



24th May 2024 | Issue 25

Hello and welcome to the May edition of the G(e)ossip! Although it has been a bit quieter around here with term coming to an end, it's been an exciting month for field trips and research. We're looking forward to seeing what everyone gets up to over the summer and keeping our fingers crossed for sunnier weather!

The G(e)ossip will be released every month. Past issues are archived and uploaded on the Geology website which you can access [here](#).

If you have feedback or anything to be added to upcoming newsletter issues, please send us an email at [geossip.tcd@gmail.com](mailto:geossip.tcd@gmail.com).

-The G(e)ossip Team

## DEPARTMENT NEWS



Congratulations to **Erica Krueger** for passing her PhD Viva with minor corrections on 14th May. Her thesis is titled *Cold-water corals from the deep-sea to the TV: development of shelf-edge mounds, assessment of anthropogenic stressors and geochemical parameters, and impacts of science communication*. Erica has also started a postdoctoral research fellowship with [REWRITE](#) in TCD Geography. Although we are sad to see her leave us in Geology, she can still be found in M7!

Additionally, **Erica Krueger** and **Quentin Crowley** have published a new paper titled *Development and physical characteristics of the Irish shelf-edge Macnas Mounds, Porcupine Seabight, NE Atlantic*. You can read it [here](#).

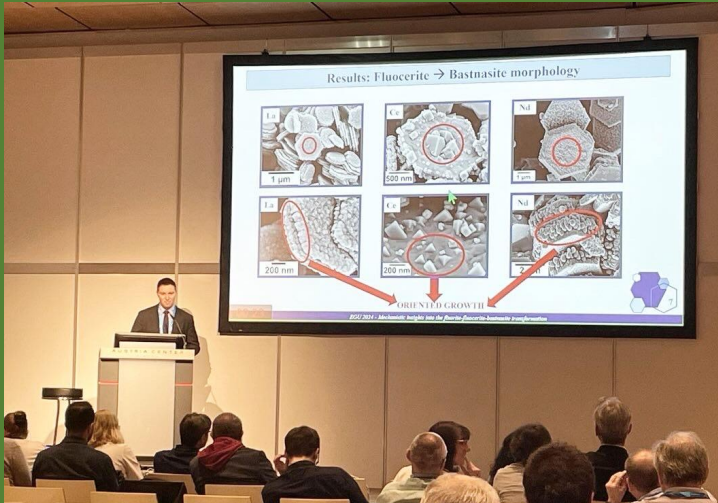
## COMMUNITY

The University of Dublin Choral Society held two concerts on the 27th and 28th of March in the Exam Hall, performing Mendelssohn's Christus and Brahms' Requiem.

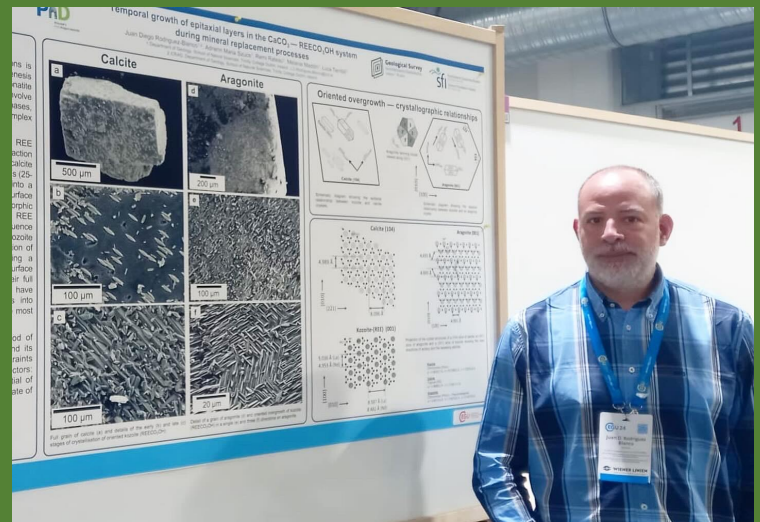


The choir, especially participating members of our Department, **Dave Chew**, **Eimear Prendergast** and **Blanka Kovács**, would like to thank everyone, who came and supported them. Keep up to date on the news of the Society through their [Instagram page](#).

Melanie Maddin, Luca Terribili, Andrea Pierozzi, Remi Rateau and Juan Diego Rodriguez-Blanco attended the EGU2024 in Vienna, presenting their research on rare earth carbonates and carbon capture and storage.



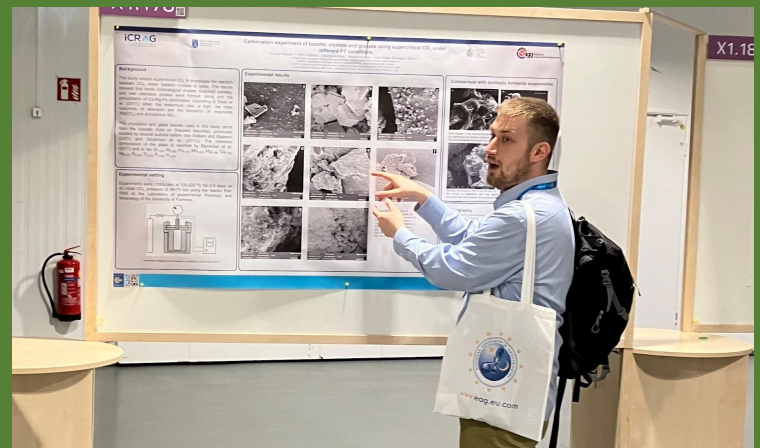
Luca gave a talk: *Mechanistic insights into the fluorite-fluocerite-bastnasite transformation* (Luca Terribili and Juan Diego Rodriguez-Blanco)



Juan Diego presented a poster: *Temporal growth of epitaxial layers in the CaCO<sub>3</sub>-REECO<sub>3</sub>OH system during mineral replacement processes* (Juan Diego Rodriguez-Blanco, Adrienn Maria Szucs, Remi Rateau, Melanie Maddin, and Luca Terribili)



Melanie presented a poster: *Complex Multi-Stage Replacement Reactions in the REE-CaCO<sub>3</sub> System* (Melanie Maddin, Remi Rateau, Adrienn Marie Szucs, Luca Terribili, and Juan Diego Rodriguez-Blanco)



Andrea presented a poster: *Carbonation experiment of basaltic crystals and glasses using supercritical CO<sub>2</sub> under different PT conditions* (Andrea Pierozzi, Remi Rateau, Andrea Orlando, Daniele Borroni, and Juan Diego Rodriguez-Blanco)



SESSION: SOLVING GEOSCIENCE PROBLEMS USING MINERALOGY

Trinity College Dublin  
Coláiste na Tríonóide, Baile Átha Cliath  
The University of Dublin

SEleCTOR  
Separating Critical metals Through mineral crystallisation

Sustainable recovery of rare earth elements with eggshell waste calcite

Rémi Rateau  
Melanie Maddin  
Adrienn Szucs  
Luca Terribili  
Kerstin Drost  
Paul Guyett  
Juan Diego Rodriguez-Blanco

✉ [rrateau@tcd.ie](mailto:rrateau@tcd.ie)

Geological Survey  
Suirbhíreacht Geolaíochta  
Inland & Éireann

Fiondúireacht Eolaíochta Éireann  
Éireann  
Science Foundation Ireland  
For what's next

epa  
Environmental Protection Agency

Rémi gave a talk: *Sustainable recovery of rare earth elements with eggshell waste calcite* (Rémi Rateau, Kerstin Drost, Melanie Maddin, Adrienn Szucs, Luca Terribili, Paul Guyett, and Juan Diego Rodriguez-Blanco)

## SPAIN FIELD TRIP

The **final-year Geoscience students** enjoyed nine days from 5<sup>th</sup> to 15<sup>th</sup> of April in Sorbas (Almería, SE Spain). The field trip was led by **Quentin Crowley, Nancy Riggs, Micha Ruhl, Matthias Sinnesael** and **Blanka Kovács**. Each day the students learned more about the local geology, from basement to basin fill, through metamorphic and volcanic rocks, all the way to contemporary land-use and solar energy. Photos courtesy of Blanka Kovács.



Group photo at the Gordo Megabed section



Students and staff learning about solar energy at Plataforma Solar de Almería



Each evening a lively discussion was led by different team about their observations and interpretations from the day, even when the power went out...



The group was well taken care of by Paco's wonderful team at the Urra Field Centre



Students logging at Taller Mecánico, near Sorbas



Student groups sharing their observations of the early basin fill at Mizala (Sorbas Basin)

## GREECE FIELD TRIP

The **3rd year Geoscience students** spent two weeks in April learning new techniques, mapping skills, and improving interpretative skills in the field in Greece. The field trip was led by **David Chew, Chris Nicholas, Michael Stock, Gary O'Sullivan, Fay Amstutz, and Dani Vitarelli.**



Chris and Dave giving an overview of the stratigraphy and facies architecture of Megara rift basin sedimentary fill

The students spent 4 days in Corinth learning about active extensional tectonics by investigating sedimentary facies architecture and fill in a variety of extensional basin settings. Students spent another 4 days on Naxos diligently mapping and constructing a schematic cross section across the metamorphic core complex. The final 3 days were spent in Santorini identifying the eruptive processes that led to various volcanic deposits and unraveling the evolution of Santorini during its early volcanic history.



Students at the top of the cinder cone before heading down to Red Beach to examine its internal stratigraphy



Chris and Dave discussing marine terrace formation at Perachora Peninsula



Students enjoying the Temple of Apollo on Naxos



Students were split into two separate groups over the course of their multi-day mapping excursion in Naxos before eventually meeting up at the top of a spectacular marble quarry on the last mapping day

## DEPARTMENT NEWS

Our 4th year students showcased all the hard work that went into their Capstone projects with a poster session in early April. Amazing work, everyone!



## COMMUNICATION

**Dublin Magmatism Group** at TCD bring together researchers from across different volcanology and magmatism research teams aiming to facilitate collaboration across different institutions invested in volcanological research across Dublin. There are now active social media channels on both Instagram and [X \(Twitter\)](#) please follow [@dublinmagma](#) for updates.

## PUBLICATIONS

**Bastias-Silva, J.**, Burton-Johnson, A., **Chew, D.**, Riley, T., Jara, W., & Chiaradia, M., 2024, A temporal control on the isotopic compositions of the Antarctic Peninsula arc: *Commun Earth & Environment* 5, no. 157, <https://doi.org/10.1038/s43247-024-01301-1>

Fendley, I.M., Frieling, J., Mather, T.A., **Ruhl, M.**, Hesselbo, S.P., & Jenjyns, H.C., 2024. Early Jurassic large igneous province carbon emissions constrained by sedimentary mercury. *Nature Geoscience*, 17, 241-248. <https://doi.org/10.1038/s41561-024-01378-5>

**Higgins, O. & Stock, M.J.**, 2024, A New Calibration of the OPAM Thermobarometer for Anhydrous and Hydrous Mafic Systems: *Journal of Petrology*, <https://doi.org/10.1093/petrology/egae043>

Leu, K., Zeeden, C., Ulfers, A., Sardar Abadi, M., Vinneband, M., **Ruhl, M.**, Hesselbo, S.P., & Wonik, T., 2024. Astronomical calibration of the Early Jurassic Sinemurian Stage based on cyclostratigraphic studies of downhole logging data in the Prees 2 borehole (England). *Newsletters on Stratigraphy*,

Vucinic, L., O'Connell, D., **Coxon, C.** & Gill, L. (2024). Back to the future: Comparing yeast as an outmoded artificial tracer for simulating microbial transport in karst aquifer systems to more modern approaches. *Environmental Pollution*, 349: 123942. <https://doi.org/10.1016/j.envpol.2024.123942>

**Zhang, L.**, Wang, Y., **Ruhl, M.**, **Kovács, E.B.**, Xu, Y., Zhu, Y., Lu, N. and Chen, H., 2024. Plant cuticle as a possible palaeo-Hg proxy: Implications from Hg concentration data of extant Ginkgo L. and extinct ginkgoaleans. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 647: 112214. <https://doi.org/10.1016/j.palaeo.2024.112214>



## ENVIRONMENTAL FIELD MODULE

The Geology Department coordinates the "Practical Field Skills" Module ([ES 7049](#)) for the Environmental Science Masters Programme at TCD. This 3-week-long course introduces and enables MSc students to investigate environmental issues in the field, including water and soil quality, mining and agricultural impacts, and green energy production.

For 2024, **Eyad Abushandi**, **Michael Ort**, and **Jerry Dickens** shared experiences across two regions (north Leinster, southeast Spain) with 23 MSc students of diverse backgrounds. The overall goal was to understand common and different challenges facing the generation of energy, the supply of fresh water and production in the two regions. We briefly discuss the latter part of the course with photos.



The TCD MSc Students at the Urra Field Station in southeast Spain. Note the arid conditions.



For the curious: what does "produce of Spain" on our Irish tomato packages actually mean? The area around Almeria, southeast Spain, hosts the world's most extensive network of greenhouses, mostly covered with white plastic, giving Earth an immense (~320 km<sup>2</sup>) snowlike cover clearly seen from space. The region is also Europe's driest, receiving an annual rainfall of only about 200 mm per year.

Three crops of tomatoes (and an alternating crop of melons) grow within many of the greenhouses each year. A crude calculation by the class suggests the Almeria region produces about 3 billion tomatoes a year, a staggering number that requires an enormous amount of water.

Eyad Abushandi and MSc Students inside one of the 10,000+ greenhouses that each hold approximately 100,000 tomatoes.

Ephemeral rivers coming from mountains, notably the Andarax, provide limited water. However, the Andarax is ephemeral and no longer flow to the sea. Several small reservoirs hold limited water for agriculture, and generally serve for flood control.

Michael Ort and MSc Students taking water measurements along the middle section of the Andarax, where water flow steadily decreases and dissolved ions steadily increase.



Michael Ort, Eyad Abushandi and MSc Students at the Algecirus Reservoir, which was built primarily for flood control, but provides some water for Mercia and agriculture.

## ENVIRONMENTAL FIELD MODULE (CONTINUED)

Most water for growing tomatoes and other crops around Almeria currently comes from groundwater, but levels are dwindling fast. With foresight, a series of desalination plants are coming on line, where seawater from the Mediterranean is pushed through filters to produce fresh water. Desalination, of course, requires energy, and Spain has now become a world leader in green energy, with numerous solar plants and wind farms surrounding Almeria.



Michael Ort translating the details of desalination to the MSc students at Desaladora de Almeria.



The MSc class all together for a group photo



The MSc Class measuring water chemistry at Mazarron, an area mined for lead, silver, and copper since Phoenician times.

The pH of water within the soil and in some of the pools was  $<1.0$ .



MSc students taking water measurements



As geoscientists, it is important to recognize and share to the public that critical raw materials are needed for solar and wind energy, and these need to be mined. Of course, this should be done responsibly, so as to not leave behind damaged legacies.

Enjoy your salad!

–Eyad, Michael and Jerry

## COMMUNITY



Troublesome Trio... but they promised Jerry they would give 10% of their future earnings to Trinity Geoscience!


## POSTGRAD STUDENT SUPPORT

**GRAD CHATS**  
FOR ALL POSTGRADUATE STUDENTS

To equip students with the skills to manage stress, work-life balance, increase self-care practices, communication and assertiveness skills, and look at how best to negotiate the supervisory relationship

Mondays from 2pm - 3.10pm in-person at the Student Counselling Service offices (3rd floor, 7-9 Leinster Street South, Dublin 2)

With: Tom Adams (SCS) and Martin McAndrew (Postgraduate Advisory Service)



Scan me to sign up

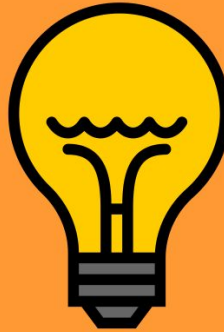
Learn more on the PG Grad Chats [webpage](#) and pre-register [here](#).

## UPCOMING CONFERENCES

- **Geographic Perspectives on Climate Change Mitigation in Urban and Rural Environments Conference 2024**  
(25-27 June, Italy)
- **12th International Kimberlite Conference**  
(8-12 July, Canada)

## SAFETY AND ENERGY SAVING

### 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.*

## CONFIDENTIAL HELPLINE

**NiteLine**

Free, anonymous, confidential and non-judgemental listening.

OPEN EVERY NIGHT OF TERM  
FROM 9PM-2.30AM

[NiteLine](#) is a non-profit, non-judgemental, non-directive, anonymous and confidential listening service run by students for students. Our service is completely free and open every night of term from 9pm to 2.30am through instant messaging and over the phone. We are run by a team of dedicated volunteer students who have undergone rigorous training with the intention of supporting our peers. Our motto is "no problem is too big or too small."

## 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.



## COMMUNITY



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.

## STUDENT 2 STUDENT PEER SUPPORT

### Student 2 Student Peer Support is back!

Thanks to the support of Trinity Trust, Student 2 Student is delighted to announce the return of our Peer Support Programme after 4 long years! **This is not the same as our Mentoring Programme**. S2S Mentors are student volunteers who offer group support to every incoming undergraduate student. Peer Supporters are student volunteers who provide **face-to-face, confidential listening and support to any TCD student** on request!

Peer Supporters have undergone over 35 hours of intensive training in active listening, emotional support and self-care. They are highly confidential, non-judgemental and are willing and ready to help! Students don't need to be in distress or crisis to talk to a Peer Supporter, but they can help with the larger problems as well as the smaller things.

### [Request a Peer Supporter here!](#)

Please do not fill out a request on anyone else's behalf – but please do encourage any student you know who might need a listening ear to fill this link out themselves.

Peer Supporters aim to respond to requests within 48 hours (excluding weekends). They'll suggest a few possible times and organise an initial meeting. The new S2S space in [House 47](#) has a private room where students can meet for a chat, or Peer Supporters can arrange to go for a walk around campus or meet at a public spot nearby. Meetings can be once off, or as frequent as once a week.

You can find [more information about the Peer Support programme here](#) or email [student2student@tcd.ie](mailto:student2student@tcd.ie) with any questions.

**S2S**  **Peer Support**

Student2Student

## 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](mailto: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!

## CONTRIBUTIONS

We want to hear from you! Did we miss something? Have you got any news to share with the department? Please let us know at [geossip.tcd@gmail.com](mailto:geossip.tcd@gmail.com) to be featured in the next newsletter. We would love to hear from you!

