



# Mineralogical Society of Great Britain and Ireland

[www.minersoc.org](http://www.minersoc.org)

## METAMORPHIC STUDIES GROUP MEETING

The global pandemic is changing the way that scientists interact globally, with many international conferences moving to an online presence. On 27–28 May 2020, the Metamorphic Studies Group (MSG), a research subgroup of the Mineralogical Society of Great Britain and Ireland, followed suit, holding its annual Research in Progress (RiP) meeting as a virtual meeting for the first time. It was originally planned to host the meeting at the University of St. Andrews (Scotland), but as this could not go ahead, we instead joined the brave new world of virtual conferencing and held our meeting online using the Zoom platform.

Hosting the conference online allowed the group to broaden our audience, reaching new colleagues and new audiences from across the globe. Some 210 delegates registered for our event and, at its peak, 170 people were in attendance. The map below shows the locations of our delegates from 25+ countries. Typically, MSG events attract ~40 delegates, so this virtual audience was a more than five-fold increase. It was fantastic to provide an international platform to showcase the highlights of metamorphic geology.



There were 29 high-quality presentations, many from people who hadn't attended our meetings before. Thematically, the RiP meeting covered a broad range of topics. There were studies on classic metamorphic terranes, unusual rocks, and reports on rocks from

lesser-known locations. There was new and intriguing research about the Lewisian of Scotland, Norway's Western Gneiss Region, and the Himalaya, which were interspersed with studies on metamorphic rocks from the Polar Urals, Mexico, Ecuador, and even the Moon, highlighting the global (and extraterrestrial) abundance of highly interesting occurrences of metamorphic rocks. The metamorphic rock record helps us to understand fundamental processes in the Earth's past and present, as well as to decipher regional and local aspects of geological history. Presenters gave amazing insights into the variety of methodological approaches used to tackle questions in metamorphic geology. These included phase equilibrium modelling, petrochronology of major and accessory minerals, microstructural observations, and geochemical analyses of trace elements. Unsurprisingly, garnet was a favourite mineral in many investigations, thanks to its unrivalled ability to record the different stages of a rock's metamorphic evolution. Although, it was also pointed out that inclusions in garnet are not always a faithful recorder of its history. With many presenters highlighting how studies of metamorphic rocks use analytical and modelling tools at the forefront of geoscience, the foundations in thorough field studies and petrographic observations were equally emphasized, demonstrating the versatility of approaches used in metamorphic geology. A highlight of the RiP meeting was the presentation by Dr Clare Warren, winner of the inaugural Barrow Award for outstanding contributions to metamorphic studies, who gave an overview on recent developments of how to calculate the pressure, temperature, and time of metamorphism.

The meeting was a fantastic platform for students to present their work; we had 16 student presentations, including undergraduate and postgraduate students from Argentina, Brazil, Columbia, France, Greece, Mexico, the UK and the USA. The best student presentation prizes went to Allie Nagurny (Virginia Tech, Blacksburg, USA) and Stacy Phillips (Open University, Milton Keynes, UK).

Allie's poster presentation was entitled 'Microstructural Controls on the Crystallization of Garnet: An Example from the Meguma Terrane, Nova Scotia'. Allie used petrographic observations, mineral chemistry, electron back-scattered diffraction, X-ray computed tomography, and thermodynamic modelling to develop a model of garnet nucleation. She concluded that the energetic barriers to garnet nucleation are lowered through nucleation in specific orientations in relation to the associated chlorites and muscovites that define the foliation of the host rock. Allie's outstanding poster was very well presented, and the judges were impressed with how concise Allie was in communicating her points and in how confidently she responded to questions.

Stacy's talk, entitled 'Not all Kyanite is Created Equal – The Petrogenesis of Kyanite Migmatites in Eastern Bhutan', focused on the occurrence of different types of kyanite in migmatites from the Himalaya. Stacy investigated morphologies, cathodoluminescence patterns, and trace element characteristics of kyanite grains and put her findings in the context of implications for mid-crustal weakening and regional tectonics of the Himalaya. Her talk was very well presented and impressed the judges through its clarity and the thoroughness with which this mineral has been studied to reveal its petrological importance.

This MSG RiP meeting was very well received, with 95% of people strongly agreeing (4/5 or 5/5) that "Virtual MSG RiP 2020 was an interesting and engaging scientific meeting" (n = 43). Here are some of the feedback comments:

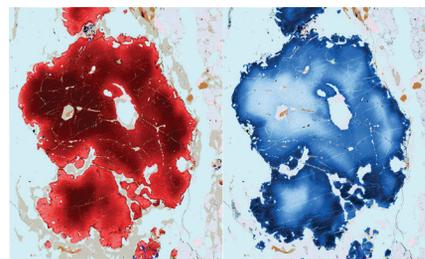
"I've wanted to attend for years and this was my first opportunity!"

"As a PhD student, I really appreciated the time more senior scientists took to comment on my online poster – their feedback was really helpful!"

"I think MSG RiP 2020 was an absolute triumph, well done to all those involved in its organisation."

"I thank you very much for choosing a virtual meeting methodology. This allowed us to participate since it is almost impossible for us to do it physically, for various reasons but especially for the economic one. In Argentina, and I estimate that in many other places in the world, it is very difficult to pay for a trip to a congress or postgraduate course in another country, and less on another continent... The virtual modality has its disadvantages compared to the face-to-face modality, but it is an opportunity for many people, and especially students, who work in metamorphic petrology. Hopefully, we can continue participating in these meetings."

The **programme and abstracts volume** is available from the website (<https://www.minersoc.org/MSG-RIP-2020-programme.html>).



Two energy dispersive X-ray spectroscopy maps of Fe (LEFT) and Ca (RIGHT) chemical zoning in garnet from the Glenelg gneisses of NW Scotland. From Rich Taylor's talk, 'Constraining Metamorphic Processes using ZEISS Mineralogic'.

Many thanks to Dick White of St Andrews who had organized a great meeting in March 2020 but which had to be postponed (probably until 2022).

## 2021 MSG Meeting

The 2021 meeting will see the MSG celebrate its 40<sup>th</sup> ('ruby') anniversary. The 2021 meeting will be held 29–31 March 2021 at the University of Cambridge (England), with the first two days consisting of a conference, followed by a one-day workshop entitled Phase Equilibria Modelling.

Details available at: <https://www.minersoc.org/msg-rip-2021.html>

## Barrow Award of the Metamorphic Studies Group



IMAGE COURTESY OF  
VICTORIA MARTIN

The MSG is pleased to announce the winner of the inaugural Barrow Award. The 2020 award goes to Dr Clare Warren of the Open University (Milton Keynes, UK).

The Metamorphic Studies Group committee introduced this new award for 2020 and named it after George Barrow (1853–1932), a geologist with the Geological Survey of Great Britain and the first person to assign index minerals to zones of progressive metamorphism, the zones we now call the Barrow Zones.

“The Barrow Award is awarded annually to a scientist who has made an outstanding contribution to metamorphic studies. Publications, teaching, outreach and other activities leading to the promotion of metamorphic geology, in the broadest sense, are taken into account in making the award.”

Clare Warren is an outstanding scientist who has demonstrated consistent excellence and commitment to not only doing first-rate research in metamorphic geology but also to inspiring others to do the same through personal example and constructive engagement in her own community and beyond. She is someone who creates opportunities for herself, her students, and the geological community at large. In short, she is an ideal awardee for the inaugural MSG Barrow Award.

Dr Clare Warren is a senior lecturer at the Open University where she has been based since 2011: as a NERC postdoc, Advanced Postdoctoral Fellow, Senior Research Fellow, and now Senior Lecturer. Clare was an undergraduate at the University of Oxford (UK) and there completed her PhD ‘Subduction of the Arabian Continental Margin beneath the Semail Ophiolite, Oman: Insights from U–Pb Geochronology and Metamorphic Modelling’. Subsequently, Clare was a Killam Fellow at Dalhousie University (Canada).

Clare’s contribution to metamorphic petrology is that of a multi-method and multi-scale thinker and versatile researcher. She has made significant contributions to more than one topic in metamorphic petrology: from mineral-scale processes (Ar diffusion) to large-scale tectonics (exhumation of ultrahigh-pressure rocks, and the evolution of the Himalayas). She has challenged existing paradigms and made a significant indent in ‘established’ methodologies by showing, for example, that other mechanisms have to be considered when interrogating Ar–Ar data. Similarly, her work on ultrahigh-pressure exhumation has proposed potential mechanisms that do not rely on the usual suspects (e.g., slab break off).

Full details are available at <https://www.minersoc.org/first-barrow-award.html>

The Barrow Award 2020 was judged by Daniela Rubatto, Bernardo Cesare, Bruce Yardley, Matthias Konrad-Schmolke, and Nick Rogers. Clare was nominated for the award by Ralf Halama, and her application was supported by Rebecca Jamieson and Jan Wijbrans.

## Barrow Award 2020–2021

We are now accepting nominations for the next Barrow Award. We are hoping for a strong pool of nominees for the Metamorphic Studies Group’s **40<sup>th</sup> Anniversary** in 2021.

Nominees do not have to be members of the Mineralogical Society of Great Britain and Ireland, or Fellows of the Geological Society of London, or nationals of Great Britain or Ireland. The award is open to a scientist at any stage of their career (early, mid, or late) and who has made an outstanding contribution to metamorphic studies.

Nominations should include a statement on the merits of the candidate, a summary curriculum vitae, and a list of the nominee’s more important contributions. Letters of support may be submitted from up to two additional people.

Nominations will remain on the table for three years. Previous recipients of the award, and members of the MSG Committee (at the time of nomination and adjudication) will not be eligible for the award.

Nominations for the 2020–2021 medal should be sent to the Chair of the Metamorphic Studies Group committee, to arrive not later than **31 October 2020**.

For more details see: <https://metamorphicstudiesgroup.wordpress.com/>

## MEETING: “NEW TOPICS IN MINERAL SCIENCES. 1. DIFFUSION IN MINERALS, ROCKS AND MELTS: POTENTIAL AND PITFALLS”

**Date and Location:** 23 October 2020 at Burlington House, London (UK)

This meeting will appeal to those interested in applying diffusion modelling to problems of rates, timing, and thermal history across a wide range of mineralogical contexts.

The meeting will be led by a series of invited speakers who will address the fundamentals of diffusion theory and its application to modelling geological processes. It will also provide examples of state-of-the-art research on diffusions in various contexts.

- Sumit Chakraborty – Theory
- Dan Morgan – Modelling and theory
- John MacLennan – Timescales of magmatic processes
- Thomas Müller – Diffusion and thermobarometry in metamorphism
- Tina Marquardt – Grain-boundary diffusion
- Clare Warren – Diffusion and thermochronometry

These will be followed by a poster session, primarily for student poster presentations, with 90 second ‘nano-introductions’ to each. The meeting will conclude with a panel discussion.

## Short Course on Diffusion Modelling

We will hold a one-day short course on diffusion modelling on 22 October 2020 at the Natural History Museum, London. Details will be made available shortly.

