

DVGeo 2022 – A SHORT REVIEW

In 2022, the DVGeo as an umbrella organisation of geosciences in Germany focused on “Geosciences in school” because geoscience is not a school subject in Germany. We have set up a working group, created a new homepage (www.geowissenschaften-unterrichtsmaterial.de) that links to teaching materials from the geosciences, and offered an online event “Anthropocene” for school children with over 3,300 listeners. Our second main focus was “Climate and Energy” with two events that were directed at political decision-makers. In our GeoDE project group, we have been looking for ways to reorganise the German geoscientific societies to strengthen our impact on the public.



At the DVGeo general meeting, the new board was elected. Prof. Dr. Alexander Nützel (Munich, Germany) took over the office from Dr. Christian Bucker. Also at the general meeting, it was decided to admit the Hydrogeology Section (FH-DGGV) as an associate member of the DVGeo. The FH-DGGV would like to support the umbrella organisation with its expertise in the field of hydrogeology on fundamental topics such as the influence of climate change and land use on groundwater and drinking water.

Tamara Fahry-Seelig (Berlin)

ABRAHAM-GOTTLÖB-WERNER-MEDAL IN SILVER TO HANS KEPPLER



DMG president Friedhelm von Blanckenburg (LEFT) honors Hans Keppler. PHOTO: L. MÜLLER-RUHE.

The Abraham-Gottlob-Werner-Medal in Silver is the most distinguished award of the German Mineralogical Society (DMG). It is presented in recognition of outstanding scientific merits to senior scientists. In 2022, this honor was bestowed on Hans Keppler, a professor of Experimental Geophysics at the Bayerisches Geoinstitut, Universität Bayreuth.

Hans Keppler graduated in both mineralogy and chemistry from the University of Karlsruhe in 1985 and 1988, respectively. He also completed his doctorate there in 1988. He then spent two years as a postdoc at the California Institute of Technology. In 1990, Keppler moved to the newly founded Bayerisches Geoinstitut in Bayreuth as a research scientist and Heisenberg Fellow. In 2000, Keppler was appointed to a professorship of Physical-Chemical Mineralogy at the Eberhard Karls University of Tübingen. In the following year, he received the 2001 Gottfried Wilhelm Leibniz Prize, the highest award of the German Research Foundation. Keppler moved back to the Bayerisches Geoinstitut and occupied a professor position in experimental geophysics since 2004. There, he developed a large network of international collaborations to utilize the world-renowned experimental and analytical facilities of the Bayerisches Geoinstitut.

Since 2008, Keppler has been a member of the National Academy of Sciences Leopoldina. In 2010, he was awarded the Bowen Award of the American Geophysical Union. Since 2010, Keppler has been a Fellow of the American Geophysical Union and, since 2012, a Fellow of the Geochemical Society and the European Association of Geochemistry. In 2019, Keppler received the Order of Merit of the Federal Republic of Germany.

Hans Keppler is among the world's leading scientists with unique expertise in the field of experimental simulation of near-surface volcanic processes and processes in the Earth's interior at extreme pressure and temperature conditions. He works in the fields of physico-chemical properties of volatile components, silicate melts, and Earth mantle minerals. Keppler has an impressive publication list of peer-reviewed scientific articles in leading international journals such as *Nature*, *Science*, and *Earth and Planetary Science Letters*. He is the author of several book chapters and edited the *Reviews in Mineralogy* issue “Water in Nominally Anhydrous Minerals.” It is always a pleasure to read Keppler's publications, with clear and sometimes provocative statements, and to deal with his innovative ideas.

Hans Keppler has initiated a number of scientific milestones that have significantly influenced our knowledge of the Earth's interior. He has made associated studies possible by developing challenging and innovative experimental and analytical methods, e.g., in situ infrared and Raman spectroscopic measurements of the physical properties of fluids, silicate melts, and minerals at extremely high pressure and temperature conditions and the experimental study of H₂O, carbon, and nitrogen solubilities in mineral phases of the Earth's mantle. Keppler's tireless efforts have made seminal contributions to the advancement of the geoscience research fields of mineralogy, geochemistry, and volcanology relevant to our understanding of dynamic processes in the Earth's crust, subduction zones, upper mantle, and transition zone to the lower mantle. The following are some highlights.

Hans Keppler and coworkers succeeded in deciphering the dissolution mechanism of H₂O in silicate melts, which they were able to determine directly by infrared spectroscopic measurements on samples within a diamond anvil cell at temperatures up to about 1000 °C. In addition, he observed in situ the closure of the mixing gap between H₂O fluid and silicate melt at pressure and temperature conditions consistent with those at the source of subduction-related magmas. These studies elucidated the influence of dissolved H₂O on the viscosity of silicate melts and the mechanisms of metasomatic processes in Earth mantle wedges.

In sophisticated experimental and analytical studies, Keppler demonstrated that carbon dissolves in the mineral phases of the Earth's mantle at concentrations well below the ppm range and is therefore likely to exist as a separate carbonate phase. Consequently, the formation of large igneous provinces, which could originate from carbonate-rich parts of the Earth's mantle, could potentially release large amounts of CO₂ on a short time scale. This is likely a mechanism for some global mass extinction events consistent with the ages of such flood basalt provinces in the geologic past.

Spectacular in situ measurements of the optical absorption spectra of iron-bearing minerals of the Earth's mantle showed that these minerals remain optically very transparent even at nearly 1 Mbar and that, therefore, heat transfer via radiant energy plays an important role in the lower mantle. In contrast, the effect of spin-pairing of iron on thermal conductivity is rather small. These measurements refute a number of notions that had prevailed in geophysics.

Cont'd on page 417


www.semineral.es

LETTER FROM THE PRESIDENT



Prof. Blanca Bauluz

In June 2022, the General Assembly of the Spanish Mineralogical Society (SEM) renewed the board. The new team will be led by Prof. María Angeles Fernández (University of Oviedo, Spain). They will begin their terms in January 2023.

During the last four years, it has been a pleasure for me to coordinate the board as president of the society.

Due to SARS-CoV-2 pandemic, the activities of the society could not be face-to-face during the years of 2020 and 2021 and we had to make a special effort to keep the society alive with online activities.

Among the online activities that we organized, it is worth mentioning the **2nd Conference of Young Researchers**, that took place in March 2021. Thirty-two

young SEM students presented their research orally. The following scientific communications were awarded in three different categories.

- PhD category: “Mineral and textural transformations during calcination of bauxitic materials and their relationship with the physical properties” presented by Elisa Laita Florian from the University of Zaragoza.
- Master category: “Ankaramitic lavas from El Hierro island: insights from petrography” presented by Claudia Prieto-Torrell from the University of Barcelona.
- Undergraduate category: “Characterization and genesis of Balcoll mineralization (Priorat, Catalunya) and dissemination” presented by Marta Henrich Griñó and Aleix Saiz Alexandre from the University Autònoma de Barcelona.

The Society also organized the **1st WEBINAR of the Spanish Mineralogical Society entitled “DISCOVERING THE WORLD OF MINERAL DEPOSITS,”** where young and senior researchers talked about REEs, copper, diamonds, lithium, platinum, and much more. The webinar was addressed to a non-specialist public interested in geological sciences and to secondary and undergraduate students, and took place from 22 April to the 3rd of June 2022. The aim of this event was to provide tools for secondary school teachers to adapt their teaching material for their students.

As a novelty and to promote interest in mineralogy, geochemistry, and petrology among undergraduate students, in July 2022, we convened a new award called the “Bachelor’s Thesis Award.” The call was a success, and we received 13 great works about ore deposits, environmental geochemistry, crystal growth, heritage, igneous petrology, etc. Three awards were given to the best bachelor’s thesis and oral presentations of the ceremony:

- Carlos Espinoza Enriquez de Luna (University of Granada) for the contribution “Experimental study of arsenic and selenium co-precipitation with barite”
- Alejandro Andrés Escorihuela (University of Zaragoza) for the contribution “Mineralogical characterization of the Candelaria ore deposit (Gallinero de Cameros, La Rioja)”
- Sara Romero Cruz (University of Huelva) for the contribution “Alkaline treatment of highly polluted acid effluents sourced from mining and industrial activities”

With the aim of **increasing the visibility of the SEM** and spreading our activities and research, we have promoted the use of social networks such as Facebook, Twitter, LinkedIn, Instagram, and YouTube to reach more members of the public.

I would also like to highlight the work carried out during these four years by the **Commission of the Mineral Nomenclature of the SEM**, which is composed of several SEM members and researchers from the Catalan Mineralogical Group and the Geological and Mining Institute. This commission has expanded on an interesting document to establish criteria for mineral nomenclature in Spanish.

Finally, I would like to wish the new president and her board much success in leading the new term that begins in January.

Prof. Blanca Bauluz
SEM President

Cont'd from page 416

During his scientific career, Keppler has very successfully supervised many postdocs and PhD students in numerous externally funded projects. Many of them have gone on to successful international scientific careers. Keppler’s charisma as a scientist in the field of experimental high-temperature and high-pressure research and the importance of his laboratories at the Bayerisches Geoinstitut are unique worldwide. Accordingly, Hans Keppler is awarded the Abraham-Gottlob-Werner-Medal in silver.

Francois Holtz (Hannover), **Marcus Nowak** (Tübingen), and **Alan Woodland** (Frankfurt/Main)

ANNUAL DMG MEETING 2023

You are cordially invited to attend **MinWien2023**

.....

the joint Meeting of three Mineralogical Societies ...

Deutsche Mineralogische Gesellschaft Österreichische Mineralogische Gesellschaft Slovenská mineralogická spoločnosť

DMG **ÖMG** **Slovenská mineralogická spoločnosť**

Date
17 - 21 September 2023

Organisation
Institut für Mineralogie und Kristallographie
Universität Wien

Venue
Universität Wien - Geozentrum
Josef-Holaubek-Platz 2 (UZA II)
(before: Althanstraße 14)
1090 Wien, Austria

<https://minwien2023.univie.ac.at>
e-mail: minwien2023.mineralogie@univie.ac.at