalls, the contractor was generally more on top of the issues at the dam than the design team and harbored more concerns about the project from its outset. As work progressed, the contractor became increasingly doubtful of the design's success, especially as instrumentation installed in the dam at the designer's behest began indicating an incipient slope movement along its upstream face. By mid-1983, the contractor had seen enough and engaged outside engineering consultants to evaluate its concerns. The consultants reported back that fall, validating these concerns and calling attention to the designer's insufficiently conservative parameters, improper assessment of potential slip surfaces through the boot, and worrisome instrumentation data. The contractor immediately forwarded the report to the design team and attempted to meet them to discuss both the findings and potential design modifications. Yet the designers never acknowledged these outreaches and construction continued apace (Kennard and Bromhead 2000, Penman et al. 1995, Skempton and Vaughan 1993).

Image 5: Embankment construction progresses at the original Carsington Dam.
Source: Rowe (1991).

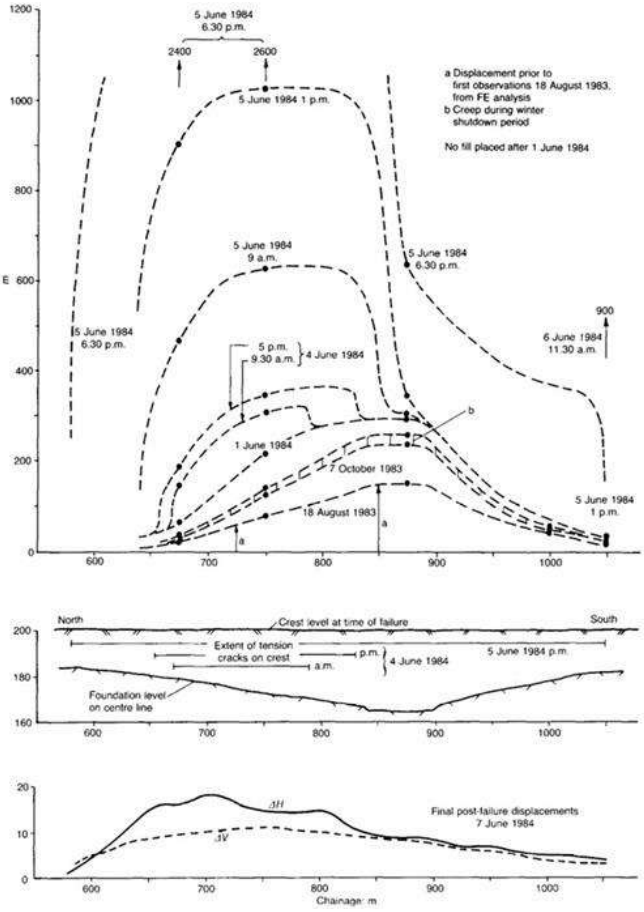

Image 6: Map of lateral displacements along the upstream toe of the original Carsington Dam early in the slope failure.
Source: Skempton and Vaughan (1993).

The problems remained, though, and work at Carsington Dam soon came to a juddering halt. The earliest sign of imminent trouble came in late May 1984 when a section of the dam's upstream face near the eventual slide location moved about 4 inches laterally in just a week. The first weekend of June likely worsened the nascent issues, as approximately 1.6 inches of rain fell. When the contractor's crews returned to the jobsite on Monday, June 4th, they discovered that a head scarp crack up to 2 inches wide had formed along a 395-foot stretch of the dam's upstream face. Moreover, its toe in this region now exhibited as much as 3 to 4 inches of lateral displacement. The crews began an emergency expansion of the upstream toe berm right away, hoping to arrest the slide, but the problem quickly worsened and their valiant efforts proved fruitless. By Monday evening, the crack was as much as 5 inches wide. The next morning, it had grown up to 14 inches wide and was getting longer. By Tuesday afternoon, as the crews continued toiling on the berm, the crack was widening as much as 6 inches per hour; by that evening, it extended along 1,540 feet of the dam, and portions of the upstream toe exhibited up to 8 feet of lateral displacement. Even larger movements occurred overnight from Tuesday to Wednesday. When the slope finally stopped sliding on Thursday, June 7th, the failure had a lateral extent of roughly 1,625 feet. The dam's upstream slope had undergone up to 43 feet of lateral displacement, and its crest had slid downward as much as 33 feet (Rowe 1991, Skempton and Coats 1985, Skempton and Vaughan 1993).

Image 7: Aftermath of the slope failure at the original Carsington Dam.
Source: Rofe et al. (1996).

Since Carsington Dam was still under construction, its failure fortunately led to neither flooding nor human casualties. Still, the subsequent investigation and rebuilding process was – like any other – long and expensive. The post-slide geotechnical forensic investigation and failure analyses constituted a noteworthy achievement in dam engineering. The client, designer, contractor, and forensic engineers were all eager to get to the root of what had happened, and the investigation was therefore a surprisingly cooperative effort. "A remarkable degree of unanimity existed among the [investigative] committee members," one geotechnical engineer involved in the effort noted. The forensic site work included a thorough regimen of sampling and laboratory testing, along with an extensive battery of CPT probes. (The hazards overlooked in design were reaffirmed when some test pits had to be ventilated before sampling due to excessive carbon dioxide from the pyrite drainage-limestone reactions.) Meanwhile, the analyses used finite element models to successfully establish that progressive failure had occurred. This represented a major advance for the geotechnical profession, since limit equilibrium models still predominated in failure analyses of dams 40 years ago (Potts et al. 1990, Rocke 1993).

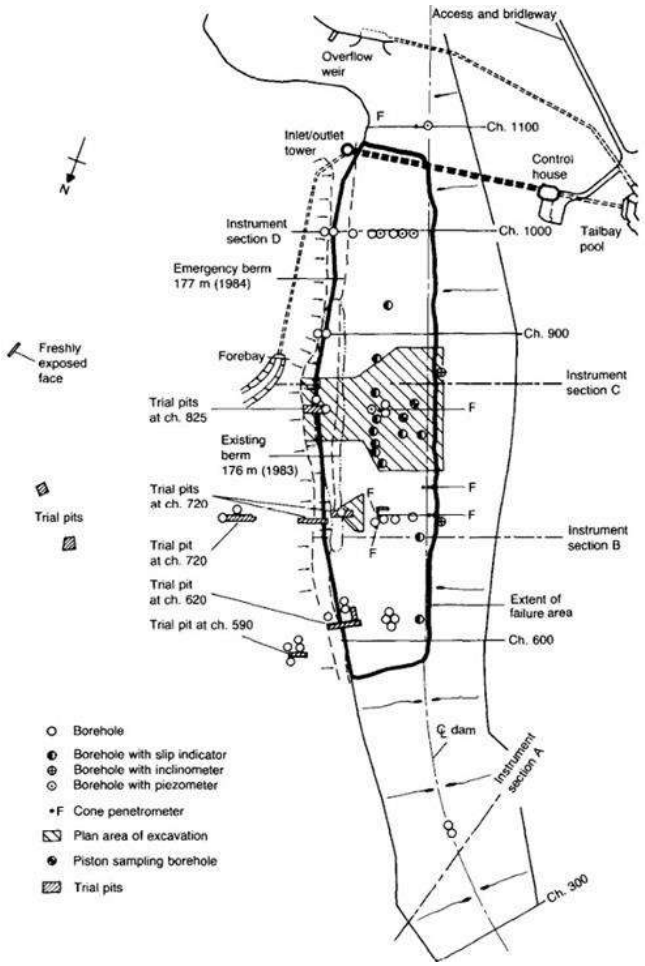

Image 8: Map of sampling for the forensic investigation at Carsington Dam.
Source: Rocke (1993).

Ultimately, the forensic engineers concluded that the Carsington Dam slide stemmed primarily from a combination of the factors hitherto described. The slip surface had extended through the core boot and the thin stratum of yellow clay left in place beneath the dam. Since this clay was brittle, a geotechnical phenomenon not yet widely recognized in 1984, the core had undergone non-uniform strain and had failed progressively. Thus, the exclusive use of peak or even fully softened shear strength parameters in design without considering residual strength had been erroneous. Eventually, the solifluction surfaces in the yellow clay, both in the core and beneath the dam, and progressive failure had lowered the factor of safety for slope stability at the initial point of failure to 1, resulting in the slide. As the failure played out,

lateral load transfer shifted forces from the failed portion of the dam onto adjacent portions, reducing their already perilously low FS values to 1 and propagating the failure outward. The FEM work also showed that the contractor's construction of a buttress berm along the dam's upstream toe had increased the FS of the tenuously stable slope far less than LEM-based calculations had predicted (Kennard and Bromhead 2000, Rocke 1993, Skempton and Vaughan 1993, Vaughan 1991).

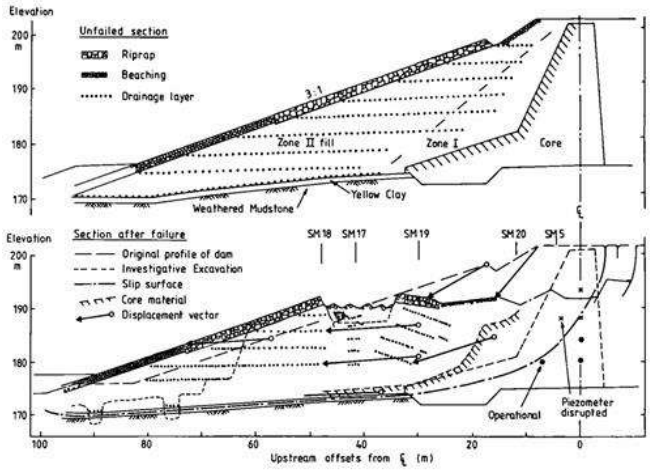

Image 9: Cross-sections of the original Carsington Dam before and after the slope failure.
Source: Skempton (1985).

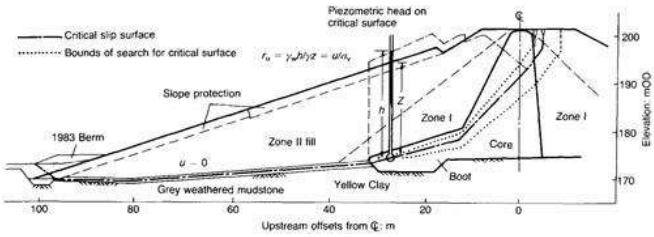

Image 10: Cross-section of initial surface of slope failure within the original Carsington Dam.
Source: Skempton and Vaughan (1993).

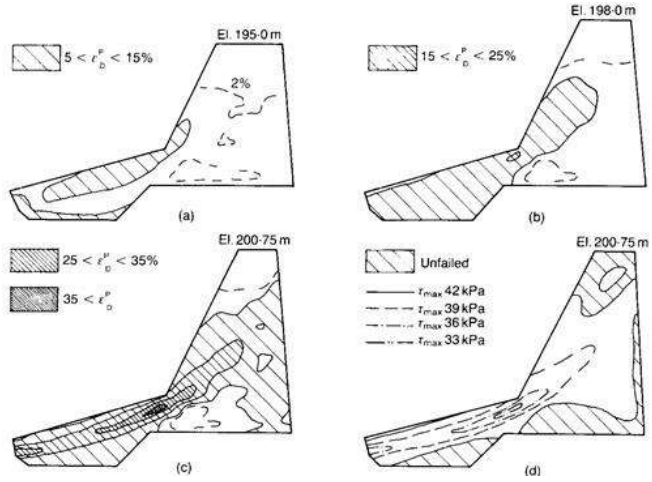

Image 11: Cross-sections of strain (a-c) and shear stress (d) within the clay core and boot of the original Carsington Dam showing onset of progressive failure.
Source: Potts et al. (1990).

The civil engineers who analyzed the Carsington Dam slide emphasized that the dam's reconstruction, if undertaken, would need to incorporate better choices of design parameters, more consideration of the possibility of progressive failure and probable slip surfaces, and – perhaps most importantly – receptiveness by the design team to concerns from the contractor and/or outside consulting engineers. The disaster made clear the importance of recognizing the brittle nature of some clays, considering progressive failure in dam design, and, as a corollary, using FEM in these designs to assess slope stability. The failure prompted years of vigorous and productive discussion in the British dam engineering community about the nature and proper modeling of progressive failure in clays. Esteemed geotechnical practitioner A.D.M. Penman channeled Joel Justin's admonition of 60 years earlier when he wrote, "We must always be grateful for the opportunity to analyze failure – without failure we know less about the actual mechanisms of failure" (Penman et al. 1995).

Design of the new Carsington Dam began almost as soon as the forensic investigators released their findings. The new design team included several features in the revamped dam to ensure it avoided its predecessor's fate. The new, more geotechnically rigorous design utilized more conservative material parameters that reflected an improved understanding of progressive failures. The designers eliminated the core boot and limestone drainage blankets, instead opting for a downstream filter drain. They significantly reduced the embankment's slopes from 3:1 (H:V) to 3.5:1 along its upstream face and from 2.5:1 to 3:1 along its downstream face and added berm-like steps along both faces for additional stability. The designers used FEM analyses to confirm the new design's robustness. During construction, the designers and contractors drew upon an extensive instrumentation program to check that observed and predicted soil behavior were congruent, as they proved to be. They also implemented strict protocols to prevent machine-induced rutting shear surfaces in the clay core. The job was further complicated by the need to remove over 2.6 million CY of failed material from the original dam during construction of the new dam (Chalmers et al. 1993, Macdonald et al. 1993, Rocke 1993, Sachpazis 2013).

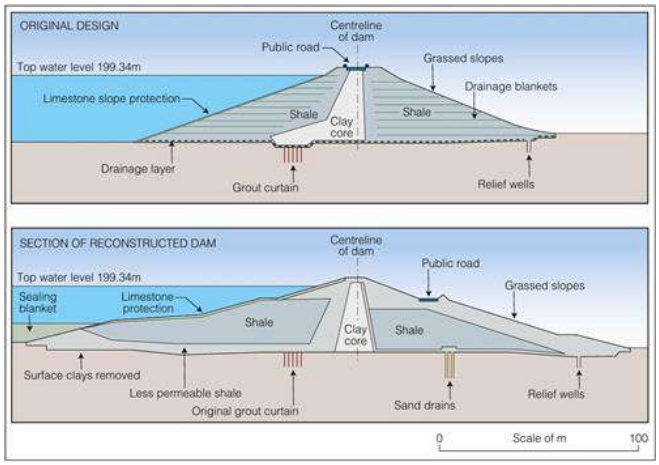

Image 12: Comparison of cross-sections of the original and rebuilt Carsington Dams showing refinements to the new design.
Source: Rofe et al. (1996).

Despite the project's many constraints, the contractors completed the new Carsington Dam in October 1991, 12 months ahead of schedule. It has performed satisfactorily since then under the watchful eye of its owners, Severn Trent Water, and their Chartered Engineers (the UK equivalent of US Professional Engineers). The Carsington Reservoir is now a popular recreation spot for walkers and runners, water sports enthusiasts, and nature watchers and it represents an exceptionally happy ending to a dam failure saga. Still, geo-professionals and dam engineers must be mindful that the success story of the rebuilt Carsington Dam resulted directly from the failure story of its forerunner. Four decades have

passed since the original Carsington Dam failed, but it remains a valuable teaching tool. The tranquil scene of Carsington Reservoir today is, in its own way, a stern reminder to civil engineers the world over that not all that ends well necessarily is well – and that learning on our forebears' dimes is far more affordable than learning on our own (Macdonald et al. 1993).

Image 13: Construction of the rebuilt Carsington Dam nears completion.
Source: Macdonald et al. (1993).

Image 14: Overhead view of the rebuilt Carsington Dam as it currently stands.
Source: Sachpazis (2013).

Acknowledgments

Sebastian Lobo-Guerrero, Ph.D., P.E., BC.GE, F.ASCE (A.G.E.S., Inc.: Canonsburg, PA), the author's former colleague, reviewed the entry's geotechnical content. Prof. Alba Yerro-Colom (Virginia Tech: Blacksburg, VA) introduced the author and his classmates to the Carsington Dam failure in her spring 2019 course on Numerical Methods in Geotechnics. The author has adapted this entry from his forthcoming contribution on Carsington Dam to ASDSO's Dam Failures and Incidents website.

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ΝΕΑ ΑΠΟ ΤΙΣ ΕΛΛΗΝΙΚΕΣ ΚΑΙ ΔΙΕΘΝΕΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΝΩΣΕΙΣ

International Society for Soil Mechanics and Geotechnical Engineering

ISSMGE News
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Global Young Geotechnical Voices – Call for Contributions!

ISSMGE IT Administrator / Young Members / 06-06-2025

The ISSMGE Young Members Presidential Group (YMPG) is excited to launch a new global initiative: **Young Member Group News Around the World!**

The 2024-2026 YMPG board warmly invites young member groups from all 90+ member societies to share what you've been up to local events, webinars, outreach efforts, student activities, and more!

Why?
Because *your* work deserves to be seen and celebrated by the global geotechnical community!

Send us your:

- Short video updates (1-2 minutes)
- Images or articles highlighting your activities
- Creative ways your Young Members is engaging and growing

We'll feature your stories on the ISSMGE website and social media channels one group at a time, building a connected and inspiring network of young professionals.

Let's spotlight the energy, creativity, and impact of young geotechnical engineers worldwide.

To contribute, write to us at: **ympg.issmge@gmail.com**

Proceedings from the 5th International Symposium on Frontiers in Offshore Geotechnics (ISFOG2025) available in open access

ISSMGE IT Administrator / General / 10-06-2025

The Innovation and Development Committee of ISSMGE is pleased to announce that through the initiative of Dr. Christelle Abadie, Dr. Zheng Li, Dr. Matthieu Blanc, Dr. Luc Thorel and the French Geotechnical Society (CFMS), the 422 papers from the proceedings of the 5th International Symposium on Frontiers in Offshore Geotechnics (ISFOG2025) are available in the ISSMGE Online Library:

https://www.issmge.org/publications/online-library

The abstracts and papers of the proceedings were reviewed through ISSMGEs Conference Review Platform which is part of its cyber-infrastructure aiming to support open access.

The conference is being held in Nantes, France, from June 9th to 13th, 2025.

Detailed acknowledgements for ISFOG2025 can be found in the Acknowledgements section of the ISSMGE Online Library.

ICEGT-2025: Registration Open and Programme Announced - Paris, France | June 17–19, 2025

Guillermo Narsilio / TC308 / 10-06-2025

The 3rd International Conference on Energy Geotechnics (ICEGT-2025) is fast approaching, and we are pleased to announce that **registration is now open** and the **programme has been published**!

Organised under the auspices of **ISSMGE Technical Committee 308 (Energy Geotechnics)**, and in collaboration with the **French Committees of Soil Mechanics (CFMS)** and **Rock Mechanics (CFMR)**, ICEGT-2025 will take place in **Paris, France**, under the central theme:

"Implementing the Energy Transition"

As the world accelerates its shift to sustainable energy systems, geotechnical engineering stands at the forefront. ICEGT-2025 will serve as a key forum for **researchers, engineers, and practitioners** to share recent advances, challenges, and strategies for energy geotechnics in support of the energy transition.

Keynote and Plenary Speakers

We are honoured to welcome the following **keynote speakers**:

- **Prof. Fleur Loveridge** University of Leeds, UK
- **Prof. Enrique Romero** Universitat Politècnica de Catalunya BarcelonaTech, Spain
- **Prof. Jean Schmittbuhl** Université de Strasbourg, France
- **Prof. Marcelo Sánchez** Texas A&M University, USA *(TC 308 Honour Lecturer)*

We are also delighted to host two **Bright Spark Lectures** from emerging leaders in the field:

- **Dr Anne-Catherine Dieudonné** Delft University of Technology, The Netherlands
- **Dr Merita Tafili** Ruhr-Universität Bochum, Germany

Programme Highlights

ICEGT-2025 will feature a rich programme of **plenary and parallel sessions**, covering the latest developments in:

- Energy geostructures
- Geothermal systems
- Thermal energy storage
- Energy harvesting from infrastructure
- Modelling fundamentals and field applications

Download the conference booklet (PDF)
View the detailed programme

Special Events

W(H)YDOC Workshop 6th Edition June 16, 2025 (day before the conference) A unique opportunity for PhD students and early-career researchers to exchange ideas and build international networks.

Welcome Reception / Icebreaker June 16 at 19:00 in the Amphitheatre Cauchy reception area.

Gala Dinner Seine River Cruise Included in your registration: a 2.5-hour scenic cruise with dinner, passing iconic landmarks such as the Eiffel Tower.

Join us in Paris for this landmark event in energy geotechnics. **Register today** and be part of the community driving the geotechnical dimension of the global energy transition!

For more information and to register: click here

Invitation to TC211 Webinar on Field-Scale Bio-Grouting Technology

ISSMGE IT Administrator / TC211 / 10-06-2025

TC211 will be hosting a webinar on field-scale bio-grouting technology, featuring a presentation by Dr. Kimberly Martin, PhD, PE. This insightful and educational talk, titled "*Field-scale Implementation of EICP and What Comes Next?*" will provide valuable perspectives on recent advancements in the field.

The webinar will take place on **Zoom**: https://utsmeet.zoom.us/j/89658918418

Date & Time: Friday, 20 June 2025

- 7:00 AM Canada Eastern Time
- 1:00 PM Central European Time
- 4:30 PM New Delhi
- 9:00 PM Sydney

Attendees will have the opportunity to engage with Dr. Martin during a Q&A session following the presentation.

For further details on the webinar and the speaker, please refer to the attached presentation **flyer**.

Your continued support in promoting TC211 events, including this webinar, is greatly appreciated. We encourage you to share this invitation and the flyer with your local geotechnical societies, colleagues, and any other interested professionals who may benefit from this discussion.

We look forward to welcoming you all to this event.

New Webpage Opportunity for CAPG Members - Showcase Your Company on ISSMGE Website!

ISSMGE IT Administrator / Corporate Associates / 16-06-2025

The Corporate Associates Presidential Group (CAPG) is pleased to offer a valuable opportunity for its members to elevate their visibility within the global geotechnical community.

Each CAPG member is entitled to a dedicated webpage designed to highlight their companys role and services within the geotechnical field.

Feature 1: Company Services Overview

A dedicated webpage on the ISSMGE website to showcase their services, share unique experiences, and promote contributions to ISSMGE.

Feature 2: Website Link and Logo Display

Your companys logo and official website link will be prominently featured, ensuring visitors can easily learn more and engage directly with your organization.

Feature 3: Exclusive Showcase (for Platinum and Journal Sponsors)

CAPG Platinum and Journal Sponsors will also benefit from an additional feature the ability to upload one promotional item, such as a brochure, flyer, video, image, or presentation. This material will be available for users to view and download directly from your companys page.

This initiative is part of CAPGs continued commitment to recognizing the contributions of its members and strengthening connections across the geotechnical community.

For more information, please refer to the CAPG homepage.

Announcing the 8th McClelland Lecturer – Professor Susan Gourvenec

ISSMGE Secretariat / TC209 / 19-06-2025

The McClelland Lecture is the honour lecture of ISSMGE TC209, with the recipient selected by a panel of peers from across the offshore geotechnical profession.

The 8th McClelland Lecturer will be delivered at the SUT Offshore Site Investigation and Geotechnics (OSIG) 10th International Conference in September 2027.

Announcing the 8th McClelland Lecturer Professor Susan Gourvenec

ISSMGE Technical Committee 209 Offshore Geotechnics is delighted to announce that Professor Susan Gourvenec of The University of Southampton has been invited to deliver the 8th McClelland Lecture.

Susan has made substantial contributions to the field of offshore geotechnics. Particular examples include development of a body of work on the failure envelope methodology for accurately and efficiently assessing foundation capacity under multi-directional loading; whole-life design, enabling more efficient design by coupling changes in seabed strength during installation and operation with through-life loading; and tolerably mobile design, taking advantage of the displacement-sensitive nature of loading.

She has maximized the impact of her research outcomes through a blended dissemination portfolio including journal and conference publications, consultancy, media engagement, and calculation tools, some of which are provided as freeware via webappsforengineers.com. Her research has led to awards from the International Society of Soil Mechanics

and Geotechnical Engineering, the Australian and New Zealand Geomechanics Society, the American Society of Civil Engineers, the Canadian Geotechnical Society and the Institution of Civil Engineers and is included in industry recommended standards of the International Organisation for Standardisation (ISO), British Standards Institute (BSI), Det Norske Veritas (DNV) and Lloyds Register (LR).

Susan is past Chair of the ISO committee WG10, responsible for international standards in offshore site investigation and geotechnical design, and has contributed as a member of the Committee and Technical Panels for over 15 years. Susan Chaired the Organising Committee and co-authored the Proceedings of the inaugural and second International Symposia on Frontiers in Offshore Geotechnics, and has co-authored two textbooks, Offshore Geotechnical Engineering, and Intermediate Foundation Design. Susan is an elected Fellow of the Institution of Engineers Australia, the Institution of Civil Engineers, and the Royal Academy of Engineering in recognition of her contributions to geotechnical engineering.

Susan currently holds a Royal Academy of Engineering Chair in Emerging Technologies, and leads a team of students and post-doctoral researchers that form the Centre of Excellence for Intelligent & Resilient Ocean Engineering at the University of Southampton.

Congratulations Susan!

Numerical Simulation of Soft Soil Improvement Using Prefabricated Vertical Drains and Preloading

Francesca Ceccato / TC103 / 17-06-2025

New ISSMGE TC103 Webinar Available Now! Numerical Simulation of Soft Soil Improvement Using Prefabricated Vertical Drains and Preloading By Dr. Ali Parsa-Pajouh

We are pleased to announce the release of a brand-new webinar on the **ISSMGE Virtual University** platform!

Webinar Title: *Numerical Simulation of Soft Soil Improvement Using Prefabricated Vertical Drains and Preloading*

Presented by: Dr. Ali Parsa-Pajouh, an expert in geotechnical engineering and ground improvement technologies.

What You'll Learn: This webinar provides a comprehensive overview of the numerical modeling techniques used to simulate soft soil improvement through the application of prefabricated vertical drains (PVDs) combined with preloading. Dr. Parsa-Pajouh discusses both theoretical and practical aspects, offering valuable insights for researchers, practitioners, and students alike.

Available Now On: ISSMGE Virtual University

This webinar is promoted by **Technical Committee 103 (TC103) Numerical Methods in Geomechanics** of ISSMGE.

CAPG Members — Leave Your Mark on Geotechnical History!

ISSMGE IT Administrator / Corporate Associates / 18-06-2025

CAPG members are warmly invited to leave a lasting mark on geotechnical engineering by contributing to the ISSMGE Heritage Time Capsule (HTC) Project. Led by Sukumar Pathmanandavel, the initiative will culminate in the sealing of a physical time capsule during a dedicated session at the 21st International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE 2026), Vienna.

This is a unique opportunity to showcase your organizations legacy, innovations, and impact within the field. Contributions from Corporate Associates are especially encouraged to highlight their role in advancing geotechnical practice.

In addition to submitting content, CAPG members are also invited to join the HTC Physical Time Capsule Sub-Committee and help shape this historic effort.

Explore current contributions at htc.issmge.org and submit yours by December 2026.

Let's increase the presence of Corporate Associates in this iconic project and ensure our legacy is engraved in geotechnical heritage!

Contribute here: Contributions | ISSMGE: Heritage Time Capsule (HTC) Project, this link can be used to contact the HTC Team with your questions and thoughts about the HTC and preparation of the HTC contributions.

Your message will be sent to the HTC Project administrators. We look forward to hearing from you.

TC202 Executive Group Member, Prof. William Powrie, awarded top honors!

Jennifer Nicks / TC202 / 23-06-2025

TC202 is excited to congratulate one of its own Executive Group members, Professor William Powrie, Professor of Geotechnical Engineering at the University of Southampton, on being awarded a Commander of the Order of the British Empire (CBE) for his valuable services in engineering. He is also invited to deliver the 64th Rankine Lecture in 2026. Well deserving acknowledgements for the achievements of Prof. Powrie in transportation geotechnics! '

Additional information can be found in the following locations:

Professor William Powrie is awarded a CBE - The British Geotechnical Association (BGA)

The 64th Rankine Lecture - The British Geotechnical Association (BGA)

The Proceedings of the 6th International Conference on Geotechnical Engineering Education 2025 (GEE2025) are online

Michele Calvello / TC306 / 24-06-2025

The 6th International Conference on Geotechnical Engineering Education 2025 (GEE 2025) will start in Nancy (France) in a few days, but the Proceedings are already online. You can find them in the ISSMGE open access Online Library, within the database TC306 Conferences on Education, at the following link:

https://www.issmge.org/publications/online-library?database=3&conference=134

The Conference is organized by the ISSMGE Technical Committee TC306 for Geo-engineering Education, under the auspices of the French Society for Soil Mechanics and Geotech-

nical Engineering (Comité Français de Mécanique des Sols et de Géotechnique - CFMS) and the Ecole Nationale Supérieure de Géologie, Université de Lorraine, France.

Your Project Deserves a Global Stage — Feature it in the ISSMGE Bulletin!

ISSMGE IT Administrator / Corporate Associates / 25-06-2025

Calling All Corporate Associates! You are invited to contribute to **upcoming editions of the ISSMGE Bulletin** the premier platform that connects the global geotechnical engineering community.

What is the ISSMGE Bulletin? A quarterly publication (January, March, June, September), the **ISSMGE Bulletin** showcases **world-class projects, innovations, and best practices** from across the industry.

Latest Issue: now available ISSMGE Bulletin | ISSMGE

Submit Your Story

Share a **13 page article** on:

A groundbreaking **project case study**

A forward-thinking **research highlight**

A story that promotes **sustainability** or **innovation**

An insight that **inspires the next generation** of geotechnical engineers

Keep it engaging! Use visuals, QR codes, hyperlinks, and even videos to bring your story to life.

Why Participate?

High-profile visibility in a respected global publication
Knowledge sharing across continents

Direct connection to young professionals and industry leaders

Contribute Here

Send your article to the **ISSMGE Bulletin Editorial Team** and be part of a publication that shapes the future of geotechnical engineering. bulletin@issmge.org

Dont miss this opportunity to put your work on the world stage.

ISSMGE TC217 3RD ANNUAL ONLINE SEMINAR SERIES: SUSTAINABLE LAND RECLAMATION METHOD - ARTIFICIAL ISLAND, 07 AUGUST 2025

Siau Chen Chian / TC217 / 25-06-2025

The executive committee of TC217 is hosting a trilogy of webinars on topics relating to land reclamation. This is the third consecutive year that TC217 has conducted the online seminar series, under the auspicious of the ISSMGE.

We are pleased to announce our invited speaker for our webinar on 7th August 2025, Professor Guo Wei, from Tianjin University, China.

Seminar details:

Title: Sustainable Land Reclamation Method - Artificial Island

Time: 07 August 2025, 7pm (GMT+8h)

Registration ink: https://us06web.zoom.us/webinar/register/WN_EOz_yawxSFCozpzYetbpYA#/registration

* For non-GeoSS members, your name and email address would suffice in the registration form.

We look forward to receiving your registration and meeting you at the webinar!

Sincerely,

A/Prof Darren Chian
Secretary, TC217 Land Reclamation

CREST 2026 - Call for Abstracts

ISSMGE Secretariat / TC307 / 01-07-2025

The 3rd International Conference on Construction Resources on Environmentally Sustainable Technologies (CREST - 2026) will be held at Cambridge, UK on Sept 7th and 8th in 2026.

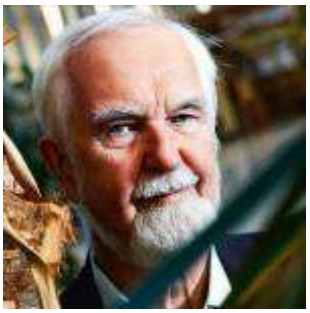
Prof Stuart Haigh is the conference Chair. ISSMGE Technical Committee, TC 307 - Sustainability in Geotechnical Engineering is a support organization for this conference.

TC307 is planning to host multiple events at this conference including a new TC307 Honor Lecture that will be delivered during the conference.

Please note that the website is open (www.crest2026.com) **and accepting paper abstracts.**

Czech and Slovak Geotechnical Society

In Memoriam: Professor Ivan Vaníček (1944–2025)



Former Vice President for Europe, ISSMGE (2009–2013); Past President of the Czech & Slovak Society for Soil Mechanics and Geotechnical Engineering

We are deeply saddened by the passing of **Professor Ivan Vaníček**, a distinguished figure in the international geotechnical community and former Vice President for Europe of ISSMGE.

Professor Vaníček was widely respected for his expertise in slope stability, environmental geotechnics, and geosynthetics, as well as his pivotal role in the development of geotechnical standards and the Eurocode. His long-standing leadership of the Czech & Slovak Society for Soil Mechanics and Geotechnical Engineering helped strengthen regional cooperation and elevated the visibility of Central European contributions on the international stage.

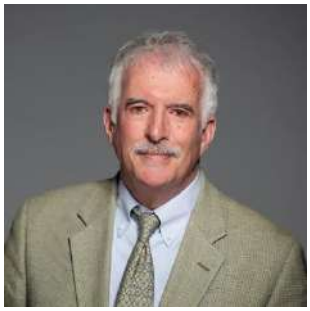
Elected as ISSMGE Vice President for Europe in 2009, he brought technical rigour, humility, and vision to his role, fostering deeper collaboration between national societies and championing educational and institutional progress. Known for his intellectual depth and generous mentorship, Professor Vaníček influenced not only the technical evolution of our field, but the professional growth of generations of engineers.

We extend our heartfelt condolences to his family, colleagues, and the Czech and Slovak geotechnical communities. On behalf of ISSMGE Europe and all those in our region who had the privilege to work alongside him, we honour his legacy of leadership, mentorship, and service.

Ο Ivan ήταν πολύ καλός φίλος της ΕΕΕΕΓΜ και συνετέλεσε στην επιτυχία της διοργάνωσης του 15th European Conference on Soil Mechanics and Geotechnical Engineering στην Αθήνα τον Σεπτέμβριο 2011.

News
https://www.isrm.net

49th ISRM Online Lecture - June 2025 - Professor Robert Zimmerman



The 49th ISRM Online Lecture will be given by Professor Robert Zimmerman, from Imperial College London, UK. The title of his lecture will be "Fluid Flow in Fractured Rocks". It will be broadcast at the beginning of June, on a day to be announced soon, and will remain available on the **Online Lecture's page**.

Prof. Zimmerman obtained a B.S. and M.S. in mechanical engineering from Columbia University, and a Ph.D. from the University of California at Berkeley. He has been a lecturer at UC Berkeley, a staff scientist at the Lawrence Berkeley National Laboratory, and Head of the Division of Engineering Geology and Geophysics at KTH in Stockholm. He is currently Chair in Rock Mechanics at Imperial College London.

He is the author of the monograph Compressibility of Sandstones, published by Elsevier in 1991, and the textbook Fluid Flow in Porous Media, published by World Scientific in 2018. He is the co-author, with J.C. Jaeger and N.G.W. Cook, of Fundamentals of Rock Mechanics (4th ed.), published in 2007 by Wiley-Blackwell, and is the co-author, with Adriana Paluszny, of the new monograph Fluid Flow in Fractured Rocks, published by Wiley in 2024.

Prof. Zimmerman conducts research on the hydromechanical behaviour of fractured and porous rocks, fluid flow in porous media, rock failure and rock fracture, with applications to petroleum engineering, underground mining, radioactive waste disposal, and subsurface carbon sequestration. His research has been funded by, among others, the U.S. Department of Energy, BP, Chevron, Shell, Halliburton, Schlumberger, Rio Tinto, and BHP. He has received over $25M in external research funding, and is currently the PI on the £5M GeoSafe Project, co-funded by the UK Natural Environment Research Council and the Nuclear Waste Services UK.

He served as the Editor-in-Chief of the International Journal of Rock Mechanics and Mining Sciences from 2006-2023. In 2010, he was awarded the Maurice A. Biot Medal of the American Society of Civil Engineers, for his "outstanding contributions in applying poroelasticity to rock mechanics and fluid flow in fractured media." He is a Fellow of the American Rock Mechanics Association, and a Fellow of the Royal Academy of Engineering (UK).

Click to open the 49th Online Lecture.

Website of Eurock 2026 in Skopje, N. Macedonia, was launched 2025-06-18

The ISRM Regional Symposium – EUROCK 2026, will take place from 15–19 September 2026 in Skopje, N. Macedonia. The central theme will be Risk Management in Rock

Engineering, with a focus on innovations and applied research.

The Website of Eurock 2026 has now been launched (https://eurock2026.com), with full informaiong on the event.

In addition to technical sessions, the symposium will include short courses, workshops, industrial exhibitions, and technical tours. Rockbowl competition, paper and poster contests for young researchers and students will be organized, while separate programs are planned for accompanying guests. Thus, the delegates will have opportunity to also enjoy social events, gala dinner, and guided tours showcasing Skopje's charm and North Macedonia's rich cultural heritage and natural attractions.

Professor Sérgio Fontoura elected ISRM President for the term 2027–2031 2025-06-19

Two outstanding candidates were nominated for the position of ISRM President: Prof. Pinnaduwa Kulatilake, nominated by Sri Lanka, and Prof. Sérgio Fontoura, nominated by Brazil, Paraguay, Argentina and Mexico. The presidential election was held during the ISRM Council meeting in Trondheim, on 16 June 2025.

Prof. Sérgio Fontoura was elected and has immediately joined the Board as President-elect. He will officially assume the Presidency of the Society following the ISRM International Congress on Rock Mechanics in September 2027, which will take place in Seoul, Korea.

The 50th ISRM Online Lecture by Prof. Hehua Zhu will be broadcast on 15 July. 2025-06-30

The 50th ISRM Online Lecture will be given by Prof. Hehua Zhu from Tongji University, China and will broadcast on 15 July. The topic of his lecture is "Generalized Zhang-Zhu (GZZ) Three-Dimensional Rock Strength Theory and Application to Real-Time Stress-Control Analysis in Deep Tunneling".

ASSOCIATION INTERNATIONALE DES TUNNELS ET DE L'ESPACE SOUTERRAIN ITA
AITES INTERNATIONAL TUNNELLING AND UNDERGROUND SPACE ASSOCIATION

News
https://about.ita-aites.org/news

ITACET Lunchtime Lecture Series #46 10 June 2025

Join the next LLS #46!

This instalment of the Lunchtime lecture series will focus on **'Challenges and new frontiers of tunnelling refurbishment'** in collaboration with ITA -AITES WG6.

The episode will feature four lectures and will finish with a Q&A with all speakers. It will begin at 13:00 CET.

- Introduction, current work and research of WG6 - Sallo van der Woude
- The time machine: an AI-assisted approach to predictive maintenance in tunnels - Gorka Santamaria
- Manfreida tunnel renovation project - Daniele Di Fiore
- Refurbishment Heinenoordtunnel - Theo van Maris & Harry de Haan

Registration: Lunchtime lecture series#46 | Itacet

New tutors appointed by ITA Executive Council 13 June 2025

The Executive Council (ExCo) of the International Tunnelling and Underground Space Association (ITA) has announced the appointment of new Tutors to its Working Groups (WGs) and Committees.

The Tutors, all members of the ExCo, serve as strategic liaisons, ensuring that the activities of their assigned groups and committees align with ITA's broader mission and objectives. Their role includes facilitating communication between the Working Groups and ITA Committees and the ExCo, monitoring progress, and supporting collaboration across the association's technical and organisational structures.

In addition to guiding the development of technical outputs, ExCo Tutors advocate for their groups within the ExCo, helping to surface challenges, highlight achievements, and ensure visibility for ongoing initiatives. This structure not only enhances governance but also ensures that each group benefits from senior-level support and integration into ITA's global strategy.

The Exco Members assigned as Tutors are as follows:

Working Groups and their assigned tutors

WG 2 – Elena Chiriotti
WG 3 – Arnold Dix
WG 5 – Sanja Zlatanic
WG 6 – Nobuharu Isago
WG 9 – Ioannis Fikiris
WG 11 – Klaus Rieker
WG 12 – Nick Chittenden
WG 14 – Rick Lovat
WG 15 – Zhang Zhiguo
WG 17 – Gérard Seingre
WG 19 – Johan Mignon
WG 21 – Nobuharu Isago
WG 22 – Hamdi Aydin
WG 23 – Leslie Pakianathan

Tutors of Committees and Special Groups

ITA COSUF – Sanja Zlatanic
ITACET – Ioannis Fikiris
ITACUS Damian McGirr
ITATech – Klaus Rieker
Special Purpose Sustainability – Damian McGirr
ITA Young Members Group – Andrea Pigorini

A full overview of the ExCo members assigned as Tutors to each Working Group and Committee is now available on the ITA website. https://about.ita-aites.org/about-ita/executive-council

Geographical and stakeholders' responsibilities

In addition to their technical roles, ExCo members have also been assigned specific geographical and stakeholder areas of responsibility. These include not only ITA Member Nations, but also Corporate Affiliate Members (CAM), Prime Sponsors, Supporters, Clients, and Individual Members.

This structure is designed to enhance engagement, ensure consistent follow-up, and strengthen ITA's global network across all levels of membership and partnership. The responsibilities are distributed as follows:

Far East and Australasia – Arnold Dix, Nobuharu Isago and Leslie Pakianathan
North and South America – Sanja Zlatanic
Nordic Forum – Rick Lovat
EUTF Forum – Johan Mignon
Balkan Region – Ioannis Fikiris
Africa – Damian McGirr and Elena Chiriotti
Middle East – Hamdi Aydin and Zhang Zhiguo
Prime Sponsors, Supporters and Corporate Affiliated Members (CAM) – Klaus Rieker
Clients and Individual Affiliated Members (IAM) – Sanja Zlatanic

These appointments reflect ITA's commitment to fostering global collaboration and ensuring effective governance across its diverse initiatives.

For more information and the Member Nations, Prime Sponsors, Supporters and Corporate Affiliated members, please visit the official ITA website. https://about.ita-aites.org/members

LEI active 2025

Information from our Supporter: ArcelorMittal 15 June 2025

ArcelorMittal Fibres, an ArcelorMittal WireSolutions business, is part of the ArcelorMittal Group.

At ArcelorMittal, our goal is to help build a better world with smarter steels. Steels made using innovative processes which are more efficient, use less energy, and emit signifycantly less carbon. Steels that are cleaner, stronger and reusable.

Our purpose is to transform reinforced concrete in pursuit of a better-built world.

Our vision is to make steel fibre reinforcement the first choice for those designing and building the world's every day ambitious concrete structures.

For 35 years, ArcelorMittal Fibres has been a major driving force in the transformation of the reinforced concrete industry and the structures it creates.

ArcelorMittal's vertically integrated business model provides us with complete control over the quality of our raw materials and in our production methods ensuring the highest standards of steel fibre production. In conjunction with our world class technical expertise, we are able to deliver unparalleled quality and value.

From the early planning stages through to project completion, ArcelorMittal Fibres provides the expertise and support your project requires.

ArcelorMittal steel fibres are manufactured using the highest quality, fully traceable, drawn steel wire. The unique shape and precision dimensions of our fibres, together with their high tensile strength, deliver increased reinforcement performance with lower dosages.

As the world's leading steel company, we have a significant responsibility to innovate, implement and navigate a successful pathway towards a cleaner steelmaking industry. Our journey towards becoming carbon neutral by 2050, having aligned with the Paris climate goals and the European Green Deal by committing to reduce European CO2 emissions by 35% by 2030 and be carbon neutral by 2050, is well underway.

XCarb® is designed to bring together all of ArcelorMittal's reduced, low and zero-carbon products and steelmaking activities, as well as wider initiatives and green innovation projects, into a single effort focused on achieving demonstrable progress towards carbon neutral steel.

XCarb® recycled and renewably produced steel is made from high levels of recycled steel using 100% renewable electricity in an Electric Arc Furnace. By using high levels of scrap steel and renewable energy, XCarb® recycled and renewably produced products have an extremely low CO2 footprint that can be as low as approximately 300kg of CO2 per tonne of finished steel when the metallics are 100% scrap.

All of the electricity needed to transform the scrap into XCarb® recycled and renewably produced steel products comes from renewable sources such as solar and wind power.

The origin of the electricity used in the XCarb® recycled and renewably produced steel-making and steel fibre manufacturing process is guaranteed through the "Guarantee of Origin" European system.

The XCarb® recycled and renewably produced order system is audited by a third party.

Each tonne of steel fibres produced under the XCarb® recycled and renewably produced label will have a dedicated production certificate showing the kg of CO2/tonne (Scope A1 - A3) of steel used and indicating the recycled steel content.

Information from our Prime Sponsor: Bekaert 15 June 2025

Dramix receives prestigious Pioneer Award from Solar Impulse Foundation

We are proud to announce that our innovative **Dramix® steel fibers**, together with **Société du Grand Paris** and **Eiffage**, have received the **Pioneer Award** from the **Solar Impulse Foundation**. This recognition highlights our joint efforts in advancing ecological sustainability in the construc-

tion industry, specifically for our work on **line 16.1 of the Grand Paris Express** project.

By using **Dramix® steel fibers** to reinforce the Grand Paris tunnel lining instead of traditional mesh/rebars, the project achieved significant environmental benefits. On average, **10,000 tonnes of CO2** could be saved for every 10 km of tunnels, compared to conventional methods like rebar. Dramix® enabled the reduction of steel and concrete usage, contributing to a more sustainable Paris.

This is all thanks to the multiple benefits that come with using Dramix® steel fiber reinforced concrete. Applied to this project, one truckload of Dramix® steel fibers can reinforce nearly **185 segments** of the tunnel lining, compared to just 60 segments with rebar. This significantly reduces transport needs and associated CO2 emissions, further emphasizing the sustainability of the solution.

The **Pioneer Awards** celebrate client-adopters who challenge the status quo by adopting innovative and sustainable solutions. In this case, Dramix® was pivotal in the **Grand Paris Express** project

Information from our Supporter: Krampe Harex 15 June 2025

Best EPD of all wire fibres worldwide - KrampeHarex continues to set the standard

KrampeHarex has represented the highest quality in fibre reinforcement and fire protection for decades. The company offers both steel and PP fibres, which are used in demanding construction projects worldwide. The focus here is on innovation, durability, safety - and above all sustainability.

KrampeHarex is supplying major infrastructure projects worldwide. Here are three examples from Europe: In Romania, a new railroad tunnel is being built in Brașov, which will strengthen the connection within the European rail network. The fiber reinforcement from KrampeHarex ensures a durable and low-maintenance construction - a benefit for the environment and the economy. The company is also very active in Norway: fibres from KrampeHarex are used in the Rogfast Tunnel, one of the deepest undersea road tunnels in the world, as well as in the E06 Rentvanns Tunnel in northern Norway. Especially under extreme climatic and geological conditions, the steel and PP fibres make a decisive contribution to the safety and durability of the structures.

A key argument for choosing KrampeHarex in these projects is the best EPD of any steel fiber manufacturer on the market worldwide. With a CO_2 footprint of just 0.257 kg CO_2-Eq, the family-owned company is setting standards in terms of the sustainability of concrete structures. Thanks to its excellent life cycle assessment, all construction projects that rely on KrampeHarex make an important contribution to sustainable development.

The foundation for this quality is the new, modern plant in Germany. Here, the fibres are produced to the highest technical standards and with efficient processes. Regional production ensures short transportation routes and resource-conserving manufacturing.

KrampeHarex not only stands for technical excellence, but also for a consistently sustainable understanding of the future - produced locally, used worldwide.

ITA Tunnelling Awards 2025: 57 Entries in the Running from 25 Countries! 15 June 2025

The **11th edition of the ITA Tunnelling Awards**, set to take place in **Belgrade (Serbia)** on **October 1st, 2025**, alongside the **Southeastern Europe Tunnelling Conference (SETC-2025),** promises to be a particularly rich event, showcasing global excellence in underground engineering.

A remarkable international participation

This year, **over 100 submissions** have been received from **25 different countries**, demonstrating the growing appeal of this prestigious award within the global tunnelling sector.

57 Entries shortlisted

Among these submissions, 57 entries have been shortlisted as eligible and are currently being evaluated by our international panel of judges. The next step is to select the finalists in each of the 8 categories.

Heading to Belgrade

The ITA Awards Tunnelling ceremony will be held on October 1st, 2025, at the Sava Center in Belgrade, bringing together the entire tunnelling community for a prestigious evening. This event is part of the Southeastern European Tunnelling Conference (SETC 2025), which will take place from October 1st to 3rd.

Early bird registration – Book now!

Registration for the ITA Tunnelling Awards and SETC 2025 Conference is now open, with early bird rates available until **July 31st, 2025**. Book your spot today: https://setc-2025.rs/registration-fee/

Become a sponsor of ITA Tunnelling Awards & SETC 2025

Want to increase your company's visibility within the **global tunnelling and underground construction community**? Join us as a sponsor and enjoy top-tier visibility opportunities:

- Showcase your brand to industry leaders
- Connect with key experts and decision-makers
- Benefit from exclusive promotional and strategic positioning opportunities

Explore our sponsorship and exhibition options by checking out the dedicated brochure: ITA Tunnelling Awards and SETC-2025 Sponsorship Brochure 2.pdf

For more information: Southeastern Europe Tunnelling Conference 2025 / Conference - ITA Tunnelling Awards 2025

Information from our Supporter: Wayss & Freytag 15 June 2025

Wayss & Freytag Ingenieurbau AG – Celebrating 150 years of construction expertise

With 150 years of history, Wayss & Freytag Ingenieurbau AG is one of the leading construction companies in Germany. Our scope of activities includes traditional civil engineering, mechanical and conventional tunnelling and complex special foundation engineering.

In the past Wayss & Freytag was significantly involved in the development of mechanized tunnelling techniques. For example, we initiated the support of the tunnel face by means of a bentonite suspension and air-cushion. With the so-called "slurry shield" this technique was brought to operational maturity. Wayss & Freytag is a pioneer of this technology and has now built more than 210 km of tunnels using slurry shields. In addition, more than 105 km of tunnel were driven using earth pressure balance shields and more than 45 km using hard rock TBMs as well as more than 7 km with Variable Density TBMs.

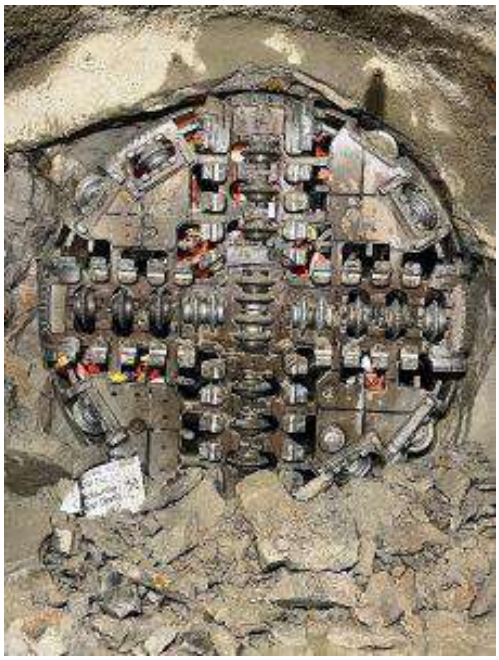
Examples of prominent tunnelling projects are the West Link Project, Korsvägen, Gothenburg Sweden, Cross River rail Project in Brisbane, Australia, Fehmarnbelt Tunnel between Denmark and Germany, Weser Crossing in Bremen or U5 Metro Extension in Munich, Germany.

With innovative construction methods, state-of-the-art technology and millimeter precision, we realize projects under sometimes challenging conditions with importance to safety, sustainability and efficiency.

Celebrating 150 years of history Wayss & Freytag stands for progress and tradition in equal measure. We don't just build buildings, we create connections for life - technical, human and social.

Find out more about us, our projects and career opportunities on our website: https://www.wf-ib.de/kompetenz-im-blick-punkt/

credit: Imagocura



WTC2026 CALL FOR ABSTRACTS: Extended Deadline! 16 June 2025

Call for Abstracts: Extended Deadline!

The WTC2026 planning committee would like to inform you that the **deadline for the abstract submissions** has been extended for a final time **to JUNE 30, 2025.**

Call for Abstracts - WTC2026

WTC2025 Sum-up 17 June 2025

The **World Tunnel Congress 2025 (WTC 2025)** was held in **Stockholm, Sweden**, highlighting the latest **technological innovations in underground and tunnelling construction**. The event focused on **sustainability** and **technical excellence**, while **strengthening international collaboration** within the industry.

Organised under the theme **"Tunnelling into a Sustainable Future"**, the congress brought together:

- Around **3,000 participants**
- **160 exhibitors**
- **500 technical papers** from across the globe

The programme featured: presentations, poster sessions, technical site visits, and social events — offering numerous opportunities for **knowledge sharing** and **networking**.

A key emphasis was placed on integrating the **United Nations Sustainable Development Goals (UN SDGs)** into tunnelling and infrastructure development.

To explore how WTC 2025 was featured in international media and industry publications, we invite you to visit the "WTC in the Press" section on our official website: ITA in the Press

You can also view and download photos here: ITA Photos

In addition, you can access the official congress proceedings here.

Information from our Prime Sponsor: CRCHI 29 June 2025

The Word's First Variable Diameter Inclined Shaft TBM Breakthrough

The first diversion inclined shaft at Hunan Pingjiang Pumped Storage Power Station achieved full breakthrough. As the world's first large-inclination, large-diameter, adjustable-diameter hard rock TBM for inclined shafts, it conquered the global challenge of tunnelling on a 50-degree ultra-steep slope while dynamically adjusting its excavation diameter from 6.5 meters to 8 meters.

The Breakthrough of "Tianyue"TBM

The "Tianyue" TBM, with a total length of 87 meters and a weight exceeding 900 tons, is composed of over 10,000 parts. It operates on a 50-degree incline, moving upwards and can achieve full-section excavation and primary support in one go for the two-level water diversion inclined shafts.

The No. 1 diversion inclined shaft spans 1,337.9 meters. Its «wider-top, narrower- bottom" design features an 8-meter upper section to reduce flow velocity and prevent cavitation damage under low-pressure conditions, and a 6.5-meter lower section that cuts steel usage in high-pressure zones by over 30% while mitigating deep-large-chamber excavation risks.

Construction site after the "Tianyue" TBM's diameter change

The TBM's pioneering triple-gripping hydraulic interlock system conquered the 50- degree slope. Three sets of gripper anchored to the shaft wall form an "anti-slip triangular matrix" through cylinder linkage. During boring, mid/rear grippers provide counter- thrust—"like caterpillar feet gripping the ground"—while alternating re-gripping every 1.5 meters. This interlocked mechanism ensures stable ascent, slashing construction time and enhancing safety.

The 50 degree slope tunnelled by the TBM Tianyu

The "Tianyue" TBM also introduced the conversion of an ultra-large range of excavation diameters from 6.5 meters to 8 meters. From the beginning of its development, the research and development team considered the excavation capabilities and structural design for two large spans with different diameters. They achieved the first breakthrough in convertible cutting wheel edge design and expandable shield technology, complemented by a machine host lifting and diameter-changing device, allowing a single set of equipment to tunnel different diameters, significantly reducing costs.

The successful application of the "Tianyue" TBM has further enhanced the excavation quality and craftsmanship, improved the construction environment and accumulated valuable experience for the mechanized construction of pumped storage power stations.

News from Bekaert - ITA Prime Sponsor 30 June 2025

New development for FRC quality control

In collaboration with UPC – Polytechnic University of Catalonia – Bekaert developed and patented the technology behind the Dramix® eyeD Inspector.

Dramix® eyeD Inspector is a testing device designed to measure fiber orientation and fiber dosage in concrete test specimens.

Embrace a smarter approach to steel fiber reinforcement By giving you a clear view of how fibers are distributed, it helps you verify that your project meets design requirements before you commit to continuous productions. With Dramix® eyeD Inspector, you can reduce risks, optimize performance, and save time on every job.

Why choose Dramix® eyeD Inspector?

1 Certainty in orientation
Confirms how fibers are laid out within the specimen.

2 Verified dosage
Precisely measures the amount of steel fibers to ensure your concrete meets design specs.

3 Faster, smarter decisions
Quickly evaluates multiple samples, speeding up QA and validation.

Scooped by ITA-AITES #134, 17 June 2025

Huge machines to tunnel 50 meters below Sydney Harbour | Australia

Stad Ship Tunnel bids received | Norway

From Clay to Concrete: How TBM Emily Dug Her Way Into HS2 History | UK

Rishikesh-Karnaprayag Rail Project Achieves Another Milestone With Breakthrough Of 6.67 Km Tunnel Between Gullar And Byasi | India

Changi Airport Group awards $999m contract for underground tunnels at Terminal 5 | Singapore

Morocco-Spain Tunnel: Bridging Euro-African Integration

Agra Metro Line 1 Tunnel Now Complete | India

UK government commits $800M to Lower Thames Crossing

This huge cave hidden under Toronto will soon be a busy subway station | Canada

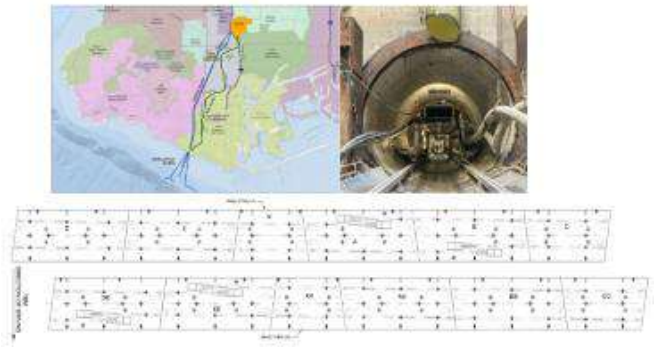
Potomac River Tunnel Blasting | USA

British Tunnelling Society Young Members

BTSYM June Lecture

Los Angeles Outfall Project Case Study: Post-tensioning Segmental Lining Design and Challenging Geotechnical Conditions (Squeezing)

Thursday, 5th June, 2025, 18:00 - 19:30 (GMT+1)
ICE HQ, One Great George Street, London, SW1P 3AA
Link to the ICE live Recording



Event Information

LA Effluent Outfall Tunnel is currently under construction for the Sanitation District of Los Angeles County. The tunnel has a 11.26 km long with a 5.5 m internal diameter; it is designed to evacuate peak flows of treated water, with the possibility of becoming pressurized when combined with large in-tunnel flows. The first tunnel section is excavated in soil materials with relatively low overburden.

The second tunnel section is excavated in rock materials with overburden up to 145 m and with expected groundwater pressures up to 9 bar. For the first section, the design conditions necessitate the execution of a post-tensioned system within the tunnel segments to guarantee there is enough hoop forces in the segments to remain compressed under peak flows. For the second section, the rock conditions are variable and may experience moderate to extreme squeezing ground during construction.

Speaker

Alfonso Navarro is Civil Engineer with over 13 years of international experience in tunnel and geotechnical engineering, focused on the design of underground structures in complex urban, hydraulic, and transportation environments. His core expertise lies in tunnel lining design—both segmental and NATM—and the application of advanced numerical modelling techniques using FEM tools such as Plaxis and FLAC3D.

At SENER, he serves as principal tunnel lining engineer and contribute to the integration of BIM methodology within the Tunnelling & Geotechnical Department. His responsibilities span from early-stage geotechnical assessments and structural design to coordination with multidisciplinary teams and contractor support during execution.

Recently, he has been involved in a range of technically demanding projects, including:

- Metro Cairo Line 4 (Egypt) – coordination of all tunnel and station geotechnical design with FE modelling and building risk assessments.

- LA JWPCP Outfall Tunnel (USA) – segmental lining design and post-tensioning optimization for North America's first post-tensioned TBM tunnel.
- Ontario Line (Canada) – cavern excavation in swelling shale with <1D cover.
- Lamiako Subfluvial Tunnel (Spain) – NATM under minimal cover and high hydraulic pressure, with systematic pre-grouting and full watertight lining.
- Coffs Harbour Bypass (Australia) – twin tunnels in mixed ground, with full BIM modelling of underground assets.

His work emphasizes structural efficiency, risk mitigation in sensitive environments, and innovation in tunnel design methodologies

BTSYM Sustainability Questionnaire

Contribute to the change you wish to see

As sustainability becomes increasingly vital, we're eager to learn how it's being implemented into tunnelling projects. To do this, we've created a survey to gain understanding and gather insights regarding the progress and challenges in sustainability across different parts of the industry.

By sharing your experiences, you'll actively contribute to a comprehensive analysis of current trends and help us identify areas of improvement. The results of the survey will form the strategies and the initiatives of the BTSYM.

We'd love to hear from you! Please help the BTSYM Innovation & Sustainability group out by filling in our survey at the following link. Please also share the survey so we can foster a greener future for our industry.

Thank you for your time and support!

Questionnaire

INTERNATIONAL GEOSYNTHETICS SOCIETY

www.geosyntheticssociety.org

News

Don't Miss GeoAsia8 Diversity Session June 2, 2025

Infrastructure management specialist Shine Salur will be sharing her insights into creating greater equity in engineering at the forthcoming GeoAsia8 conference. Ms Salur, Industry Development **Read More »**

Register For June Strains Webinar June 18, 2025

Hear the latest advances on calculating strains in geomembranes at a webinar next month. Professor Richard Brachman of Queens University, Canada, will be speaking on **Read More »**

IGS LinkedIn Followers Pass 7,000 Mark June 19, 2025

The IGS's LinkedIn page continues to gain popularity with more than 1,000 new followers joining over the last year. Regular updates on IGS news, views **Read More »**

IGS Delivers Keynote At Geotechnical Education Conference June 30, 2025

The drive to get geosynthetics into higher education curricula will gain a wider arena this week as education champion Dr. Jorge Zornberg talks at GEE2025. **Read More »**

BGA · THE BRITISH · GEOTECHNICAL ASSOCIATION

News
https://www.britishgeotech.org/news

2025 BGA Case Histories Award Winner announced 01.06.2025

The British Geotechnical Association (BGA) is pleased to announce that the 2025 BGA Case Histories Award has been awarded to authors David Richards, William Powrie, and Anthony Blake for their paper "Full-scale tests on laterally loaded railway overhead line equipment mast foundations" published in Geotéchnique in 2023. Read More

Winner announced of 2024 BGA Masters Prize 01.06.2025

The British Geotechnical Association (BGA) is pleased to announce that Michael Dixon of Durham University is the winner of the 2024 BGA Masters prize for his entry "Seepage in Unsaturated Soils Understanding Flow in Landfill Covers". Read More

2024 BGA Medal Winning Paper announced 01.06.2025

The British Geotechnical Association (BGA) is pleased to announce that the 2024 BGA Medal has been awarded to Jim Whiteley leading a team of 16 authors for their paper "High-resolution geophysical monitoring of moisture accumulation preceding slope movement—a path to improved early warning" published in Environmental Research Letters in 2024. Read More

Date and Venue of the 64th Rankine Lecture 08.06.2025

The 64th Rankine Lecture, to be delivered by Professor William Powrie of the University of Southampton, will be held on 18th March 20226. Please note that the venue for this year's lecture has been changed to Ondaatje Lecture Theatre at the Royal Geographical Society (RGS), South Kensington, London. Read More

Skempton Medal awarded to Professor Christopher Clayton 13.06.2025

The BGA is delighted to announce that the Trustees have approved the award of a Skempton Medal to Professor Christopher Clayton. Read More

The July 2025 issue of Ground Engineering is available on line 13.06.2025

The July 2025 issue of Ground Engineering is available on line. Online access to Ground Engineering (GE) is included in BGA subscriptions. Read More

Professor William Powrie is awarded a CBE 15.06.2025

The British Geotechnical Association is pleased to share the news that William Powrie, Professor of Geotechnical Engineering at the University of Southampton, has been awarded a CBE (Commander of the Order of the British Empire) in King Charles' Birthday honours for services to engineering, Read More

BGA Supporting Ground Engineering's GE GeoTech 2025 18.06.2025

The British Geotechnical Association (BGA) is pleased to support Ground Engineering's GE GeoTech 2025 and has negotiated a 15% discount off tickets for all members. Read More

Call for abstracts – 12th International Symposium on Field Monitoring in Geomechanics 22.06.2025

Call for abstracts – 12th International Symposium on Field Monitoring in Geomechanics. The deadline to submit an abstract is 30th June 2025. Read More

BGA Poster Award 2025 22.06.2025

The BGA holds an Annual Poster competition for young geotechnical professionals to showcase their work. The 2025 entries are available to view here. Read More

Result of 2025 Elections to the BGA Executive Committee 25.06.2025

Read More

New BGA Chair and Vice Chair Take up their roles 30.06.2025

The BGA is pleased to announce that Chaido (Yuli) Doulala-Rigby has taken over as Chair of the BGA and James Lawrence is the new Vice Chair of the BGA. Read More

News
www.geoinstitute.org/news

Standardizing pile installation data diggs field records digital gold

Created: 09 Jun 2025

Daniel Ponti, USGS (retired) and Nick Machairas, Haley and Aldrich

Deep foundation specialists deal with mountains of pile driving records, PDA data, and equipment specifications. Efficiently managing these data to analyze trends across multiple projects, transfer data between software tools, or to share data with colleagues, poses real challenges. As our industry moves toward digital workflows, the need for standardized data formats has never been greater. That's where the latest DIGGS extension comes in.

Through an G-I Technical Committee Special Project, we've developed comprehensive XML schema extensions for encoding driven pile installation data as structured text. These extensions create a standardized way to encode everything from basic pile properties to detailed PDA measurements. Rather than wrestling with multiple spreadsheets and PDF reports, engineers can store pile driving data in a single, structured format that future DIGGS-compatible software can read from and write to.

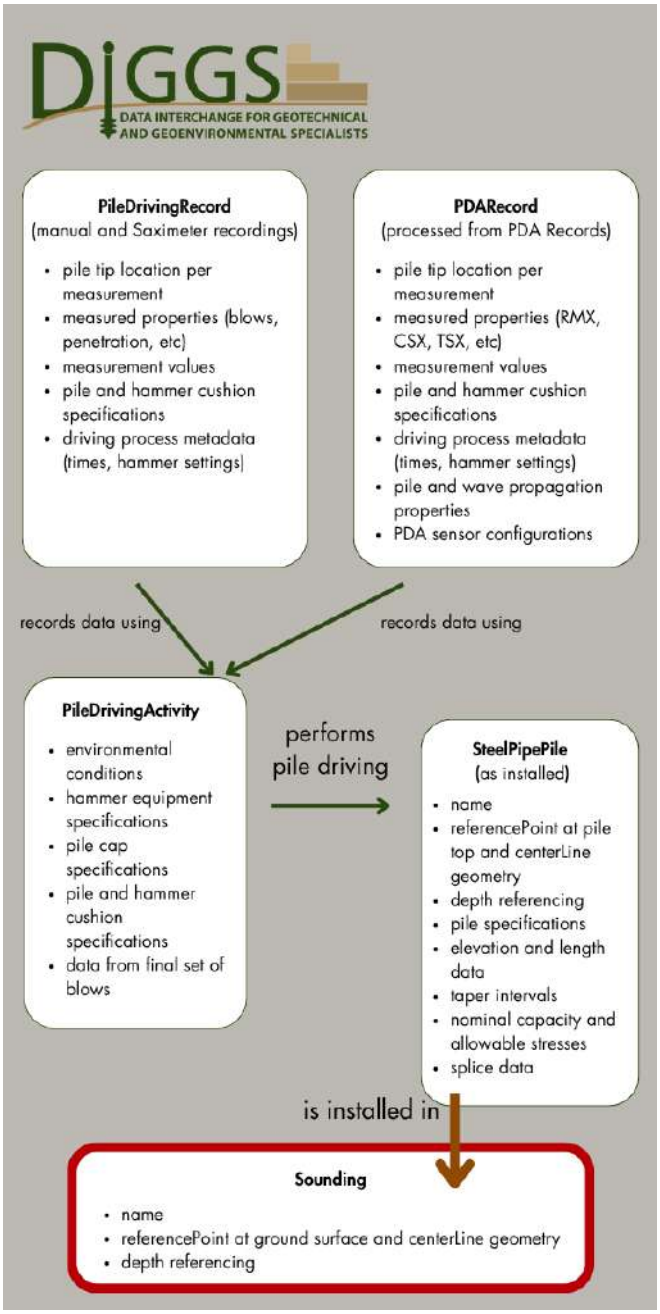
The schema supports specifications for four pile types (concrete, steel-H, steel pipe, and timber), including spatial data and geometries. It is also designed to capture complete installation records including:

- Equipment specifications (hammer. striker plate and cushion properties)
- Driving records (manual and PDA measurements)
- Testing and quality control information

Developed from real-world data formats used by 18 state DOTs, these extensions are available now for beta testing. Check out the schema specification and the summary report.

We're also planning future extensions to cover cast-in-place piles, vibratory installations, and post-installation testing. Join our monthly DIGGS meetings to stay involved and help shape future developments!

With these new extensions, we're one step closer to seamless digital workflows in geotechnical engineering. Whether you're a foundation contractor, DOT engineer, or consultant, standardized pile data opens new possibilities for analysis, quality control, and project documentation.



Generalized structure of the DIGGS schema extension for encoding driven pile installation data, showing the categories of data captured. Drive records are linked to a PileDrivingActivity object that carries equipment specifications and other metadata. In turn, the activity object is linked to the as-installed pile. The Sounding (a previously defined DIGGS object) is used to represent the space occupied by the pile and holds critical spatial reference information. In addition to steel pipe-piles shown, the schema supports concrete, steel-H and timber driven piles.

Summer school back session

Created: 13 Jun 2025

Join us for our special video series, starting **July 9**.

We'll have cutting-edge topics taught by leaders and legends of the profession.

And unlike traditional summer school… there's no homework!

Check out the full schedule:

- Summer School 2025 Event Page

Watch live or catch the replays on our YouTube channel:

- Geo-Institute YouTube

Don't forget to **subscribe** to the channel, **turn on notifications**, and **click that "like" button** – it helps more people find our videos!

Carsington dam failure

Created: 27 Jun 2025

Case Study: The Carsington Dam Failure (Derby, UK, 1984)

Michael Bennett, P.E., M.ASCE (GFT: Audubon, PA)

In 1932, seasoned American civil engineer Joel Justin opened his book *Earth Dam Projects* by noting: …

(ολόκληρο το άρθρο παρατίθεται σε άλλη ενότητα του περιοδικού)

ΔΙΑΚΡΙΣΕΙΣ ΕΛΛΗΝΩΝ ΓΕΩΤΕΧΝΙΚΩΝ ΜΗΧΑΝΙΚΩΝ

Η Γιούλη Δουλαλά Rigby
Chair της British Geotechnical Association

Welcoming Yuli Doulala-Rigby as Chair of the BGA...

We're delighted to announce that Chaido (Yuli) Doulala-Rigby CEng FICE (Yuli) has been appointed Chair of the British Geotechnical Association (BGA), only the third female Chair in the history of the BGA/BGS - a significant milestone for representation and progress in the geotechnical community!

A Chartered Engineer and Fellow of multiple institutions, Yuli brings over 30 years of global experience in civil and geotechnical engineering to the role. As a past Chair of the UK Chapter of the International Geosynthetics Society (IGS) (IGS UK), she has played a leading role in tirelessly promoting geosynthetics as the construction material of choice and the most sustainable option available for infrastructure projects worldwide.

From her early days tunnelling on the Jubilee Line Extension to leading the design and delivery of some of the tallest reinforced soil structures in the world (Middle East), Yuli's career is a testament to technical excellence, leadership, and dedication to sustainable geotechnics. In parallel to her day job as the Chief Civil Engineer at Tensar, Yuli is a passionate mentor and STEM ambassador, committed to advancing diversity and professional development across the industry.

We look forward to her energy, expertise, and vision as she leads the BGA into its next chapter.

British Geotechnical Association • 25.06.2025

ΠΡΟΣΕΧΕΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΚΔΗΛΩΣΕΙΣ

Για τις παλαιότερες καταχωρήσεις περισσότερες πληροφορίες μπορούν να αναζητηθούν στα προηγούμενα τεύχη του «περιοδικού» και στις παρατιθέμενες ιστοσελίδες.

5ICGE & 3ICESE 5th International Conference on Geotechnical Engineering-Iraq & 3rd International Conference on Engineering Science & Energy, 1–3 July 2025, 3 July 2025, Komar University, Sulymaniyah, Iraq, Saint-Petersburg, Russia, https://icge.tech

6th International Conference GEE2025: Charting the path toward the future Geotechnical Engineering Education, July 2-4 2025, Nancy, France, https://gee2025.sciencesconf.org/

AFRICA 2025 The Fifth International Conference and Exhibition on Water Storage and Hydropower Development for Africa, 8-10 July 2025, Accra, Ghana www.hydropower-dams.com

ISGSR2025 9th International Symposium for Geotechnical Safety and Risk, 24th – 27th August 2025, Oslo, Norway, www.isgsr2025.com

Giz2025.org 6th International Conference on GIS and Geoinformation Zoning for Disaster Mitigation (GIZ), August 28-30, Almaty, Kazakhstan, https://giz2025.org

On-site Short Course on Geotechnical Earthquake Engineering, 30 August – 7 September, Kobe and Tokyo, Japan, ixa@ethz.ch

UNSAT2025 5th European Conference on Unsaturated Soils, 1 to 3 September 2025, Lisbon, Portugal, https://eunsat2025.tecnico.ulisboa.pt

ISP8 Symposium International pour le 70ème anniversaire du pressiomètre / International Symposium for the 70th Anniversary of the Pressuremeter, 2nd to 5th of September 2025, LUXEMBOURG, https://isp8-pressio2025.com

TKZ2025 XXI Technical Dam Control International Conference, 09-12 September 2025, Chorzów, Poland https://tkz.is.pw.edu.pl/en/

EYGEC 29th European Young Geotechnical Engineers Conference, 9-12 September, 2025, Rijeka, Croatia, https://eygec2025.uniri.hr

EUROGEO Technical Challenges and Environmental Imperatives for the 21st Century, 15-18 September 2025, Lille, France, https://eurogeo8.org

TRANSOILCOLD 2025 7th International Symposium on Transportation Soil Engineering in Cold Regions, September 17-20, 2025, Incheon, Korea, www.transoilcold2025.org

2025 AIGTAS IWLSC 3rd International Workshop on Landslides in Sensitive Clays, September 28th to October 2nd, 2025, Quebec, Canada www.iwlsc2025.ca

GROUND ENGINEERING GEOTECH 2925 Where innovation meets opportunity, 2 October 2025, London, United Kingdom https://www.geplus.co.uk/news/ground-engineering-to-launch-geotech-2025-conference-where-innovation-meets-opportunity-16-01-2025

GEOTECH ASIA 2025 - GEOVADIS: The Future of Geotechnical Engineering, October 7th to 10th, 2025, Goa, India, https://www.geotechasia.org

*f*OMLIG3 FLORENCE 2025 Third Workshop on the Future of Machine Learning in Geotechnics "Ethics and intelligences for a geotechnical Renaissance", October 15-17, 2025, Florence, Italy https://fomlig2025.com

Urban GeoEngineering 5th AsRTC6 "Urban GeoEngineering" Symposium, 23rd & 24th of October 2025, Taipei, Taiwan, www.asrtc6urbangeoengineering2025.com/index.html

6ο Πανελλήνιο Συνέδριο Αντισεισμικής Μηχανικής και Τεχνικής Σεισμολογίας (*6ΠΣΑΜΤΣ*), 30, 31 Οκτωβρίου και 1 Νοεμβρίου 2025, https://6psamts.eltam.org

Med-GU-25 5th Annual Meeting Mediterranean Geosciences Union, 10–13 November 2025 in Athens, Greece, https://2025.medgu.org/index.php

7ο Συνέδριο Αναστηλώσεων, 13-15 Νοεμβρίου 2025, Αθήνα, www.etepam.gr/7o-synedrio-anastiloseon

ORFEUS+EFEHR+EMSC (EPOS Seismology) & Geo-INQUIRE Workshop 2025, 24-27 November 2025, Athens, Greece, https://www.geo-inquire.eu/about/terms-and-conditions, https://docs.google.com/forms/d/e/1FAIpQLSf-LXXy8X-jiEtaCaI_n2VIp7QcM-71TJAY9ZCsPlt8SVNM1Q/viewform

AlUla International Symposium on Sustainable Conservation of Rupestrian Heritage Sites
25-27 November 2025, AlUla, Kingdom of Saudi Arabia
www.scrhs.org

Saudi ICOMOS and The Royal Commission for AlUla (RCU) are pleased to announce the AlUla International Symposium on Sustainable Conservation of Rupestrian Heritage Sites, to be held in AlUla, Saudi Arabia, on 26–27 November 2025.

Rupestrian Heritage sites and features, represent a fascinating category of human ingenuity, where natural rock formations were transformed into dwellings, religious spaces, and artistic expressions. These sites span thousands of years and offer unique insights into ancient construction techniques, cultural practices, and environmental adaptations.

The rock-hewn architecture involves carving directly into natural formations to create spaces such as caves, tunnels, and chambers. This "negative building" technique—where material is removed rather than added—has been employed across various civilizations and time periods.

Studying these ancient feats of engineering offers invaluable empirical insights into how such structures endure environ-

mental stresses, geological shifts, and the passage of time. By analyzing their design principles, material resilience, and adaptive construction techniques, it is possible to uncover critical data to refine predictive models for modern rock engineering projects.

This interdisciplinary approach not only bridges historical knowledge with contemporary science but also enhances our ability to ensure the durability, safety, and sustainability of today's infrastructure in an era of climate change and urbanization.

AlUla has been chosen as the venue due to its exceptional rupestrian heritage, including the UNESCO World Heritage site of Hegra, home to monumental Nabatean tombs carved into sandstone cliffs, as well as the ancient cities of Dadan and Lihyan at Khuraybah, and the rock art and inscriptions at Jabal Ikmah.

This symposium will serve as a global platform for experts, researchers, and practitioners to exchange insights on conservation strategies, geo-hazard mitigation, and climate-resilient restoration practices.

Objectives

1. Promote dialogue and scientific exchange on sustainable conservation of rupestrian heritage.
2. Share case studies and technical innovations in managing geological and environmental risks.
3. Institutions face the qualities and required to make a good leader.

Themes

The Symposium is organized in sessions showing case studies from different part of the world, sharing experience in rock-art and rupestrian heritage conservation, under various climatic and hazardous contexts.

1. General Themes: Key notes for conservation of rock-art and any other types of rupestrian heritage affected by geohazards (e.g. rock mass characterization, remote sensing applications; monitoring; climate change; weathering; advanced modelling; innovative geophysics; and more).
2. Case studies: Detailed investigations on various sites affected by rapid and slow onset geohazards (e.g. rock slope instabilities, heavy rainfall, wind erosion, weathering, water table rising and more) and related conservation strategies.

Sessions

The Symposium sessions will cover the innovation and advances in science and technology on mitigating the impacts of geohazards and environmental threats in rock-art and rupestrian sites. The sessions will highlight the existing diversity in management and preservation approaches under various type of geohazards, different Countries and variety of cultures.

Plenary Sessions: Keynotes will convene speakers with marked experience in rock mass characterization, geohazards, climate change and weathering; satellite applications, monitoring and advanced modelling in geosciences; Latest geophysical investigation; innovative conservation projects; etc., to share it with the participants.

Thematic Sessions: Researchers, conservators and site managers will present Case Studies on mitigation measures that are subject to different types of geohazards. Focus will be on the application of traditional knowledge in mitigation.

Posters Session will be available during the symposium.

For any information, please write to:
Turki Alkadi **talkadi@saudi-icomos.org**
Marie-Line Farah **m.farah.c@rcu.gov.sa**

To participate in the conference, please visit:
www.scrhs.org

For more information, please contact us via:

- info@scrhs.org
- +966 54 407 3358

17th International Conference on Geotechnical Engineering 8th International Symposium on Geohazards, December 4-5, 2025, Lahore, Pakistan, https://17icge-8isg.com

PMGEC LEBANON 2026 Pan Mediterranean Geotechnical Engineering Conference, 25 - 28 March 2026, Phoenicia Beirut IHG, Lebanon https://pmgec-leb.com

International Conference on Geotechnics, Civil Engineering and Structures (CIGOS) 2026 Innovation in Planning, Design and Civil Infrastructure for Resilient and Sustainable Transformation, April 16 & 17, 2026, Ho Chi Minh City, Vietnam https://cigos2026.sciencesconf.org

LANDSLIDES 2026 Landslide Geo-Education and Risk (LaGER), 27 April - 1 May 2026, Queenstown, New Zealand http://landsliderisk.nz

15th International Conference "Modern Building Materials, Structures and Techniques", May 12-15, 2026, Vilnius, Lithuania, https://vilniustech.lt/332107

ITA-AITES WTC 2026 World Tunnel Congress, May 15 to 21, 2026, in Montreal, Quebec, Canada, https://wtc2026.ca

ICPMG 2026 Physical Modelling in Geotechnics 8–12 June 2026, ETH Zürich, Switzerland, https://tc104-issmge.com/icpmg-2026

8th International Young Geotechnical Engineers Conference - 8iYGEC, 11. - 14. June 2026, Graz, Austria, www.tugraz.at/institute/ibg/events/8iygec

21st International Conference on Soil Mechanics and Geotechnical Engineering Geotechnical Challenges in a Changing Environment, 14 – 19 June 2026, Vienna, Austria, www.icsmge2026.org/en

3rd International Geotechnical Innovation Conference - Shaping the World Beneath: Fostering Sustainability, Innovation and Resilience in Geotechnics, 15 - 16 June 2026, Jeddah, Saudi Arabia, https://geotechnicalinnovationconference.com Email info@creativeconnectionevents.com

ICONHIC 2026 International Conference on Natural Hazards & Infrastructure, 29 June – 2 July 2026, Chania, Greece https://iconhic.com/2026

ISFMG 2026 12th International Symposium on Field Monitoring in Geomechanics, 06 -10 August 2026, Indian Institute of Technology Indore, India, https://sites.google.com/view/isfmg2026/home

Prof. Milorad Jovanovski
Email jovanovski@gf.ukim.edu.mk

International Conference on
Advances and Innovations in Soft Soil Engineering 2026
24-26 August 2026, Delft, Netherlands

As global land development expands into coastal regions, offshore reclamation areas, and wetlands, the geotechnical challenges posed by soft soils are becoming more critical. These soils, including highly sensitive clays, marine silty clays, organic soils, peats, loose sands, and dredged soils, are known for their high compressibility, water content, and complex mechanical properties, making construction projects in such areas problematic. To address these challenges, soft soil engineering is evolving with innovative technologies and approaches.

This conference, organised under the auspices of the ISSMGE Technical Committee 214 on "Foundation Engineering for Difficult Soft Soil Conditions", will showcase the latest developments in testing, modelling, monitoring and construction and improvement techniques for soft soils. It will provide a platform for researchers, engineers, and industry professionals to exchange expertise and discuss how these innovations can be applied to address modern construction challenges in soft soil environments.

Contact Information

Contact person: Stefano Muraro, s.muraro@tudelft.nl

X Latin American Congress on Rock Mechanics
26 - 28 Aug, 2026, Brsasilia, Brazil

Contact Person: Marcos Massao Futai, Brazilian Committe of Rock Mechanics

13 ICG - 13th International Conference on Geosynthetics (13 ICG), 13-17 September 2026, Montréal, Canada, www.13icg-montreal.org

Eurock 2026
Risk Management in Rock Engineering - an ISRM Regional Symposium
15-19 September 2026, Skopje, Republic North Macedonia

Contact Person Name

ECEE2026 18th European Conference on Earthquake Engineering Shaping the Future of Earthquake Engineering, 14 – 1 September 2026, Berlin, Germany, https://ecee2026.eu

International Symposium Preservation of Monuments & Historic Sites, 16 – 18 September 2026, Athens, Greece https://tc301-athens.com

6th International Conference on Information Technology in Geo-Engineering JTC2 Conference, 13-16 October 2026, Graz, Austria, www.icitg2026.com

Slope Stability 2026
Slope for Safety Performance
an ISRM Specialized Conference
26 – 29 October 2026, Lima, Peru

Organizer: Sociedad Peruana de Geoingeniera (SPEG)

Contact Person Name: Antonio Samaniego and Luis Claudio Tejada Alvarez

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PBD-V Chile International Conference on Performance-Based Design in Earthquake Geotechnical Engineering, November 4th to 6th, 2026, Puerto Varas, Chile www.pbd-v-chile.com

ARMS 14 Fukuoka 2026 - 14th Asian Rock Mechanics Symposium Rock Mechanics for the Next Generation –Innovations, Sustainability, and Resilience– an ISRM Regional Symposium, 22-26 November 2026, Fukuoka, Japan, www.ec-convention.com/ARMS14/

16th International Congress on Rock Mechanics
Rock Mechanics and Rock Engineering Across the Borders
17-23 October 2027, Seoul, Korea

Scope

The scope of the Congress will cover both conventional and emerging topics in broadly-defined rock mechanics and rock engineering. The themes of the Congress include but not be limited to the following areas:

- Fundamental rock mechanics
- Laboratory and field testing and physical modeling of rock mass
- Analytical and numerical methods in rock mechanics and rock engineering
- Underground excavations in civil and mining engineering
- Slope stability for rock engineering
- Rock mechanics for environmental impact
- Sustainable development for energy and mineral resources
- Petroleum geomechanics
- Rock dynamics
- Coupled processes in rock mass
- Underground storage for petroleum, gas, CO2 and radioactive waste
- Rock mechanics for renewable energy resources
- Geomechanics for sustainable development of energy and mineral resources
- New frontiers & innovations of rock mechanics
- Artificial Intelligence, IoT, Big data and Mobile (AICBM) applications in rock mechanics
- Smart Mining and Digital Oil field for rock mechanics
- Rock Engineering as an appropriate technology
- Geomechanics and Rock Engineering for Official Development Assistance (ODA) program
- Rock mechanics as an interdisciplinary science and engineering
- Future of rock mechanics and geomechanics

Our motto for the congress is "Rock Mechanics and Rock Engineering Across the Borders". This logo embodies the interdisciplinary nature of rock mechanics and challenges of ISRM across all countries and generations.

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XIXth European Conference on Soil Mechanics and Geotechnical Engineering
"Connecting Continents Through Geotechnical Innovations"
04-08 September 2028, Istanbul, Turkey

Conference Topics

01 Modelling and Experimental Assessment of Geomaterials
02 Geohazards, Earthquakes and Risk Mitigation
03 Development of Resilient and Sustainable Geosystems
04 Geotechnical Construction and Soil Improvement
05 Geotechnical Engineering of Multiscale Observations, Sensors and Monitoring
06 Energy Geotechnologies
07 Technological Innovation
08 Geo Education, Standards And Codes

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6th International Symposium on Frontiers in Offshore Geotechnics (ISFOG)

6th International Symposium on Frontiers in Offshore Geotechnics (ISFOG) will be held in 2030 at Melbourne, Australia.

ΕΝΔΙΑΦΕΡΟΝΤΑ ΓΕΩΤΕΧΝΙΚΑ ΝΕΑ

The 30 May 2025 landslide at Gunung Kuda in Cipanas Village, West Java, Indonesia

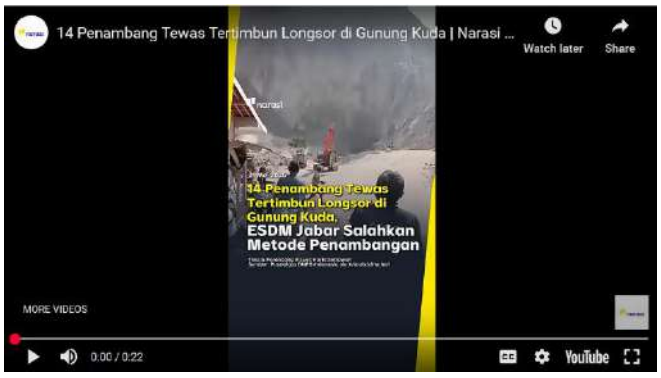
On Friday morning, a landslide in a quarry in Indonesia killed 25 people. There had been long term concerns about the potential for dangerous slope instability at the site.

On 30 May 2025, a rock slope major failure occurred at a quarry at Gunung Kuda, which is located on the edge of Cipanas Village in Dukupuntang District, Cirebon Regency, West Java, Indonesia. At the time of writing, it has been confirmed that 19 people were killed in the accident, with a further six people remaining missing. Four people were injured.

The location of the failure is [-6.7754, 108.4022]. This is the site in Google Earth:-

Google Earth image of the site of the 30 May 2025 landslide at Gunung Kuda mine.

Universitas Siber Asia has a good article about the event, in Indonesian but it translates well. There is also some Youtube footage of the site immediately after the failure:-



There are other videos circulating of a dramatic rock slope failure, but the ones that I have seen are not this event.

There is also some very clear drone footage of the site after the failure:-

https://www.youtube.com/watch?v=uNwfefzmabs

This includes this view of the landslide:-

Drone footage of the site of the 30 May 2025 landslide at Gunung Kuda mine. Still from a video posted to Youtube by Andrea Ramadhan.

The geological structure of this quarry is very complex, with many joints being visible in the above image that would promote instability.

The Universitas Siber Asia article describes a site with a very poor history regarding instability:-

"The Geological Agency said the mine location was in a zone of high soil movement vulnerability, with a probability of landslide of more than 50%. The Head of the West Java Energy and Mineral Resources Office, Bambang Tirto Mulyono, stated that the main cause was the wrong mining method, namely digging from under the cliff, making the soil structure fragile. Repeated warnings from the Energy and Mineral Resources and police lines since February 2025 have been ignored by mine managers. As a result, the West Java Provincial Government revoked the mining permit that was supposed to be valid until October 2025 and closed the site permanently."

Interestingly, the quarrying was licensed, albeit with substantial safety concerns. Detik Jabar describes the long term worries about the site:–

"…the Head of the West Java Energy and Mineral Resources Office, Bambang Tirto Mulyono, stated that the incident was caused by a faulty mining method carried out by the mine management. Warnings have been conveyed many times by the Energy and Mineral Resources department, and even preventive measures have been taken by the police."

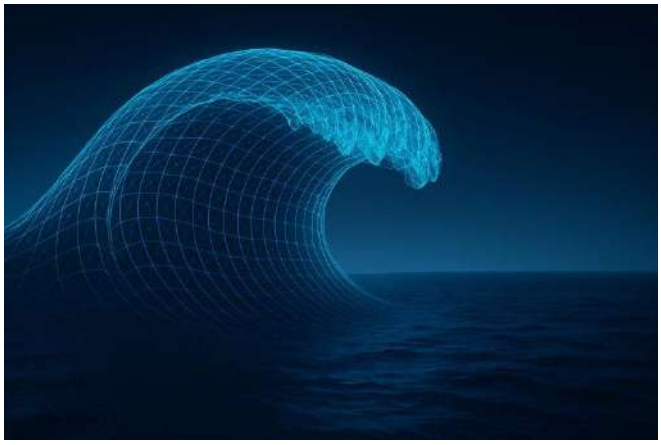
"We have repeatedly warned the mining authorities, even in a loud tone. The Cirebon Police have also installed a police line at the location since February because the mining methods carried out are not in accordance with safety standards. Mining should have been done from above, not from below," said Bambang when met at the scene."

(Dave Petley / THE LANDSLIDE BLOG, 2 June 2025,
https://eos.org/thelandslideblog/gunung-kuda-1)

ΕΝΔΙΑΦΕΡΟΝΤΑ - ΣΕΙΣΜΟΙ & ΑΝΤΙΣΕΙΣΜΙΚΗ ΜΗΧΑΝΙΚΗ

Tsunami Detected From a Ship? Scientists Make Historic Breakthrough

Scientists have, for the first time, detected a landslide-generated tsunami using satellite data from a research ship.



In a groundbreaking discovery, researchers successfully detected a tsunami caused by a landslide using satellite navigation data from a nearby ship. Credit: SciTechDaily.com

Landslide-triggered tsunamis are a real danger for coastal communities, especially in narrow fjords where steep cliffs can trap and boost the power of incoming waves. While most tsunami warning systems rely on detecting earthquakes, they often miss the more localized ground movements caused by landslides.

Now, for the first time, scientists have detected tsunami waves from a landslide using data from a ship's satellite navigation system. The study, led by researchers from CIRES and the University of Colorado Boulder and published in *Geophysical Research Letters*, reveals how this method could significantly improve tsunami detection and early warning systems. This new approach holds the potential to deliver critical, life-saving alerts to communities at risk.

"Landslides into water can produce a tsunami, and some of them can be quite large and destructive," said CIRES Fellow Anne Sheehan, a professor of Geological Sciences at CU Boulder and co-author of the study. "Scientists have captured larger, earthquake-induced tsunamis using ship navigation systems. Our team had equipment in the right place at the right time to show this method also works for landslide-generated tsunamis."

On May 8, 2022, a landslide near the port city of Seward, Alaska, sent debris tumbling into Resurrection Bay, creating a series of small tsunami waves. The R/V Sikuliaq, a research ship owned by the National Science Foundation and operated by the University of Alaska Fairbanks, was moored 650 meters (0.4 miles) away. Luckily, it was equipped with an external Global Navigation Satellite System (GNSS) receiver previously installed by Ethan Roth, the ship's science operations manager and co-author of the study.

"I actually happened to be in Alaska at that time, retrieving seismometers from another study," Sheehan said. "I decided to go visit the Sikuliaq, and it turned out that there had been a landslide that happened a day or two before. One of the crew members filmed it, and we were like, 'wow,' this is a great signal to try to find in the data."

Extracting a Signal From the Sea

Adam Manaster, then a graduate student working in Sheehan's geophysics research group at CIRES and CU Boulder, took the lead on the project. The research team also included scientists from the USGS and the University of Alaska Fairbanks.

The team used data from the ship's external GNSS receiver and open-source software to calculate changes in the vertical position of the R/V Sikuliaq down to the centimeter level. They created a time series showing the ship's height before, during, and after the landslide.

The researchers then compared the data to a landslide-tsunami model, which simulated the generation and movement of tsunami waves from the shoreline to the ship. Their results show that the ship's vertical movement was consistent with the event, confirming the first detection of a landslide-generated tsunami from a ship's satellite navigation system.

"This research proves that we can utilize ships to constrain the timing and extent of these landslide tsunami events," Manaster said. "If we process the data fast enough, warnings can be sent out to those in the affected area so they can evacuate and get out of harm's way."

The work builds upon previous CIRES-led research, which demonstrated how GPS data from commercial shipping vessels could be used to improve tsunami early warning systems.

"The science shows that this approach works," Sheehan said. "So many ships now have real-time GPS, but if we want to implement on a larger scale, we need to collaborate with the shipping industry to make the onboard data accessible to scientists."

Reference: "Detection of Landslide-Generated Tsunami by Shipborne GNSS Precise Point Positioning" by Adam E. Manaster, Anne F. Sheehan, Dara E. Goldberg, Katherine R. Barnhart and Ethan H. Roth, 25 April 2025, *Geophysical Research Letters*. DOI: 10.1029/2024GL112472

(University of Colorado at Boulder, June 2, 2025, https://scitechdaily.com/tsunami-detected-from-a-ship-scientists-make-historic-breakthrough/)

Mega tsunamis in Greenland fjord confirmed as source of nine-day global seismic signal

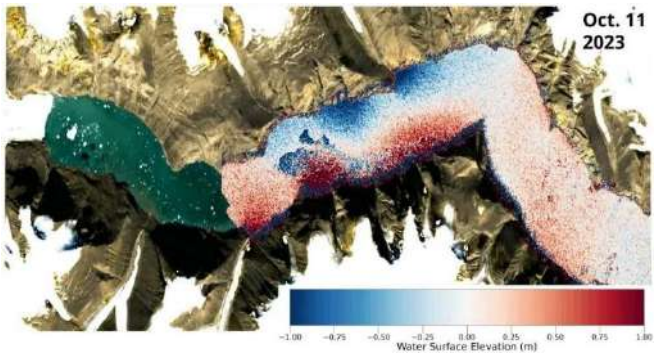
A persistent, ultra-low frequency seismic vibration was detected worldwide in September 2023 and traced to Dickson Fjord, East Greenland, after two large landslides triggered tsunamis and a long-lasting seiche. For the first time, researchers directly observed this standing wave using NASA's SWOT satellite mission, providing new insights into the connection between

global seismic signals and surface water motion in remote coastal environments.

Image credit: Konstantin Papushin

Seismic sensors around the world picked up a persistent, ultra-low frequency vibration at 10.88 millihertz in September 2023 that lasted for 9 days and came back a month later. These very-long-period (VLP) seismic signals were eventually traced back to a remote fjord in East Greenland, where two massive landslides had caused tsunamis.

The real source of the vibration was confirmed to be a seiche bouncing back and forth inside the fjord, an inference based on satellite observations and seismic correlation.



Copernicus Sentinel-2 satellite image of the Dickson Fjord in East Greenland with the observed sea-surface height measurements from the SWOT satellite of the Earth-shaking wave on October 11, 2023 overlaid. Credit: Thomas Monahan

First direct evidence of a fjord seiche

For the first time, scientists have obtained direct evidence of a fjord seiche using satellite observations from NASA's Surface Water and Ocean Topography (SWOT) mission. The research team from the University of Oxford combined satellite data, seismic records, and Bayesian machine learning to verify a natural event that had previously only been suggested by models or indirect evidence.

A seiche is a standing wave that can form in enclosed or semi-enclosed basins like lakes, harbors, or fjords.

Seiches are usually short-lived and localized, but the one in this case study persisted for more than nine days and produced a seismic signal strong enough to be detected worldwide.

Seiche characterization via SWOT and seismic correlation

Following the landslide on September 16, 2023, the SWOT satellite made several passes over Dickson Fjord, including one about 12 hours after the event. Its Ka-band Radar Interferometer (KaRIn) captured detailed measurements of the water's surface, revealing gentle but consistent tilts characteristic of a standing wave.

https://www.youtube.com/watch?v=6l-21PHh67E

The research team used a Bayesian regression model to estimate the maximum cross-channel slope at approximately 1.83 ± 0.59 m per km (9.68 to 3.11 feet per mile), an independent estimate that aligned with earlier analytical and numerical predictions.

Researchers matched the SWOT satellite data with filtered seismic signals from the International Institute seismic station at Alert, Canada (II.ALE), which sits about 1300 km (808 miles) away from the fjord. The timing and size of the vertical ground movement in the seismic data lined up with the surface slopes captured by SWOT. This allowed them to estimate the initial amplitude of the seiche at approximately 7.9 m (26 feet), inferred from a combination of satellite and seismic data.

A few weeks later, in October, a second landslide hit the same area, though this one was smaller and produced a weaker signal. SWOT passed over the fjord again within approximately half a day, giving the team another chance to measure the wave. This time, with more accurate timing, they were able to pin down the maximum cross-channel slope more precisely at about 1.37 ± 0.13 m per km (7.25 – 0.69 feet per mile).

The result from the second time around lined up well with their earlier estimate and helped further solidify the initial findings.

https://www.youtube.com/watch?v=0iuay0InLPQ

To make sure the wave wasn't just the result of tides or wind, the team dug into tidal models and checked data from a local weather station, but the patterns didn't match. Tides and wind-driven currents like Ekman transport were ruled out based on tidal modeling and local weather data, which didn't match the observed cross-channel slopes. The spatial pattern

and timing of the water's motion lined up too well with the concept of a seiche for it to be anything else.

Expanding the role of satellite altimetry

Another great finding of this research was how satellite altimetry, which is traditionally used for slow-moving ocean trends, can now resolve fast, local events in coastal environments.

"This study is an example of how the next generation of satellite data can resolve phenomena that has remained a mystery in the past. We will be able to get new insights into ocean extremes such as tsunamis, storm surges, and freak waves. However, to get the most out of these data we will need to innovate and use both machine learning and our knowledge of ocean physics to interpret our new results," commented Professor Thomas Adcock, one of the study's co-authors from the University of Oxford's Department of Engineering Science.

References:

[1] Observations of the seiche that shook the world – Thomas Monahan, Tianning Tang, Stephen Roberts and Thomas A. A. Adcock – Nature Communications. – June 3, 2025 – DOI https://www.nature.com/articles/s41467-025-59851-7 – OPEN ACCESS

[2] First direct observation of the trapped waves that shook the world – University of Oxford – June 3, 2025

(Harsh Vardhan / THE WATCHERS, Tuesday, June 3, 2025, https://watchers.news/2025/06/03/mega-tsunamis-greenland-fjord-source-nine-day-global-seismic-signal/)

Simulated earthquakes stress test 3D-printed house

The structural integrity of a 3D-printed building has been tested by scientists at Bristol University on the UK's largest shaking table.

The 3D printed concrete building ready for testing - *Bristol University*

The shaking table test will evaluate the seismic performance of 3D-printed concrete structures experiencing a medium-magnitude earthquake.

Traditional concrete design has well-established seismic behaviour, but 3D-printed concrete introduces variables including layered deposition, unique material properties, and non-traditional geometries.

According to project leads Prof Anastasios Sextos and Dr Raffaele De Risi, the experiment aimed to fill the knowledge gap surrounding the dynamic response of 3D-printed units, particularly how they perform under recorded and simulated seismic events. By doing so, the team aims to identify strengths, weaknesses, and failure mechanisms specific to this construction method.

The results will contribute to the development of safety standards and design guidelines tailored for 3D-printed concrete in seismically active regions.

The experiment was conducted using a high-end shaking table capable of holding 50 tonnes and of simulating ground motions representative of real earthquake events.

The quasi-real-scale 3D-printed concrete unit was created using a robotic additive manufacturing process, ensuring controlled material deposition and geometry and instrumented with accelerometers, displacement sensors, and other gauges to capture a comprehensive set of dynamic response data.

The unit was then subjected to a series of increasing intensity ground motions, starting with low-intensity vibrations and progressing to potentially damaging inputs. Each test sequence was monitored and recorded, allowing for real-time assessment of the unit's behaviour, including cracking, displacement, and potential failure points.

The data collected will be used to evaluate the structural resilience of the 3D-printed unit, compare performance to traditional construction methods, and validate computational models that predict seismic behaviour.

In a statement, Dr De Risi said: "Insights from this study will help identify design parameters that optimise seismic performance, such as layer bonding strategies and reinforcement integration.

"Ultimately, we hope to validate whether 3D-printed concrete can meet current safety standards for seismic applications and provide a foundation for developing building codes that include additive manufacturing technologies.

"These findings will be essential for engineers, architects, and policymakers exploring the future of earthquake-resistant constructions."

The larger implications of this research lie in its potential to transform earthquake-resistant constructions by adopting 3D-printed concrete technologies.

Practical applications include the rapid, cost-effective construction of homes, emergency shelters, and infrastructure with customised designs that meet specific seismic requirements. This study could also influence the development of new building codes and guidelines that incorporate 3D printing.

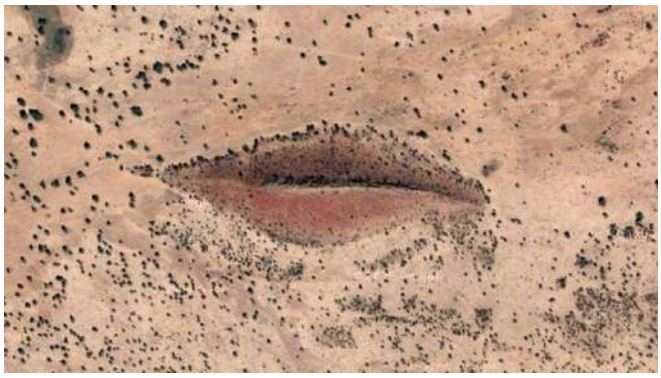
"By testing the seismic resilience of 3D-printed concrete for the first time, we're not just exploring the future of construction—we're helping shape a safer, smarter, and more adaptive built environment," said Dr De Risi.

THE ENGINEERS, 16 June, 2025, https://www.theengineer.co.uk/content/news/simulated-earthquakes-stress-test-3d-printed-concrete-house)

ΕΝΔΙΑΦΕΡΟΝΤΑ - ΓΕΩΛΟΓΙΑ

The mysterious hill in Sudan that looks like 'landlocked lips' — Earth from space

A 2012 Google Earth photo captured a hill formation in Sudan that bears a striking resemblance to human lips. Not much is known about the unusual landmark, but researchers have guessed how it formed.



An unusually shaped hill in Sudan, dubbed the "landlocked lips," is shrouded in mystery. But researchers have guessed how it may have formed. (Image credit: Google Earth/Digital Globe)

QUICK FACTS

Where is it? West Darfur, Sudan [12.370771816, 23.322227802]

What's in the photo? A hill shaped like human lips

Where did the photo originate? Google Earth

When was it taken? 2012

This intriguing satellite photo, captured by Google Earth satellites in 2012, shows a strange hill formation in Sudan that bears a striking resemblance to pursed human lips blowing a kiss into space.

Not much is known about the bizarre structure, but experts told Live Science how it likely formed.

The striking hill, which is around 3,000 feet (900 meters) long and 1,200 feet (350 m) across at its widest point, is located in Sudan's West Darfur state, roughly 60 miles (95 km) east of the country's border with Chad.

The feature appears to be surrounded by agricultural fields and small black dots that are probably trees. In the 2012 photo, the surrounding ground has been dried out by drought, and the hill's slopes have a pinkish hue, accentuating its mouth-like look. But in more recent imagery, both the hill and its surroundings look green and are covered with significantly more vegetation (see below).

The hill's elevation and age are unknown. The structure does not have an official name, but it is labeled as "Landlocked lips" campground on Google Maps (although it is unclear if there is actually a campsite there).

However, based on the available satellite imagery, experts do have a general idea of how the hill may have formed.

Satellite photos captured in 2025 reveal that the "landlocked lips" formation is now surrounded by green fields and has increased tree coverage. (Image credit: Google Maps/Airbus/CNES)

"I see a narrow unit of exposed rock running down the middle of this feature," Josh Roering, a geomorphologist at the University of Oregon who specializes in landscape dynamics, told Live Science in an email. "It looks like there's a dike or narrow unit of resistant rock running through the middle of that ridgeline that erodes more slowly than the surrounding rock and thus sticks out."

Dikes are geological features that bisect larger horizontal sheets of rock, according to the European Geosciences Union. They are most commonly formed via volcanic activity or tectonic plate movements, but they can also emerge from sedimentary processes. However, it is unclear what type of dike this hill's central line may be.

Hills can form around large dikes, such as this sheet of volcanic rock located just outside of the Navajo Volcanic Field in New Mexico. (Image credit: James St. John/Wikimedia)

"If correct, the shape and extent of that resistant rock unit thus sets the scale of the feature as the less resistant surrounding rock forms sloping terrain on either side," Roering said.

Similar structures can be found in the New Mexico desert and the Mackenzie dike swarm in Yukon, Canada.

However, without being able to study the formation up close, Roering said this is just "speculation."

(Harry Baker / LIVESCIENCE, June 3, 2025, https://www.livescience.com/planet-earth/geology/the-mysterious-hill-in-sudan-that-looks-like-landlocked-lips-earth-from-space)

Lake Natron: The caustic, blood-red lake in Tanzania that turns animals to 'stone'

Lake Natron is a soda lake in northern Tanzania with a volcanic geology that maintains the water's pH around 10.5, which is almost as caustic as ammonia. Some life-forms thrive there nevertheless.

Lake Natron sometimes appear red due to its population of salt-loving microorganisms. (Image credit: derejeb/Getty Images)

QUICK FACTS

Name: Lake Natron

Location: Northern Tanzania

Coordinates: -2.332009081285983, 36.03373896004504

Why it's incredible: The lake is so alkaline, it burns the skin and eyes of most animals and turns some to "stone."

Lake Natron has a chemical makeup that is so harsh, it is uninhabitable for most creatures. It is a "soda" lake, meaning it has high levels of dissolved sodium and carbonate. Due to this high concentration of salts and minerals, the lake's pH can reach 10.5, which is almost as caustic as ammonia solution — and animals that die on the shores of Lake Natron are preserved as calcified mummies as a result.

Lake Natron sits along the East African Rift System, a divergent tectonic plate boundary that is tearing apart the African Plate. This geology means that Lake Natron is shaped by volcanic processes, which produce large amounts of sodium carbonate and calcium carbonate. These salts and other minerals trickle down into the lake from surrounding hills and enter the water from below via hot springs, Live Science previously reported. The lake does not drain into any river or sea, so the chemical concentration stays high year-round.

Few animals can survive a salt level and pH as high as Lake Natron's, and the water can severely burn the skin and eyes of creatures that try to take a sip or dip. But animals that have adapted to the conditions, including lesser flamingos (*Phoeniconaias minor*) and tilapia, thrive in and around the lake.

In fact, Lake Natron is the world's most important breeding site for lesser flamingos, with most of East Africa's 1.5 million to 2.5 million lesser flamingos — which represent around 75% of the global population of the species — hatching at the lake, according to the Tanzania Wildlife Management Authority. Lesser flamingos' legs have tough skin and scales that prevent burns from the water. These birds build nests on islands that form in the lake during the dry season, Live Science previously reported, and their babies are safe from most predators thanks to the deadly conditions.

In addition to being extremely alkaline, Lake Natron is so shallow that its water temperature can reach a scalding 140 degrees Fahrenheit (60 degrees Celsius) during the hottest times of the year, according to NASA's Earth Observatory. The lake is 1.6 feet (0.5 meters) deep and 9 miles (15 kilometers) wide, but it shrinks and expands depending on the weather, with less rainfall and river input during the dry season leading it to contract (and vice versa).

When the lake shrinks, microorganisms that feast on its salts multiply. Haloarchaea (salt-loving organisms that lack a nucleus) and cyanobacteria (blue-green algae) can color the lake different shades of red thanks to pigments in their cells. The same pigments give lesser flamingos their pink hue, according to NASA's Earth Observatory, because these flamingos almost exclusively eat blue-green algae.

Lake Natron is an important breeding ground for lesser flamingos (*Phoeniconaias minor*). (Image credit: Anup Shah/Getty Images)

Lake Natron made headlines in 2013, when photographer Nick Brandt's images of "stone" animals on the lake's shores were published in the book "Across the Ravaged Land" (Abrams Books, 2013). The pictures showed carcasses of birds and bats that had died on the shores of the lake and were preserved by its sodium carbonate. Brandt positioned them on branches and on the water to look "alive again in death," he wrote in the book.

"I unexpectedly found the creatures — all manner of birds and bats — washed up along the shoreline of Lake Natron," Brandt wrote. "No one knows for certain exactly how they die."

Birds pictured in the book include a dove and a fish eagle. These birds do not feed and breed at Lake Natron, but they live in the salt marshes and freshwater wetlands that make up the surrounding landscape. These ecosystems also host greater flamingos, pelicans, ostriches, buffalo, wildebeest and many other creatures, according to the Tanzania Wildlife Management Authority.

(Sascha Pare / LIVESCIENCE, June 6, 2025, https://www.livescience.com/planet-earth/geology/lake-natron-the-caustic-blood-red-lake-in-tanzania-that-turns-animals-to-stone)

(Hüurriyet DAILY NEWS, June 17 2025, https://www.hurriyetdailynews.com/project-to-turn-2023-quake-debris-into-artificial-marble-210373)

Project to turn 2023 quake debris into artificial marble

Following the massive earthquakes that struck southern Türkiye two years ago, a group of academics from a university in quake-hit Malatya province have launched a project to turn the rubble of collapsed buildings into artificial marble.

On Feb. 6, 2023, magnitude 7.7 and 7.6 quakes struck 11 provinces, affecting more than 14 million people and resulting in the deaths of over 50,000.

Supported by the Scientific and Technological Research Council of Türkiye (TÜBİTAK), the project aims to transform construction debris from destroyed buildings into reusable materials through a multi-step recycling process.

It focuses on addressing both environmental pollution and material shortages.

Project coordinator Professor Hikmet Sis of the Mining Engineering Department at İnönü University stressed that the earthquakes caused extensive damage in Malatya, leaving behind massive amounts of construction waste.

"These materials don't just take up space, they disperse through natural events," he said. "We've developed a scientific method to recover value from this waste."

The team will extract silica and alumina from the debris, which includes concrete, cement, bricks, plaster, parquet and other building materials. The remaining calcium-based waste will be then treated with captured carbon dioxide to produce calcium carbonate, a key ingredient in artificial marble.

This step not only recycles waste but also captures carbon dioxide from industrial sources, offering an environmentally friendly, circular solution, Sis pointed out.

According to the team, the recovered silica and alumina will be reused in industrial applications, while the artificial marble can be used in construction.

As part of the project, the researchers have already collected and begun processing 2.3 tons of rubble from different demolition sites.

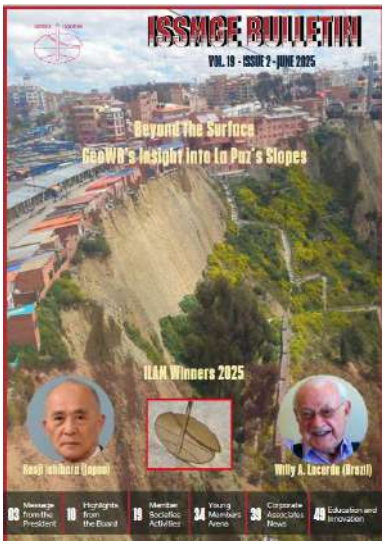
The project is expected to be completed within two years.

ΗΛΕΚΤΡΟΝΙΚΑ ΠΕΡΙΟΔΙΚΑ

International Society for Soil Mechanics and Geotechnical Engineering

ISSMGE Bulletin, Vol 19, Issue 2, June 2025

https://www.issmge.org/publications/issmge-bulletin/vol-19-issue-2-june-2025



Κυκλοφόρησε το 2ο τεύχος του Τόμου 19 - Ιουνίου 2025 του ISSMGE BULLETIN με τα ακόλουθα περιεχόμενα:

- Message from the Editor
- From the President's desk
  Report #6 by the President
- From the Board
  - The Geo-Engineers without Borders Committee (Geo WB)
    GeoWB Mission to La Paz Addresses Slope Stability in the Face of Climate Change and Urban Growth
    GeoWB Panel Highlights the Role of Geoengineers in Disaster Response at PanAmGeo Chile 2024
  - ISSMGE HERITAGE TIME CAPSULE (HTC) PROJECT
    Selection of items for display and storage in the physical time capsule
- ISSMGE Highlights
  - ILAM :The ISSMGE LIFETIME ACHIEVEMENT MEDAL
  - Seeking the Best in Geotechnical Engineering
- Global News from Member Societies
  - 1st Pan Mediterranean Geotechnical Engineering Conference
  - British Geotechnical Association
  - Romanian Society for Soil Mechanics and Geotechnical Engineering
  - Chinese Geotechnical Society
  - XV International Symposium on Soil Rheology Held in Kazan
  - 5th International Conference on Geotechnical Engineering – Iraq (5ICGE-Iraq 2025)
  - Nigeria Hosts Inaugural Engr. Prof. Samuel Ejezie Distinguished Annual Lecture
  - Specialized Course on Dam Safety and Earthquake-Related Issues Held in Vietnam
- Young Members Arena
  - Young Members Presidential Group Activities
- Corporate Associates Corner
  - Corporate Associates Presidential Group (CAPG) Activities
- Technical Committees Activities
  - TC308 Advances the Dialogue on Energy Geotechnics at PanAmGeo Chile and ECSMGE 2024
  - TC221 Leads Robust Technical Dialogue on Tailings and Mine Waste at PanAmGeo Chile 2024
- In Memory
  - Prof. Andreas Anagnostopoulos
- Upcoming Events

ISSMGE Europe Newsletter
April 2025

https://issmge-e.eu/newsletter-summer-2025

Κυκλοφόρησε το 2ο τεύχος του ISSMGE Europe Newsletter Summer 2025 με τα ακόλουθα περιεχόμενα:

- Editorial: Highlights from the Vice President for Europe
- 29th European Young Geotechnical Engineers Conference Rijeka, Croatia | 9–12 September 2025
- CZECH AND SLOVAK GEOTECHNICAL SOCIETY In Memoriam: Professor Ivan Vaníček (1944–2025)
- AWARDS Prof. Lyesse Laloui Awarded 2026 InterPore Distinguished Lectureship
- STAY CONNECTED: issmge-e.eu

GeoWorld

GEO-TRENDS REVIEW

Issue #31 - May 2025
www.mygeoworld.com/geotrends/issues/31-may-2025

ISSMGE Bulletin Vol 18, Issue 1, March 2024
ISSMGE **news**, 21 Mar 2024, Read More

ISSMGE Bulletin Vol 19, Issue 1, March 2025 has just been published
ISSMGE, 06 May 2025, Read More

2025 Myanmar earthquake
Manas Das, 28 Mar 2025, Read More

2025 Myanmar earthquake
Nopparit Taweechai, 30 Mar 2025, Read More

Meet Our Young Member Groups Around the World! – Brazil (ABMS)
ISSMGE YMPG, 21 May 2025, Read More

Earthquake Engineering Codes
Davy Chigali, 08 May 2025, Read More

Geosystems Graduate students receive Outstanding GSI Awards
UC Berkeley Geosystems Group news, 24 Apr 2025, Read More

ISSMGE Interactive Technical Talk Episode 23: Earthquake Geotechnical Engineering and Associated Problems(TC203)
ISSMGE ITT23, 17 Apr 2025, Read More

Fully remote assessment of rockfall incidents based on crowdsourced imagery
Dimitrios Zekkos, 24 Mar 2025, Read More

The 63rd Rankine Lecture by Professor Kenichi Soga (University of California, Berkeley) is available to watch online
Jhih-Rou Huang Rankine Lecture, 04 Apr 2025, Read More

Trench Collapse in Catonsville Kills Two Workers – March 2025 Investigation Underway
Geoengineer.org news, 13 Mar 2025, Read More

CPT data for research
Ibrahim Abaidalla, 03 Apr 2025, Read More

Proceedings from the 18th European Conference on Soil Mechanics and Geotechnical Engineering (ECSMGE24) available in open access
ISSMGE news, 27 Feb 2025, Read More

#1 most popular paper for 2024
International Journal of Geoengineering Case Histories news, 19 Mar 2025, Read More

Future Focus - Africa & Europe Session, 2025: Call for Abstracts
ISSMGE news, 25 Apr 2025, Read More

Everything is on GeoWorld's GeoMap
GeoWorld GeoMap, 29 May 2025, Read More

PLAXIS 2024.3 New Release is Out!
Seequent, The Bentley Subsurface Company PLAXIS, 29 May 2025, Read More

Check out our latest Geo-Short video!
Geoengineer.org Geo-Short, 30 May 2025, Read More

Seequent announced extended gINT support until Dec 31, 2028
Seequent, The Bentley Subsurface Company gINT, 29 May 2025, Read More

GeoWorld is available now on the App Store and Google Play
GeoWorld Corner, 17 Apr 2025, Read More

ISSMGE Interactive Technical Talk Episode 24: Foundation Engineering for Difficult Soft Soil Conditions (TC214)
ISSMGE ITT24, 20 May 2025, Read More

Numerical Modelling in Geotechnical Engineering: A Gateway to Simulating the Ground Complexity
Geoengineer.org Numerical Modelling, 28 May 2025, Read More

Geothermal Energy Could Power the U.S. for Millennia—Here's How
Geoengineer.org news, 09 Mar 2025, Read More

We are pleased to announce the release of Issue #1 of Volume #8 of the International Journal of Geoengineering Case Histories!
International Journal of Geoengineering Case Histories news, 28 May 2025, Read More

PLAXIS Feature Wishlist: Share Your Ideas
DCOdes.io survey, 8 Apr 2025, Participate Now

Supplementary material to the paper "Teaching numerical methods or teaching with numerical methods?" Pilot case of educational material that can be used to teach stress under loaded areas
Francesca Ceccato Soil Education, 05 May 2025, Read More

On April 23, 2025, a magnitude 6.2 earthquake struck the Sea of Marmara
Osman KARA, 25 Apr 2025, Read More

Sad news: Richard Goodman (1935-2025)
UC Berkeley Geosystems Group, 14 Mar 2025, Read More

2025 GEE - Descamps - Survey on Mining Engineering projects at the University of Mons, Belgium
Fanny Descamps Education Survey, 17 May 2025, Read More

CALL FOR NOMINATIONS FOR ISSMGE AWARDS AT 21 ICSMGE VIENNA 2026
ISSMGE news, 07 Apr 2025, Read More

Telangana Tunnel Collapse: Geotechnical Challenges in Rescue Operations
Geoengineer.org news, 27 Feb 2025, Read More

Proceedings from the 17th Pan-American Conference on Soil Mechanics and Geotechnical Engineering (XVII PCSMGE) available in open access
ISSMGE news, 14 May 2025, Read More

International Journal of Geoengineering Case Histories

Vol. 8, Issue 1 of the IJGCH has been released!

We are pleased to announce the Issue #1 of Volume #8 of the International Journal of Geoengineering Case Histories, an official Journal of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE).

Papers published in this refereed journal are freely available in color and are accompanied by databases that include the electronic data presented in the paper as well as additional figures (as necessary). The locations of the case histories are also positioned in the IJGCH Geographic Database.

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BGA eNewsletter 5 June 2025
www.britishgeotech.org/bga-newsletter

From the Chair

Call for Entries – Young Engineers' Poster Competition 2025 https://www.britishgeotech.org/call-for-submissions-bga-annual-conference-young-engineers-poster-competition-2025/

BGA AGM and Conference 2025 – FREE TO ATTEND For the full programme and speaker details, please visit: https://www.britishgeotech.org/event/bga-annual-conference-2025-and-agm/

Earthworks 2025 – 4th Biennial BGA Conference For event information, please visit the conference website: https://earthworks2025.com/

BGA Dinner 2025 - **3rd BGA Annual Dinner and Special Lecture**

Celebra ting 75 years of the BGA. Thank you again to everyone that made it happen, not just the day, but those that have, over so many years, made the BGA the community it is.

https://isrm.net/newsletter/show/262

Κυκλοφόρησε το τεύχος No. 70 - Summer 2025 του ISRM Newsletter με τα ακόλουθα περιεχόμενα:

- Professor Sérgio Fontoura elected ISRM President for the term 2027–2031
- New ISRM Fellows inducted during the 2025 ISRM International Symposium - Eurock2025
- 49th ISRM Online Lecture by Professor Robert Zimmerman
- Eurock2025 and ISRM International Symposium 2025, Trondheim, Norway, held on 16-20 June 2025
- ISRM Award winners were announced during the Eurock2025
- The 2026 ISRM International Symposium, 14th Asian Rock Mechanics Symposium - Fukuoka, Japan, 22-27 November 2026
- 10th Latin American Rock Mechanics Symposium (LARMS 2026) - Brazilia, Brazil, 26-28 August 2026
- ISRM Regional Symposium – EUROCK 2026 - Skopje, N. Macedonia, 15–19 September 2026
- ISRM Rocha Medal 2027 - nominations to be received by 31 December 2025
- ISRM Sponsored Conferences

ITA@NEWS

https://about.ita-aites.org/ita-news/ita-news/2460/

Κυκλοφόρησε το τεύχος #78 - June 2025 των ITA@NEWS με τα ακόλουθα περιεχόμενα:

- MESSAGE FROM ANDREA PIGORINI, ITA PRESIDENT
- ITA Executive Council launches new meeting plan and hosting initiative Read more
- New tutors appointed by ITA Executive Council Read more
- ITA Tunnelling Awards 2025: 57 entries in the running from 25 countries!
- WTC2025 Sum-up Read more
- ITACET Lunchtime Lecture Series #47 Read more
- ITAtech AGs & SubAGs meetings @ WTC 2025 in Stockholm Read more
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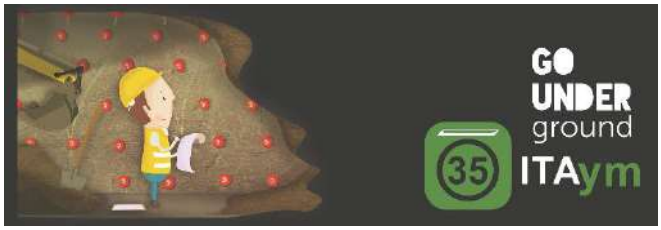

Stay informed with the ITAym Newsletter: a resource for the entire tunnelling community

The ITA Young Members Group (ITAym) regularly publishes a newsletter designed to inform, connect and engage pro-fess-ionals across all generations of the tunnelling industry. While coordinated by young professionals, the newsletter provides valuable content for all ITA members.

Each edition includes:

- International and national events related to tunnelling and underground space.
- Webinars and lecture series, such as the ITACET Lunchtime Lectures and technical sessions by ITA Working Groups.
- Updates on strategic initiatives, including sustainability round tables, diversity & inclusion actions and educational programmes.
- Opportunities to contribute.
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Whether you are actively mentoring younger professionals, leading national tunnelling initiatives, or simply wish to stay updated on ITAym's contributions to the future of our industry, this newsletter is a relevant, accessible and free resource.

We warmly invite all ITA members to subscribe and share it within their networks.

Geosynthetics International
www.icevirtuallibrary.com/toc/jgein/32/3

Κυκλοφόρησε το τεύχος Volume 32, Issue 3, June, 2025 του Geosynthetics International της International Geosynthetics Society με τα ακόλουθα περιεχόμενα:

Editorial

Note of appreciation to paper reviewers

Research Articles

Impact performance of unreinforced and geogrid-reinforced rockfall protection embankment, S. Maheshwari; R. Bhowmik; S. Cuomo

Simplified methods for the design of landfill double composite liners using neural network, Y. Shi; H. Xie; X. Chen; H. R. Thomas

Modelling the ultimate pullout resistance of geogrids, D. H. Marx; J. G. Zornberg

Antioxidant depletion from a 2 mm high-density polyethylene geomembrane used in brine containment, R. Awad; R. K. Rowe

Pullout capacity at the bamboo reinforcement-compacted earth interface, Y. Luo; C. Ye; H. Zhong; P. Ni; W. Li; Z. Zeng

Complementary use of analytical equations and numerical models for composite liner designs, Y. Yu; W. Hu; R. K. Rowe

Monitoring performance of a new smart geosynthetic under drawing test, Y. Cai; H. Li; J. Wang; H. Fu; Z. Liu; Y. Rao

Filtration compatibility of clay-nonwoven geotextiles under normal stress, C. X. Du; C. Xu; J. F. Wang; Y. Yang; C. X. Zhao; Q. M. Wang

Effect of UV radiation on shear behaviour between geotextile and geomembrane interface, G. Xu; J. Shi

Geotextile filtration characteristics in piping rescue under extreme soil-retained state, D. Feng; S. L. Jiang; S. Liu

Geotextiles and Geomembranes
www.sciencedirect.com/journal/geotextiles-and-geomembranes/vol/53/issue/3

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Experimental study on the vacuum consolidation of recycled fibre-improved soft soils assisted with prefabricated vertical drain, Kai Lou, Zhen-Yu Yin, Ding-Bao Song, Wei-Feng Huang, Pages 681-696

Estimation of the carbon sequestration potential of ecological retaining structures: A comparative study, Yuming Zhu, Fei Zhang, Junjun Ni, Shilin Jia, Pages 697-712

Mitigating frost heave of an expansive soil channel reinforced with soilbags: Insights from physical model tests, Yonggan Zhang, Yang Lu, Sihong Liu, Jin Liu, ... Jinbo Tian, Pages 713-727

Investigation of geogrid-reinforced unbound granular material behavior using constant radial stiffness triaxial tests, Ziheng Wang, Yue Chen, Yuekai Xie, Jianfeng Xue, Pages 728-743

Generation and prediction of defect in HDPE GMB serving as landfill base barrier, Feng Yang, Jingcai Liu, Ting Lin, Changxin Nai, ... Can Qian, Pages 744-753

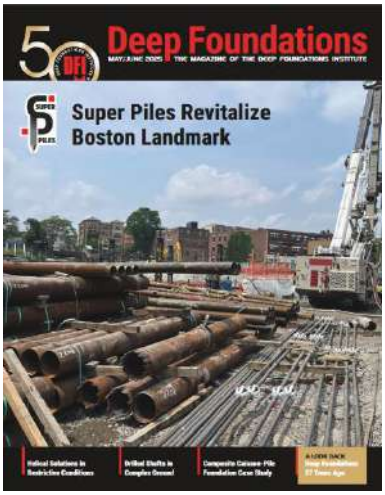
Optimal design and application of geogrid for ballasted track stabilization in high-speed railways, Zheng Luo, Shun Liu, Xuecheng Bian, Chuang Zhao, Yunmin Chen, Pages 754-766

Experimental and consolidation modeling of flowing mud during vacuum preloading considering transient clogging and vacuum pressure attenuation, Yuefu Zhou, Rui Chen, Yuanqiang Cai, Jun Wang, ... Xiangsheng Chen, Pages 767-779

Numerical investigation of ground reinforced embankments: Structural geometry design, Liang Xiao, Qingshan Meng, Shizhan Lv, Ting Yao, Yaxiong Liao, Pages 780-797

Evaluation of two-layered soils reinforced with 3D printed geogrid models under axisymmetric loading conditions, Gabriel M. Oliveira, Isabel M.C.F.G. Falorca, Pages 798-810

Deformation and load transfer of pile-supported foundation reinforced with soilbags raft cushion, Bowen Li, Sihong Liu, Xuelei Han, Yang Lu, Yuansheng Liu, Pages 811-821



www.nxtbook.com/dfi/DEEP-FOUNDATIONS/may-june-2025/index.php#/p/Intro

Κυκλοφόρησε το τεύχος Μαΐου / Ιουνίου 2025 του περιοδικού Deep Foundations με τα ακόλουθα περιεχόμενα:

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