THE GeOSSIP

The official newsletter of the Geology Department

23rd March 2023 | Issue 18

Welcome to the March issue of our beloved newsletter. We hope the longer and warmer days of the spring lifts everyone's spirit. A special welcome to the undergraduates affiliated with the Department, it has been an oversight on our part not to circulate the newsletter to you before.

The last two months have been an especially busy time at the Department, with fieldtrips, conferences and so on. Let's just jump in.

Our newsletters are archived and uploaded on the Geology website. You can access them here.

The G(e)ossip will be released on the last Thursday of each month. If you have feedback or anything to be added to upcoming newsletter issues, please send us an email at geossip.tcd@gmail.com.

-The G(e)ossip Team

DEPARTMENT NEWS

Congratulations to our **Elliot Carter** who won the 2023 Geochemistry Group ECR Prominent Lecturer award!

Congratulations to our **Zoë Roseby**, who received a Sustainability Leadership Award during Trinity's Green Week for her work on the Línte na Farraige project.

TCD Green Week Sustainability Leadership awardees.
Zoe is the second from the right.

COMMUNITY

Women history month:

In March, we celebrated women history month, their contribution to history, science and society. The Old Library has recently honoured four women for their contribution to science, society and Irish culture.

Upper left **Mary Wollstonecraft**, was a British writer, philosopher, and advocate of women's rights and is best known for her work, *A Vindication of the Rights of Woman* (1792).

Upper right, **Rosalind Franklin**, was a British chemist and X-ray crystallographer whose work was central to the understanding of the molecular structures of DNA (deoxyribonucleic acid), RNA (ribonucleic acid), viruses, coal, and graphite.

Lower left, **Augusta Gregory**, was an Irish writer and playwright who played a considerable part in the late 19th-century Irish literary renaissance.

Lower right, **Ada Lovelace**, was an English mathematician and writer, who is regarded as the first computer programmer.

As a member of the **Trinity community**, you have the right to study or work in an environment that is **free from bullying, harassment, and sexual misconduct**. Speak Out provides the opportunity for you to make the University aware of incidents that you have either experienced or witnessed by reporting them anonymously.

MENTAL HEALTH MATTERS

TCD's Student Counselling Services is open and available to all registered students.

Check out their website here to read about the services they provide, email them at student-counselling@tcd.ie to request an appointment, and follow them on Instagram at @tcd_headspace for mindfulness and mental health awareness tips. They now offer PhD research support groups to keep you on track!

DEPARTMENT NEWS

As part of the **21st Green Week**, here is a reminder that there are things we can do around the Department to be more climate-conscious.

The **common room** has a green bin for dry mix recyclables and a blue bin for paper only. Before you put anything into the general bin, please think about whether the item can be recycled. A lot of the plastic packaging that your lunch arrives in can be put into the green bin after a quick rinse.

Similarly, when leaving **your office** please turn off computers and monitors. Please don't leave them on stand-by, and as long as it has any light on, like the red (off) light, it consumes electricity. Additionally, please close the doors behind you, when leaving the office last, including hallway the doors.

Turn off the light!

Please make sure when you're leaving your office for the day to close the door properly, turn off all the lights and appliances. This includes the hallway lights as well.

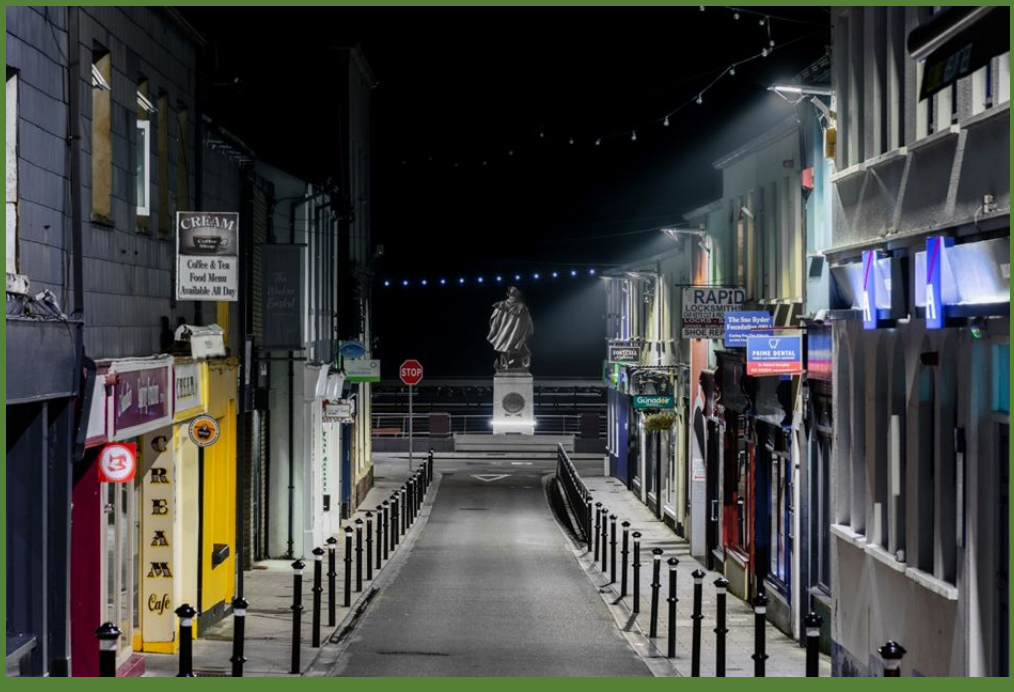
Antrim

The first years' fieldtrip occurred on 6-8 March, led by **Chris Nicholas** and **Micha Ruhl,** accompanied by **Foteini Drakou**, **Lydia Whittaker**, and **Blanka Kovács**. The trip, which was attended by 45 students, included some of the most famous geological sites in Northern Ireland, such as the Triassic-Jurassic boundary section in Waterloo Bay (Larne), the Giant's Causeway, Ballintoy Harbour, Whiterocks Beach, and last but not least, an important location for the Plutonist-Neptunist debate, Portrush.

Photo on top: The row of students draws the Dunluce Castle, in some cases the geology underneath it as well.
Photo on the right: Chris explains how the Giant's Organ formed.

During the evenings, the students had to present their work. Here, Team Periwinkle explains their map of Ballintoy Harbour. Photos by Blanka Kovács.

LÍNTE NA FARRAIGE



Línte na Farraige light installations. Top to bottom: at the Spanish Arch, along the Long Walk, in Galway; in the Wexford Harbour (Ferrybank South, Wexford); around the Martello Tower, in Blackrock, Dublin. Photos by Pekka Niityvirta

In 2022–23, the Línte na Farraige project team installed a series of LED light displays across three Irish coastal sites: at the Spanish Arch in Galway, in Wexford town, and at the Martello tower in Blackrock, Dublin. The lines of light represent future storm surge heights, based on sea level rise projections from the Intergovernmental Panel on Climate Change report AR6, and historic storm surge data. The installations, designed by artists Timo Aho and Pekka Niittyvirta, demonstrate the need to reduce our greenhouse gas emissions and adapt together to protect our coastlines, communities, and infrastructure from the effects of climate change. Solar panels and renewably powered battery packs were used as part of the installation. Línte na Farraige was funded by the inaugural Creative Climate Action Fund and supported by the Marine Institute and Dublin Climate Action Regional Office.

Lead applicant: **Zoë Roseby**. People involved: David Dodd, Maeve Upton, Jamie Matthews, Timo Aho, Pekka Niittyvirta, Gerard McCarthy, Yvonne Cannon, Native Events, Algorithm, Galway City Council, Wexford County Council, Dún Laoghaire-Rathdown County Council, Galway City Museum.

Find out more here and follow the project on Twitter! Also, if you have not done so already, check out the exhibition in the Arts Block, only during Green Week!

The **66th Irish Geological Research Meeting** was hosted by the Ulster Museum, in Belfast from 3–5 March 2023. The Department was represented by several talks and posters by staff members, postdoctoral and postgraduate researchers.

Congratulations to **Luca Terribili** for his talk for which he won best talk award from the IGA and received an honourable mention from the IGI and to **Adrienn Szűcs** for her talk which received an honourable mention from the IGA!

Posters presented by members of the department:

- The dynamics of carbonate assimilation in layered mafic intrusions.
  Jack Beckwith*, **M.J. Stock**, M.R. Cooper, M.B. Holness, J.C.Ø. Andersen, C.Huber, **D.M. Chew**, and **E.J. Carter**
- Temporal Evolution of LIP Magmatism in the North of Ireland.
  Eshbal Geifman*, **M.J. Stock**, M. Cooper, **E. Carter**, M.B. Holness, J.C. Andersen, **D.M. Chew**, and C. Huber
- Earth Surface Research Laboratory – Equipment, Instruments and Access.
  Hilde Koch, **M. Stock**, **C. Amaral**, **E. Carter***
- Capacity of the hen eggshell to capture and partition rare earth elements from solution.
  Remi Rateau*, **K. Drost**, **M. Maddin**, **A. Szűcs**, **L. Terribili**, **J.D. Rodriguez Blanco**
- New constraints on the P-T-X dependence of basaltic phase equilibria.
  Michael J. Stock*, T.J.B. Holland and D.A. Neave

Talks given by members of the department:

- Crystallisation of CaCO3 from multicomponent solutions.
  Niamh Faulkner*, **Juan Diego Rodríguez-Blanco**
- PLANTy of mercury: Leaf mercury (Hg) analyses provide insight to past atmospheric concentrations and LIP volcanism.
  Emma Blanka Kovács*, **M. Ruhl** and J. McElwain
- Cerianite (CeO2) nano- and micro-fabrication through Ce-carbonates.
  Adrienn M. Szűcs*, **M.Maddin**, **D.Brien**, **R.Rateau** and **J.D.Rodriguez-Blanco**
- The kinetic and mechanisms of crystallisation of CaCO3 in the presence of rare earth elements.
  Luca Terribili*, **R.Rateau**, **A.M.Szűcs**, **M.Maddin**, **J.D.Rodriguez-Blanco**
- Determining the impact of magma water contents on porphyry Cu fertility: constraints from hydrous and nominally anhydrous mineral analysis.
  Wenting Huang*, **Michael J. Stock**, Huaying Liang, Xiao-Ping Xia, Zexian Cui
- Volcanism, the Paleocene-Eocene Thermal Maximum and Deus ex Machina Solutions: Basic issues, Root Problems and Intriguing Interpretations.
  Gerry Dickens
- Crustal and mantle controls on the geochemistry of large igneous province volcanism in the Antrim Lava Group, North Atlantic Igneous Province.
  Elliot J. Carter*, **M.J. Stock**, H. Talbot, A. Beresford-Browne, M.R. Cooper and R. Raine
- Eclogitic peridotite from space.
  Ian Sanders

We hope the Department will be similarly well represented at the next IGRM as well to showcase our research for the Irish geoscience community.

Wexford

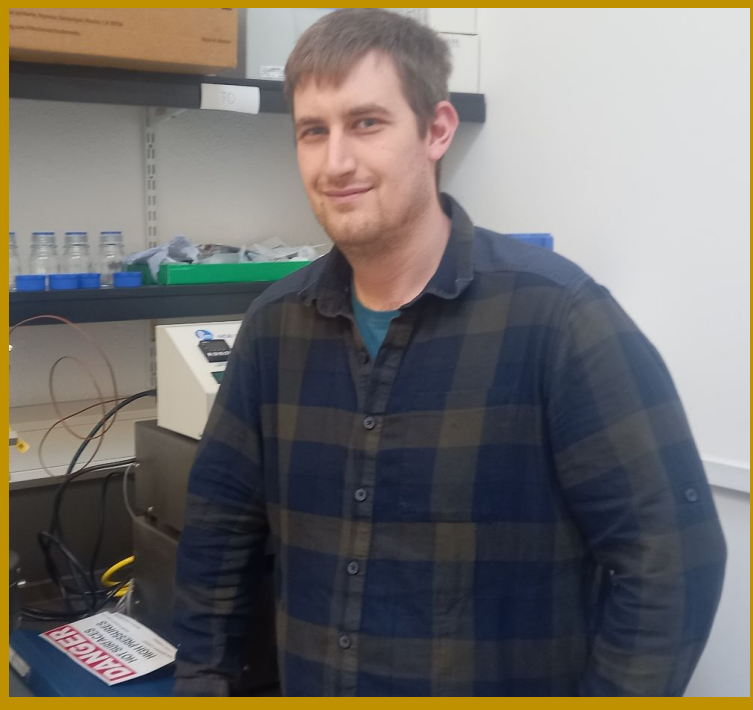
The SF field trip was carried out along the Wexford coast, where 54 students together and several members of the Geology Department (**Patrick Wyse Jackson**, **Una Farrell**, **Robin Edwards**, **Jerry Dickens**, **Luca Terribili** and **Fermin Alvarez Agoues**) between the 6th and 9th of March. They stayed in the Brandon House Hotel in New Rose, from where they moved to the different study areas along the coast. The study areas included several localities along the Wexford coast, such as the Kilmore Quay, Baginbun Bay and Hook Head point among others.

A daily routine was established where, divided into different groups, students worked on different field-skills that allowed them to observe and interpret the rocks and landscapes around the coast and to understand the processes that went into their formation, giving them a broad understanding of the geological history of south County Wexford. Although the sun appeared a few times in the first two days, the group had to face wet and windy weather during the second half of the trip showcasing what fieldwork is like in Ireland.

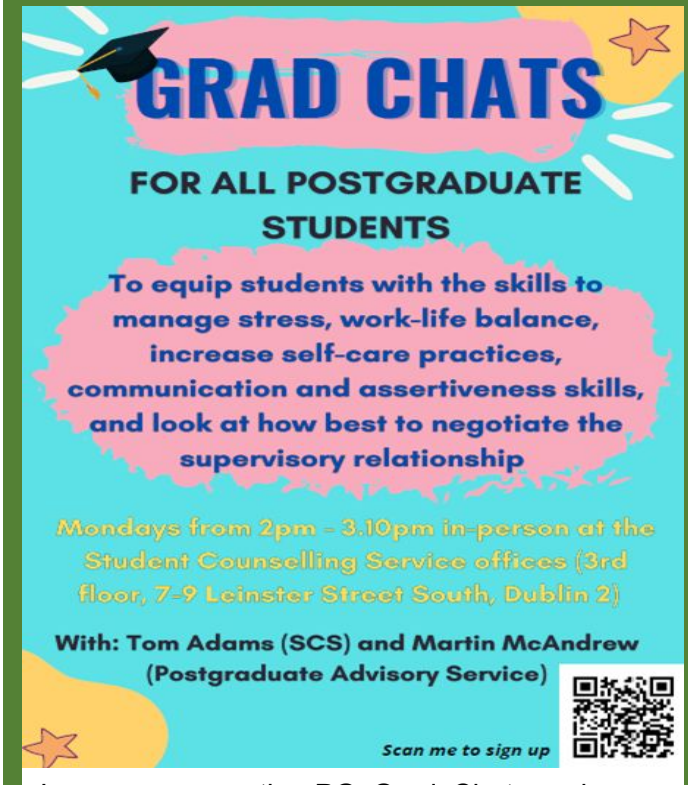
Photos: Top - Cullenstown, Middle - Slade, Bottom - Kilmore Quay

MEET THE POSTGRADS

Hi all, I'm **Andrea Pierozzi** and I'm a new PhD student in the group of my supervisor Dr Juan Diego Rodriguez Blanco. I will work on the SCORE project (Supercritical CO2 REactivity in polymineralic-fluid systems) funded by iCRAG.
The goal of my project is to study the mineralogical composition of basaltic rocks after they have been subjected to supercritical conditions with fluids enriched in carbon dioxide. To reach supercritical conditions, I will use a reactor that allows me to increase the temperature and pressure. My project will look at what minerals are formed to aid in Carbon Capture and Storage in basaltic rocks. I am Italian and I did a bachelor and master degree in Florence (2016 and 2019 respectively).



POSTGRAD SUPPORT



Learn more on the PG Grad Chats webpage and pre-register for sessions here.

WELLBEING

The Silver Cloud programme provides a great online tool to help you improve and maintain your wellbeing by addressing issues that can have a negative impact on your life.
The program is provided by Student Counselling and is available to everyone in the Trinity Community.

DEPARTMENT NEWS

Everyone is invited to the **Choral Society**'s concert on 28-29 March. The Mozart Medley will include one of the most famous pieces of classical music, Mozart's Requiem. If that has not convinced you yet, know that our very own **Dave Chew**, **Sarah Guerin** and **Blanka Kovács** will be performing in the choir. Tickets are available here.

UPCOMING CONFERENCES

33rd Irish Environmental Researchers Colloquium (Environ2023)
Atlantic Technological University Donegal
3-5 April
https://www.esaiweb.org/environ

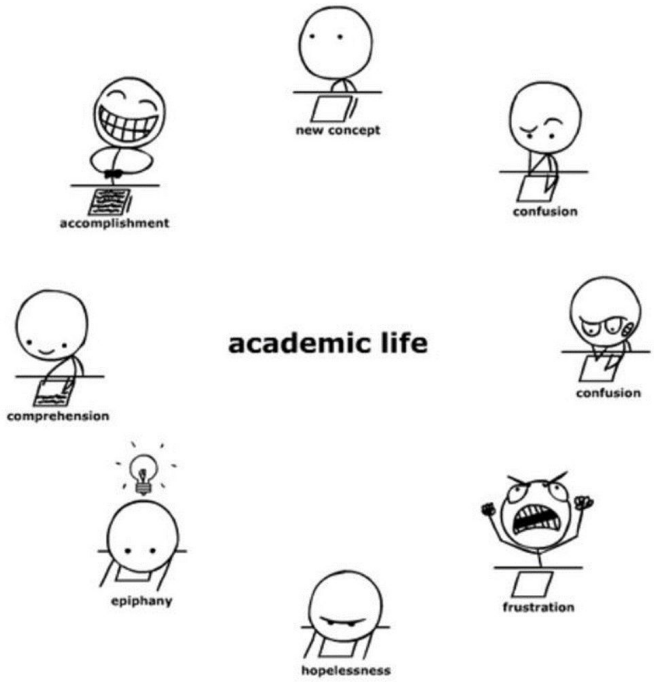
36th International Meeting of Sedimentology
Dubrovnik
12-16 June
https://iasdubrovnik2023.org/

14th International Platinum Symposium
Cardiff
4-7 July
https://platinum2023.com/

4th International Meeting on Stratigraphy (Strati2023)
Lille
11-13 July
https://strati2023.sciencesconf.org/

Goldschmidt Conference
Lyon,
9-14 July
https://www.geochemsoc.org/events/goldschmidtconference

International Conference on Crystal Growth and Epitaxy (ICCGE-20)
Naples
30 July - 4 August
https://www.iccge20.org/



PUBLICATIONS

Krueger, E.T., Büscher, J.V., Hoey, D.A., Taylor, D., O'Reilly, P.J. & **Crowley, Q.G.** Wanted Dead or Alive: Skeletal Structure Alteration of Cold-Water Coral *Desmophyllum pertusum* (*Lophelia pertusa)* from Anthropogenic Stressors. *Oceans* **2023**, *4*, 68-79. https://doi.org/10.3390/oceans4010006

Walsh, C., Kamber, B.S. & **Tomlinson, E.L.** Deep, ultra-hot-melting residues as cradles of mantle diamond. *Nature* 615, 450–454 (2023). https://doi.org/10.1038/s41586-022-05665-2

Vallner, Z., **Kovács, E.B.**, Haas, J., Móricz, F., **Ruhl, M.**, Zajzon, N. and Pálfy, J., 2023. Preservation of orbital forcing in intraplatform carbonates and an astronomical time frame for a multiproxy record of end-Triassic global change from a western Tethyan section (Csővár, Hungary). Palaeogeography, Palaeoclimatology, Palaeoecology, 617: 111493. https://doi.org/10.1016/j.palaeo.2023.111493

He, T., Kemp, D.B., Li, J. & **Ruhl, M.**, 2023. Paleoenvironmental changes across the Mesozoic–Paleogene hyperthermal events. Global and Planetary Change, 222: 104058. https://doi.org/10.1016/j.gloplacha.2023.104058

Szucs, A. M., **Maddin, M.**, **Brien, D.**, **Rateau, R.**, & **Rodriguez-Blanco, J. D.** (2023). The role of nanocerianite (CeO2) in the stability of Ce carbonates at low-hydrothermal conditions. In RSC Advances (Vol. 13, Issue 10, pp. 6919–6935). Royal Society of Chemistry (RSC). https://doi.org/10.1039/d3ra00519d. Summary of the study here

FAREWELL

Farewell to **Wenting Huang** who is going home soon.

“How time has flown, and I can hardly believe my one-year visit to Dublin is ending. It’s a fantastic experience to work at the Geology Department, Trinity College Dublin. Being away from my family and home institute for one year, but I seldom feel lonely in the Geology Department. Because everyone here is so friendly, kind, helpful and supportive.

I have had a lovely stay here, and so many beautiful memories have been made. I attended many academic activities (the IGEO 2022, RESTORE summer school 2022, VMSG 2023, and IGRM 2023), had two Christmas Parties in 2022, and many Friday beers! Also, the countless interesting talks in the common room, offices, CMA, and pubs.

I would like to say ‘Thank you’ to all of you, my dear colleagues and friends. I look forward to meeting you in the future and wish you all the best!”

Picture on top, the Christmas Party last December. Left to right, Wenting, Ollie, Fay and Eshbal. Picture below, Wenting presents her research at IGRM this year.

Micha Ruhl grew up in the sunny south of the Netherlands, close to the Belgian and German borders, far away from the main cities (basically the Donegal of the Netherlands).

He completed his undergraduate in geobiology (2004, with a dissertation in Triassic palynology), and a MSc in palaeocanography/stratigraphy (2006, with a dissertation on Holocene and Pleistocene foraminefera biology and geochemistry). This was followed by a PhD in palaeoclimatology/sedimentary geochemistry/stratigraphy (with a dissertation on Triassic–Jurassic carbon cycling) at Utrecht University (completed 2010). He then dabbled in work at the Geological Survey of the Netherlands for a little while, working in the Business Unit Oil & Gas. Projects there, working on hydrocarbon fields globally, were really quite interesting, however, academia called…

Micha then worked as a postdoctoral researcher and research fellow at the Nordic Centre for Earth Evolution at Copenhagen University (Denmark, 2010–2013), and at the Department of Earth Sciences at the University of Oxford (UK, 2013–2018). In spring 2018 (time flies!) he joined the Department of Geology at Trinity as a lecturer.

At Trinity, he teaches on different aspects of sedimentary systems, stratigraphy, and palaeoenvironments/palaeoclimatology, both at undergraduate and MSc level.

Micha's research is largely focused on (i) constraining links between carbon cycle disturbance, climatic/environmental change, and biodiversity or ecosystem collapse during past global change and mass extinction events (and their links to LIP volcanism), and (ii) constraining time in Earth history (and thus rates of change in Earth system processes) using integrated stratigraphic methods including chemo-, cyclo-, magneto-, biostratigraphy and radio-isotopic dating.

He predominantly works on Mesozoic sedimentary archives in the field and in cores. Fieldwork has taken him around the world, with many major field campaigns in Argentina, the US, Morocco, China, and across Europe.

Increasingly he has been involved in and has been utilizing cores obtained through the International Continental Drilling Programme and he is currently PI and Co-PI on ICDP proposals to drill the entire Triassic and Jurassic on the Colorado Plateau (US), the entire Middle Jurassic in the Lusitanian Basin (Portugal), and the entire Meso- and Cenozoic on Svalbard.

In his free time you can find him working in the garden (even when it rains), or he enjoys painting (both actual paintings, but also home decoration). His all-time favourite book is The Hitchhikers' Guide to the Galaxy, and more recently he really enjoyed reading The Men Who United The States (not yet finished). In the weekend he will often go for walks in the Wicklow Mountains with Weimu and Mylo, or wander around the Bray promenade and Bray Head (as they live in Bray). A typical Sunday morning will start with putting up some music from the nineties (still CD's as spotify is way to modern!).

(A little anecdote: during a past student fieldtrip Bon Jovi was playing on the radio and he told some students that he used to go to their concerts, to which one of the students famously replied "Dude, my mum used to go there too!", which probably tells you all you need to know about both his age and musical taste).

Micha currently supervises Blanka and Amanda for their PhD thesis projects and he has supervised as main and co-supervisor multiple PhD student projects to completion in the past. You can find more information on his work, team and background on the departmental website, or on www.micharuhl.com (under construction).

MEET MICHA'S TEAM

Amanda Perera

Hi, I am Amanda originally from Sri Lanka. I started my Ph.D. in January 2023 with Associate Professor Micha Ruhl.
My main research interests are stratigraphy, organic and inorganic geochemistry, paleoclimatology, palaeobotany, palaeoceanography.
My research mainly focuses on the constraining links between carbon cycle dynamics and the latitudinal shifts in the climatic belts across one of the Earth`s largest past global change events that occurred at the Triassic - Jurassic boundary.
I completed my master's degree in 2022 in the Department of Earth Science Shimane University Japan. I completed my undergraduate degree in Rajarata University of Sri Lanka majoring in Chemistry and Physics.
In my free time, I enjoy traveling, watching documentaries, reading novels, and exploring Dublin.

Emma Blanka Kovács

Hi Everyone, I'm Blanka and I've just started the fourth year of my PhD, under Micha's supervision.
I study past environmental change events which have temporal correlation to Large Igneous Provinces (LIPs), with a particular focus to the Early Jurassic. I am working with sedimentary and organic mercury concentrations for their application as a past volcanism proxy.
Aside from researching, I enjoy doing yoga and singing in the choir. I'm always available for a chat, next to tea, coffee or a pint.