

TCD ROCK NEWS

Issue No. 4

Dear TCD alumni and friends,

The 2014 edition of the TCD Geology newsletter is a welcome opportunity for me to catch up on neglected communication. The calendar year has been nothing short of fast and furious with many events, news, welcome surprises and less welcome decisions. In the interest of saving trees, the newsletter is posted on the departmental website (www.tcd.ie/Geology/) and a hardcopy can be requested by email from our Executive Officer (earth@tcd.ie). If you have received a pdf copy by email but would like to be removed from the mailing list, please let me know (kamberbs@tcd.ie). If you would like to be included on the e-mailing list, please let us know also. We still do not have a complete list of alumni e-contact details.

Apart from my report, the TCD Rocknews covers the move of the Museum, Impressions from the Field, News Snippets and Honours and last but not least, we welcome our new Assistant Professor in Sedimentology, Dr. Catherine Rose, with a brief interview-style introduction.

Report from the Department Chair

My report is dedicated to the subject of research funding and industry-academia collaborative research because these two activities consumed not only the majority of my time but also that of my colleagues here in the department. In fact, we were involved in so many proposals that most other tasks, including the completion of the Microscope Appeal, suffered as a result. Such is the importance of research funding for the prosperity of a department in TCD at this point in time that we had to prioritise and throw all our resources behind the proposals.

As a Head of Department, I'm blissfully unaware of the details of the College's finances but I do know that the income from the government's block grant and from undergraduate fees doesn't come anywhere close to covering all the costs of running the university. Major other sources of income are required if College is to stand a chance of maintaining a reputation of excellence in teaching and research. Two of the most important sources of revenue are postgraduate student fees and research overheads.

Further staffing in our department, to fill the remaining gaps of recent retirements, depends largely on contributions to these revenue streams. In recent years, it had become increasingly difficult for geologists to successfully apply for research funding from the main body of national funding - Science Foundation Ireland (SFI). This was because the geosciences were no longer considered to fall under SFI's direct funding remit. Namely, geosciences-related research wasn't seen to underpin directly the three main pillars of strategic research importance. In the face of this situation, the Irish geosciences community rallied behind a drive to explain the importance and growth potential to SFI and science policy makers through many public and private events. In mid-2013, these efforts were starting to pay off when SFI announced a new call for so-called SFI Research Centres in a variety of fields, including in Applied Geosciences. It was quickly decided that there was only room for one unified proposal in geosciences, representing all the major academic geosciences institutions in Ireland. By late 2013, a pre-proposal was put together for iCRAG, the Irish Centre for Research in Applied Geosciences. The lead institution was UCD, who were joined by TCD, UCC, NUIG and DIAS Geophysics.

By spring 2014, SFI had reviewed the pre-proposals and we were amongst the successful bids (9 out of 12) given a green light to put together a full proposal for a 6-year plan with a funding envelope between 20 and 30 million €. The nature of SFI Centres requires a 10% cash and 20% in-kind contribution from industry partners, matched by 70% of cash from SFI. Several of our alumni were instrumental in providing the industry links and facilitating cash and in-kind contributions. The lead principal investigator was John Walsh from UCD but the proposal eventually included over 40 funded researchers and as many industry partners. By June 2014, the scientific reviews were back and to our satisfaction, iCRAG and its investigators were ranked very highly. The final hurdle to be taken was an Impact Panel interview, during which our team was scrutinised in terms of societal relevance, potential for economic impact and appropriateness of

structure by a 10-head international panel.

Eventually, in late summer, we were informed that a scaled-down 22 million € version of iCrag was deemed fundable and by October 2014, the successful centres were announced by SFI (see photo and note the large piece of Irish Pb-Zn ore in the hands of Minister for Skills, Research and Innovation, Damien English TD). Our department is the second-largest partner in iCrag with funding for research supervised by Sean McClenaghan, David Chew, Chris Nicholas, Robbie Goodhue, Catherine Coxon and myself. I will be acting as the Deputy Director of iCrag. The research will be conducted in four main applied areas: raw materials, ground water, marine geosciences and hydrocarbons, supported by more fundamental activities (geochemistry, geophysics, 3D modelling and public perception).

Since the announcement, we have been very busy putting the Centre in place for an ambitious official start date in January 2015. iCrag will be a virtual centre with hubs and spokes at all participating partner institutions. We are currently in the process of hiring administrative staff and hope to be advertising postdoctoral and postgraduate positions early in 2015. If the idea of being involved in iCrag appeals to you, please regularly consult the website (<http://icrag-centre.org/>) for job postings including formaining gaps of recent administrative roles.

Apart from this major application, many other proposals for funding were made. Sean McClenaghan and I were representing Geology in TCD's bid to be involved in a new Knowledge and Innovation Community (KIC) in raw materials. We are part of the northern co-location in the RawMatTERS bid and were delighted to discover that it was successfully selected by the European Institute of Innovation and Technology (<http://eit.europa.eu/eit-community/eit-raw-materials>).

Sean McClenaghan, Emma Tomlinson and I are also involved in an EU Marie Curie Initial Training Network, called IsoNose (<http://www.isonose.eu/home/>). These EU networks provide funding for postgraduate and postdoctoral research in areas relevant to industry and our participation would not have been possible without the help of Tara Mines Boliden (John Ashton) and Teck Ireland (Patrick Redmond and Chad Hewson). While pursuing these and other opportunities many of us have continued to work directly with industry and government agency partners to fund-postgraduate research on applied hydrocarbon and

mineral exploration research, and collectively, these efforts have now contributed to a healthy community of postgraduate students, approaching 25 in number and representing a large diversity of interests and nationalities.

In the year ahead, we are hoping to consolidate these efforts and to return our attention back to the staffing, teaching and collection needs of the department. If you are passing through Dublin on your travels, we hope that you can find time for a visit and for an in situ inspection of all the new developments.

With very best wishes for the festive season and a prosperous and healthy 2015.

Balz Kamber



Minister for Skills, Research and Innovation Damien English TD (left), Director General of Science Foundation Ireland Professor Mark Ferguson, (right) and Deputy Director of iCrag Professor Balz Kamber (centre) at the SFI centers announcement.

Move of the Geological Museum to the Trinity College Enterprise Centre 2014

The aforementioned welcome increase in the numbers of post-graduate students in the Department of Geology is a trend set to continue. A flip-side to this is that these students as well as newly appointed Research Fellows have had to be accommodated outside of the Museum Building. It is vital to bring everyone under the same roof and to this end it was decided to move the Geological Museum and its collections from its current location, and the vacated gallery will be used to accommodate all the post-graduate students, while the post-doctoral fellows will be accommodated in the Upper Research Laboratory (URL) next door.

This would appear to be a radical and perhaps retrograde move, but in the long-term it has major benefits for the Museum collections and College's geological treasures.

Initial discussions with College identified some options for a new location for the collections and the possibility of renting temporary space was also investigated. After some consideration it was agreed to relocate the Geological Museum to Unit 24 in the Trinity Enterprise Centre (TTEC) on Pearse Street, which is situated a short ten minute walk from the main campus.

Unit 24 now contains a 108m² space for the geological gallery and collections, with the remainder converted into a 50-seater lecture theatre, a smaller meeting room with a kitchenette, and toilet facilities for use by the School of Natural Sciences. Patrick Wyse Jackson drew up preliminary plans for the museum space that included reinstatement of the museum display cases and wall-mounted storage units, and the insertion of sixteen new storage units. The plesiosaur and ichthyosaur displays, Richard Griffith's 1855 geological map of Ireland, the diorama containing Katy Goodhue's dinosaur models, as well as a new display mount for the *Attenborosaurus* plaster cast would also be located in the new museum gallery. These plans were redrafted and refined by Monica Janson of the College Buildings Office, and the space fitted out by Dunwoody and Dobson and other contractors.

The actual move was carried out by Oman Removals of Kildare, and facilitated by Jimmy Doyle of the College Buildings Office. In late September and during the first week in October Patrick Wyse Jackson carefully packed 80 crates of material in the Museum, and these together with loose furniture, filing cabinets, boxes of books from the museum library, together with storage boxes of specimens from the basement of the Museum Building were moved on the morning of Saturday 4 October. The trickier task of moving the specimen trays and the oak storage units (each of which measures 3.5 m long by 1 m wide), and the Red Deer skeleton from the Museum took place over a number of long sessions beginning on Saturday 11 October. Each storage unit was emptied in turn and approximately 1000 specimen trays (which had been individually numbered corresponding to the cupboard number

and shelf number) were covered with bubblewrap and taped. The heavy units themselves were carried downstairs by a team of removal men which was an interesting sight (see photo). Once the unit and corresponding trays arrived at TTEC it was placed in its predetermined final position and the trays slotted in their original locations. The eight display units were arranged in three rows rather than in their original configuration of four rows, while the twelve wall-storage units were reassembled in four units, three high.



Moving a storage unit from the old Geological Museum

Of particular concern was the delicate Red Deer skeleton, a type specimen of a now discredited variety of the species. Its skull was carefully removed and the remaining skeleton wrapped in rectangular blocks of polystyrene foam taped together, which created a sturdy casing which stopped any flexing of the bones during transportation. It was then lifted off the underlying base and carried horizontally shoulder-high downstairs.

Specimens in deep long-term storage in the basement of the Museum Building were also moved—these included 300 trays and 120 boxes of fine minerals and fossils, John Joly's samples from the Simplon Tunnel, a number of polygons from the Giant's Causeway collected in the early 1900s, some sauropod dinosaur bones and a school of large ammonites.

On Monday 3rd November the last specimens to be moved were the wall-mounted plesiosaurs and ichthyosaurs. On close examination it was found that individual specimens had been mounted in the 1950s into a composite display, with some stuck to a backing of bricks and it proved impossible to move them intact. All of the fossils were photogr-

aphed in situ which would aid any restoration should they become damaged in transit. With great care each specimen was removed from the display and the largest two placed in purpose-built cradles. This allowed for them to be carried and moved without flexing the specimens in any way. All these marine reptiles will be remounted in separate wooden mounts and displayed in the new Museum. The move of nearly half a million specimens was a gargantuan task, but happily not one specimen was seriously damaged.

Although situated in a new industrial unit, the new-Geological Museum (see photo) bears close visual similarity to the old gallery in the Museum Building



View of the new Geological Museum.

The Geological Museum holdings are of major scientific significance, and are continually expanded through acquisition of materials used in the ongoing cutting edge research carried out by staff and students, through collecting of high-grade specimens (see photo of 36 cm volcanic 'bread-crust' bomb from a recent eruption of Mount Etna) which are used for teaching and display, and through donations by alumni and members of the general public of beautiful and sometimes rare specimens. We would welcome offers from alumni of additional fine specimens for research, teaching and display.

Soon the task of updating the displays will begin, as will the important task of recurating all the geological holdings. While this is will be a huge and time-consuming task, it is vital in order to develop a clear understanding of the depth and diversity of the contents of the Museum. This will undoubtedly increase the value of the collections for future research and educational outreach. It is intended to launch an appeal for funding to aid the restoration and curatorial effort.

The collections will be open for viewing by schools and other groups in the near future, and the adjacent lecture facilities provide an opportunity to use the location for small specialist meetings. An exciting new period has just begun for the Geological Museum.

Patrick Wyse Jackson



Bread-crust volcanic bomb, Mont de Fiore I, Mount Etna, Sicily. Erupted 1974; collected by Balz Kamber 2014.

FIELD IMPRESSIONS

In 2014, undergraduate and postgraduate students continued the TCD tradition of spending significant periods of time in the field, mapping and obtaining samples for research. Here we highlight impressions from two teams. Firstly, final year undergraduates Sean Troy and Cathal Macgiollabhain report back from venturing into Albania for their 6-week project, mapping an ophiolite. Secondly, a team of postgraduate students and a postdoctoral researcher fill us in on their 6-week stint mapping and sampling the Sudbury impact crater fill in northern Ontario.

Albania. In the early summer months, mapping partners Sean (reporting here) and Cathal set out to map an ophiolite in the mountainous interior of the Balkan state of Albania. Far from the isolated wilderness they expected it to be, the host town of Librazhd (see photo) was lively and its friendly inhabitants infinitely curious about the work they were doing.



The small town of Librazhd built on molasse.

So after learning the basics of Albanian, the students had pizza for breakfast (as is customary) and set out to face one of the biggest challenges they had thus far attempted.

Over the course of six weeks, they were constantly pushing the limits of their geological knowledge by piecing together complicated tectonic jigsaw puzzles containing beautifully preserved peridotites and pillow basalts amongst other things. Mapping an ophiolite required the students to be fast learners as they quickly needed to acquaint themselves with rock types not typically found in the areas they had visited previously on student field trips, like Arran and Greece. But the fundamental skills of careful observation and description that they had gained throughout the previous three years served them well in finding their feet in a very complex geological area. Perhaps the most important outcrop of the mapping area exposes mantle peridotite, thrust on top of foreland molasse (see photo).



*Key outcrop exposing **serpentinised peridotite** thrust upon green molasse*

The Albanian ophiolites also proved to be topographically challenging as erosion had created a complex terrain with many gullies and criss-crossing valleys. The incredibly poor state of roads and tracks and very limited availability of public transport added to the challenge of covering an area of

5

>20km². Access matters were not improved by the numerous rain storms that turned the serpentinised peridotite into very slippery ground (soapstone indeed!). Fortunately, their local host looked after their needs and helped with coordinating transport and contacts. Apart from the spectacular geology and friendly hosts, Albania is also an attractive mapping destination due to low living costs. Nonetheless, Sean would like to thank the Irish Geological Association for the generous grant they provided to make the cost of fieldwork more manageable.

Northern Ontario. PhD candidate Gavin Kenny, MSc candidates Paul Guyett (our main reporter here) and Edel O'Sullivan and postdoc Teresa Ubide performed fieldwork in the Sudbury basin. Sudbury is the site of a comet impact that took place 1.85 billion years ago. The preserved impact crater measures 20 x 55 km in diameter, and was deformed into an asymmetric synform as a consequence of Proterozoic orogenies. Because of this deformation it is possible to walk up section and easily access different units of the stratigraphy. The Sudbury impact structure is one of the oldest, largest and most studied impact craters, however, it is really only the melt sheet that has been investigated in great detail due to the vast amounts of nickel, copper and platinum group elements concentrated into the contact with the shocked footwall. The team were interested in studying the Onaping Formation, the possibly volcanic infill of the crater (see photo), traditionally thought by many to simply represent post-impact fallback material. A suite of samples had been collected during the previous field season but it was decided that a more complete transect through stratigraphy should be built up as well as providing stronger field context.



Breccia tuff with angular green shards of volcanic origin.

Edel reports: "We landed in Greater Sudbury Airport via Toronto Airport late in the evening on 14th May 2014, picked up our SUV and found our accommodation in Cambrian College. Our main field locations were Joe Lake to the north of Greater Sudbury and Morgan Township to the north-west. We wanted to get a better understanding of the field geology, collect more samples and do detailed component analysis with grids".

The first week in the field was spent scouting out the field areas and making notes of whereto come back to sample. That first week was what is essentially spring in Sudbury. Early on, the team had to wear winter jackets but by the end of the week it was uncomfortable to wear anything heavier than a shirt and light trousers. It was eerie walking through bare forests with only the occasional coniferous tree sticking out of the grey/beige barren environment.

Paul noted: "We met up with a small number of people early on in our time who warned us of the different types of fauna we would come across; some of us foolishly thought they were exaggerating things. We heard horror stories of black bears and black flies and we were told that this year was going to be a lot worse than previous years because of the harsher than normal winter. A trip to the local safety shop later and we were ready for any bears that we might encounter in the field. A local in Morgan Township warned us of a 600 lb black bear roaming around the forests behind his house. Interestingly for us, the track from his house that we used ran through that forest. We equipped ourselves with a bear bell and orange items to wear but as it turned out over the course of 6 weeks of fieldwork we never actually saw any black bears. It is quite likely that many bears saw us but we frightened them away with a combination of the bear bell, atrocious singing and general noise from moving through the bush. Knowing what bear faeces looks like helped us avoid certain areas".

Roughly a week into the field trip the team finally found out what people were talking about regarding black flies. They came halfway through the day and not everybody was really prepared for them. These black flies are roughly 1 mm in size and they get everywhere. The next day, after a trip to a shop to buy some long sleeved shirts, everyone was a lot better prepared. With shirts fully buttoned up to the neck and the wrist, tucked into trousers and trousers tucked into socks the TCD team looked ridiculous but felt a lot better going into the field. By covering themselves in 30-50% deet they also

managed to keep the flies away. It should be noted that the highest % deet one can buy in the shops was 30% but a local offered to provide access to 90% deet (which has a capacity to melt pens) from before they put a limit on the insect repellent. Teresa concluded: "We endured the black flies for a week thinking this was going to be as bad as it was going to get".

A particular highlight that week was a half day trek through a forest with no paths or tracks whatsoever to find a small outcrop marked on a previous map as possibly exposing a dyke. Paul reminisces: "The hike was hell but the samples we collected are looking extremely promising. After that particular day we decided we needed to take the next day off to recover and so we went to a nice restaurant called "The Laughing Buddha". It was here that we first encountered beer from the Stack Brewery, a newly opened local craft brewery".

Gavin reports: "After our day off we got back to work sampling and before long we had accumulated a very large collection of rocks in one of the spare bedrooms in our accommodation. The difference in vegetation compared to when we first arrived in Sudbury was quite dramatic, leaves were bursting out and small plants started racing up to waist height. A few days later the mosquitoes arrived, and these turned out being worse than the black flies. They easily bit through our clothes and, unbelievably, made us miss the days when there were just black flies. The worst days in the field were those following rainy periods when the mosquitoes were out in force. Each of us would have a cloud of mosquitoes and black flies following us so we had to space ourselves out so we wouldn't walk into each other's insect cloud". And Paul continues: "The worst day with these insects came towards the end of our sampling campaign when we decided to go on a heavy sampling session to finish the sampling in the north of the Morgan Township field area and we each carried four or five samples in our bags on the way back to the car. We obviously couldn't walk too close to each other or we would walk into an insect cloud and we needed a break so we did what any sane person would do in this scenario, we dropped our bags and walked in a wide circle".

To help themselves get over the trauma of the insects and as reward for all the hard work the team would stop on the way home once every few days for ice cream. This reward soon became a daily occurrence but it was well earned with all the hard work and lugging samples.

A propos samples, Teresa explains: "We desperately wanted to get samples of really interesting features that were far too difficult to sample properly, even with a chisel. Instead we borrowed a large handheld circular saw with a diamond-tipped blade to help cut into the immensely tough welded tuff that makes up much of the lower Onaping rocks. Using two gardening water pumps to keep the blade from burning through the diamond we were able to sample two aphanitic dykes, a winged bomb and a breadcrust bomb, as can be seen on the photo".



Paul Guyett and Gavin Kenny using the saw to cut a section through a breadcrust bomb.

Towards the end of the sampling campaign the TCD geologists got a visit from a new, even worse insect. Horse flies are considerably bigger than the black flies and like to either land on you, bite you and leave, or land on you and make a little home for themselves in your hair. The black flies were an annoyance more than anything in comparison, and these insects actually bit small chunks, leaving blood seeping out from under bandanas and in the gap at the back of a baseball cap. The peak of the insect torment came three to four weeks into the trip and once it passed the team were able to look back at it and think that no matter how bad the day was in the field it wasn't as bad as those days. Dragon flies finally appeared in the fourth week in the field and they gorged themselves on the black flies and mosquitoes.

Edel concludes: "We then got to work both sampling a transect of the melt sheet and doing grid analysis (see photo) through stratigraphy in both Morgan Township and Joe Lake.



Edel O'Sullivan and Teresa Ubide using a 1m2 grid for component analysis

By this stage the weather had become too warm for the insects to bother us and so the time spent doing this work was quite pleasant. We also got access to fresh drill on one of the days, which gives us a separate transect to study. We finished everything early and in good spirits enabling us time to drive down to Toronto for a day and to spend another day north of Sudbury on one of the lakes".

The 2014 field season was funded by Science Foundation Ireland while initial sampling in 2013 was supported by the Irish Research Council and the Geological Society of London.

NEWS SNIPPETS AND HONOURS

Opening of TCD Geology alumni microscope laboratory. In February, the Department officially opened the newly equipped "Geology Alumni Microscope Laboratory". The event was very well attended by alumni, friends and corporate sponsors who helped to fund this on-going initiative. The laboratory is equipped to 75% with new microscopes (see photo) and the funding for the remaining microscopes is nearly secured. Alumni, friends and staff joined the College Provost, Prof. Patrick Prendergast, in the Freeman Library for his address and the unveiling of the plaque that recognises the contributions made.



New microscopes in venerable old lab.

New post-doctoral researchers. After a lull in numbers of postdoctoral research fellows, we are delighted to inform you that new life is in the community. We currently host several postdocs who work on a diverse range of projects. **Dr. Nathan Cogné**, who joined us from Rennes, works on a reconstruction of the tectonic phase that rifted the Irish margin. **Dr. Teresa Ubide**, who joined us from Zaragoza, is working on teasing out magmatic histories from clasts of impact melt and igneous crystals. **Dr. Chris Marks**, who was at Imperial College London before moving to TCD, is developing apatite chemistry and chronology as a new sediment provenance indicator. **Dr. Katie Tedd** is studying Irish water quality with a variety of methods, including dissolved lead chemistry. Finally, although not strictly a postdoctoral fellow, **Cora McKenna** has taken charge of our growing geochemistry facility. She joined us from UCC and her interests include analytical method development.

John Joly memorial lecture and Ian Sanders retirement. In November an enthusiastic and large crowd gathered in the Schroedinger Lecture theatre in the Fitzgerald Building in Physics to attend the 2014 John Joly memorial lecture, which was delivered by Prof. Edward Scott from the University of Hawai'i. Prof. Scott gave a very engaging lecture on 'Giant impacts in the early solar system: evidence from meteorites'. The lecture was followed by a drinks reception during which we celebrated the considerable contributions made to College and the geological community by Ian Sanders, Associate Professor of Geology who retired at the end of the last academic year.

Honours

In March, our 'new' Assistant Professor of Economic Geology, **Dr. Sean McClenaghan** was announced the winner of the William Harvey Gross Medal, awarded by the Mineral Deposits Division of the Geological Association of Canada. It recognises a geoscientist who has made a significant contribution to the field of economic geology in the Canadian context. Sean received the medal at the GAC-MAC Annual Meeting in Fredericton, New Brunswick.

In April, two PhD students from the Department, **Luca Mancinelli** and **Vincent Mouchi**, won the runner-up prize of 1000€ and were selected to represent Trinity College Dublin at the Alltech Innovation Competition 2014. Their project idea related to engaging small groups of children in

learning about science while having fun.

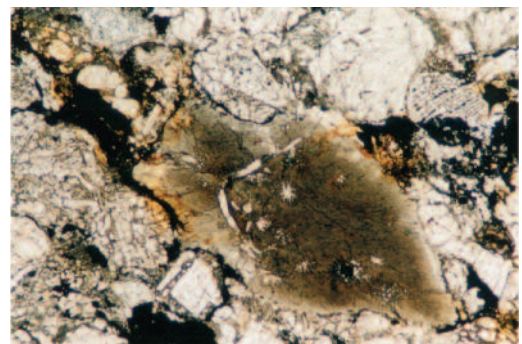
In June, PhD student **Michael Babechuk** was awarded one of the Geological Society of London's President's Award (see photo).



Instituted in 1980 by Professor Perce Allen, the awards are conferred upon geoscientists who are within ten years of their first degree in geoscience or a cognate subject and who have made a notable early contribution to the science.

In Michael's case, the award recognised his contribution to the understanding of chemical weathering.

In September, **Dr. Ian Sanders** was elected a Fellow of the Meteoritical Society at the society's annual meeting in Casablanca, Morocco. Ian is now officially retired but continues to work in the department as an emeritus. The honour was in recognition of his on-going contribution to the understanding of the origin of chondrules - the tiny igneous spherules that are an abundant yet enigmatic constituent of most meteorites (see photo, which shows a 'moulded' chondrule in the Northern Irish meteorite 'Bovedy'). It is this image that sparked Ian's interest in the origin of chondrules because the deformed shape suggested the chondrule was still molten when it came into contact with its neighbours. This in itself seemed at odds with then prevailing standard theory for chondrules.



Thin section of Bovedy chondrite

IN CONVERSATION WITH CATHERINE ROSE

How did you get interested in geology?

I went to secondary school in England and had the option of taking extra GCSE courses whilst doing my A-Levels. I chose Geology. My very enthusiastic Geography teacher would take me on one-on-one fieldtrips, driving through the Welsh border counties waving both arms excitedly at outcrops, I then went to the University of St. Andrews and took a combination of Geology and Geography classes amongst other things. It was a similar course structure to TCD being a four year degree and specializing from third year onwards. I quickly realised that Geology was the most challenging and engaging subject for me.

What did you do after your undergraduate degree?

I took a couple of years out from studying after graduating. I worked as a lab technician in the Scottish Universities Environmental Research Centre and then as a field assistant for a group of geologists at Harvard University in Namibia. This led me to move to the US for 7 and a bit years - I completed a Ph.D. at Princeton University in New Jersey followed by a post-doctoral fellowship at Washington University in St. Louis, Missouri. I moved to Dublin this September to start my lectureship at TCD.

Tell us about your research interests

I am really interested in sedimentology and Earth history. For my Ph.D. I studied rocks in South Australia that record one of the youngest "Snowball Earth" low-latitude glaciations (~635 Ma). In addition to reconstructing the depositional environments, I investigated the geochemical signatures of the pre- and post-glacial carbonate rocks that document controversial global carbon isotopic excursions. My current research examines the micron-scale variability of carbon and sulphur isotopes across thin sections, as opposed to km-scale variability across basins. This work aims to determine whether the geochemical signatures we use to reconstruct Earth history are accurately recording ancient ocean chemistry.

What are you teaching at the moment in the Geology Department?

I have just survived teaching my first module to the Junior Sophister class - a five week course entitled "From Sediment to Rock". I also recently joined the Senior Freshman field trip to Antrim. Now I am looking forward to going on a two week Junior Sophister field trip to Greece in March.

Do you have any memorable field trip stories?

I've had many long field seasons with some 'interesting' experiences.....obviously, the most memorable moments are also the most unsuitable stories! I told a field assistant that during 3 months in the outback in winter, we would only see birds, sheep, and the occasional Aussie farmer. However, that year our visit coincided with a mouse plague. Not only did we spend 2 months camping with mice crawling up our legs every time we sat down, but our campsite had other visitors.....snakes. The last straw was getting mice in our tents. Me and my animal-loving vegan field assistant were driven to flattening as many as possible with our frying pan. Ant piles of bodies had mysteriously disappeared by morning. I have no idea how either of us managed to get any sleep the field season.

What hobbies and interests do you have outside of Geology?

I really enjoy CrossFit, which is a style of strength and conditioning training that revolves around olympic lifting and short, intense workouts. Although I'm sure if I'm going to make it out alive, it's very rewarding! I also love being outdoors and horse riding - I had horses growing up and I aim to get more involved with this hobby again once I get into the swing of things at TCD.



Catherine Rose enjoying time in the field.