



# THE G(e)OSSIP

*The official newsletter of the Geology Department*

24 June 2021 | Issue 4

## WELCOME

Summer is officially here and we hope you all have been enjoying the sunshine! Pubs and restaurants have opened back up after a long lockdown and there is a good feeling in the air with the COVID-19 vaccination programme well underway.

Our department has been busy between conferences, field trips, and the end of the teaching year.

September registrants, don't forget to submit your annual Progress Reports by 30 June.

The Geology Department is still looking for a new logo. Get your creative juices flowing and send your design submissions to [geossip.tcd@gmail.com](mailto:geossip.tcd@gmail.com).

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](mailto:geossip.tcd@gmail.com).

-The G(e)ossip Team

## STAFF MEMBER IN THE SPOTLIGHT



Emma grew up in the Cotswolds, in Gloucestershire, southwest England. She graduated from the University of Bristol in 2001 and went on to do a PhD in geochemistry at University College London, focused on analysing diamond growth fluids and undertaking diamond synthesis experiments. She then moved to Royal Holloway University of London to work in the NERC ICP facility then undertaking a postdoc to correlate tephra (volcanic ash)

from proximal, paleoenvironmental and archaeological records and to investigate the response of humans to rapid climate transitions. Emma joined TCD in 2012 where she teaches igneous and metamorphic petrology and processes. She still works in mantle petrology/geochemistry and tephrochronology but has expanded to inorganic peat geochemistry - this diversity is reflected in the focus areas of her excellent team of three postgraduate and two postdoctoral researchers. Outside of research, she enjoys trail and cross country running, only occasionally pausing to look at the rocks, and has yet to enact a plan to try sailing despite living by the coast for the last 9 years. Emma has two children, now aged 7 and 10, who like rocks but think that the best thing about her job is the proximity to the doughnut shop.

## COVID-19 UPDATE

Please don't forget to sign in on the Geology Google Doc and check in on the [SafeZone app](#) if you're on campus. This is very important for contact tracing in the event of a positive COVID-19 case on campus. As always, wash your hands, practice social distancing and wear a mask. You can stay up-to-date on all TCD statements [here](#).



## MEET EMMA TOMLINSON'S TEAM



### **Brendan Hoare**

Hi, I'm Brendan and I am currently a fourth year PhD student working with Emma. My research concerns the formation, alteration (metasomatism) and ultimately the destruction of the Earth's ancient 2.5-billion-year-old diamond-hosting cratonic lithosphere. We use mantle xenoliths (fragments of rock) entrained in kimberlite magmas from in excess of 150 km depth to directly investigate the deep and inaccessible mantle. I mostly use geochronology (U-Pb; Lu-Hf) and thermal modelling to assess the timing and effects of metasomatism on the stability of the cratonic lithosphere. In my spare time I like to believe that football is coming home.

### **Lucy Blennerhassett (she/her)**

Hey! I am a third year PhD student with Prof. Emma Tomlinson and also one of the G(e)ossip editors. I'm from Dun Laoghaire in Dublin and I graduated from Earth Science in Trinity in 2017. I then fled to New Zealand to work in vineyards and farms, where I also solidified my love for trekking and camping! In 2018 I scurried back home to Dublin and started my PhD. My project is a mix of things, but I mostly work on using the ETV-ICP-OES instrument in TTEC unit 7. Broadly, I am using this method to resolve geochemical profiles in peat to help trace back Icelandic volcanic activity over the Holocene. I am also carrying out tephrochronology work to identify ash layers in the peat and hope to link up this data with climate information from the peatland sites and more broadly from Greenland ice cores. Outside of my PhD work, I love communicating science and have volunteered/worked in a number of programmes including Scholar's Ireland with Trinity Access Programme as well as with 'The Cool Planet Experience' climate change education platform. I love the outdoors, especially being in or beside the sea and I am partial to a nice coffee or a lovely IPA.



### **Vitor Alves**

I'll be working with Prof. Emma Tomlinson and Prof. Andrew Parnell, from Maynooth University. I started on 1 March 2021. We'll test the hypothesis that the timing and tempo of past volcanism at Campi Flegrei (Italy) is controlled by orbitally-forced climatic variations. I'm a Brazilian student with a Bachelor in Geology from Universidade Federal do Ceara and Master in Geochemistry from Universidade Federal Fluminense, Brazil. My main objective is to pursue an international academic career in order to better tackle relevant geochemical and isotopic problems in geosciences. Whenever I'm not working, I try to spend most of my time closer to nature.

## WEBINARS

### [Breaking the Ice Ceiling Webinar Series](#)

**29 June** - Isabelle Gapp, *Historical legacies & Arctic imaginaries* | Anna Boberg & *Arctic landscapes*

### [Seds Online Weekly Webinar Series](#)

**30 June** - Ana María Alonso-Zarza, *From calcretes to travertines: are they good neighbours?*

## MENTAL HEALTH MATTERS

It might be summertime, but TCD's Student Counselling Services is open and available to all students.

You can read about services they provide [here](#), email them at [student-counselling@tcd.ie](mailto:student-counselling@tcd.ie) to request an appointment, or follow them on Instagram at [@tcd\\_headspace](#) for mindfulness and mental health information.



**Foteini Drakou**



Hi all! I did my PhD at TCD on the geochemistry and mineralogy of Caribou Zn-Pb VMS deposit in Bathurst Mining Camp (Canada) and since 2019 I work as a research assistant at TCD LA-ICP-MS labs. For my postdoc project, I'll be working with David Chew on LA-ICP-MS method development and data reduction, including the application of minerals such as plagioclase and titanite as diagnostic tools for provenance determination. I am passionate about economic geology, geochemistry, geometallurgy and I have butterflies in my stomach every time I come across a beautiful LA-ICP-MS map. Outside work, I enjoy cycling, reading historical fiction and baking (and even more consuming these sweet creations!).

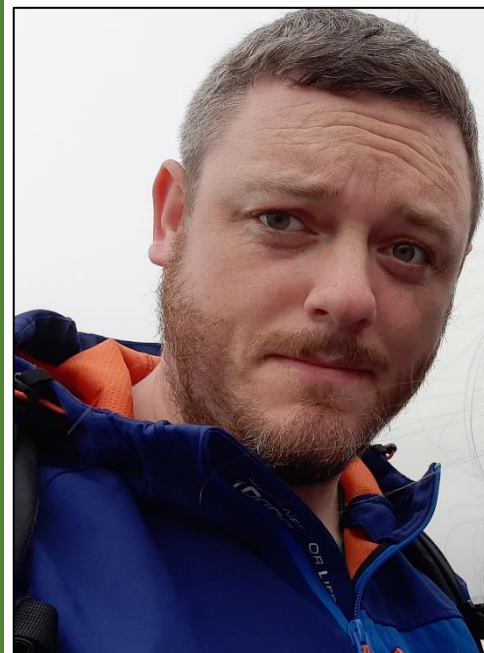


**Maurice Brodbeck**



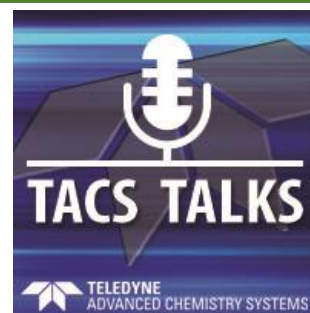
Hi there, I am Maurice. After doing my bachelor's and master's degrees at the University of Tübingen, Germany, I embarked on a PhD adventure at our lovely Geology Department, which was not to be regretted. Hence, I remained loyal to Captain Chew's Crew and started a postdoc position with Emma Tomlinson. As part of my new role, I will be running the LA-ICP-MS/OES lab in Unit 7 at the Trinity Technology and Enterprise Campus (TTEC) that is mainly dedicated to trace element analysis of raw materials. I will train researchers from the department and external users on our system and assist with conducting their experiments. My own research will mainly deal with method development. I am particularly aiming to improve quantitative analysis of sulphide materials, by both characterising natural materials and synthesising doped standard materials. I am happy to meet people for coffees, drinks, lunch, etc. P.S. Wednesday is the best day to come to TTEC, as you get deliciousness at the food market!

**Paul Guyett**



Hi, I'm Paul and I've started a position as an iCRAG2 postdoctoral research associate with Emma developing procedures for SEM analysis of minerals and glasses. Since completing my PhD on the geochemistry of very large impact events here in Trinity College Dublin I have been working as a Research Assistant in the iCRAG Lab@TCD. Feel free to contact me if you require access to or training on one of the SEMs on campus. Outside of the lab you'll probably find me brewing my own beer, cooking, gardening or exploring local green areas.

PODCAST



Foteini recommends the TACS Talks podcast brought to you by Teledyne Advanced Chemistry Systems. Check out their episodes [here](#).



Multiple staff members and students from our department have research being presented at [Goldchmidt 2021](#) next month from 4-9 July. You can view the sessions and read their abstracts below!

*Linking sedimentary phosphate U-Pb ages to syn-sedimentary processes*; co-authored by Dave Chew, Brendan Hoare, Paul Guyette, Foteini Drakou. Read the abstract [here](#).

*Geochemical transfers associated to peridotite carbonation: Results from drilling the listvenite-metamorphic transition in the basal megathrust of the Semail Ophiolite (Oman Drilling Project Hole BT1B)*; co-authored by Elliot Carter. Read the abstract [here](#).

*Timing and causes of metasomatism revealed by combined zircon U-Pb isotope and trace element analysis*; presented by Brendan Hoare, co-authored by Emma Tomlinson. Read the abstract [here](#).

*Fully quantitative major and trace element laser ablation ICP mapping of heterogeneous samples*; presented by Emma Tomlinson, co-authored by Thomas Riegler, Sean McClenaghan, Dave Chew. Read the abstract [here](#).

*How does bastnäsite form? Replacement of calcite by rare earth carbonates*; presented by Adrienne Szucs, co-authors Alexandra Stavropolou, Claire O'Donnell, Seana Davis, Juan Diego Rodriguez-Blanco. Read the abstract [here](#).

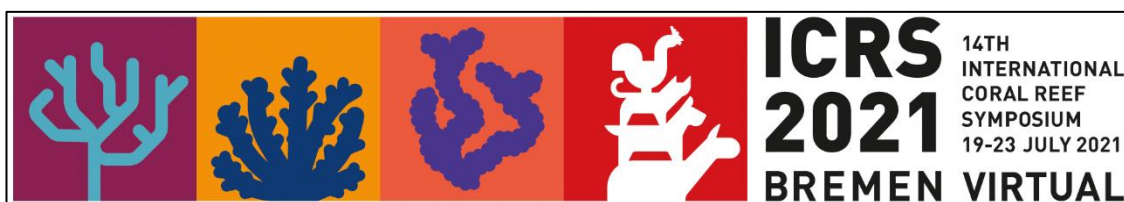
*Pulses of ocean acidification at the Triassic-Jurassic boundary recorded by boron isotopes*; co-authored by Micha Ruhl. Read the abstract [here](#).

*Using molybdenum isotopes to reconstruct marine redox change through the end Triassic mass extinction event*; co-authored by Micha Ruhl. Read the abstract [here](#).

*Petrological and geochemical snapshot of a melt-rich crystal mush: The 289 ka Fasnía eruption, Tenerife*; co-authored by Mike Stock. Read the abstract [here](#).

*From Student to Lecturer - Learning to Become a Teacher*; chaired by Emma Tomlinson. View the session [here](#).

*(Bio)mineralisation: Geochemical, industrial, and engineering perspectives*; chaired by Juan Diego Rodriguez-Blanco. View the session [here](#).



Erica Krueger is presenting a poster during the 14<sup>th</sup> International Coral Reef Symposium Virtual from 19-23 July 2021. Her poster titled *Ocean acidification and biomechanical properties of the cold-water coral *Lophelia pertusa** can be viewed [here](#).



## FIELDWORK

Fermin Alvarez and Zoe Roseby were back in the field the week of May 17th, collecting cores and surface sediments with the aim of reconstructing Irish sea level change. They were based over two sites in Co. Cork, Timoleague and Cobh, and had a very productive week despite a storm adding an extra challenge! They are now back at Trinity working in the labs and processing samples for further analysis.



Meabh Hughes, Dr. Quentin Crowley, and geology undergraduate Winifred Duncan conducted fieldwork in Castleisland Co. Kerry from 14 - 18 June. The GT-40 Georadis gamma-ray spectrometer was used to collect data on potassium, uranium, and thorium over 60 locations within a 7km<sup>2</sup> area. This new equipment (red instrument in pictures) was partially funded by a STEM Faculty equipment fund via Nature+ and contributions from Geology and Environmental Science MSc. The results from this fieldwork are intended to aid the understanding of the geogenic influences of radon in the area. Overall, the field trip was a success, having finished a day earlier than expected with each sample taking a 5-minute measurement time to complete.



## POSTGRAD DIPLOMA

Applications are now being accepted for the new Postgrad Diploma in Circular Economy and Recycling Technologies. With teaching from the School of Chemistry, Engineering, Natural Sciences, and Physics, this course will offer students a unique opportunity to learn about this critical area from a multidisciplinary perspective. Click [here](#) for more information or to apply.

## LABORATORY OPEN CALL

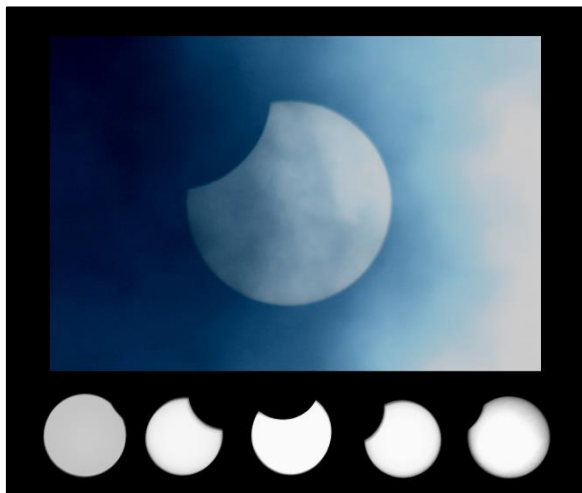
The ESRL has an open call for projects to use the laboratory facilities and you can apply [here](#). Proposals will be reviewed by the ESRL Scientific Management Committee and successful applicants will receive free at the point of use analyses, subsidised by GSI.



The call is open to researchers at all levels, but projects cannot already have funding. If you have any questions, feel free to send an email to Mike Stock at [michael.stock@tcd.ie](mailto:michael.stock@tcd.ie).

### Solar eclipse

A partial annular solar eclipse was visible from Dublin on June 10 and Dr. Juan Diego Rodriguez-Blanco captured a few images. The top image was taken without a solar filter, and the bottom images were taken at different time intervals using a solar filter placed on the objective of a Nikon D3000 camera. The next total and annular solar eclipse visible from Ireland won't be until 2090 and 2093, respectively. As a safety precaution, never look directly at the sun (even during an eclipse) and use proper eye protection!



### Giant rhino fossil

The discovery of a giant rhino fossil found in north-western China has led to the classification of a new giant rhino species. *Paraceratherium linxiaense* lived during the Oligocene, around 26.5 million years ago. Unlike their modern horned relatives, they were hornless and could reach 7 m to graze treetops, making them amongst the largest land mammals. They weighed roughly 21 tonnes, which is the same as four large African elephants. The fossils were discovered in 2015 in the Linxia region of Gansu Province, China. The fossils discovered included a skull, jawbone, teeth, and vertebrae, including the atlas vertebra which connects the head to the spine.

This species is closely related to another giant rhino species, *Paraceratherium bugtiense*, which was found in Pakistan. This suggests that giant rhinos would have roamed between north-west China and Pakistan, which means the Tibetan Plateau would have had low-lying areas.



Artist's impression of *Paraceratherium linxiaense*, which was taller than a giraffe ([Source](#)). Read the *Nature* article [here](#).

Congratulations to two of our PhD candidates that recently presented at conferences and won best talks!

Lucy Blennerhassett won 2nd place for Best Talk at PRIDE in Research at TCD on 17 June 2021, for her presentation titled *Bogs: Invisible Libraries of Volcanic Eruptions*.

Niamh Faulkner won Best Environmental Geoscience Presentation at Environ 2021 on 16-18 June, for her presentation titled *Tackling Sustainable Development Goal 13 via carbonate precipitation*.

### LIBRARY TIPS

[Browzine](#) is an ejournal platform enabling you to browse academic journal content the library subscribes to on your smartphone, tablet, laptop or desktop computer. You can browse the 3 - tier taxonomy (starting at Earth & Environmental Sciences) to pare down the selection of journals to just those of specific interest to you.

[Lean Library](#) provides quick & easy access to digital content acquired by the library, and it detects when you are on a website that contains content the library subscribes to. Once installed, it will automatically give you the Trinity version of Google Scholar & makes it much easier to find PDFs when you are searching in Google, Google Scholar, PubMed, etc.

For further assistance contact Geology subject librarian Pat Creamer at [pcreamer@tcd.ie](mailto:pcreamer@tcd.ie).