

## JOINT DMG-MSA SHORT COURSE

*Application of Diffusion Studies to the Determination of Timescales in Geochemistry and Petrology*

Institute for Geology, Mineralogy and Geophysics, Bochum (Germany)  
late 2020 – early 2021 (to be decided)

This is a joint Deutsche Mineralogische Gesellschaft (DMG, the German Mineralogical Society) short course and a Mineralogical Society of America (MSA) workshop. Further details will be provided via both the DMG and MSA mailing lists.

Bochum is located at the heart of Europe. It is, therefore, conveniently accessed by road, train and air. The surrounding region, which includes Cologne and Dusseldorf, is densely settled and boasts a world-renowned cultural infrastructure. Having said this, there is also a real possibility that the course will be moved online and be held virtually. This will depend on how the global covid19 health crisis evolves.

**Content:** The course is directed at petrologists, geochemists, volcanologists and planetary scientists interested in retrieving timescale information on processes that affected their rocks. Such information might include magma residence time in a reservoir; the cooling- or exhumation rates of rocks; the duration of terrestrial metamorphism; the duration of extra-terrestrial metamorphism (e.g., that which affected the parent bodies of meteorites); the duration of fluid flow (e.g., metasomatism by fluids/melts in the crust or mantle); or the evaluation and application of closure temperatures. Our focus will be high-temperature processes. Therefore “high-temperature thermochronometry” or “geospeedometry” are keywords that may describe the contents of this course.

**Goals and expected profile of participants:** Previous experience with numerical modeling or programming is not required, but an interest in learning the rudiments of these tools is. One of the objectives of the course is to demonstrate how much it is possible to accomplish without any, or with very little, programming. The basic information on diffusion that is required for carrying out such calculations will be provided, because this is not a course designed to cover all aspects of diffusion in minerals and melts. In addition to instruction via lectures, a major component of the course will be hands-on training to enable participants to “do your own” modeling. All instruction and exercises will be in English. The course material will be designed for graduate students or postdocs starting off in the fields mentioned above, but participants at any level of experience and expertise are, of course, welcome. Student members of DMG and MSA will be given priority for registration if demand for a slot becomes a concern.

**Watch this website for updated information:** <http://www.gmg.ruhr-uni-bochum.de/petrologie/aktuelles/index.html>.

**General enquiries:** Sumit Chakraborty (Sumit.Chakraborty@rub.de) or Ralf Dohmen (Ralf.Dohmen@rub.de). Information on non-technical matters can also be obtained from the departmental secretary's office: Agnes Otto (office-mineralogie@rub.de).

## SHORT COURSE REPORT

*High Pressure Experimental Techniques and Applications to the Earth's Interior*

Bavarian Geoinstitute, Bayreuth, 17–21 February 2020

The short course entitled High Pressure Experimental Techniques and Applications to the Earth's Interior took place 17–21 February 2020 for the 22<sup>nd</sup> time at the Bavarian Geoinstitute in Bayreuth (Germany). Again, with 31 participants from all over the world, it was very well



Participants of the Bavarian Geoinstitute short course 2020. PHOTO: F. HEIDELBACH

received by the young scientists this year. The experimental and analytical possibilities at the Bavarian Geoinstitute were impressively illustrated to the young researchers examining the physical and chemical properties of the Earth.

Attendees could see how to determine the crystal structure of minerals by transmission electron microscopy in the nanometer range or when using the diamond anvil cell, which can generate pressures up to 600 GPa, exceeding the pressure in the Earth's core. The broad range of the high-pressure-high-temperature (HP-HT) techniques, as well as the analytical methods, were taught in a theoretical lesson and then applied practically in the laboratory. During the morning lectures, the theoretical foundations of the methodology and structure of the experimental facility were explained. After lunch in the canteen, workshops concentrated on practical and interactive training.

Experiments specifically prepared by the lecturers helped the students to understand more fully the applications. The young scientists were divided into small groups, which made it possible to work independently on the corresponding systems. For example, all the preparatory steps for the multi-anvil press, which are necessary to carry out an experiment under Earth mantle conditions, were carried out by the participants. Each student had the opportunity to process cubes themselves, to weld thermocouples and to prepare a precious metal capsule. It was made particularly clear which research questions could be best addressed using which method.

Sample processing could be accomplished using the focused ion beam on the scanning electron microscope, and measurements were made using laser ablation inductively coupled plasma mass spectrometry, Fourier transform infra-red spectroscopy and both Raman and Mössbauer spectroscopy. All this illustrated the diverse applications of the high-pressure investigation field and, once again, clarified the need to carry out experimental studies to understand the structure and composition of our planet.

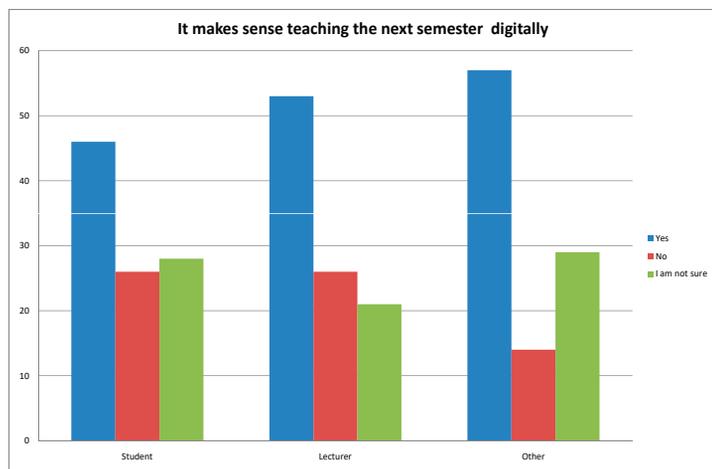
The short course at the Bavarian Geoinstitute gave the young scientists a deep insight into the experimental HP-HT methods, and allowed them to exchange ideas, to discuss and to establish new contacts. A special highlight, and another excellent opportunity for discussion, was the social dinner with typical Bavarian cuisine in a restaurant in downtown Bayreuth.

Our sincere gratitude goes to the organizers, lecturers and everyone who made the course possible. The short course at the Bavarian Geoinstitute was an instructive and rewarding experience for all participants and, in the future, should be considered a must for every young scientist working in the experimental high-pressure field.

**Patricia Petri (Tübingen), Sonja Frölich (Freiberg)  
& Debora Fallner (Heidelberg)**

### STUDY AND TEACHING DURING THE CORONA CRISIS

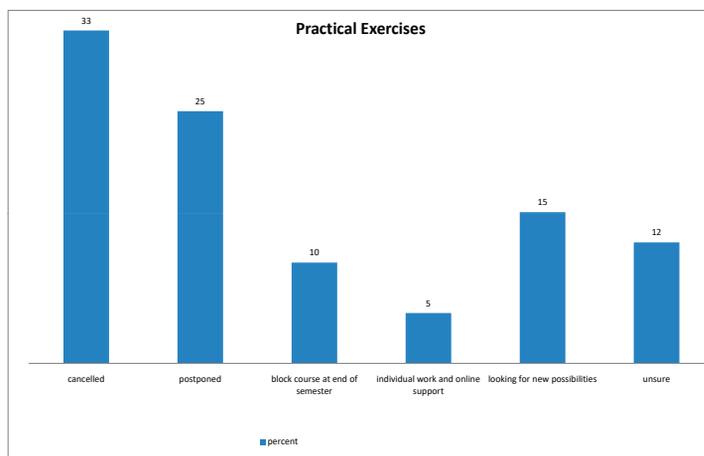
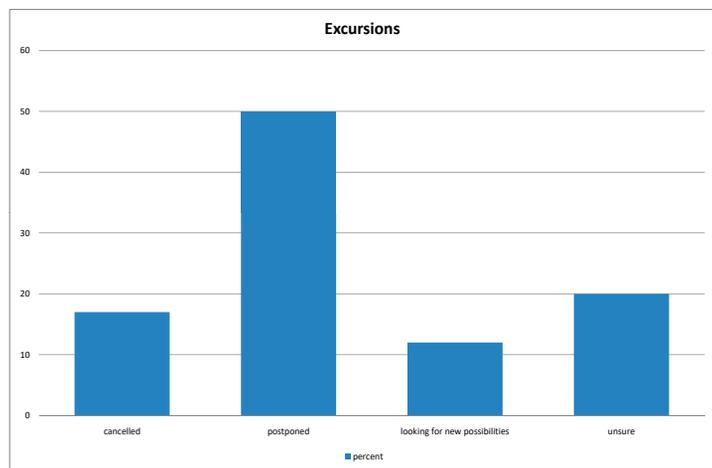
Concerning the corona crisis, the umbrella organization of geoscientists in Germany, the Dachverband Geowissenschaften (DVGEO), started a survey on whether it would be possible to teach geoscience using only digital tools. More than 600 geoscientists and students took part in the survey; the shared opinion was that digital teaching is possible.



To implement digital teaching, we have the options of online tools such as Cisco WebEx, Skype/Teams, Zoom, BigBlueButton, Adobe Connect or Collaborate Ultra, plus some learning and management platforms. Some lecturers reported using blogs, wikis and podcasts. One potential problem is the capacity of a given university's servers and their supportive IT departments. Nevertheless, students are looking forward to this new development and to increasingly apply digital tools.

A problematic issue is the examinations. There are no standardized regulations. Students and lecturers agree that excursions and practical exercises are essential to learn geoscience and are not replaceable by virtual sessions.

The two graphs below illustrate what German lecturers are planning to master:



Overall, it seems possible to teach many subjects completely digitally – even if not all options are known and fully developed at present. In practice-oriented subjects, such as the geosciences, most of the theoretical part can be taught digitally in the current situation. But the remaining practical part will have to be made up for at a later date.

**Tamara Fahry-Seelig (DVGEO, Berlin)**



<https://emc2020.ptmin.eu/>

It is with deep regret that, due to the current global situation with coronavirus COVID-19, the Scientific and Organizing Committees of the European Mineralogical Conference (EMC) have taken the difficult decision to **postpone emc<sup>2020</sup> to 2021**. The new proposed date is **29 August – 2 September 2021**. The location of the conference remains unchanged.

This is a tremendous disappointment for the mineralogical community in general, for the emc, and for the emc<sup>2020</sup> Conference Organizing Committee in particular. We were very much looking forward to welcoming hundreds of you to emc<sup>2020</sup>: all the participants, exhibitors, and sponsors. However, our primary aim is to keep our delegates, speakers, exhibitors, and staff as safe as possible.

We apologize to all those who will be impacted by this decision but we would request your understanding.

With the best wishes of health, perseverance, and human solidarity in the fight for a secure future.

Yours faithfully,

**Tomasz Bajda, Justyna Topolska** (for the Conference Organizing Committee of emc<sup>2020</sup>)